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Multiple Literacies and Approaches to Reading Processes in American Periodical Comics

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Abstract:

Comic are a complex form which require that a reader engage in multiple literacies as part of the reading process. A reader not only needs to be able to identify and interpret information presented to them in the forms of text and image but also to draw complex connections between these and other communicating elements within the structure of the form. Through an examination of the elements which make up the comics structure, and reading processes, I will propose an expanded toolkit for reading comics. This expanded reading toolkit will serve as a foundation for the analysis of the American periodical presented through the printed codex and modern touch screen displays technologies such as tablets and mobile phones. This will mark early steps of testing an expanded toolkit which can be further developed through application in other types of comic in future studies.

Comics academia has seen a significant increase in research of comics reading in the recent years. Prior to this time comics academia in English was generally focussed on historical or cultural studies which primarily reflected on what comics have to say, and how they say it, rather than how they are read. Studies of reading comic up until the early 2000s generally discussed comics as tools for teaching and often only considered comics to be useful in preparing children for "proper" prose reading (Hatfield, 2005). Research on the reading *processes* prior to the beginning of this study was provided primarily by practitioners or practitioner theorist such as Will Eisner and Scott McCloud whose ideas form a groundwork on which early academic studies of reading comics are based (Eisner, 1985; McCloud, 1997). *Alternative Comics: An Emerging Literature* by Charles Hatfield (2005) outlines the history of how comics were discussed prior to this point and establishes comics literacies as something worthy of more comprehensive study. During the early 2000s a groundswell of academically robust work in the field began to appear. It was also during this time that a key Francophone text from Groensteen was translated to English (Groensteen, 2007). This was the state of the academic field of study when work on this dissertation began however relevant new texts have since been released. One of the key challenges of this thesis was to bring together the key disparate ideas of comics reading in order to understand and apply an expanded reading toolkit to comics.

This thesis aims to bring together comic reading studies so as to present an expanded understanding of how comics are read and what literacies are expected of a reader. In combining the work of each of the researchers that contribute to the study I aim to identify both where ideas overlap and where gaps need to be filled. In filling some of these gaps with my own research I will propose an expanded reading toolkit which can be applied to understanding of how comics are read. This expanded

reading toolkit will consider the multiple literacies of comics and how images, text and conceptual metaphor come together to create meaning. It will also look at the holistic structure of comics and how a reader navigates that structure. Here we will discuss the sense-making processes involved in panel-transitions, Cohn's Hierarchy (Cohn, 2010) and braiding (Groensteen, 2007) before applying ideas of sequence and layout. In this discussion of reading sequence, I will outline one of my core contributions to knowledge by presenting meta-rastic indices, which are key to understanding how readers find their path through complex layouts. Having outlined each of the core structural and reading components and how they impact the reading process it will then be possible to look at how these reading processes are impacted by the substrate medium on which a comic is presented. Through close readings of American periodical comics presented in print and on screen I will examine the established reading toolkit and discuss how reading processes shift between presentations. This will contribute substantially to an understanding of how the device used for presentation impacts processes and practices of reading the comics form.

Using close readings and diagrams this thesis will offer substantial contribution to the existing field by presenting an expanded reading toolkit which accounts for the various activities and processes used by readers of comics. It will also provide a vocabulary for discussing these and establish a link between reading of the comics and the form in which it is presented to the reader.

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Section 1 –

Literature Review and Methodology

Chapter 1: Introduction and Literature Review

1.1 An Introduction to the Research:

Comics are a form of sequential art that is predominantly visual in nature but requires engagement with multiple literacies on the part of a reader, in order to form a comprehensive understanding of the presented narrative. The purpose of this dissertation is to examine the acts of multiple literacy reading that a comics audience might undertake and to investigate how those acts of reading are altered in the shift of presentation between dominant forms of the American periodical. The comics form has evolved alongside the dominant media forms of the time and its development follows the progression in rendering and publishing techniques for displaying pictorial and text-based content (Sabin, 1996). Today, the most commonly recognised comics in the West take the form of the American periodical codex book. These short periodical comic books line the shelves of specialist comic book shops, and can be found on magazine racks. They are ubiquitous in western visual culture. In the modern day, where there is a shift in how media products are consumed, American periodical comics have also seen a shift from predominantly printed distribution to a mix of print and digital distribution. It is therefore prudent to investigate the dominant forms of these American periodical comics on screen and how the associated reading activities and multiple literacies involved in comics reading might shift.

It is therefore necessary to investigate how comics are read, and to propose a set of reading activities which form a robust reading toolkit that can enhance our understanding of reading. This toolkit will be applied to the American periodical comic in print and on screen. It will then be possible to identify any shifts or changes in how the reading toolkit is applied to common presentations of American periodicals. This will form important groundwork for the investigation of comics reading, in and beyond this thesis, particularly within the realm of digital comics which is an important developing field in academic discussion of comics. The American periodical has been chosen as the focus of this research because the form has a set of easily identifiable standards and it is easy to access a range of comics written to the same form-based restrictions, i.e. a standard size and number of pages per issue. Many American periodical comics are also available in both print and on screen, which allows for comparison between the reading activities of near identical content in both environments, limiting the number of variables which need to be considered in refining the proposed reading toolkit. Throughout this work I will use example comics from a range of genres and art styles to test the existing academic understandings of reading against a broad selection of common styles and narrative types. This will help demonstrate that the existing partial models, and ultimately my proposed reading toolkit, apply to a broad range of comics in the American periodical form. However,

this research does not attempt to analyse the narratives, representations or subject matter of this diverse range of comics and will instead focus on testing academic theories around formal properties and reading activities.

In the initial stages of this research, it became evident that there was a limited number of published resources which investigated comics reading in significant depth. As such, there was no one widely established or accepted reading model that could be applied to American periodical comics. Instead, several disparate ideas for how the different elements of comics are read are proposed by multiple sources such as Will Eisner, Scott McCloud, Thierry Groensteen, Neil Cohn, et. al. (Eisner, 1985; McCloud, 1993; Saraceni, 2003; Groensteen, 2007; Cohn, 2013; Bongco, 2014; Grennan, 2017).
I will investigate these existing ideas and propose a more developed toolkit for reading that brings them together and can then be applied to presentations of American periodical comics. This investigation will begin by looking at the observable pictorial and text-based elements of comics, which appear within panels, with a focus on multiple literacies, and the different types of reading undertaken by a reader. These investigations will consider how readers identify and interpret the visual components of comics by looking at image reading and the visual qualities of text-based components and conceptual metaphors. In the consideration of image reading, the research will draw on studies of individual visual components and I will propose that pictorial elements can be classified using a sliding scale of representation, from those which represent objects native to the fictive world, to those which exist outside. Broadly speaking, this scale will demonstrate that some pictorial elements are intended to communicate direct 1:1 meaning, or look like what they represent, whilst others use visual representation which communicate non-literal concepts or non-visual phenomena (McCloud, 1993; Khordoc, 2001; Potsch and Williams, 2012; Witek, 2012.). This scale is based on the ideas of a similar scale proposed by Scott McCloud but also takes into consideration the work of Elisabeth Potsch, Robert F .Williams and Neil Cohn, among others, to develop the ideas further (McCloud, 1993; Potsch and Williams, 2012; Cohn, 2013). This will help build an understanding of the reading processes involved in the image and text components of the panel, which I will refer to as the micro-reading.

I will also investigate the text reading processes of comics and how these are impacted by visual variation. Here I will investigate the impact of changes in font style, weight and size on the understood reading of language in comics. As with image comprehension, I will investigate existing theories which contribute to my proposal of a more developed toolkit of reading. The work of Catherine Khordoc (2001) and Hannah Miodrag (2013), who both discuss how text presentation in comics alters reader understanding of language delivery, will form a key part of the work here (Khordoc, 2001; Miodrag, 2013). This part of the research will focus on text as a visual component,

and I will discuss how visual variation of text in comics is a key part of its communication of ideas. As part of this research, it will be essential to consider text-as-image and visual onomatopoeia with a focus on how the visual traits of each impacts reading (Eisner, 1985). Ultimately, I will demonstrate that these text-based elements can also be placed on my established scale of representation in a way which is more useful than in an existing scale presented by practitioner-theorist, Scott McCloud (McCloud, 1993). Doing so will further establish the usefulness of such a scale in the identification of meaning presented by comics. It will also be essential to investigate how the image and text elements of comics interact and modify one another in the reading process, as well as how they communicate meaning as combined panel-images. Here I will discuss word balloons and the work of Will Eisner (1985), Catherine Khordoc (2001), Neil Cohn (2013), Andrea Tang (2013) et al., each of whom contributes to the discussion of the visual communication of word balloons and their impact on text. I will also propose that a part of the reading processes of the panel-image, and its text and image components, is the application of a hierarchy of information in the identification of the most narratively relevant information for the purposes of reading. The combination of the research up to this point will form the foundation of the reading toolkit which considers the micro-reading of panel-images and their contents.

To understand how comics are read, it will also be essential to look at how each panel is connected in space and time as part of the larger reading process beyond the individual panel-images. In this section of the research, I will bring together key theories of how readers conceptually connect panels together in sequence to form narrative understanding, and how sense is made of complex reading sequences. The discussions here will bring together ideas of transition, closure, hierarchy, arthrology, braiding and memory as presented by Scott McCloud (1993), Thierry Groensteen (2007), Neil Cohn (2013) and others. Each of these ideas proposes different ways in which conceptual connections are made between panels in sequence, and it is important to examine, compare and contrast these. This will consolidate ideas of memory and the larger activities of reading that I will refer to as the macro-reading activities. By considering the proposed reading models of others I will identify some general reading activities which will form a foundation for the subsequent discussion in the thesis. It is from this foundation that I will propose a reading toolkit that takes into consideration the macro-reading activities alongside the previously established micro-reading activities.

As a part of this investigation into the connectedness of panels I will pay special attention to the reading activities associated with pathfinding: the ways in which readers can find and follow a reading path through spreads of panels, as this will be established as an important component of the macro-reading activities. It is at this stage where one of my most significant contributions to knowledge will be included. One of the key pathfinding activities that I have proposed here, and in

other published papers, is the idea of meta-rastic indices. These are elements of a comic which assist a reader in identifying the reading path through the pictorial and narrative space of a comic spread (Harvey, 1996; Nichols, 2013; Nichols, 2015). This concept is based on ideas of the reading raster, which is the taught standard reading path within a given cultural environment that governs our normal reading activities and order. Its inclusion fills a significant gap that is revealed by the investigation of reading activities proposed in the existing literature. The discussion of the meta-rastic indices will be combined with pathfinding ideas presented by Cohn's preference rules, to form a more robust and expanded understanding of the pathfinding activities required of comics readers (Cohn, 2013). Ultimately this combination of my own ideas of how readers navigate panel layouts in comic, and the pathfinding ideas of Cohn, McCloud and Eisner, will allow for the proposal of a more robust reading toolkit that can then be explored through its application in American periodical comics.

The final section of this research will focus on applying my proposed reading toolkit to American periodical comics. This will serve to both test the usefulness of the proposed toolkit and to identify shifts in the reading activities of comics in different types of spread presentation. The discussion begins with a consideration of the most common forms of American periodical presentation. The focus here will be on how different sizes of display present a comic's spreads in different ways. This will require a consideration of form, and I will identify some key features of the paged codex and screen-based deliveries which impact reading. At this stage it will be important to consider the work of Ian Hague who addresses issues of touch and the tactile experience of comics, allowing me to discuss key reader actions (Hague, 2014). Here I will propose 'flippy-throughiness'; the form-specific feature of the paged codex which offers the functional activity of flipping through the pages and shifting from one moment in the spread of narrative to another as a part of the reading activities (Nichols, 2016). I suggest this as a functionally important part of the reading process of American periodical comics in print which ties into the general reading activities, particularly those related to memory. In addition, I will consider the American periodical comic presented on screens and how the change in physicality impacts reading actions. Here I will include my own terms and those of Daniel Goodbrey to build a more robust vocabulary that can be used in the discussion of comics presented outside of the printed codex (Nichols, 2013; Goodbrey, 2017). The bulk of this section will demonstrate the application of the proposed toolkit to the different modes of delivery and allow me to compare American periodical comic spreads presented in different ways.

Concluding the research, I will identify some of the ways in which the general reading activities of my toolkit shift between American periodical comics spreads presented in typical print and screen deliveries. In doing so, I will also identify the usefulness, and robustness, of my proposed reading

toolkit and its application in understanding how comics are read. In bringing the disparate theories of comics studies together I will be able to demonstrate where further study is needed and propose ways in which the gaps in how we understand reading can be filled by my expanded reading toolkit. This will include my own proposal of ideas surrounding a hierarchy of information in decoding panel-images, along with a sliding scale for the representation of meaning within the visual elements of comics. It will also be necessary to propose ideas which fill gaps in the understanding of reading paths and my meta-rastic indices will form a significant contribution to the proposed reading toolkit. Whilst this toolkit for reading will make no claim to present a complete outline of reading in comics, each of my ideas will represent a significant contribution to knowledge within the comics reading field and the ideas presented throughout this research. As such, the ideas presented, and the proposed toolkit, will be useful in informing further research into a diverse range of comics and their reading activities.

1.2 Methodology

Aims of the Thesis:

This thesis sets out to examine the processes and the acts of reading American periodical comics. To do so we must address two key ideas; firstly, how comics are read and what processes are involved in that reading, and secondly, how the reading processes of comics differ between the most common presentations of content. To effectively answer these questions, this thesis proposes an expanded reading toolkit of comics which can be applied to American periodical comics in various modes of delivery. This allows for a comparison of how acts of reading are shifted between spread-based and panel-based deliveries.

We must first understand how comics create meaning and what literacies are required for comprehension of a comics narrative. It is evident that no single complete reading model for the comics reading process currently exists. Instead, current research has several different or partial models, which in some cases use different terminology or otherwise conflict with one another. This makes research into comics reading both problematic and potentially divisive as discussion becomes fractured by adherents to one approach at the expense of another. This research aims not to discount the entirety of any partial model but will favour ideas of comics reading processes, formal properties and pathfinding, over that of reader experience. Discussions of the reading of comics elements and of the formal language qualities of comics do exist. However, these arguably need to be combined and expanded upon in order to form a more holistic understanding of reading in comics. By proposing an expanded reading toolkit, this thesis aims to expand the understanding of which processes readers – or at least readers of the western comic form - use in the reading process

of comics so that more developed reading models can be developed in future. As such, the first step in this research will be to fill the gaps in knowledge and propose a set of reading activities which lead to the understanding of a more robust reading toolkit through which comics are read. In order to achieve this goal, this thesis investigates the ideas proposed by key contributors to the field of comics reading studies (Eisner, 1985; McCloud, 1993; McCloud, 2000; Khordoc, 2001; Saraceni, 2001; Saraceni, 2003; Hatfield, 2005; Hatfield, 2006; McCloud, 2006; Groensteen, 2007; Cohn, 2008; Eisner, 2008; Cohn, 2010b; Grennan, 2017).

Limiting the Scope of Investigation

This project poses two main challenges; firstly, the scale and scope of the material to be examined. There are a wide variety of comics available in several different digital and traditional media forms in the modern day, particularly with the internet and digital displays being so prevalent. Equally, high quality production materials and techniques have led to a variety of forms of print comics. Cultural and historical traditions also influence the styles, forms and materials of comics in different regions of the world (Zanettin, 2015). As the main focus of this thesis I will discuss the American periodical comic as presented both in print and on screen. The American periodical in print has a long history and is traditionally what is thought of as a comic book in western society (Rhoades, 2008; Gabilliet, 2010). The modern print American periodical comic is a paged codex book held together with staples usually consisting of 32 16.83cm by 26cm pages printed in full colour on high quality paper (usually around 40lb – 50lb). This form of comic is most often associated with the superhero genre but includes many others, for example: war, western, romance and science fiction. My studies focus on the American periodical comic in general, rather than any specific genre and so examples are taken from a pool of genres that are found within the American periodical form. This allows the research to demonstrate that the principles proposed are not limited to a single genre. Whilst this thesis demonstrates a certain broadness to the range of comics and genres used, for the sake of variety, it does not aim to generate a representative corpus of all American periodical styles and genres. Rather, the selection of comics within this writing focus on comics content which exemplifies the theories being discussed and are chosen for the purpose of testing said theories.

My study will also focus on the American periodical on screen, facilitating comparisons of near-identical content presented in different ways. This will allow for an investigation of what aspects of reading shift in the transition from print to screen media. The American periodical has been chosen here as its prevalence within western culture offers a wide selection of resources to pick from. Additionally, these resources are most likely to be available both in print and screen forms for the purposes of comparison allowing for a large pool of resources to select from in order to perform

close readings. It also offers comics presented in two separate mediums which are intended to communicate the same narrative, using the same or similar panels and images. By limiting the study in this way, the comparisons between comics in print and on screen can more clearly focus on the differences presented by the sizes of spreads and not the differences between narratives and narrative structures inherent in comics from different cultures. This focussed approach allows us to see how the shift in delivery impacts the reading of one form of western comic which can then be applied as a comparison in future studies of comics reading and screen comics.

Investigation Through Close Readings

The second challenge is the method by which the reading processes of the American periodical comic are investigated. The approach taken by this thesis will be one of close readings. This approach can be seen in the investigations of a number of comics academics where readings are based in a detailed visual analysis of a variety of selected comics extracts articulated as a written text, in part informed by the academic material included in the literature review (Potsch and Williams, 2012; Cohn, 2013b; Miodrag, 2013, et al.).

Potsch and Williams use this close reading method in their paper *Image Schema and Conceptual Metaphor in Action Comics* (2012) and I will use the same approach they have taken throughout this thesis to test existing academic ideas against sample comics content. This will include image references and figures of comics panels and spreads from a variety of sources, some of which will be marked up with my own visuals, for the purposes of detailed analysis and the testing of presented ideas. Through these close readings I will be able to determine the validity of ideas proposed by others and identify where there are overlaps between presented ideas of comic structure and reading practices.

The discussion in the body of the thesis brings existing theories together through these close readings and as needed proposes solutions to gaps in knowledge and conflicting views. This method has advantages in that it can produce a unified toolkit for comics reading which other scholars may examine and adopt, or develop further, and is transferable to other examples in other forms of comic.

For the sake of clarity, it is important to note that the examples chosen for these close readings have been selected because they demonstrate the principles being discussed and not in an effort to represent a complete corpus of American periodical comics. Similarly, the toolkit is primarily derived from the existing theoretical models of other scholars, tested through close readings, and is not derived from the selected examples themselves. As such, this writing does not select examples in an effort to produce representativeness but rather in as a means to test theories through close reading.

Thesis Sections

To begin I will discuss the state of the comics studies field and identify where my own research fits within that academic community. In doing so the section outlines the key areas of research within which the thesis sits and identifies important academic discussions which are most relevant to answering the research questions of this thesis. This review of the existing literature, and the identification of where the work of this thesis fits within it, acts as a grounding for all the main areas of discussion to follow. This section also acts as an outline of what to expect throughout the research and sets out the structure and narrative of the whole thesis. It is the intention that this first section identifies what will be studied throughout the research and what research questions are being answered through the second, third and fourth sections. This also rationalises the research approach and methodology whilst identifying which parts of the comics field are of limited relevance to the thesis.

The second section focusses on the observable elements present within comics and investigates how each is understood to be read. The section investigates how text, image, conceptual metaphors and other comics signs operate. Here I draw upon theories proposed by academics interested in the reading of specific elements presented within the panels. This includes the ideas of Miodrag, Eisner, Cohn, et al. These investigations develop the understanding of how reading of each of comics' core literacies is performed and allows for the proposal of a toolkit which considers the observable comics components as part of the comics reading process. How these elements are read *together* is also a key focus and so the section develops from a fragmented view of individual components to a holistic view of whole panel images and how readers comprehend the complex sets of signs and symbols within.

Section three investigates how panels form sequential narrative. It uses the same methodology of literary and active research which tests theoretical concepts presented by academics and practitioner-theorists such as Cohn, Groensteen et al. through close readings. The section considers how readers understand panel combinations and reading structures, and how reading memory impacts the reading process. This allows me to propose a set of ‘reading rules’ which form the foundations for understanding reading when combined with the observable features investigated in section one. It is here that a significant part of the thesis’ contribution to knowledge can be found: the proposal of a reading toolkit which fills the gaps in understanding the reading process of comics.

Finally, the fourth section of the thesis investigates the reading conventions examined in the previous sections and applies them to a sample American periodical. This section the brings together the reading and pathfinding activities outlined in sections 2 and 3 to propose a reading toolkit which can

be applied to a sample comic presented in both spread and panel-delivery forms. This allows for a comparison between the reading activities of American periodical comics presented both on screen and on paper and offers an insight into the effectiveness of the proposed toolkit, and any shifts in reading identified.

1.3 Introduction to the Comics Field

The field of anglophone comics studies is diverse but relatively small compared to other popular culture fields. Scholarly comics studies were considered 'fringe' up until about three decades ago, at which time a burgeoning of new comics studies began to appear (Heer and Worcester, 2009; Steirer, 2011). On the other hand, film, which is often used in comparison with comics studies, has been considered worthy of scholarly analysis since its inception (Dyer, 1998). As such, the field of comics studies is relatively young compared to its media studies peers. It is, however, similarly diverse in critical approaches to the material, and academics study comics from a wide variety of perspectives, from their application as teaching tools to their depictions of historical events and beyond (Doherty, 1996; Williams, 2008; Cary, 2004). The academic study of comics can, broadly, be broken down into the study of comics as a form, comics as socio-historical or cultural artefacts, and comics as an artistic endeavour or form of expression.

The diversity of scholarly activity shows the importance of comics as media artefacts worthy of study but also necessitates a consideration of which sub-fields concern my own research. The thesis will focus on the anglophone comics field and so will consider only academic work produced in, or translated to, English.

Within the study of the comics form, there are many studies of comics' components. Some approaches consider how components are read but many focus on how they are expected to function from the perspective of the creator (Saraceni, 2003). Other studies consider how these formal components can help to teach prose reading or bridge language barriers to assist in the learning of a new language (Cary, 2004). However, my study is not interested in comics as teaching tools but instead considers the formal properties from the perspective of the reader and focusses on how a reader decodes and understands narrative through a series of complex processes.

There is a wide array of commonly discussed topics which my thesis is not concerned with, and others which are only touched on as needed. The history of comics, for example, is a topic which informs some aspects of how comics' formal properties have been developed and helps in understanding how they are read, but a full history of comics, when they first appeared and what historical artefacts do and do not count as comics is not relevant to the study (McCloud, 1993; Hatfield, 2005; Van Lente, 2012). The socio-cultural impact of comics is also not relevant to the

formal properties of comics and so discussions of genre, topic and representation are not considered here. Equally, the narrative content of comics and any political and historical relevance is not considered as it is beyond the scope of the study and does not contribute to answering the research questions. This also applies to comics as artistic endeavours and the various art styles, and the meanings behind artistic choices, will not be discussed beyond identification of common styles of representation of the structural elements which make up the formal properties of a work.

The research will also endeavour to avoid comparison with other media forms. Much of the discussion of comics as a form endeavours to prove its distinctiveness through comparison with prose or film (Sabin, 2000; Hatfield, 2005; Ecke, 2011). This is often an effort to legitimise the study of comics and to remove it from the fringes of academic study, but generally does not serve to answer the questions of this research. As such this research makes no attempt to define or defend comics but instead treats comics as a media form worthy of study as a given. This will avoid lengthy discussions well-covered by others and allows for more developed understanding of comics' formal properties as reading objects to be presented. The reading of comics is the part of the field on which this research will focus and so takes many discussions of reading into consideration.

The Practitioner-theorist Foundation

The area of anglophone academia which focusses on how comics are read is relatively small in comparison to much of the rest of the comics field. As such, there are some key resources which inform much of comics reading theory. Two particularly important practitioner-theorists have produced work with ideas on which much of the current comics reading studies are based. These form a foundation on which the field is based, and the pair are often referenced by academics in the field, thus making them an important informing factor in my own research.

The first of these practitioner-theorist is Will Eisner who produced two key texts for the purposes of teaching students how to produce comics (Eisner, 1985; Eisner, 2008). These outline the components which make up a comic's visual language. As a predominantly visual form of communication comics have not only a verbal language, but also a visual language which is made up of component parts. Collectively, along with verbal language components, these form what I contest is a unified language of comics. The elements of comics visual language are discussed by Will Eisner, an established and important practitioner in the world of comics, in his books *Comics and Sequential Art* (Eisner, 1985) and *Graphic Storytelling and Visual Narrative* (Eisner, 2008) (originally released 1996), both of which are designed for educational purposes.

Eisner himself describes them as "an outgrowth of my teaching a course in sequential art at the School of Visual Arts in New York City. Organising the syllabus for this course brought into sharp focus

the fact that during most of my professional life, I had been dealing with a medium more demanding of diverse skills and intellect than I or my contemporaries fully appreciated."

He continues to explain that he "began to dismantle the complex components of the medium", "addressed the elements hitherto regarded as "instinctive" and tried to examine the art form's parameters" (Eisner, 1985). Eisner's early contribution to the study of the comics form began an important groundwork which aimed "to address the principles and practice of the world's most popular art form in a manner that is both thought provoking and pragmatic to student and professional alike" (Eisner, 1985). This sets up the initial critical study of the comics form, how it functions and, most importantly, how it is read.

The second practitioner-theorist is Scott McCloud. McCloud made a number of observations and suggestions in his books *Understanding Comics* (McCloud, 1993) and *Reinventing Comics* (McCloud, 2000) about how panels are related together in sequence. His writings in these books are important points of reference when discussing comics narrative and critical theorists have discussed the theories put forward here regularly in the wider comics theory community, particularly when discussing the structural form (Cohn, 2013b; Jacobs, 2014; Scanlon, 2015). In 1993 McCloud released *Understanding Comics,* one of the first works since Eisner's writing to address comics reading as a complex set of literacies (McCloud, 1993). This work is often the starting point for the analysis of some of the narrative traits and structural elements of the comics form. *Understanding Comics* is intended to define comics and reveal the core elements which make them up.

McCloud draws upon a "vocabulary of comics" in which he attempts to define the key components which make up the comics language (McCloud, 1993: 24). This work develops many of the principles put forward by Eisner about how the visual elements of comics interact. Here he discusses the icon and the connections between text and image, clearly identifying the two as the core components of the comics language. He continues with a discussion of the ideas of "amplification through simplification" and the arbitrary, realistic and meaningful sign (McCloud, 1993: 30). His research is limited in depth but serves as a clear beginning for more rigorous discussion. Closer scrutiny often shows McCloud's work to be inaccurate or to represent a simplified version of the results of others (Cohn, 2010b), but this does not diminish his importance to the understanding and foundation of the field. Perhaps the most important assertions in McCloud's *Understanding Comics* (McCloud, 1993) are those related to the construction and understanding of sequence. His ideas of 'closure', a concept from gestalt psychology related to how people understand incomplete actions and objects, are a key contribution to the field of comics (Crawford, 1981; Hartmann, 1935). Here, McCloud discusses the sensemaking process between juxtaposed individual comics panels and describes the act of closure.

He describes closure as the act of combining the individual panel images into one meaningful sequence of events and seeing, in the mind's eye, the transition between them (McCloud, 1993). This idea is a fundamental aspect of the comics reading process and is one which will be discussed in detail in my own research throughout this thesis. McCloud also contributes some key ideas to the discussion of comics as a form in his book *Reinventing Comics* (McCloud, 2000).

It is worth reiterating that both Eisner and McCloud are practitioner-theorists. Most of their writing, and their conclusions, come from the perspective of how comics are created and how the reading of that creation is *expected* to be performed by the reader. Consequently, much of the theorisation of comics that builds on their work takes a creator-focussed, rather than a reader-focussed, approach to reading. It will therefore be important to develop the understanding of the reader's expectations and identify where creator-focussed understanding falls short throughout this thesis.

The State of Research on Reading Comics

Whilst McCloud and Eisner form an important base on which discussion of comics reading can be based, there are many other resources that must be considered in answering my research questions. Charles Hatfield's book *Alternative Comics* (2005) analyses comics from the perspective of research into literature. The chapter titled "An Art of Tensions" is of considerable relevance to my research (Hatfield, 2005). Here, Hatfield makes an assertion that underpins my own research "that comic art is a form of *writing*" and therefore that the act of engaging with and understanding meaning must be a form of reading (Hatfield, 2005: 33). He references both the work of Eisner and McCloud and their discussions of comics as an active reading experience. He also outlines and points to early academic criticism from the fields of education, sociology and library studies from the 1940s and 50s which argue against the ideas of comics reading as literacy. These suggest that comics are not appropriate material when considering literacy and reading, and that comics reading should not be considered in academic discourse. His work clearly identifies these writings as out-dated, referring to them as "transparently political" and suggesting that they have "dated badly", by which he means that discussions of comics at this time were not given appropriate consideration (Hatfield, 2005: 34). He suggests that arguments that comics were easy to read led to them being considered as less worthy of academic criticism than other forms, in particular traditional prose reading. Hatfield does however acknowledge the importance of these works in understanding the discourse surrounding comics academia and in some ways these texts can be attributed to the general lack of serious academic research into how comics are read prior to the works of Eisner and McCloud. My aim here is not to determine whether or not comics *are* read but instead to determine *how* they are read. Hatfield's work serves as springboard for my own, establishing the backdrop of academic discussion

surrounding comics reading prior to the key texts outlined here. He argues that the comics form is more complex than previous studies give it credit for, requiring an interplay of multiple literacies in the reading process. Specifically he suggests that "comics readers must call upon different reading strategies, or interpretive schemas, than they would use in their reading of conventional written text" (Hatfield, 2005: 36). In doing so, Hatfield identifies a clear lack of adequate investigation of the reading activities of comics.

In response to this grounding Hatfield argues against the notions of previous academics that suggest the images require less complex reading processes than words by identifying what he refers to as the 'tensions' of the multiple literacies of words and images in comics (Hatfield, 2005). He argues that the reading of images is sophisticated because it requires active engagement in interpretation on the part of the reader (2005). As part of this discussion of images and words he outlines a series of interactions between the different components of comics beginning with the complex sense making processes of images and images in sequence. The work of McCloud is used as a foundation here and the discussion focusses on the combination of McCloud's ideas of 'closure' combined with Robert C. Harvey's 'breakdowns', which is, broadly speaking, the ways in which a comics narrative is compartmentalised. (McCloud, 1993; Harvey, 1996). Hatfield discusses principles of closure between panels in a breakdown and suggests that the levels of participation by the reader in the act of closure differ from one sequence to another based on the content. He also identifies that creators and readers approach the connection of narrative images in different ways as creators know the intended connections they wish readers to make at the moments of creation, whilst they are constructing the breakdown, whereas readers must discover the connections based on the content presented, by applying closure. This reflects ideas of the reading contract vs the creator contract which are key to looking at how comics are read rather than how comics are made. These contracts are the expected approaches, to a comic, taken by the reader and creator and are discussed in more detail when examining the work of Groensteen (Groensteen, 2007; Groensteen, 2013). In summary, the reading contract suggests that a creator should present material that can be connected by a reader to form narrative understanding, and that a reader should seek to connect the presented material together in an effort to understand narrative. We will discuss this in more detail later in the thesis.

Hatfield also refers to the tension of "Sequence vs. Surface" (Hatfield, 2005: 48-58) and suggests that each panel is read as both a moment in time and as a representational graphic element. As such, panels present pictorial information to be viewed and considered as representations but also as moments within a narrative of sequential storytelling. This type of tension is also reflected in the work of Atkinson who discusses rhythm (Atkinson, 2012). One of the key aspects of this rhythm is

what Hatfield describes as a “tug-of-war between these different functions”, a key aspect of reading pace relevant to the overall process of reading (Hatfield, 2005).

As part of the discussion of Sequence vs. Surface, Hatfield considers “seriality vs. synchronism”, which addresses the passage of time both within panels and by panels in sequence (Hatfield, 2006). This idea is closely related to notions regarding motion and the representation of action within panels. Here, Hatfield refers to the use of motion lines as an example of a synchronistic element which represents time within a single panel rather than across a multitude of connected panels. The synchronistic elements described have a clear connection to ideas of conceptual metaphor presented by Potsch and Williams and morphemes presented by Cohn which discuss how motion, action and other concepts are presented in comics (Potsch and Williams, 2012; Cohn, 2013b). The conclusion here is that “the image-series alone does not determine the timing in comics” and that “different possible ways of reading” must be considered in creating meaning in the mind of the reader (Hatfield, 2005: 58).

Hatfield’s final tension concerns itself with the ideas of “Text as Experience vs Text as Object” and discusses the physical dimensions and form of the object on which the comic is printed, and how this impacts upon reading. There are several useful observations here which relate to the materiality of comics however the focus of Hatfield’s work is on visual style. Hatfield identifies that reading comics is far from the simplistic reading process suggested by many previous academics and outlines the tensions as consistent challenges that appear in all comics to varying degrees and require interpretation by the reader. The tensions of image, text, sequence and form are all laid out here and are of crucial importance to the grounding of my own research. Hatfield’s focus on examples and his interest in the narrative meanings and styles of the comics is divergent from my own studies of sequence. However the chapter heavily informs the study as McCloud and Eisner do before him.

Key amongst the comics theory related to reading are *The System of Comics* and *Comics and Narration,* the works of French scholar Tierry Groensteen (Groensteen, 2007; Groensteen, 2013), translated to English, offering a link to academic work outside the anglophone research sphere. My research will focus on Groensteen’s studies in *The System of Comics* which discusses the reading processes involved in connecting panels together over distance and time. He does not focus on the individual components of comics but rather considers how comics components are connected across the larger or complete sequence. Groensteen examines three concepts: the ‘spatio-topical system’, ‘restrained arthrology’ and ‘general arthrology’ (Groensteen, 2007). He discusses the key elements related to the connectedness of the panels in comics, which constitute a network of image/narrative elements linked through memory and space.

The spatio-topical system is a collection of interactions between the macro components of comics, those elements which provide, and identify, the structure to readers. Groensteen's discussion of his spatio-topical system offers a clear and considered breakdown of structural elements not tied to the micro-units of the image and text elements, and is of great importance for supporting and defining the structural breakdown of panels. This allows for comprehensive discussion of reading. Groensteen's discussion of the spatio-topical system considers ideas of the hyperframe, the multiframe and the spread. This offers a key vocabulary of terms for describing the structural elements of comics without relying on a specific media form such as the paged book. Groensteen states that the use of the word 'page' is "insufficient" in describing collections of panels in a single spread (Groensteen, 2007: 30). He instead uses the term 'hyperframe' which he defines as a container where each of the panels appears in one unbroken sequence. Groensteen also defines the idea of the multiframe here, suggesting that "the notion of the hyperframe applies itself to a single unit" whilst "the forms of the multiframe… are multiple" (Groensteen, 2007: 30). For my purposes the term 'hyperframe' will be used to describe one unbroken sequence, whilst multiframe will be used to describe a series of hyperframes. This is similar to how Groensteen uses the terms. However I have been a little more specific with my use of the term multiframe in order to avoid confusion when discussing comics in print and on screen later.

In discussing the multiframe and other larger structural units, Groensteen chooses to ignore the content of the individual panels in favour of analysing a sort of blank comic ""cleansed" of its iconic and verbal contents" (Groensteen, 2007: 24). It is worth noting that both Cohn and Hatfield have extensively expressed their opinions about the usefulness, or lack thereof, of Groensteen's writing. Many of their complaints about the work relate to the oblique language in the communication of ideas and the relative shallowness of the ideas that can be unpicked from the text. Indeed, Groensteen has responded to some of this criticism himself and suggests that the translation has not been well executed (Cohn, 2008). Regardless of the perceived usefulness, however, Groensteen's work proves very useful in the discussion of the macro-readings of comics. That is, of pages, hyperframes and larger spreads of panels than those in direct sequence. His macro approach to comics also offers an alternative to the approaches of other studies in this field, such as those of McCloud and Hatfield, which are primarily concerned with the interactions of content between panels in close proximity.

Groensteen's spatio-topical system is founded on the idea that each panel in the narrative shares a spatial relationship with all others in that same narrative. He argues that these spatio-topical relationships extend beyond those of panels in a singular spread and apply across page, and sometimes book, limits. Groensteen acknowledges that in many instances, comics are written and

designed to take advantage of the relational qualities of spreads, particularly double-page spreads. As such the spatio-topical system relates closely to the physicality of comics and Groensteen argues its importance by identifying the impact of adapting a comic from one format to another. He suggests the impact that reorganising the panel units has on the narrative can be great, even when the content of the panels remains unaltered. Whilst Groensteen's studies discuss the newspaper strip reprinted in the book, this thesis aims to investigate similar principles in the translation of panels from print to screen.

Groensteen then turns to the subject of arthrology. Arthrology is closely related to the ideas of reading and brings together the structural elements discussed in the spatio-topical system to demonstrate the interconnectedness of the comic structure. Groensteen breaks arthrology into two types: 'restrained arthrology' and 'general arthrology' (Groensteen, 2007). These describe relationships of panels bordering one another and of panels separated by larger distances across the multiframe respectively. Restrained arthrology is associated with panels directly next to one another within the hyperframe. Here Groensteen outlines how panels juxtaposed next to one another in the spatio-topical system might interact in order to create narrative. This is closely related to the ideas presented by McCloud, Hatfield, Cohn, et al., who discuss panel transitions and closure between adjacent panels (McCloud, 2000; Hatfield, 2005; Cohn, 2010b).

Groensteen discusses the reader's involvement in the process suggesting that "it is from [the panels'] juxtaposition that I [the reader] can deduce a narrative proposition" (Groensteen, 2007: 108). It is here that Groensteen begins to discuss what McCloud and Hatfield refer to as 'closure': the interpretation of similarities and differences between two juxtaposed images to form a narrative connection between them and thus create a reading of time represented across space (McCloud, 2000; Hatfield, 2005). Groensteen, whilst not using the term 'closure', is discussing the same mental activity in the mind of the reader. His discussion of the processes involved in forming closure considers ideas of reading back to earlier panels, referred to as read-back by Miodrag, and reader memory in which a reader can understand narrative based on the recall of the content of previous panels (Miodrag, 2013). Groensteen goes on to explore how meaning is made between one panel and the next with discussion about how meaning is made between one panel and the last. He states that it would be impossible to form narrative meaning without comparing panels and "that the meaning of a panel can be informed and determined by the panel that proceeded it much like the one that follows it" (Groensteen, 2007: 110). Whilst this is not a unique perspective on the process of discerning narrative, it does show that there are clear connections between restrained arthrology and closure.

Groensteen's concept of 'general arthrology' addresses the connectedness of panels, and panel sequences, across greater distances than those in immediate juxtaposition. Whilst several others look at ideas related to restrained arthrology and the connections between juxtaposed panels, few discuss the connections between panels from throughout the greater sequence. The overarching idea of general arthrology is that all panels and hyperframes connect to all other panels and hyperframes within the multiframe which makes up the entire narrative. The argument made is that in order to understand narrative in comics a reader must be able to make narrative connections between panels beyond those in immediate sequence. Indeed, as Miodrag also points out, we may find that a sequence later in the multiframe facilitates a new understanding of something in an earlier sequence (Miodrag, 2013). Groensteen refers to similar connections between more poetic elements across the gross narrative and uses the term 'braiding' to describe them(Groensteen, 2007). He proposes that there are two "dimensions" of braiding; "synchronically" and "diachronically", which refer to the braiding of elements across a single spread or hyperframe and across multiple spreads or hyperframes respectively (Groensteen, 2007: 147). Put simply, braiding as presented by Groensteen describes connections within in a single spread of panels *and* in connections between panels on different pages or spreads. In each case Groensteen points out that reading is done in a linear order through the network of interconnected panels and braiding can be used to link them together in the reader's mind to form an understanding of narrative. For Groensteen, these ideas are supplementary to the understanding of how comics are read but are nonetheless important to understanding different types of panel and sequence connectedness. As we will see, similar ideas can also be applied to the sense-making of narrative and involve reading back for clarification or memory of what was read in the past.

Groensteen's other book, *Comics and Narration* (Groensteen, 2013) follows on from his first with the aim "to analyse the uses to which [his system] is put." (Groensteen, 2013: 5). The research is useful in many ways and considers digital comics, rhythm and sequence but does so in a way which builds on the foundation of the original ideas outlined above. As such it is of less fundamental importance to my own research than *The system of Comics* (Groensteen, 2007) as it diverges from discussions of the formal properties and reading of comics in favour of more focussed discussions on abstract and silent comics, and the position of the narrator.

Whilst the initial chapters of Groensteen's writing in this book predominantly discuss ideas of the abstract comic, (a topic outside the scope of my own research) he makes important notes about the expectations of a reader. This relates to a pre-supposed reading contract where the reader looks for a logical sequence between juxtaposed images in comics layouts. Groensteen identifies frames, balloons and onomatopoeia as making up what he refers to as the "machinery" of comics, and that

these elements act as cues to inform an observer that they are reading a comic (Groensteen, 2013: 11). Equally, he posits that the recognition of comics panel structure invites linear decoding of sequence as part of the reading. Together then, this reinforces the idea of the reading contract as a foundational part of the reading of comics. Put simply, by identifying that abstract comics challenge associations between panels, Groensteen acknowledges that comics are recognised based on their machinery and then read in sequences based on a contract. He even notes in the closing paragraph of the first chapter that when images set out in sequence do not offer coherent connections, readers will likely see this as a "breach of contract" and aim to "confer intelligibility on a string of panels", whether or not any was intended by the author (Groensteen, 2013: 19).

Similarly, the early chapters build on and clarify ideas of transition and structure presented in *The System of Comics* (Groensteen, 2007). One area where the clarification is helpful is in the understanding of immediate transitions between panels. Groensteen presents ideas of "the *shown,* the *identified,* and the *signified*" here, offering a little more clarity as to how immediate transitions between panels might be understood (Groensteen, 2013: 36). The shown, he suggests, is the content depicted in the panel whereas the identified and signified are the types of transition between the panels based on the perceived relationships of their content. He compares the identified to the transitions proposed by McCloud in that each relies on the identification of a causal and temporal relationship (McCloud, 1997). The signified, on the other hand, Groensteen proposes in more "poetic" comics which rely not on cause-and-effect relationships but conceptual ones (Groensteen, 2013: 30-31). Again, the focus on abstract and poetic comics is beyond the scope of my own research but Groensteen's consideration of transition types is of benefit to the discussion. Thus, whilst the book does not offer a significant contribution to the formal properties of comics, it does help to make the case for an underpinning reading contract and panel transitions.

In chapter four, Groensteen extends his analysis of the spatio-topic system, proposed in *The System of Comics* (Groensteen, 2007), to a wider variety of forms. Key amongst these, for this research, is his consideration of digital comics. Whilst the ideas here lack enough depth to be of significant interest to this study, the consideration of a shift in reading experience between comics in print and those on screen is noteworthy and offers a starting point for some important conversations regarding form. Groensteen notes that there is a distinct difference in physicality between the book and the screen, noting that the book requires significantly different interactions from the screen. He points to ideas of leafing through pages and other tactile relationships between reader and form that are notably altered in the presentation of comics on screens, due to the change from page to digital surface. In this discussion he observes the importance of the page turn in print, and the scroll and zoom actions of the screen. Crucially, in one line he notes how a zoom action intrudes on reading by interrupting

the rhythm of reading – this will be taken up later in my own work. Groensteen also points out that the change in physicality impacts the spatial memory of layout. Importantly, this brings into question the positional relationship of panels and spreads in physical space that is lost in the transient presentation of spreads on screens. Or, put another way, the memory of where a spread or panel exists in physical space as a reader progresses through a book, and how the lack of this permanent position of panels in some digital comics impacts reading on screens. Groensteen offers no significant contributions to how these aspects of physicality impact reading beyond an assertion that they do. However, both observations will be investigated in greater depth within this research in an effort to build a clearer picture of how shifts in physicality impact reading. His discussions of the digital also extends to ideas of how motion, sound and interactivity do not necessarily elevate comics in the digital space. This point is interesting and reflects debates around whether the addition of such modes of communication fundamentally alter whether something is or is not considered a comic. These claims, however, are well beyond consideration in the scope of my research here.

Another notable consideration made by Groensteen in *Comics and Narration* (Groensteen, 2013) is that of rhythm. Rhythm is not the focus of this thesis, although the rhythm in which readers move through a comic, from panel to panel, page to page, or spread to spread, will necessarily be considered at key points in the discussions. Groensteen importantly outlines a beat within comics which is influenced by layout, panel shapes, sizes and density. In short, he identifies this beat as setting, and altering, reading rhythm in the movement from one panel to the next as the reader is drawn through the narrative. The majority of his writing here is related to how the regular grid pattern of some comics allows for a pace to be set, and that the images within are given a rhythmic quality by its use. Groensteen's ideas diverge from my own here as he is considering how rhythm is created and maintained through regular visual layouts. I will instead be looking at a variety of layouts presented in both on screen and in print, and investigating how shifts in physicality might alter rhythm.

Writing in *The Comic Book's Soundtrack: Visual Sound Effects in Asterix,* Catherine Khordoc investigates some of the key components that make up the combined language of comics (Khordoc, 2001). Her discussion focusses on the combined literacies of the speech balloon which communicates spoken words through the silent visual medium of comics. She summarises the importance of the comic book 'soundtrack' focussing on the reading process, a feature that is not widely addressed in the literature. She notes that "readers and critics of comics have often made reference to the audible qualities of comics", suggesting that, whilst these elements of comics reading may not be widely theorised, they are widely accepted (Khordoc, 2001: 170). Khordoc focusses on the balloon as a representation of sound and begins a discussion of what is ostensibly a

conceptual metaphor (although she does not use this term) which is continued in the work of Potsch and Williams (Potsch and Williams, 2012). Importantly, Khordoc discusses the speech balloon as an element which must be *read,* and identifies that in order to understand the speech balloon, "the reader must take into account the image, the text, and the other elements of the code" (Khordoc, 2001: 159). The paper begins by discussing what speech balloons represent in the broader comics language. Khordoc identifies the balloon as an element which "marks the intersection between image and word" and suggests that this comics element represents a merging of the languages associated with each (Khordoc, 2001: 157). She takes an approach which examines how the balloon uses, or modifies, the languages of both image and text, and challenges McCloud's definition of the speech balloon as an "icon", and symbols as a "category of icon"(McCloud, 1993: 27). Instead she presents a counter argument, citing Charles Peirce, that identifies a distinct difference in the classifications of the icon and the symbol which is more accurate (Peirce, 1991).

Khordoc breaks the speech balloon down into two key parts, the rounded oval container and the tail. Collectively she suggests that the balloon modifies the reading of the text held within it by identifying the text as spoken, rather than written, thought, etc. Thus, the balloon itself has two key functions; one to identify text-verbal content as speech and one to identify who (narratively) is speaking. Crucially, by discussing the different visual traits of the balloon, Khordoc is able to identify that a "variation in the shape or outline of the balloon signifies that the words are spoken differently from those in "normal" balloons" (Khordoc, 2001: 163). She suggests that the perceived meaning of each variation by the reader is different. I will investigate these visual variations more comprehensively in a later part of the research.

Khordoc also discusses how the visual representation of words impacts upon meaning, and therefore the reading of the text within balloons. These visual alterations of words are highly important and Khordoc's paper serves as a starting point for such a discussion. Here she suggests that the visual design of the words within a balloon read as a change in the perceived audible qualities associated with them by the reader. "By being drawn a certain way, the text" she asserts "is laden with symbolic meaning, thus blurring the division between what is drawn and what is written"(Khordoc, 2001: 165). Here Khordoc shows how comics require multiple literacies and that with these complex multiple literacies come complex reading patterns. "One cannot read [comics] in a linear manner" she argues; rather "reading requires continuous back and forth movement between text and images" (Khordoc, 2001: 172). Here, reading "is not simply a question of alternating between words and pictures, but rather, a different mode of reading which always calls for readjustment of the reading processes" (Khordoc, 2001: 172). This comics mode of reading is precisely what my research here intends to define.

Broadly, research in the field tends towards a discussion of the structural qualities of comics with a secondary focus on how these relate to reading. In fact, there is no clearly defined, singular discussion of the reading activities. It will be an important part of my thesis to unpick and then compare, contrast and combine the existing theories of reading into a useful toolkit for reading comic, filling in any gaps that become apparent.

Over the last decade there has been a marked increase in interest in the formal properties of comics (Atkinson, 2009; Atkinson, 2012; Bramlett, 2012; Potsch and Williams, 2012; Miodrag, 2013; Bongco, 2014; Hague, 2014; Grennan, 2017). Cohn is a major figure who has published work consistently over this period (Cohn, 2010b; Cohn, 2010a; Cohn, 2012; Cohn, 2013b; Cohn, 2013a; Cohn, 2014b; Cohn, 2014a; Cohn, 2016; Cohn, 2018; Cohn, 2020). Some of Cohn's writing challenges the established theories of comics reading and marks a period of significant growth in the study of reading within comics academia. Cohn takes a linguistic and cognitive science approach to comics reading and suggests that comics are read through the comprehension of complex groupings, rather than through the relatively simple associations presented by McCloud and Groensteen. He suggests "that any linear panel-to-panel analysis (such as McCloud's (1993) panel transitions) or loosely defined principles of connection (such as Groensteen's (1999) 'arthrology') between sequential images are inadequate" and proposes more developed readings of time and transition in comics (Cohn, 2010b: 128). Much of Cohn's work contributes to his book *The Visual Language of Comics: Introduction to the Structure and Cognition of Sequential Images* (Cohn, 2013b) and so I will begin here by outlining Cohn's contributions to the field.

The Visual Language of Comics: Introduction to the Structure and Cognition of Sequential Images offers a significant contribution to the study of comics reading (Cohn, 2013b). Predominantly this contribution stems from the application of linguistics and cognitive science to the ideas presented by other theorists. Cohn outlines a cognitive science approach which considers the comics language "using the methodologies that researchers use to look at language" (Cohn, 2013b: 8). This reflects Cohn's focus on visual language as the defining feature of comics. By taking this approach Cohn identifies significant areas in which other theories may be inadequate in accounting for the sense-making processes required of the complex reading tasks found in comics.

Cohn begins his book with an introduction to visual language, outlining what a visual language is, followed by its application and specifics in the comics form. He argues that comics are not a language. Rather, they are a form which engages in communication *using* visual language. This is an important distinction as it identifies that the comics language, whilst featuring unique elements, does not communicate in a wholly unique way to other visual languages. Indeed, Cohn notes that

American comics and Japanese comics use different visual languages: the American Visual Language (which he abbreviates to AVL) of the American periodical and the Japanese Visual Language (which he abbreviates to JVL) of Japanese Manga.

Cohn also discusses the structural components of comics' visual languages. He focusses on the visual language components here and does not discuss the text-based language in much detail. He begins with an examination of the meaningful units which make up the visual language of comics and identifies morphemes as the smallest of these meaningful units. Cohn is not interested in the structuralist approaches which seek to break the visual components of language down into their smallest identifiable components but aims to consider which morphemes are stored in people's memories. Cohn's approach is to break iconic representations presented in images into two grammatical categories: "open-class lexical items" and "closed-class lexical items" (Cohn, 2013b: 24). Open-class lexical items are defined as those which "can be added to easily and theses signs can often be manipulated" (Cohn, 2013b: 24). These are the visual components of drawings which represent, and resemble, an object, for example a face, a person, or a vase. Closed-class lexical units are highly codified and therefore have less flexibility for novel arrangements. Cohn suggests that these elements "cannot stand alone" and rely on surrounding visual elements to be meaningful (Cohn, 2013b: 34). In discussing these closed-class lexical units he outlines a number of different types of conceptual metaphor (although he does not use this term) which form a key part of discussion of how meaning is understood as part of the reading process (Cohn, 2013b).

He goes on to discuss larger units of meaning, panels. Here Cohn discusses "the systematization found at and above the panel level" (Cohn, 2013b: 51), looking at panels as memorable units which form part of a larger system of visual language representation. He first discusses closed class "suppletive panels" before moving on to discuss open-class panels which are highly diverse in appearance and representation (Cohn, 2013b: 52). The suppletive panels act similarly to conceptual metaphor in that they are a closed-class unit and tend to be highly codified, whilst open-class panels are more diverse. Cohn argues that, whilst there is diversity in the open-class panels, they are often systematic. He proposes that this systematic nature is further proof that the comics visual language operates within the boundaries which define a language.

Cohn furthers his discussion by categorising the compositions within panels, identifying two types of element within a panel: "active entries" and "inactive entries" (Cohn, 2013b: 56). Active entries are elements which change between panels (inactive entries are those that do not). Based on the number of active entries in a panel, Cohn classifies the composition of each panel as one of four types. These four types of attention units will be used in my own discussions as they offer a

vocabulary to the discussion of panel-types. As part of this discussion, Cohn also identifies the "spotlight of attention" which is the specific area of the panel-image that readers focus on as they perceive information whilst taking in "the whole visual array" (Cohn, 2013b: 59). He compares the use of panel types which focus our attention on specific elements within the frame as guiding units similar to a spotlight of attention.

Cohn's discussion also moves away from individual panel schemas to panels used in 'constructions', where he compares constructions to phrases in English (Cohn, 2013b). He argues that "similarly, visual language also uses patterns beyond individual panels, extending into whole sequences" (Cohn, 2013b: 59). The discussion here relates to expected sequences of panels which are used commonly within the visual language of comics but he also considers "multimodal constructions" which focus on combinations of visual language and written language (Cohn, 2013b: 61). These multimodal constructions offer a point of reference for how the multiple literacies of comics operate across panel borders and so prove useful in discussing the associated reading activities.

Having identified the comics visual language, Cohn investigates how such language is understood by creators and readers, and details some of the key aspects associated with it. Cohn aims to answer the question "how is it that people make sense of a sequence of images?" (Cohn, 2013b: 65). He outlines "three predominant ideas about the creation of meaning across sequential images" (Cohn, 2013b: 65), and identifies these as "1) panel transitions; 2) "promiscuous" transitions; and 3) general cognitive scripts" (Cohn, 2013b: 66). When discussing panel transitions Cohn considers the ideas presented by McCloud. He suggests that panel transitions are the most commonly accepted understanding of reading sequential images in comics and the most common type of restrained transition. However, Cohn questions the effectiveness of such restrained transitions in the communication, and reading, of a complex sequence and suggests that they "cannot account for connections between panels that extend beyond adjacent relationships" (Cohn, 2013b: 67). Instead, Cohn argues that a broader set of connections and the application of reading memory needs to be applied. When addressing 'promiscuous transitions', which consider the connections between panels *not* in immediate juxtaposition with one another, Cohn discusses Groensteen's arthrology and questions the idea that "every panel exists, potentially if not actually, in relation with each of the others" (Groensteen, 2007: 146; Cohn, 2013b: 67). Cohn suggests that all panels having a direct relationship with all other panels in a comic would require too many connections for the average reader to keep track of and so suggests that this approach to understanding sequence cannot be how sequential images are understood. Whilst Cohn's assessment is not incorrect here, his dismissal of Groensteen's arthrology is short-sighted and I will argue later that the ideas of arthrology play an important role in the understanding of both sequence and narrative. Finally, general cognitive scripts

are rules for understanding transitions based on commonly used narrative sequences that act as templates to understanding and expectation of events or actions. Cohn is a good source here as his research goes beyond the confines of comics studies and investigates film studies and cognitive narratology which often consider sequential images beyond comics. Having addressed each of these ideas of comprehension Cohn suggests that individually each is insufficient in explaining how understanding is made within sequential narrative reading. He concludes that "these previous approaches highlight important observations and insights about the structure of sequential images (and discourse), but each approach is not sufficient on its own (Cohn, 2013b: 69).

Cohn then goes on to propose a new theory "that draws upon the insights of these approaches" and applies a "narrative grammar" (Cohn, 2013b: 69). He outlines this approach to comprehension of sequential images resulting in a hierarchy which I will discuss extensively in the body of this research as an integral part of the reading process. In brief, Cohn suggests that each panel in a sequence can be designated as having one of six narrative categories and that these panels are read using a combination of cognitive scripts and panel transitions by combining them into short groups of narrative arcs. This approach to the comprehension of sequential images goes much further than any previously discussions and forms a complex groundwork on which to base an understanding of reading in comics. It is also worth noting that this section of the book develops many of the aspects of Cohn's *Limits of Time and Transition: Challenges to Theories of Sequential Image Comprehension* paper and shows growth of the ideas presented there (Cohn, 2010b).

Cohn purports to have answered the question "how do people make sense out of sequential images?" (Cohn, 2013b: 88). In doing so he has presented a complex system of narrative structure which relies on a grammar system and a consideration of the ideas of panel transitions, promiscuous transitions and general cognitive scripts in order to understand. This system is a useful point of reference for my own study and whilst I challenge the conclusions of some aspects it is clearly a developed system which a reader must engage with in order to comprehend narrative in comics.

Having established this system for the comprehension of sequences Cohn goes on to examine panel layout, the reading path and how a reader understands the order in which to read a sequence. He suggests five types of panel composition which can challenge the reading path through sequential images. He refers to these as "grid", "blockage", "separation", "overlap" and "staggering" (Cohn, 2013b: 93). Using these 'manipulations' as a base, Cohn considers how a reader's standard reading path is disrupted by layouts containing challenging compositions (Cohn, 2013b; Cohn, 2014a). He proposes a set of rules which form what he calls "assemblage" (Cohn, 2013b). He defines assemblage as "a principle where a reader or author of layouts seeks *to build successive units of structure based*

on distance and coherence of composite shapes in as smooth a reading path as possible" (Cohn, 2013b: 95). He then outlines some "general preferences" which guide assemblage and help readers to comprehend reading order (Cohn, 2013b: 95). These make up a series of preference rules which are a core part of Cohn's argument and are important to my own study. Broadly, these rules state that if the standard reading path is not interrupted by manipulations then the reader should follow that path. If the standard reading path *is* interrupted the reader should apply the next preference rule and navigate the layout that way. However, Cohn's approach needs expanding in some areas as he relies on empty panels in his test which I argue removes a key aspect which assists in reader navigation of panel layouts. Nevertheless, the preference rules proposed here add significant academic consideration of reading in comics and Cohn has proposed a method of navigation that will be considered alongside those of other theorists.

Cohn uses experimentation to analyse many of his proposed ideas and considers how a reader or creator processes a sequential image narrative. Here Cohn identifies a key aspect of reading which underpins many of the discussions of comics reading throughout this thesis. Most importantly, that visual languages are both learned and based on specific cultural traditions. Crucially to this work, we will look at the traditions of American comics as these form a foundation upon which the other reading activities are built. Cohn applies these rules to three different forms of sequential visual narratives and considers how each utilises visual language differently. Here Cohn considers three types of American visual language which he refers to as mainstream or "Kirbyan", cartoon-like or "Barksian" and independent (Cohn, 2013b: 139, 141). These three dialects are seen to share a common visual language even though they are visually distinct styles. Clearly, these are incredibly broad categories and, given the huge diversity of styles which are self-evident in American Periodical comics, I question the appropriateness of the three terms in their discussion. However, they are important to note, as example comics in both the Kirbyan and Barksian styles which Cohn outlines, however broadly, will be used throughout my thesis.

Having looked at the work of Cohn, it is important to also consider the work of Simon Grennan who positions himself in opposition to some of Cohn's ideas. Grennan challenges the ideas about the cognitive processing of comics presented by Cohn in favour of a more semiotics-focussed approach. Specifically, Grennan criticises Cohn's suggestion that the visual and textual components function like a language with their own syntax and grammar. One of the crucial points that Grennan makes is that Cohn's considerations of the linguistic structures in comics are overly rigid and do not reflect adequate flexibility in the application of different types of connection between visual elements in comics. In short, Grennan argues that the comparisons between the structural elements of sentences and the content of panels is unconvincing at best and that Cohn's Macro, Mono, Micro and

Amorphic classifications do not stand up to scrutiny when compared with sentences. (Grennan, 2017. P. 46) This is an important note given that Cohn's Hierarchy is based partially on these ideas, and said hierarchy will be used as a crucial influence on this thesis. However, my writing chooses to align itself with Cohn's way of thinking here in part because this research is not interested in comparing the grammatical systems of comics and sentences, but rather the construction and reading of comics themselves. As such, Grennan's valid criticisms of the syntax and grammatical components of Cohn's visual language system do not preclude its usefulness in other areas, such as explaining structural connections and assisting in the building of a toolkit with which to understand comics reading.

Grennan suggests that understanding in comics is far more fluid than the rigid set of rules outlined by Cohn. He presents the argument that rather than following the systematic rule-based relationships presented by Cohn, understanding is more often formed through the dynamic interactions between the different components of comics. As such, Grennan puts less focus on core structural components and prefers reader experience and cultural differences as a foundation for understanding reading. Ultimately, Grannan's critique of Cohn focuses on the idea that a structural model for understanding reading does not adequately consider reader experience and that such a model oversimplifies the diverse ways in which readers might approach or interpret a narrative presented through the comics medium.

The cultural position from which Grennan analyses comics reading is useful but diverges from the main thrust of this thesis, which aims to present a toolkit for understanding how structural elements can be related to one another in comics sequences. Rather than an examination of how different reader experiences might influence reading. As noted previously, ideas of genre, art style, identity, and reader-identifiers such as demographics are outside of the scope of this research and therefore so too are many of the related discussions of Grennan.

That said, Grennan's work offers an opportunity to consider the overlap between reader experience and structural models like those presented by Cohn. As such, it is worth considering his work in more detail as a way to inform the research undertaken throughout the main body of this thesis.

Grennan's book, *A Theory of Narrative Drawing* (2017), is the most useful resource for us to examine here. This book is broken down into four core chapters which consider the creation and interpretation of narrative drawing. Whilst the creation of drawing is not a focus of my own research, ideas of interpretation are important to understanding reading and so I will focus on Grennan's discussions of these elements here. The first chapter of *A Theory of Narrative Drawing* (Grennan, 2017) focusses on "drawing, depicting and imagining" and considers how drawings function within a

system of social behaviours. (p.1-119) It explores the relationships between different models for understanding both the creation and experiencing of drawings in comics. This is where the discussion of Cohn's hierarchy sits and is why the focus on comparisons with grammar systems is so prevalent. In this chapter Grennan begins by identifying a prevalence of theories and studies based on what he refers to as technical approaches to drawing. (Grennan, 2017. p.1) He takes an aetiological approach to this research which aims to characterise the causes and reasons for the technical activities of narrative drawing and examine why identifiable drawing practices exist. This is interesting but not particularly useful in the understanding of reading as the discussions here are more about the acts of drawing and the intentions behind those acts. It is in section "1.2 Drawing's Affordances" that the chapter begins to show more relevance to the studies being undertaken in this work. Again, the discussions of affordance (the properties of which indicate how an object can be used) are discussed from two perspectives: that of the creator and that of the reader. From the perspective of the creator, Grennan discusses how the materiality of drawing impacts the types of images and narratives that can be created. Here he considers the inherent characteristics of the medium and the relationship between the artist and the act of drawing. However, much more relevant to this study are considerations of how the visual cues provided by drawings guide readers in their interpretation of understanding. In particular, Grennan considers how emotional and cognitive responses might be produced by narrative drawings.

Grennan argues that "tactic relationships are those that occur syntagmatically, rather than hierarchically, within a graphic array." (Grennan, 2017. P.29) Or, put in simpler terms, the intended relationships between elements in visual narrative are determined by structural and thematic connects, not by their relative positions on a hierarchy. This is an important point to consider as, whilst I believe it is essential not to underestimate the importance of hierarchical relationships, the thematic and structural connections between elements are clearly integral in the consideration of a toolkit for comics reading. This is evident in the work of theorists such as Groensteen, McCloud and Cohn and many others, all of whom identify these "syntagmatic" relationships. (Groensteen, 2007, McCloud, 1997, Cohn, 2010) Grennan echoes sentiments of others here, notably Cohn, in stating that these relationships depend on the meanings of marks, or groups of marks, rather than of the association of every mark to those around it.

Grennan makes some interesting arguments which highlight a series of different types of relationship between written elements. This is in relation to words, sentences and typography for the most part as he aims to identify some specific facets of language construction. These outlined elements are worthy of note for a few reasons. Firstly, it is clear that Grennan is using the term 'grapheme' very strictly as relating to text here. I.e. that it relates specifically to the smallest meaningful units of a

words; letters (Grennan, 2017. P.31-32). This is a different use of the term than is applied by Cohn, who uses the word more loosely to describe the smallest meaningful unit in any language system, whether that be in visual language or in text (Cohn, 2013b). My work positions itself in favour of this adapted meaning for the purposes of studying visual language in comics in the interest of clear communication of ideas and as such uses 'morpheme' in the ways described by Cohn. (Cohn, 2013b. P.24) Grennan also notes the relationships between larger grouped elements asking us to "consider the relationship between the graphic items on the first page of a novel, arranged according to genre or habitual expectation: title, chapter one, body text and page number." (Grannan, 2017. P.33) In this case, Grennan is describing what is referred to as a hierarchy of information in layout design. This is noteworthy because it gives credibility to the use of hierarchical structures in the study and reading of visual narratives, such as those presented by Cohn, and by myself in this research.

To form a foundation by which to compare text-based language to other visual languages the above visual relationships are summed up by Grennan in stating that "the temporal proximity relationships in the modality-independent cognitive systems of a language determines the visual proximity relationships in the written graphic array that represents language, but not their morphologies." (Grennan, 2017. p33) Put simply, this suggests that words are places in a sentence in a way that reflects the order in which they are said but the meaningful relationships between the words is not restrained in the same way. With this in mind, Grennan observes that these same placement and proximity rules are not present in visual narratives due to their "morphological variation". (Grennan, 2017. p33) As such the meaningful relationships between elements that are presented in a drawing are not restricted in the same ways they are in sentences. As such, he argues that the structures of sentences do not compare well to the structures of visual narratives.

In section 1.2.2 Grennan takes aim at Cohn's visual language model, the results of which I have already discussed. In summary, Grennan expects "a systematic theory to identify distinct relationships between constituent items that are applicable in every case, in which every item is constitutive and dependent and in which it is not possible to omit any item or relationship without breaking the system." (Grennan, 2017. P.38) This appears to be the crux of Grennan's disagreement with Cohn's visual language model; that it is too flexible in its application of various language-construction rules in some places, and where items are rigidly categorised as essential components of visual language, they do not hold up to scrutiny. None of the points made here are unreasonable and there are some important criticisms of the grounding of the model, however they are quite dismissive and not particularly useful to the discussion of reading. The purpose of my research is to test various models against example comics to identify if said models operate as described and can therefore be useful parts of a toolkit for understanding reading. As such, the effective grounding of

Cohn's model in comparisons with existing language models is not particularly relevant to the testing of the model itself. Additionally, Grennan criticises Cohn for approaching "icons, including depictions, as 'likeness.'" (Grennan, 2017. P.40-41) He indicates that in discussions of different styles of depiction, Cohn cannot reconcile the ideas of likeness because "if a depiction drawn in one style 'looks like,' its object, then how can another completely different style also 'look like' the same object? Both depictions and hence their objects will be unalike." (Grennan, 2017. P. 41) This seems to me to be a little disingenuous as it is clear, in my experience, that two drawings in different styles can depict, and therefore 'look like', the same object. Grennan appears to be arguing that Cohn's model does not account for these variations in visualisation and as such cannot be considered a robust language model. However, this doesn't have any real impact on the usefulness of the model in examining reading. Unless the aim is to discuss how images drawn in different styles are like words in different languages, or how different styles of representation are read differently by different audiences, which is far beyond the scope of this writing.

Most of Grennan's examinations here follow this same pattern of arguing against Cohn's model, not as a useful model for understanding reading, but as a model which accurately and robustly reflects language rules. As such, much of what Grennan is arguing is irrelevant to the investigation of Cohn's model as a useful part of a toolkit for understanding reading. I agree with some of Grennan's assessment that in taking a purely structural approach "Cohn's theory [of visual language] does not explain depiction" and that it does not allow for consideration of the diverse relationships between drawings (as we will discuss later.) (Grennan, 2017 P.48) However, I do not agree with Grennan's dismissal of hierarchical-based structural relationships. These, as we will see, are offer very valuable considerations for how readers might associate the various elements of a comics layout together. My research here favours these structural elements for the purposes of investigation over reader demographics and backgrounds and so will favour Cohn's approach despite Grennan's dismissal of it. Noting of course, that a wholly structural approach is similarly problematic to a wholly semiotic one.

Moving on from his discussions of Cohn, Grennan considers ideas of depiction which offer valuable terms surrounding the ideas of looking, seeing, vision and visualising. As Grennan observes, each of these ideas is distinct and his definitions are helpful in explaining the different ways that readers might experience visual information. Here he offers a useful consideration of how images are understood, outlining a number of ways in which depiction can be understood and effectively examined through existing theoretical systems and frameworks. Much of this is outside the scope of this study as I do not aim to identify how perception functions, however the work here can be used to help define ideas of looking, seeing, vision and reading, as well as the cognitive activities of readers. These definitions will be important in clarification of what is meant by reading and readers

in this study as it looks at the structural connecting and interpreting of comics narratives. These will be addressed shortly, however, at this stage it is important to identify other academics whose key contributions and models can be tested in order to build a toolkit for reading.

An important paper by Potsch and Williams, *Image Schemas and Conceptual Metaphor in Action Comics* was published as part of *Linguistics and the Study of Comics* (Potsch and Williams, 2012; Bramlett, 2012). The paper discusses 'conceptual metaphor' which is a term I have taken and applied for the purposes of this study. Potsch and Williams' paper considers how non-visual phenomena, such as sound, are communicated to a comic reader through visual means. One of the key aspects of this paper is the consideration of the reader's involvement in the comprehension of meaning. Potsch and Williams identify that visual representations of sound, motion and other non-static, or non-visual, ideas are added by the reader conceptually during the reading process. That is, the reader understands that the concept of motion or sound is being represented by the visuals even though no motion or sound is *actually* present within the panels. Potsch and Williams take a cognitive linguistics approach to these processes (similar to the approach of Cohn). They use "studies of image schema and conceptual metaphors to explain the basis for several conventions for representing dynamic action in contemporary superhero comics" (Potsch and Williams, 2012: 13). This relates closely to one of Cohn's main areas of study but moves the discussion away from the classifications of image schemas towards the conceptual understanding by the reader. The paper specifically relates to actions. However I will apply the ideas beyond actions to other conceptual metaphors in my own study. In this paper, Potsch and Williams note that the "reader's selective attention" is guided by the artist by way of layout within the panel (Potsch and Williams, 2012: 14). Having acknowledged this general rule regarding the reader's attention and pacing, Potsch and Williams suggest that, whilst this level of understanding put forward by McCloud is sufficient for some comics, it is does not offer an explanation of how actions within panels are understood. They suggest that "panel-to-panel pacing is too slow to render the experience of rapid, often simultaneous action, impacts and collisions" and that artists and storytellers must instead overcome the static nature of the individual panel images to demonstrate actions within (Potsch and Williams, 2012: 14). This reflects the findings of others who suggest that earlier studies into comics reading do not account for some of the more complex reading processes (Hatfield, 2005; Miodrag, 2013).

In order to explore how creators overcome the static nature of panels, Potsch and Williams investigate three specific "stylized symbols commonly used in action comics to represent the dynamics of events" (Potsch and Williams, 2012: 15). These are ribbon paths, motion lines and impact flashes. The pair give detailed explanations of ribbon paths, motion lines and impact flashes using example panels to illustrate their operations. Potsch and Williams identify these conceptual

metaphor elements as instrumental in the communication of time within the static image of the panel. They suggest that "time and cause-and-effect are compressed such that a single still image with ribbon paths and flashes comes to represent a rapid sequence of connected events" understood by a reader as motion (Potsch and Williams, 2012: 26).

Potsch and Williams also investigate the time and pacing of action presented by these conceptual metaphor image schemas and suggest that reading pace can be controlled by a comic's creative team through visual manipulations both inside and outside of the panel images. Key to the discussion is the idea of reader control and how Potsch and Williams contend that "part of the joy of reading comics is exerting control over how one experiences the story" (Potsch and Williams, 2012: 28). It is suggested that a part of the enjoyment gleaned from reading comics, and one of the elements which makes comics distinctly different from film, is the control which the reader has over the pace at which they experience the narrative. However, the pace of *depicted* time is also controlled by the artist, as their depictions of time influence how the reader perceives the narrative. Potsch and Williams' research suggests conceptual metaphors of motion as distinctly temporal and that different depictions of motion impact upon the suggested passage of time within a panel. This reflects ideas of the reading contract which Groensteen suggests, and it will be important to my own research to consider reading control from the perspectives of both reader and author (Groensteen, 2007; Groensteen, 2013).

Fig. 1.1 – Panel used by Potsch and Williams for close readings from *The Brave and the Bold #13* (Waid, Ordway, Koblish, et al., 2008) (Potsch and Williams, 2012)

The paper also presents the close reading of a panel depicting a complex sequence of motions which requires highly complex reading processes to decode and understand (Fig. 1.1) (Potsch and Williams, 2012). It offers considerable insight into the reading of complex panel content arrangements and summarises key elements which must be identified and read through the application of multiple literacies. This paper demonstrates a highly important contribution to the academic understanding of comics reading and to this thesis.

One of the key concepts which Potsch and Williams present as part of their identification of image schemas and conceptual metaphors is the gestalt (Hartmann, 1935). Potsch and Williams are an excellent source for consideration of these ideas and how they apply to reader understanding of comics. They present image schemas and conceptual metaphors and discuss how these are understood in ways which will be investigated in later parts of this thesis. However, the key idea presented by this section of the paper is that comics can use static visuals to represent other concepts such as motion and sound. As such, Potsch and Williams identify a set of core conceptual metaphors and image schemas for depicting motion in comics. These identified elements have been studied through examples and close readings and psychological processes considered to demonstrate how complex motion is understood within panel-images. They conclude that the depiction and understanding of motions in comics as highly complex. It is clear from this paper that conceptual metaphors are a key part of the vocabulary of comics and are a form of sign which need to be understood if a holistic understanding of comics reading is to be achieved.

Hannah Miodrag offers another perspective. Her 2013 book *Comics and Language: Reimagining Critical Discourse on the Form* (Miodrag, 2013) also focusses on discussions of comics and language but does not discuss comics *as* a language. Miodrag instead focusses on the use of language in the written elements of comics, discussing reading comics as literature and applying established ideas of how prose is understood by readers to the discussion of written words in comics. Her work serves as a useful resource when looking at how the text elements of comics operate and are understood, and how written text interacts with the other visual components which make up the visual language of comics. Beyond the formal language qualities of text, Miodrag considers the relationships of rhythm, space and the pause and how they influence the reading of text-based comics' content. These ideas are often discussed in terms of visual elements so Miodrag's focus on the text-based elements offers a key contribution to the understanding of the comics reading processes as a whole (McCloud, 1993; Potsch and Williams, 2012; Cohn, 2013b).

In setting out the similarities and differences between the comprehension of the text-verbal and visual language elements of comics, Miodrag demonstrates the requirement of a reader to engage in multiple literacies as part of the comics reading process. The book considers the ways that comics "utilize visual and verbal signs in conjunction, and the dubiousness of the idea that the form's mixed nature actually collapses the distinction between the visual and verbal sign systems it draws on" (Miodrag, 2013: 88). One of the most important arguments made is that, whilst "it is indisputable that words and images interact in producing comics narratives", an interaction between the two types of communication does not constitute a singular, "total fusion" of the languages into one comics language (Miodrag, 2013: 83). This idea rejects the notion of a singular comics language and

instead suggests that multiple languages come together as part of the reading to communicate in unique ways.

Miodrag's book also discusses ideas of image as language and, like Cohn, questions current academic criticism that attempts to break comics down into discrete units of language (Cohn, 2010b). She argues that the strategies of academic criticism which try to impose the rules of written language on visual signs are inadequate for comics analysis. Instead she suggests that "Groensteen is rather more convincing in simply querying the assumption that all semiotic systems must have a language" and that the understood models of language may not be applicable without adjustment (Miodrag, 2013: 171). She goes on to propose "just such an adjusted model for approaching visual signs, using the linguistic structure as a point of comparison for outlining a more precise and specific conception of the semiotic structure of images" (Miodrag, 2013: 171). In this model she considers "conventionalized visual signs" which "do not strictly resemble the things they represent, but are instead read on the basis of prior knowledge" and suggests these signs, unlike in written language, have "a certain rationale behind the relation of signifier and signified" (Miodrag, 2013: 172, 173). Miodrag then categorises the different types of icon in comics as 'image icons' or 'metaphor icons'. This approach reflects Cohn's open and closed-class ideas and will be further expanded on as part of a larger discussion of image types within this thesis (Cohn, 2010b).

By identifying the distinctness of the text-based elements of comics, Miodrag discusses differences in communication between the text and pictorial-based languages, focussing her discussion on the text-verbal. So considerations of the language of the visual components of comics are not explored beyond comparison with the text. However, Miodrag notes the importance of these comparisons and the distinctness with which each of the explored literacies communicates. She states that "pictures' own peculiar features, their analogical nature, motivation, infinite possible forms and (comparative) lack of (enforced) usage rules enable them to signify in ways that the discrete, finite, double-articulated, arbitrary, and rule-bound language system [of text] cannot" (Miodrag, 2013: 38). Put simply, Miodrag recognises that the languages of the text, verbal and the visual, are distinct from one another, even when communicating together as they do in comics. Whilst Miodrag acknowledges that both text and visual literacies are required of comics, and that neither is more important to the reading than the other, she also points out that they both communicate through different modes and require different types of understanding. She identifies the importance in investigating each language independently whilst also considering their relationships, rather than treating comics as its own solitary or unified language. This approach to investigating comics languages will be important in the development of my own study.

As an example of the interactions between the multiple literacies of comics, Miodrag considers how speech balloons operate as part of the visual language and modify text elements held with them. This allows her to develop ideas about the relationship between these two core literacies of comics. Her assertion is that speech balloon components are a key modifier of text and a reader's understanding of said text. Miodrag also suggests that the spatiality of comics is what allows for images and text to work together as a hybrid form whilst also keeping each element distinct from those around it (Miodrag, 2013). In addition to the immediate connections of image and text in speech balloons, she considers ideas related to connections between multiple panels. Here she considers connections between text and image elements in juxtaposed panels and over larger spatial gaps, which are reflected in the works of McCloud, Groensteen and Cohn (McCloud, 1993; Groensteen, 2007; Cohn, 2013b).

Miodrag also identifies that images can have meanings which are made within the panel. She discusses how the meanings of visual element are worked out rather than understood based on a taught system of forms and conventions, or langue. Her arguments bring in ideas of reading memory and associations which are key to understanding how individual image elements are remembered and used in reading. Particularly where repetition and reading memory are concerned. Here Miodrag identifies how connection can be made between panels through the remembering of images, sequences and utterances from earlier in a comic. This understanding and recognition of elements which appeared before is what forms the grounding for reading memory and reflects the work of Groensteen, Cohn and others who also discuss the connectedness of panels through memory (Groensteen, 2007; Cohn, 2013b). However, the idea of reading memory is different to the idea of working memory discussed by Cohn and it will be important to define the differences before undertaking further investigation.

One of the Miodrag's core ideas is that "ultimately, comics composition must be understood in terms of the systematic relationships between nested layers of contents, frames, page, double-page and entire text, always attentive to both the smaller units' valuation and place within the whole, and the larger units' constitution in the smaller" (Miodrag, 2013: 227). This informs a key part of my proposed reading toolkit and refers to how a reader is required to be aware of, and switch between, the different levels of reading in order to comprehend meaning. Key to the discussion are the ideas of space and sequence which Miodrag identifies as highly impactful on the text-reading processes. She suggests that "the arrangement of utterances within the two-dimensional space of the page is made integral to the way that text reads" in comics and that "the spatial arrangement informs the way text reads" (Miodrag, 2013: 65, 66). These ideas are then exemplified, making note of how simultaneously visible text is reliant on spatial relationships but also that spatial relationships exist

beyond the boundaries of the page. Whilst not directly referencing the works of Cohn or Groensteen, similarities can be seen here and so the work proves useful beyond the boundaries of text investigation.

In her discussion of the connectedness of panels Miodrag argues that the linked network of panels is more important to making narrative sense than linear sequences of panel transitions. She points out the importance of the work of Groensteen and Cohn stating that "both Cohn's proposed grammar and Groensteen's arthrology assert the importance of non-linear relationships" between panels and panel content (Miodrag, 2013: 110). Miodrag identifies the similarities between this type of connectedness in visual language and those of sense-making activities in text-verbal languages. She suggests that all narrative forms are comprised of non-linear relationships and that comics "utilize non-linear plotting and resurgent motifs to complicate the basic sequential progression that characterizes *all* narrative forms" (Miodrag, 2013: 110). In examples, Miodrag demonstrates both the immediate relationships between text and image elements and the connection between these elements over greater spatial distances. Miodrag also discusses the levels of reading, and the multiframe. Her discussion of these key elements is limited to just a small part of a chapter in the book but are key observations which I expand on in my own research (Miodrag, 2013).

Miodrag suggests new ways of approaching comics academia, constituting an important text which takes a developed approach to the languages of comics. As she puts it, "this book is not only a challenge of the established patterns of defensive form criticism, but an attempt to provide a modified critical framework" from which further, more developed and constructive, criticism can be made (Miodrag, 2013: 247). She identifies that she has "advocated a new way of evaluating the literary qualities of the comics form" and that comics is a much more complex form than previous models of analysis allow for (Miodrag, 2013: 247). Clearly, Miodrag is an academic whose work must be considered and developed in the proposal of a comprehensive toolkit of comics reading and so is significant to this thesis.

Comics and the Senses, by Ian Hague, is useful in helping to ground ideas related to the shift in physicality of the comics form in the transition from print to screen (Hague, 2014). Hague discusses comics as they relate to the five senses: sight, hearing, taste, smell, and touch. Whilst each of the chapters discusses aspects of the form and how a reader might comprehend it, the most important to the understanding of my own research are that of materiality and touch. Hague aims to "develop ways in which the multisensory experience of comics may be approached" and in so doing offers an approach which considers more aspects of how people interact with comics language than just the visual elements (Hague, 2014: 26). He explains how the materiality of comics influences a reader's

experience and recognises the importance of physicality. In his investigations he identifies that consideration of the materiality of comics allows us to see the book – and by extension other substrate mediums – not as a transparent mode of delivery but as a part of the reading experience. Further, he asserts that "we can both read and feel (and hear and smell) the work simultaneously, and comics as a multisensory medium must therefore also be understood as a multimodal one." (Hague, 2014: 22). As such, Hague identifies that investigations of the reading of comics' visual components should not be removed from the form which delivers them. Clearly then, this research is important in the consideration of how reading is impacted by a shift in physicality between paper and screen presentation. Whilst Hague does not aim to discuss digital comics in detail, he does include some important observations about the digital screen environment, particularly as it relates to the physicality of comics. Here he observes that the digital is not without its own form of physicality and that the screen is itself a physical object reliant on touch to operate. He clearly identifies that comics presented on screen rely on touch-based reader actions for progression through the narrative in many cases. Importantly, Hague notes that actions associated with both print and digital comics require "generic physical processes", and his comparisons of operations in print and screen delivery serve as a useful foundation for some of my own understanding (Hague, 2014: 108). Notably, he observes "that the progression of a comics' narrative usually requires the repetition of a particular action: turning the page, clicking through to the next screen or touching the screen to advance" (Hague, 2014: 108). Importantly, he discusses the page turn here and observes that similar actions are available in the digital environment, but that the feelings and sense of progression are different. He proposes that, whilst each of these actions is generic and provides similar function in progression through narrative, it is important to consider them as unique actions associated with the physicality of each device used for presenting comics content. Whether that be in print or on screen. Therefore, it is important to consider reader actions as part of the reading of comics in different environments. These repeated actions are crucial to ideas presented in my own work, both in print and on screen and allow a connecting of concepts from comics theory with those of interactive media theory. Hague's investigation here, along with the assertions related to the digital made by Groensteen (outlined above), therefore serve as an important starting point from which to develop my own research.

There are of course several other important academic studies which have been published during the research process of this thesis. Important among these are: Atkinson, whose paper *Why Pause?: The Fine Line Between Reading and Contemplation* furthers discussions of the tensions between image and narrative reading; Goodbrey, who published several papers discussing comics in the digital environment of screen media; and Bongco, whose book *Reading Comic: Language, Culture and the*

Concept of the Superhero in Comic Books considers the reading of comics from a cultural perspective (Atkinson, 2012; Bongco 2014; Goodbrey, 2013a; Goodbrey, 2013b; Goodbrey, 2015). These have all provided useful background to the thesis but do not offer substantial contributions beyond supporting key ideas outlined elsewhere. This thesis will include these and the proposed theories of several other emergent texts where relevant. Many texts and publications were released throughout the period of writing and these newer academic studies are used to support, or in some cases challenge, the key texts from Miodrag, Cohn, Potsch and Williams, Khordoc, Groensteen, Hatfield, McCloud and Eisner and further inform this thesis. The significance of this recent surge of academic interest in comics reading and language cannot be understated and demonstrates the current-ness of the research being undertaken within this thesis.

1.4 The Key Ideas and Gaps to be Filled

Introduction

As I have identified, this thesis brings together the ideas of the above theorists to propose an expanded toolkit for comics which considers each of the sense-making processes in reading. In producing this toolkit, I investigate how each of the theories of comics structure, sequence and reading fit together. In so doing I aim to produce an expanded reading toolkit that can be applied to comics and identify a clear gap in the studies of comics reading. Until this point, no model of reading which accounts for an expanded understanding of reading activities established by other theorists exists. By using the existing partial models to identify a reading toolkit, I will be able to assess how American periodical comics are read in different modes of presentation, and the impact that altering spread sizes has on reading.

Many of the key aspects of an expanded reading model have been considered by the explored comics reading academics, however these need to be brought together and tested against existing comics. Key elements that are discussed within the works are structure, transitions, and layouts. Structure is discussed by way of identification of the elements which make up larger components of the comics structure. This can be seen in the work of Khordoc, Potsch and Williams, Cohn and Miodrag as well as in the work of McCloud and Eisner (Eisner, 1985; McCloud, 1993; Potsch and Williams, 2012; Cohn, 2013b; Miodrag, 2013; Tang, 2013). The combination of reading activities associated with the structural elements of panels is important to understanding a larger reading model as these form the basic building blocks of comics. It is important to combine the examinations of text, image and conceptual metaphor in order to demonstrate a holistic reading toolkit of structural elements. Similarly, there are a good number of discussions of transitions within comics academia that will need to be considered for a holistic reading of transitions to be proposed.

Transitions are discussed by Cohn, Groensteen, McCloud, Hatfield, et al. However many different approaches to understanding can be seen (McCloud, 1993; Hatfield, 2005; Groensteen, 2007; Atkinson, 2009; Cohn, 2013b; Miodrag, 2013). It is important to identify where these approaches overlap or contradict, and to fill in any gaps they present, in investigating transitions.

Layout is also discussed by many academics and is suggested in each case to be important to the receiving and delivery of information to a reader. Cohn, Groensteen and Miodrag are key figures here and their work needs to be considered together in discussion of how layout affects reading (Groensteen, 2007; Cohn, 2013b; Miodrag, 2013). In proposing an expanded toolkit for reading comics it is necessary to combine and contrast these discussions of layout, and illustrate where gaps in the discussion exist. Where gaps do exist, I will need to investigate how reading is performed, through approaches detailed in my methodology.

From the review of comics reading literature I have undertaken so far there are several area which need to be investigated and defined.

Defining Reading, and by Extension, the Reader

Most crucially, it is important to consider what is meant by reading. Throughout the discussions so far it is clear that readers can be quite diverse and so can acts of reading. As such it is important for the sake of clarify to explain how this research will define reading. *Key Terms in Comics Studies* defines reading as "the process of making sense of MARKS on the page." (Wysocki, 2022. P. 266) However, it is clear from the research conducted so far that this process is categorised by a number of activities which need to be unpicked before further discussion can be undertaken. To begin it is important to acknowledge that academic writing tends towards two different types of discussion of reading. The first surrounds ideas of readership and focusses on the cultural implications of reading and memory. The second, and more relevant to this thesis, focusses on the processes of reading. Whilst it has already been noted that comics as a means of learning to read is not a focus of this work, it is important to identify that the consideration of readership and the culture of comics reading is also beyond the scope of this thesis. As such, noteworthy work by authors such as Mel Gibson and Martin Barker are somewhat tangential to the consideration of reading and readers here. (Gibson, 2008, Gibson, 2015, Barker, 2002.) These works are important to the wider academic studies of comics and give clear insight into the historical, social and cultural contexts of comics reading but do not offer much insight into the processes involved in that reading. As such, rather than readership and the experience of reading, the focus of this thesis is on the processes and cognitive functions of reading as part of the processes of navigating and understanding narrative in comics.

The reason for this decision is one of clarity and focus. The reading processes of comics are, by themselves, highly complex and several perspectives on these processes have already been identified within existing academic writing. In order to more carefully unpick these various processes of reading it is sensible to limit the breadth of what is considered when discussing reading beyond the discussion of process.

Broadly speaking, there are two main approaches to reading processes presented in the literature we have looked at so far; the mechanical processes of navigation and comprehension of structural elements on the surface of a comics layout, and the connecting of the elements seen in the layouts through cognitive processes and semiotic associations. Most scholars we have looked at consider both of these approaches to reading, however the balance of which is favoured varies from author to author. For example, Grennan favours the semiotic connections of elements seen within panels whereas Cohn favours a more mechanical and structured approach. (Cohn, 2010, Grennan, 2017) However each scholar considers both modes of reading process as part of their discussions. For my own investigations, the considerations of structural components are favoured over the constructions of specific meanings in the minds of readers. Both reading processes are important, as evidenced in the academic studies looked at so far, however it is important to ensure that this thesis remains focussed. As such, this thesis will primarily discuss the mechanical processes of reading whilst keeping in mind that these may be influenced by reader experience and semiotics. Notably, there are often two parts to reading which reflect these approaches. The understanding of structure and sequence in parsing intended reading order, and the association between meaningful units in the understanding of narrative events. We will see that these inform one another in the discussions to follow but it is important to note that both are often considered integral to ideas of reading.

This is reflected in ideas like those presented by Atkinson and Hatfield who both identify the tension between pursuing narrative and contemplating depiction. We have already looked at these ideas but in sum, there is a tension between activities involved in decoding images and following narrative. For Hatfield this is the tension of “Sequence vs. Surface”, with sequence referring to the pull of narrative and surface the consideration of the elements which make up images. (Hatfield, 2005: 48-58) Atkinson refers to this as a pull-pause relationship and identifies the pull of narrative and the pause of contemplation as central ideas associated with reading images in sequence. (Atkinson, 2012)

Atkinson helps us to unpick some of the terminology associated with the activities involved in reading. Importantly, separating out terms such as looking and seeing will help to better define what I mean when describing reading processes. Both Atkinson and Cohn suggest looking to be the observation of surface elements which make up the visual landscape of comics images. (Atkinson,

2012, Cohn, 2010) That is to say, it is the initial act of observing the images and text which make up the comic's visual information. Looking then, is the casting of one's eye over the surface of an image without active engagement in sense-making. Seeing is suggested to be more active than looking and to involve recognising images and understanding their meaning through association with other elements. This is where activities beyond the superficial act of looking take place. Similarly, Grennan uses the term "seeing-in" to describe the phenomenon of seeing "both the object of depiction … and the depiction … at the same time." (Grennan, 2017. P. 36-37) Or, put another way, that seeing-in requires the comprehension of both the depiction and of what the depiction represents. This, like seeing as described by Atkinson and Cohn, suggests a deeper level of engagement than simply looking. It is then fair to say that all reading involves looking but not all looking is reading.

Grennan also proposes a definition for perception which is helpful in expanding on ideas of reading. Like with seeing-in, his explanation of perception is also grounded in ideas of depiction, which Grennan describes as being "a unique type of visual representation defined both by seeing the activities/marks that constitute the depiction whilst also seeing the object of the depiction." (Grennan, 2017. P. 48) In other words, depiction is defined by the act of seeing-in and comprehending both the marks and meanings of the depiction. It is at this level that ideas of consciousness, awareness and social recognition could be considered. However, these areas largely sit outside the scope of this study. Instead, we will be taking as given that activities of perception, like those outlined by Grennan, are taking place as part of the broader acts of closure. These will be outlined fully in Chapter 3 but in sum, closure as used for this thesis refers to the cognitive acts of connecting and associating elements in the mind. How exactly these mental associations are performed is beyond our scope and instead we will focus on the types of connections presented in the visual elements of the comics structure.

For the purposes of this study, perception can therefore be considered as the act of cognitively understanding that one is seeing marks on a page and that said marks have representational meaning. It is at this level, where associations between the seen elements are being made, that we understand reading to be taking place. As such, reading goes beyond looking and seeing and relies on the bringing together of ideas and understanding of narrative. Many comics scholars, including Eisner, McCloud, Cohn and Atkinson have observed this interaction and emphasize that reading comics is not simply decoding but also involves understanding how words and images work together to convey meaning. (Eisner, 1985, McCloud, 1993, Cohn, 2013b, Atkinson, 2012) This is how reading is defined for the purposes of this writing: the combination of activities of looking, seeing and perceiving in ways which aim to generate understanding of narrative.

Following these definitions of reading and closure, we can more clearly emphasise what is meant by the term 'reader' in this thesis. This writing favours the idea of the reader as a theoretical receiver of information rather than as an individual with embodied experience or skill level. This reflects my writings focus on reading processes over readership and social or cultural background. That said, as we have seen in the work of other academics, it is important not to only consider formalist understandings of reading process and so aspects of cognitive function such as memory and attention will also be represented within this work. As such, 'a reader' as used within this thesis describes a theoretical receiver of information who engages in cognitive activities associated with reading (e.g. looking, seeing, perceiving, closure, etc.). At no point is 'reader', as used in this thesis, intended to reflect the experiences of individuality, and when it becomes necessary to note potential differences based on social or cultural experiences which narrow the scope of what is meant by "a reader" it will be identified within the writing.

The Reading Contract

Another key idea is that of a reading contract which is entered into by the reader. Groensteen identifies this contract as underpinning the idea of transitions: when presented with juxtaposed panels, comics readers actively attempt to make sense of sequence (Groensteen, 2007; Groensteen, 2013). Miodrag suggests something similar in discussing how readers make meaning, learn and memorise elements for later use throughout the reading process (Miodrag, 2013). McCloud also notes this "contract between creator and audience" when discussing transitions and closure (McCloud, 1993: 69). The acknowledgement of a contract between reader and creator suggests it is an important part of how comics are understood and read. It seems clear that without such a reading contract the transitions discussed by McCloud, Groensteen and Cohn cannot function as described. The problem with the current literature is that generally this reading contract is regarded as an innately understood part of reading and is therefore not investigated thoroughly. Otherwise, the discussion of transitions favours the position of the creator, and therefore disregards the reader's part in the reading contract. McCloud suggests that readers are active participants in transitions and so a reading contract must reflect both the reader's part in creating meaning and the creator's part in guiding the reader towards meaning (McCloud, 1993). Predominantly, the current academic work relates to the reading contract from the perspective of the creator. My writing will favour the reader's part in the reading contract and discuss the process of consuming and interpreting narrative.

Different Types of Reading Memory

Integral to the idea of a reading contract are elements of memory. It has become clear from the research outlined so far that several types of memory are being discussed. As such, it is crucial to identify each of these types of memory to avoid confusion in later parts of the thesis.

Cohn's working memory, which comes from a cognitive science background, can be identified as a form of short-term memory, or "the system or systems that are assumed to be necessary in order to keep things in mind while performing complex tasks" (Baddeley, 2010: R136). Working memory is therefore dependent on immediate or short-term memory and so does not consider long-term memory activities. These long-term memory activities are important to the discussion however, particularly with regards to discussions of Groensteen's arthrology and braiding, specifically ideas which he terms diachronic, which rely on long-term memory connections between read elements over large reading distances (Groensteen, 2007). Any discussion of memory with regard to the connectedness of panels beyond the confines of a single spread needs to consider long-term rather than short-term memory. Miodrag, who discusses some of these activities, considers what can be referred to as reading memory (Miodrag, 2013). This reading memory seems to include all the activities of memory that are involved in reading, including both long-term and short-term memories. When discussing reading memory within my own research this will be the term I use most frequently as it covers a broader range of memory activities including ideas of braiding and working memory. Reading memory also covers aspects of encyclopaedic memory which Potsch and Williams mention (Potsch and Williams, 2012). Encyclopaedic memory is important and relates to structural components of comics reading. This type of memory is a form of long-term memory specifically related to recognition and is used in identification of objects and the understanding of time, concepts and sounds. Each form of memory contributes to an overall reading memory, and it will be important to understand that the term reading memory includes consideration for all memory tasks involved in reading. It is also worth pointing out here that memory activities and reading memory are considered different from individual or cultural memory for the purposes of this thesis. As such, when referring to memory this writing does not consider the embodied memories of individuals but rather refers to general activities of memory which facilitate reading. Put another way, this thesis discusses reading memory as a set of activities, not as individual memories.

The Consideration of Presentation

One of the most significant gaps is the absence of much discussion on how reading is impacted by the various common presentations of American periodical comics. The dominant form which comics take in the west are periodical codex books, with the recent rise in digital comics available on screen.

Much of the academic work produced up to this point does not consider how reading processes might be changed between each of these forms of presentation. This gap was the catalyst for the initial research which aimed to identify how reading comics is altered between screen and paper counterparts (Nichols, 2013). Whilst the focus of this research has changed since its inception, it is still important to test any proposed toolkit against the most common presentations of the American periodical in print and on screen. In so doing comics as they are most commonly read in the modern day are considered, and the research's currentness can be established.

There are some considerations of the digital form of comics within the current academic writing on comics reading, with McCloud discussing how digital delivery might alter the form of comics in *Reinventing Comics,* (McCloud, 2000). Hague has also discussed how the form affects reading however his discussions focus on materiality and ideas of the tactile nature of the printed comic book, rather than comics presented on the screen (Hague, 2014). Similarly, we have seen that Groensteen's ideas about the spatio-topical system rely on form and include discussions of how altered panel layouts between different print forms lead to different reading activities (Groensteen, 2007). Each of these ideas, which relate to reading layout, needs to be further investigated. Groensteen expands discussions of reading comics on screens in *Comics and Narrative* (2013) where he identifies varying forms of delivery available on screens leading to alterations to the spatio-topical system. Groensteen's observations here serve as a useful jumping-on point but need further investigation beyond the broad conclusions he makes. One of the aims of this thesis is to fill the gap in knowledge of how different deliveries of American periodical comics alters reading activities. By applying a reading toolkit to both print and screen versions of American periodical comics I will investigate what differences in reading can be understood as spread sizes change in different display methods. This will form the later section of the thesis, as it is necessary to first identify an expanded reading toolkit before it can be used in comparing comics spreads through different presentations but represents a significant contribution to the field.

Section 2 –

What Makes a Panel?

Chapter 2: Reading Different Image Forms in Comics

2.1 Introduction to the Multiple Literacies of Comics Reading

Having researched the state of comics studies and identified that the purpose of this thesis is to investigate reading activities, it is perhaps prudent to identify the components that need to be read within comics. This section examines the structural components which make up the visual languages of the observable panels, and how they might plausibly be read. In doing so I will discuss the multiple literacies most commonly associated with comics and investigate the ideas put forward by academics whose work seeks to identify the components which make them up. I will begin with a discussion of the image-based components of comics before moving on to a discussion of the text-based components and then look at how these elements combine and are read together.

2.2 Understanding Image Relationships

Comics are a predominantly visual form which uses multiple literacies to present content to an audience. When multiple literacies are read, multiple modes of communication combine to deliver meaning that would not be as easily, or effectively, achieved using a single mode alone (Saraceni, 2001). As we have seen, comics' use of primarily visual communication leads to a dominance of academic research which focusses on the visual of the fictive world within a narrative. This chapter aims not to discuss the individual styles of representation or how artistic expression is used in specific instances but is instead focussed on the more generalised representational modes towards which images tend in American periodical comics. This approach will allow me to define different types of image communication and identify how image relationships are used by readers to create meaning in the reading mind. These image relationships form a foundation on which other reading activities throughout this thesis sit and it is essential that we are able to identify how the components which make up a comic panel are understood, before we consider how all the components of comics come together.

2.3 Direct-images

Introduction

In comics, I would suggest that images tend towards two different types of meaning: physical and conceptual. Physical images present the fictive world in which the characters exist. That is, the content of the panel and the depiction of the fictitious world within. These direct-images, as I will call them for clarity, are a relatively straightforward image-form to understand as they usually engage in denotation rather than connotation (Barthes, 1967), meaning they have a literal representation and resemble what they represent. Direct-images are the images which make up the bulk of the comic

artwork and are usually what people talk about when discussing 'comic art' or 'art style' in common discourse.

As McCloud points out, direct-images have many different styles of representation - each specific to the artist or artists creating the work and delivering the representational direct-images of the world of the work (McCloud, 1993: 29-30). There is however a shared language among different styles of representations, often associated with specific genres. Witek's ideas surrounding stylistic modes and Cohn's discussions of Kirbyan and Barksian art styles reflect this (Witek, 2012; Cohn, 2013b), the Kirbyan style being the style most commonly associated with the superhero or action genre and Barksian being associated with cartoony styles of rendering. Witek suggests that "Contemporary comics are rooted stylistically in the confluence of two distinct traditions of visual representation" which he refers to as the cartoon mode and the naturalistic mode (Witek, 2012: 28). These modes sit at either end of a spectrum of direct-images from realistic to simplified which we can see reflected in McCloud's ideas pictured below (Fig. 2.1). The highly varying visual styles of direct-images range from the naturalistic mode of photographic and photorealistic imagery, through to the exaggerated, simplified and highly abstracted images of the more cartoon mode. This scale of visual representation is clearly indicated in the following panel from McCloud's book *Understanding Comics: The invisible art* (McCloud, 1993) where he discusses the levels of realism in artistic renderings of faces (Fig. 2.1).

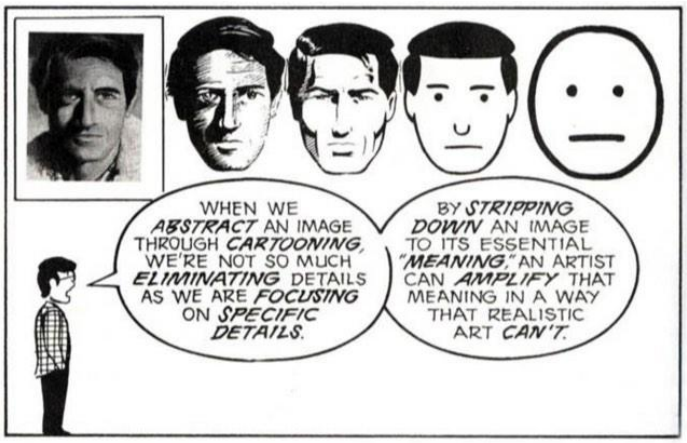


Fig. 2.1 McCloud's Abstraction and Simplification (McCloud, 1993: 30)

Here, McCloud identifies a key idea in artistic rendering: that of realism and abstraction. However, McCloud suggests that simplification *equals* abstraction - which I would argue is an over-simplified conclusion, as we will see when looking at text-based visuals later. When McCloud uses "abstraction" here he is not talking about the abstract or an abstracted image so much as the simplified image. Regardless of McCloud's language however, the idea is that simplification (abstraction) generalises

images whilst realism specifies. And whilst potentially innumerable styles of representation exist within this scale of realistic to simplified, all styles of direct-image serve to represent the physicality of the fictive world of the narrative in some way. As such the visual style of direct-images will not form the focus of this work as the purpose of the reading process remains the same, without considering the levels of simplification or realism.

Regardless of style, the direct-image is representational of the fictive world of the work. It acts as the base representation from which the context of other types of images and text-based elements can be drawn. A reader will often only be able to parse the meaningful properties of conceptual images or text elements through their relationship to the fictive world presented by the direct-image. For example, speech balloons, which are visual units that identify the conceptual properties of text, often rely heavily on the direct image to identify a source of an utterance or sound, as we will see. The same is also true of some conceptual text-as-image objects which rely on proximity to identify their narrative relevance, such as onomatopoeia. As a result, the direct-image depicts the world of the work through which other images and text gain context and become understandable parts of the narrative. The direct-image is a crucial element for delivering information to the reader and is an integral part of the sense-making process of comics. Because of this importance in the overall reading process, it is crucial that this study should understand how the direct-image functions and how a reader makes sense of it as part of the larger reading of comics. The following will outline how the direct-image might be broken down into recognisable and decipherable elements and combined into meaningful narrative units.

Recognition

Panel images can be broken down into smaller units which make up the whole direct-image in its totality. Theoretically they can be broken down until each mark, line or dot rendered by the artist(s) has been isolated from all others around it. However, this is not a useful process of examination when discussing reading and it is more helpful to break the panel images down only as far as the isolated mark or marks are still meaningful. In the case of American periodical comics, particularly with art from the Kirbyan visual style, the meaningful units are often complex and are made up of multiple marks, lines or dots (Cohn, 2013b).

Fig. 2.2 Meaningful Units in a Panel from *Detective Comic #934* (Tynion IV, Barrows, Ferreira et al., 2016)

In the panel from *Detective Comics #934* (Tynion IV, Barrows, Ferreira et al., 2016) the direct-image is made up of a number of identifiable, meaningful units (Fig. 2.2). The direct-image itself consists of the head and shoulders of the character Kate Kane (Batwoman) against a background featuring windows, pictures in frames, snow, and buildings. Being able to distinguish the key character from the background allows readers to separate each into discrete units which can be related to one another to form contextual meaning (we understand that Kate is located inside a building with windows looking out at other buildings.) Focussing on the character, we can break down this part of the image into smaller meaningful units of eye(s), eyebrow(s), nose, mouth, ear, hair and so on. Even going as far as to break down the eye-unit into pupil, iris, sclera, tear duct and eyelashes. These are what Cohn refers to as morphemes, "the smallest units of meaning in a language" (Cohn, 2013b: 23). Each of these micro-units or morphemes has meaning. However, breaking them down any further into individual strokes or marks would not allow for effective communication of meaning and so is not useful for our analysis or for the purposes of reading. The meaningful units here are those that are recognisable even when isolated from one another. In this particular direct-image those units are all made up of multiple marks, lines or dots. It is also worth noting Grennan here, as he argues that all marks on the page *are* meaningful in that they function within a system of social behaviours that communicate the actions of an artist to a reader (Grennan, 2017). Whilst this idea is interesting from the perspective of making and interpreting narrative drawings, it is less convincing than the work of Cohn when considering how readers recognise objects of depiction. More useful to this research is Grennan's identification that Cohn's use of the word morpheme is not representative of its original

meaning in describing written language components. As such, it is important to clearly define what I mean when using the term in this research. When I use the term “morpheme” I am aligning my meaning with the one presented by Cohn and not the original meaning identified by Grennan. As such, the morpheme as used within the context of this research refers to the smallest meaningful unit within an image.

Fig. 2.3 Meaningful Units in a Panel from *Peanuts 14th Aug 1971* (Schulz, 1971)

In other artistic renderings, similar meaningful units may be made from a singular mark or line. Such as the mouth, ear or nose of Charlie Brown in *Peanuts* (Fig. 2.3). In the case of a simplified figure like this, a single mark *does* represent a meaningful unit, although that meaning is likely to be lost without the context of the surrounding image. It is worth noting that whilst a reader must be able to mentally separate units for the purposes of differentiation, they do not *literally* see these units isolated from one another during the reading process. This relates to gestalt principles involved in visual perception, particularly connectedness, similarity and proximity (Peterson and Berryhill, 2013).

For the purposes of recognition and understanding, it is important that a reader can decipher the units which make up the direct-image and their relationships to other elements. A direct-image may have micro-units of eyes, noses and mouths but unless they are arranged in a way which resembles a face, they will not likely be read as the larger unit of ’face’ by the audience. As such there are different levels of understanding which allow a reader to comprehend the meaning of images through combining meaningful units. Micro-units are the smallest of these and make up component parts of larger units. These larger units may then be parts of units that are larger still until they make up a complete image-object. Then these image-objects make up the direct-image as a whole. Only when the image-units are related to one another in context can sense be made of the relationships between them, and the final direct-image be understood.

Based on my close readings here, it is clear that, for comics to communicate effectively, each of the image-objects within the direct-image must be recognisable, identifiable and distinguishable from one another. A character cannot communicate character-ness if it cannot be distinguished from the background of the scene in which it is drawn, for example. Similarly, an object must be identifiable from a character or the background for its intended meaning or narrative purpose to be communicated within the scene. Regardless of the artistic style of the renderings, the purpose of the direct-image is to present the world of the work to the reader and in order to do that effectively the renderings must be decipherable by the reader. The clarity of the direct-image is important for delivering meaning to a reader. If a direct-image or an image-object within it is not decipherable its meaning might be lost and, depending on the importance of the image to the narrative, the story may become nonsensical.

Reader Experience

A reader's experience and cultural background can often assist them in recognising objects, scenarios and actions based on their own knowledge of the real world and the culture surrounding them. I will refer to this as encyclopaedic memory of the world, based on the ideas of Murrays' discussion of digital storytelling (Murray and Murray, 2017). A reader's shared cultural experience with the author/artist may even make it easier to recognise particular styles of rendering as noted by Grennan (Grennan, 2017). Similarly, a reader will bring experience of objects, events, or subjects which they have not experienced in real life but instead have experienced in other media artefacts. For example, a reader may not have seen a rocket ship in real life but is likely to have had some experience with what a rocket ship looks like from other media. In this case a reader would be aware of what a rocket looks like based on its recognisable visual features (the micro-units that make up the image) and would be able to recognise one rendered within a direct-image provided it has the defining visual features associated with such an object. In this case the reader brings with them their cultural experience for the purposes of identification and in most cases this cultural experience can be assumed to be similar for readers from similar cultural backgrounds (Medley, 2010). This is a brief summary of how experience and background can impact recognition. However, it is worth reiterating that this thesis does not intend to investigate how culture and background result in different reading experiences. Therefore, I will not be investigating the experiences of individual readers or reader groups but will instead be focussed on more general ideas of experience as related to the activities of reading. As such, it is important to identify that recognition is not solely based on what is presented within the confines of comic narratives and may be influenced by outside experience. Encyclopaedic memory is the term used here to broadly refer to the accumulated experiences that readers may

bring with them for use in reading and recognition. It is not the individual memories of specific readers or reader groups.

Recognition may also be developed within the confines of a comic or series of comics through repetition and explanation. As Groensteen notes (2013), the principle of repetition is what allows the reader to understand that what is being presented is a story. In summary, he suggests that by including a character or object, and identifying that it is repeated in different panels, readers can comprehend distinct moments. This allows for an artist or writer to establish an image-object in an early part of the comic and then use it repeatedly throughout other direct-images in the narrative rather than relying on the pre-existing knowledge or understanding of the reader. This technique can often be seen when introducing a character at the beginning of a story: the artist and author will establish them in the early panels of the story in order to introduce them to the reader. This gives the reader all the experience they need to recognise the character, and perhaps their relevance to the narrative, when they appear again in panel images later in the narrative sequence without the need to employ encyclopaedic memory. This might be done using a combination of image and text which introduces the character and, importantly, their visual traits, so that these can be repeated in subsequent images, and repeatedly identified in those panels. Once the visual properties of a character are established, a reader takes the experience of that character's visual properties forward with them into the rest of the narrative - and potentially beyond into other comics and media which they read in future (Mikkonen and Braithwaite, 2022). Establishing image-objects in this way is also important when creating fictional objects within a narrative which the reader cannot have experience of. An object which does not exist in the real world, and which is created solely for the purposes of narrative, must be established within the images of the fictive world. A reader simply cannot have encyclopaedic knowledge of a fictional object before their first experience of it within the fictive world of the narrative. Once the fictional object *is* established however, it can be used repeatedly and is likely to be understood by the reader through the application of the same encyclopaedic memory processes.

Reader recognition is therefore an important part of the overall function of the direct-image. If a reader cannot recognise an object and understand its contextual meaning, they cannot *read* it. In the direct-image, encyclopaedic knowledge is a commonly used part of the visual literacy applied in the reading. Also, in cases where image-objects within the direct-image cannot be recognised, the reader first needs to be introduced to new objects to allow them to enter the image-objects into encyclopaedic memory and to be able to recognise them in future instances. This allows recognition and recall as part of the image-reading throughout a comic narrative. Of note here, for the sake of clarity, is that whilst some aspects of encyclopaedia memory relate to individual reader experience,

which is not the focus of this research, others relate more directly to reading *activities.* It is these activities of recognition that facilitate the reading of comics components that are of interest to this thesis and are what will be referred to when encyclopaedic knowledge is mentioned going forward.

2.3 Visual Conceptual Metaphor

Introduction to Conceptual Metaphor

The direct-image combines the visual elements which make up the fictive world of the work and presents objects and elements which exist in that world. The purpose of the direct-image is to communicate the physicality of the world in which characters and objects of the story exist and as a result the direct-image elements all present a physical aspect of the fictive world. However, not all images rendered in the panel are intended to represent physical objects within the fictive world. Some are intended to communicate conceptual information. Potsch and Williams refer to this type of image element as conceptual metaphor in their paper *Image Schema and Conceptual Metaphor in Action comics* (Potsch and Williams, 2012). These make up the other type of image meaning mentioned earlier.

Conceptual metaphors in comics present visual representation of a concept or idea, for example, speech, movement, or emotion. In most cases they attempt to represent a concept which exists in the fictive world and so are not entirely removed from the physical but rather connected to it through proximity. Often the conceptual metaphors are intended to represent an aspect of the fictive world which characters within that world experience. Such elements can be referred to as diegetic or as forming a part of the diegesis (Pratt, 2009; Lefèvre, 2009). This might be the representation of a concept like sound within the fictive world where the characters 'hear' sound presented to a reader through visual means. It might also be a movement within the fictive world that characters experience as motion that is communicated to readers through static image representation.

Representations of Motion

Movement is one of the key types of conceptual metaphor which is found in comics. As comics is a static medium an artist must find suitable visual substitutes to represent movement of characters and objects through space. Potsch and Williams discuss three "stylized symbols commonly used in action comics to represent the dynamics of events: ribbon paths, motion lines and impact flashes" (Potsch and Williams, 2012: 15). Each of these forms of stylized symbols are intended to be read as representations of conceptual information and two of them are commonly used in comics to represent movement within the action of a panel. Ribbon paths and motion paths both indicate the path along which an object or action travels however there are a range of others.

Before I look at examples of conceptual metaphor used to communicate motion, I will first discuss how the perception of motion functions according to Potsch and Williams. The key idea for recognising a static representation of motion is the reading of a *source* → *path* → *goal* relationship with an object rendered within the image. As Potsch and Williams put it:

"The SOURCE-PATH-GOAL image schema is the basic conceptual structure of a motion event; a moving object (which cognitive linguists call the *trajector*) begins its motion at one location (the source), travels through a series of contiguous locations in space (the path), and ends its motion at another location (the goal)" (Potsch and Williams, 2012: 20).

Each aspect of this relationship between the key elements, read together by the reader, represents an object moving through space. As such the reading activities of comics require that an object within the direct-image be identified as a trajector in order for the concept of motion to be understood. The reading of that object is then modified with movement by association with the motion path which identifies where it starts (source), where it ends (goal) and through what positions it moves in between (path). The following examples present my application of this source-path-goal, as presented by Potsch and Williams, to my own close readings.

Fig. 2.4 Rough and Tumble break a glass in *Sonic the Hedgehog #3* (Flynn, Hernandez, et al., 2018)

In the above example taken from *Sonic the Hedgehog #3* (Flynn, Hernandez, et al., 2018) we can see a simple motion path which shows each of the key parts of the source → path → goal image schema (Fig. 2.4). The direct-image shows two key characters (Rough and Tumble) and two key objects (the glass and the table). In this case the trajector is the glass, rendered in a state of mid-smash as it impacts the ground. The rendered moment of the panel in this case is the moment the glass connects with the ground and smashes. This represents the goal part of our source → path → goal image schema, as well as the fully rendered moment depicted by the direct-image. The other parts of the source → path → goal image schema are inferred by the rendering of conceptual metaphors.

In this panel, the path of the motion is rendered as a ribbon path conceptual metaphor and suggests a reading of the motion of the glass immediately prior to its impact with the floor. The ribbon path shown here is a singular metaphorical representation of movement from the source (atop the table) to the goal (impacting the floor), connecting the two positions and offering a stylised transition between them. The source can be fairly easily understood based on real-world experience and encyclopaedic knowledge. We know that for the glass to smash it must have been involved in an impact between itself and another object. Here that is the floor, and the impact is further suggested by the impact-flash surrounding the object which we will discuss shortly. We know, based on our understanding of floors and glasses that the most likely interaction between these two objects is that the glass has travelled from one position in an unbroken state to its broken state rendered here. This allows us to read the blue ribbon connected with the impact site of the glass as the path which it would have taken to end up in this smashed position. The gestalt psychological principle of totality applies here to connect and correlate the path with the goal and determine a source which, when viewed as a whole, is most likely to be read as the movement of the glass along the path to its impact point (goal) (Hartmann, 1935). This complex set of considerations performed by a reader is what allows these conceptual metaphors to be decoded and understood as part of the reading. This is true of most conceptual metaphors which aim to replicate motion and, because of their reliance on relationships with the rendered direct-images of the fictive world of the work, they struggle to function in isolation. In some instances, a panel may be taken up entirely by a conceptual metaphor which communicates a source → path → goal relationship. However, the rendered direct-image of the trajector is almost always required to link the conceptual metaphor to the world of the work.

The above example demonstrates the functioning of a motion path conceptual metaphor (Fig. 2.4). Whilst this is perhaps the most common form of conceptual metaphor used in American periodical comics, other types are also used regularly including the dotted-line-path and reduplication. Both of these conceptual metaphors operate by communicating the source → path → goal relationship discussed above and present the movement of a trajector along a path through different rendering techniques.

Fig. 2.5 Dotted line path in *Sex Criminals #2* (Fraction, Zdarsky, Sebela, 2013)

In the above image from *Sex Criminals #2* (Fraction, Zdarsky, Sebela, 2013) we can see an example of a complex dotted-line path used to suggest motion (Fig. 2.5). Here the path is intended to be read as the conceptual route which the character (Jon) takes through the scene. It allows the reader to trace Jon's steps through a complex sequence of movements within the panel-image. The dotted line indicates a movement from the source point to the shelves depicted in mid-topple (a suggested effect of his motion (the cause)), to the suggested goal outside of the panel boarder. This is a highly complex set of motions and cause and effect actions depicted through the use of a conceptual metaphor. The dotted line path here is read similarly to that of the previous path. There is still a source → path → goal image schema and so the associated readings of direction are understood in the same way, by following the method outlined by Potsch and Williams (2012). However, whilst the dotted line path allows a reader to track the motion of the character it does not attempt to mimic a visual component of movement. Instead, the path is indexical and only communicates movement due to the surrounding context of the direct-image. It acts here as a sort of track for a reader's eyes to follow through the panel, leading from one cause and effect action to the next. The dotted line traces the journey and adds time, order, and context to the elements of the scene modifying them from a single moment to a series of moments depicted by a single panel-image.

The panel also shows an example of character reduplication for the purposes of communicating motion to a reader. Reduplication, as Cohn describes it, is “the repetition of whole figures or parts of figures” or other objects “as a way to show movement” (Cohn, 2013b: 47). In the panel above Jon is repeated in full four times along the path to show multiple positions of his motion within the scene. Cohn refers to this type of reduplication as polymorphic reduplication “since it uses 'many forms' to convey the whole representation of meaning” (Cohn, 2013b: 47). As Cohn states, reduplication allows for a series of details *about* the action taking place to be communicated in addition to the general directionality of the motion (Cohn, 2013b).

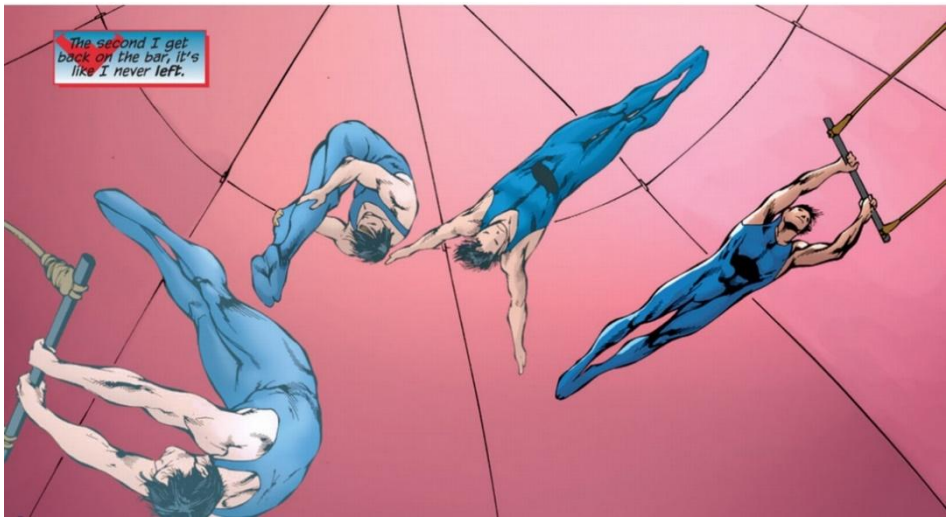


Fig. 2.6 Reduplication in *Nightwing #1* (Higgins, Barrows, et al., 2011)

Reduplication such as this may also be used independently from other conceptual metaphors for motion, as shown in the *Nightwing* example above (Fig. 2.6). Here the source → path → goal of the action is represented solely by the reduplication and ordered by way of colour density without the use of the dotted-line-path or ribbon-path. It is clear then, that many of the conceptual metaphors used for the depiction of motion can be used either alone or in conjunction with others to communicate ideas.

In addition to motion paths, Potsch and Williams and Cohn identify “impact stars” or “impact flashes” as action indicators within comics (Cohn, 2013b: 41; Potsch and Williams, 2012: 25-28). Unlike motion paths these action image schemas do not indicate movement but instead an instance at which two objects collide. Impact flashes “mark the sites of force-dynamic events, bursts of energy that initiate or modify movements through space” and as such they often appear alongside other conceptual metaphor (Potsch and Williams, 2012: 26), most commonly those associated with movement. In some cases, the impact flash will appear at the goal of the movement to mark a final point of collision and represents the transference of force at that point. In others they will appear at

a point, or points, along the path to suggest a moment of contact within the larger action. In the case of the panel below from *Convergence: The Question #2* (Rucker, Hamner, et al., 2015) there are a number of impact flashes which mark points of impact in the depicted scene (Fig 2.7).

Fig 2.7 Impact Flashes in *Convergence: The Question #2* (Rucker, Hamner, et al., 2015)

In real life, the full motion and force of an impact can be shown from start to finish and witnessed in detail by the viewer. The properties of speed and the cause and effect of the collision can therefore be more easily understood without the need for an additional visual sign like the impact flash. In comics, where motion does not exist but is instead implied, the force of an impact must be communicated differently. The impact flash represents that force. In some cases, the impact flashes may double as both visual indicators of small flashes of light or explosions *and* the concept of force or energy.

As with other image schemas, impact flashes tend to be easier to decipher when surrounded by, or linked to, other image elements, particularly the direct-image object of the trajector which links the conceptual metaphor of the action signs with the physicality of the fictive world. In the example below from *Sonic the Hedgehog #5* (Flynn, Yardley, et al., 2018), the trajector (the kunai knife) is rendered in the direct-image and so the impact flash is more readily decipherable than the ones from *Convergence: The Question #2* (Rucker, Hamner, et al., 2015) above. The object connecting with the surface is rendered here and the impact flash indicates the action of the trajector striking the surface as dynamic, adding emphasis and energy. It is worth noting that the impact flash does not necessarily represent a visual flash that might be seen in the fictive world but that it connotes a point of energy exchange within that world. In the image below, the impact flash marks a moment when two objects collide, and the transfer of force from one object to another. This is therefore a conceptual, rather than a physical, communication and the impact flash here represents a conceptual metaphor for energy exchange rather than a physical flash of light.

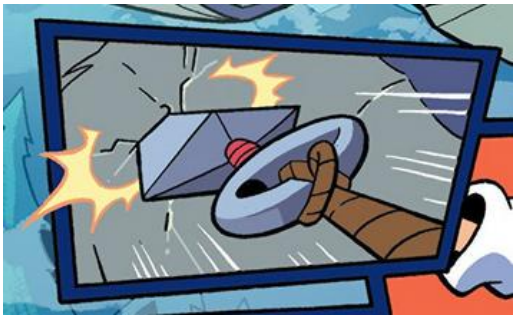


Fig. 2.8 Kunai trajector with impact flash in *Sonic the Hedgehog #5* (Flynn, Yardley, et al., 2018)

Impact flashes are particularly communicative when used in combination with other action image conceptual metaphors like motion paths. As demonstrated above, the existence of the trajector as part of the direct-image adds context to an impact flash and offers more cues for the reader to decipher meaning from the panel. When combined with motion paths, impact flashes can communicate impact at different points along the path of the source → path → goal image schema. This allows the panel-image to depict an action which includes an impact not just at the point at which the trajectory is depicted but anywhere along its path.

Representations of Other Concepts

Cohn considers conceptual metaphor as part of a comics visual lexicon, and as morphemes which make up the larger "visual morphology" of comics as a language (Cohn, 2013b: 23-49). His discussion is broader than that of Potsch and Williams. He discusses a number of recognisable conceptual metaphors which are regularly used throughout comics of multiple types. He suggests upfixes, umlauts and scopic lines as forms of morpheme which communicate to the reader concepts that are not tied to action (Cohn, 2013b). Based on a sampling of a range of American periodical comics, I have found that upfixes tend to be the most commonly used conceptual metaphors for depicting emotion and so I will explain the reading and communication of emotion using them as a base.

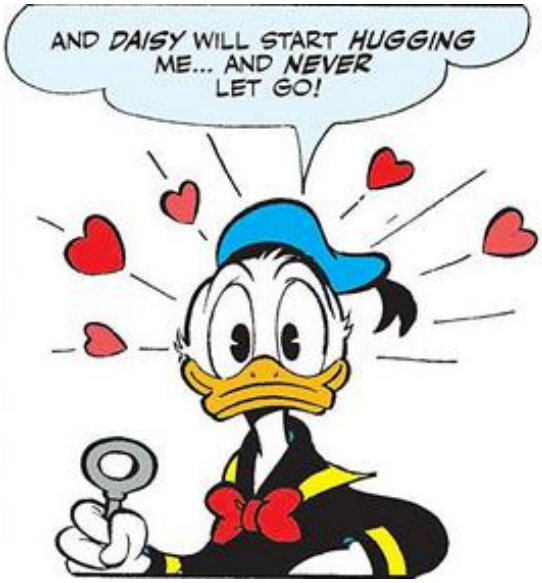


Fig. 2.9 Heart Upfixes in *Donald Duck #5* (Penna, Guido, Leach, et al., 2015)

As Cohn notes, upfixes are often intended to be read as emotional or conceptual modifiers of the direct-image elements (Cohn, 2013b). In order for this to be the case, it seems clear that proximal relationships need to be drawn between the upfixes and the direct-images that they modify. In the example from *Donald Duck #5* (Penna, Guido, Leach, et al., 2015) the character (Donald Duck) has several conventionalised heart shapes in close proximity to his head (Fig. 2.9). As with other conceptual metaphors, the locational relationship between the upfix and the direct-image object is important to the understanding of intended meaning. Cohn suggests three parts, or morphemes, which must be recognised and combined in order for upfixes to communicate meaning. These are "1) the upfix, 2) the root (head), and 3) the relationship between them." (Cohn, 2013b: 43). As such, each element must be recognised by the reader and then their relationship concluded, based on encyclopaedic knowledge and learned cues. This means that the upfix must be identified as separate from, but associated with, a direct-image object (root) within the fictive world. The root must also be identified and then the two must be related together to form a meaning. In the example, a reader identifies Donald's head and the heart upfixes as separate but as having a relationship based on their proximity. They understand that the heart icons have a representational meaning of love and that this conceptual meaning is associated with the character of Donald, so the combined reading is likely to be 'Donald Duck is experiencing feelings of love'. In this way the direct-image object of Donald is modified by the conceptual metaphor of the heart upfix to communicate the character's emotional state within the fictive world. Clearly then, these upfixes which Cohn identifies exemplify the importance of the proximal relationships between elements in building understanding through reading.

Cohn outlines a number of different types of upfix which rely on recognition of idioms or symbolic meaning such as hearts for love, currency signs for greed, or stars for dizziness. Whilst the heart shape of the previous example is a conventionalised symbol which has meaning (love), even in relative isolation from other images, other upfixes require context from the surrounding image to communicate meaning effectively. As Cohn and Murthy affirm in their paper *That went over my head: Constraints on the visual vocabulary of comics* (Cohn and Murthy, 2015) "Some upfixes involve symbols with fixed meanings, such as hearts or exclamation marks, which retain their meaning even away from a face. Other upfixes derive from idiomatic verbal expressions, such as "seeing stars" with stars twirling above characters' heads to show dizziness" (Cohn and Murthy, 2015: 417-418).

Fig. 2.10 Normalised Upfixes in *Sonic the Hedgehog #3* (Flynn, Hernandez, et al., 2018)

In the example above from *Sonic the Hedgehog #3* (Flynn, Hernandez, et al., 2018) upfix conceptual metaphors which are not symbols with a fixed meaning are used (Fig. 2.10). They also do not reflect an understood idiom, but they still communicate an emotion associated with a character. The upfixes here operate, and are read, in the same way as the example from *Donald Duck #5*; by combining the upfix, root and the relationship between them into a single reading of emotion. Cohn might argue that these are not upfixes but are instead deictic lines. Cohn describes deictic lines as drawing attention or focus to something and discusses the type of deictic lines shown here saying "small lines emerge from a person's eyes to show that they are attentive of something" (Cohn, 2013b: 40). He continues "they simply draw focus to the eye seeing something, or larger to the whole head being aware of something" (Cohn, 2013b: 40). However I would challenge this definition as, whilst these upfixes do not represent idioms or recognisable symbols, they operate in the same way to communicate a mental state such as emotion or attention associated with a character. The likely reading is a sudden, shocked emotion or a sense of surprise. This is the same form of communication and reading process already established as a part of the previous upfixes and so these lines can also

be considered in the same category of conceptual metaphor. The difference here is that upfixes like these need to be learned as part of the reading in order to be decipherable, rather than relying on an individual reader's experience of cultural idioms (which is not the focus of this research). However, comics have normalised this form of conceptual metaphor as they have with some onomatopoeia, impact flashes and word balloons. This means that, like direct-images of fictional objects, they become standardised within the work and once established, can be used throughout a comic and across comics as a media form to communicate a specific idea.

Upfixes offer a clear example of visual conceptual metaphor image elements which serve to modify the direct-image of the fictive world. Their reading is complex due to the variety of types. However, their highly conventionalised nature allows them to be learned quickly and for readers to interpret the reading process of some based on idioms learned outside comics (it is also worth noting that comics might help to teach idioms - which is outside the scope of this thesis). However, all upfixes serve to modify direct-image elements with emotional or conceptual meaning and so an interaction between different types of image is evident.

Word Balloons as Conceptual Metaphors

Comics is a form which is often defined by its interplay between text and image to create its language (Eisner, 2003; Harvey, 2001). This interplay is particularly evident in the use of word balloons which are considered by many to be a fundamental (and fundamentally) comics tool for the delivery of utterances within the visual landscape of a panel. Word balloons act as a conceptual metaphor which offer a visual connection between the direct-image of the fictive world and verbal or text-based language. In doing so, the word balloon also modifies the text with conceptual meaning and helps a reader to understand its position and relevance to the fictive world presented by the image-components (Miodrag, 2013; Khordoc, 2001).

Word balloons are widely discussed throughout the literature on comics (Eisner, 1985; McCloud, 1993; Khordoc, 2001; Tang, 2013, et al.). Several different terms are often used interchangeably in common discourse in balloons which contain and modify text within comics. Speech balloons, for example, are usually intended only to communicate speech within the fictive world rather than thought, shouted, transmitted or whispered communication. I will use the term "word balloon" when discussing these forms of conceptual metaphor as it can be used to refer to any type of text container in a comic without being tied to one intended form of communication.

Word balloons operate as conceptual communicators which modify how text in comics is understood and therefore act as forms of conceptual metaphor (Khordoc, 2001; Tang, 2013). As with many of the upfixes outlined earlier, word balloon conceptual metaphors are often highly conventionalised with

variations communicating a variety of concepts associated with the text. As such, different conventionalised balloons can be identified with a number of different visual modifications, each further modifying the text contained within.

The most common, and recognisable, form of word balloon is the speech balloon. The standardised speech balloon identifies normal speech within the narrative. It is most commonly rendered as a white oval with a short tail tapering to a point in the direction of a source, usually a character, and communicates the concept of 'normal speech' to a reader. It is used as the standard containing symbol of speech in Japanese manga, European comics and American periodicals and is common across multiple genres in most regions where comics are a prevalent form of media.

A speech balloon of this type identifies the text element held within not as having a physical appearance in the fictive world of the narrative but as having sonic qualities. The tail identifies the source of these sonic qualities whilst the balloon demonstrates a metaphorical separation from the visuals presented in the direct-image. As Khordoc points out, this standardised speech balloon "represents the idea of characters speaking" and the tail "points to the character. The inference is straight-forward; the message contained in the balloon is attributed to the character who is singled out by the tail" (Khordoc, 2001: 161). Additionally this standardised speech balloon "does not simply signal the presence of text, it actually implies the message, 'I'm speaking'" (Khordoc, 2001: 160). This idea of the speech balloon as the conveyer of a *message* is a key component of a reader's understanding of the comic narrative and suggests a conceptual reading of both the balloon and the text.

Khordoc observes that speech balloons are made up of two key components, the balloon (i.e. the container) and the tail. These component parts of the speech balloon serve different purposes and it is noted that one is more symbolic than the other. As Khordoc puts it, the speech balloon "is a symbol representing the idea or the notion that characters are speaking. However, the tail, which points to the character speaking, is not arbitrary since, as a sign, it directly and literally points to its meaning, hence showing which character is the "I" in the balloon's 'I'm speaking'" (Khordoc, 2001: 161). This identifies the container as an arbitrary symbol with no direct likeness to what it represents and the tail as an iconic element which has a direct connection to what it represents. The tail is an arrow that pictorially points to the source of the content of the container. These two components, read collectively as a sign, represent words connected to the rendered world within the comics panel in which it appears. Functionally, the speech balloon acts as a single informative unit with the tail identifying the speaker and the container identifying the utterance. Additionally, the visual qualities of the word balloon identify *how* the utterance is delivered.

Andrea Tang suggests that the container and the tail are equivalent to different clauses in prose and operate in the same way (Tang, 2013). This idea fits well with how others, like Khordoc, suggest balloons function and offers a useful breakdown of the balloon which we can use from this point. The clauses Tang indicates are the reported clause and the reporting clause. In prose, the reported clause describes text which comes directly from a character and is contained within quotation marks, whilst the reporting clause is the verb describing the utterance (said, cried, screamed, or thought). Tang uses this grounding in prose theory to explain that "The dialogue within a balloon" container "is equivalent to a reported clause ('**Give me that,**' he said.), and the balloon's tail is a geographical equivalent to a reporting clause ('Give me that,' **he said**.)" (Tang, 2013: 4). This identifies the communicative importance of each part of the word balloon and how it functions to visually identify an utterance and a source of that utterance within the fictive world.

Beyond the standard speech balloon, which identifies normal speech within the fictive world, there are a variety of different types of balloons used in comics, each with different representational meanings. Additionally, there are different variations of 'standard' balloons which represent different types of communication from diegetic speech and thought to non-diegetic narrative boxes and editor notes. Tang asserts that the visual qualities of the container "are used to signify prosodic features" of the reported clause (Tang, 2013: 4). This means that depending on the visual properties of the word balloon, the words within are read as having a different type of reporting clause. For example, a speech balloon presented with the normal visual properties of speech is read as having a reporting clause of "said". However a balloon with alternative visual qualities might identify a reporting clause of "shouted" or "whispered". It is clear then, that the visual properties of the balloon must affect the reading of the utterance within the world as each visual variation has the potential of communicating a different reporting clause to the reader.

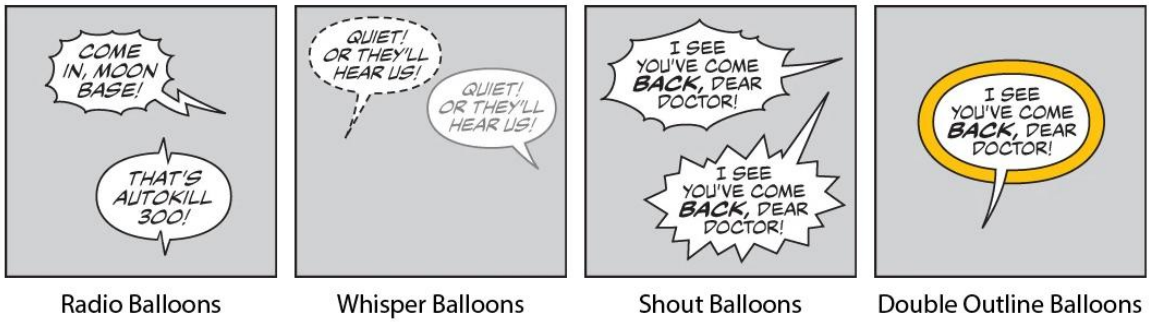


Fig. 2.11 Visual Variations of the Normal Word Balloon from *Blambot.com* (Piekos, n.d.)

The establishing of the 'normal' or 'said' properties of the visual representation of language is necessary for other visual representations to be identifiable as having a different reporting clause.

For example, commonly, American periodical comics will use a set of standardised visual representations of word balloons for thought, narration, editor notes, or shouted or whispered utterances. This gives readers a collection of easily recognisable reporting clauses through different standard visual variations. Many forms of these speech balloon variations exist - some of the most common examples are shown above (Fig. 2.11). The whisper balloon suggests that the words within the balloon are uttered in a softer, quieter voice whilst the shout balloon and double outline balloon suggest a much louder voice. The similarities between the word balloons for normal speech, shouted speech and whispered speech communicate the concept of the spoken word and identify the words as 'out-loud', or as what Tang refers to as "direct speech (DS)" (Tang, 2013: 4). This direct or out-loud speech is likely to be read as diegetic, entirely internal to the world of the work (albeit in a sonic form rather than a physical one) and comes directly from the mouth of the character identified by the tail (Groensteen, 2013). In this way the normal speech balloon sets the representational starting point of out-loud from which alterations in voice (in this case volume) can be communicated through alteration to the visual. Thus, the normal speech balloon is modified to communicate shouted or whispered utterances.

In my investigations and close readings I have observed that other forms of word balloon communicate concepts which are not understood by readers as out-loud. In American comics these most commonly take the form of caption boxes, although the more traditional thought balloon is also used. Groensteen also notes these thought balloons and observes that rather than identifying direct speech they identify direct thought (Groensteen, 2013). That is to say, they indicate not what a character is uttering but what they are thinking. Similar to the speech balloon and its variations above, the visual variations of caption boxes communicate different types of expression. Most commonly caption boxes do not communicate concepts internal to the fictive world such as sound. Instead, they tend towards communication of information and so read as more conceptual or non-diegetic than the word balloons we have looked at so far.

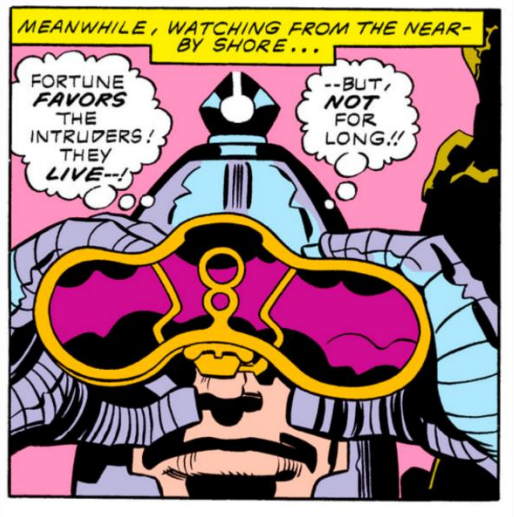


Fig. 2.12 Traditional third-person caption in *Black Panther #5*(Kirby, Royer, et. al. 1977)

Whilst other forms of word balloon usually feature both a container and tail, which points to a source directly, caption boxes lack the tail and tend to use colour and style variations to identify the source. Caption boxes usually communicate information as either first or third-person captions. First-person captions represent direct thought which is suggested to come from a character within the fictive world and often communicate their thoughts, whilst third-person captions represent indirect thought which is external to the world and usually come from some unseen narrator.

Third-person captions tend towards a more standardised appearance and are usually presented in the form of a rectangular container with a solid black outline and a yellow interior colour (Fig. 2.12). Rather than identifying a reporting clause, these containers indicate that text is to be read as separated from the fictive world. These narrative, third-person caption boxes are used commonly throughout comics to separate descriptive text from the world of the narrative itself and offer description, clarifications or occasionally notes on the actions depicted, or thoughts or emotions of characters. As a result they are usually representative of conceptual information entirely external to the fictive world.

Fig. 2.13 Example first-person captions in *Animal Man #1* (Lemire, Foreman, Green, et. al, 2011)

Similarly, first-person captions tend to contain text which contextualises actions taking place or clarifies the inner thoughts of a character. However, the visual representations of these word balloons frequently take on properties which visually mirror or represent the character to whom the words are linked, connecting the words to a character within the fictive world (Fig. 2.13). Their contents are identified as having no audible or sonic qualities in the fictive world whilst still being

connected to a character present in that world. It therefore allows the reader an insight into the private thoughts of the character, without the direct visual connection of the tail. This type of character-defined first-person caption is common in modern American periodicals, particularly superhero comics which lend themselves to an assortment of colourful variations.

It is clear, then, that the variations in the visual qualities of word balloons impact how text elements are read and understood by a reader. Like some of the upfixes discussed earlier, word balloons are relatively arbitrary signs which do not directly resemble what they represent (Khordoc, 2001). They have meanings as containers which are learned through practice and context clues. In short, the word balloons discussed here can be broken down into three core groups: those that identify text as out-loud (i.e. diegetic utterances heard within the fictive world.), internal (i.e. not heard or uttered aloud but still existing within and connected to the fictive world), and narrated (i.e. non-diegetic and external to the fictive world).

Based on the above results of my investigations of word balloons through close readings, I would propose that in order for word balloons to communicate their intended meaning effectively they need to be easily distinguishable from one another and easy to learn. As a sign system, word balloons functionally communicate the reported and reporting clauses of the text elements within them, as described by Tang (2013). For this to be understood, each balloon must clearly communicate whether the text that it contains is out-loud, internal or narrated, through its visual qualities. Once the meaning of a normal word balloon is learned it can be said to have affordance (Norman, 1988). That is, its operation becomes clear and in subsequent instances of seeing similar signs we understand their function. The visual properties of the standard word balloon then inform the understanding of subsequent balloons with similar visual properties as they are entered into encyclopaedic memory. For example, once a reader learns that a normal speech balloon represents or *operates as* denoting an audible sound within the world of the narrative they can easily identify the same operation of the whisper and shout balloons. Since they both have related visual qualities to the already understood speech balloon, their affordance is higher, and their meanings as audible utterances can be more easily recognised.

2.4 A Sliding Scale of Visual Representation

As we have seen, the reading of images in comics requires a complex set of reading skills. I have shown that, broadly speaking, image objects in comics can be divided into two main categories: those which compose the direct-image and portray the physicality of the fictive world of the comic and those which communicate conceptual meaning such as movement, emotion, or speech. It has been demonstrated that readers must be able to identify and categorise whether an image object

constitutes a part of the direct-image or whether it presents conceptual meaning. I have also shown that these two classifications of images overlap in creating meaning and, in some cases, one image type will require the context provided by another in order to communicate effectively. In other cases, images may also communicate both the physicality of the fictive world and conceptual information at the same time. In order for these image types to be better understood I will visualise them on a scale.

In bringing the above ideas together it has become clear that each type of image element that we have discussed so far has properties which have different representational qualities within the fictive world of the work. I propose that these representational qualities exist on a sliding scale between the physical or literal representation of the fictive world and the conceptual representation of ideas. As I have outlined, conceptual elements can exist entirely outside the diegesis of the world and the narrative and communicate conceptual information to the reader and nothing to the characters inside the fictive world. The direct-image on the other hand presents the physicality of elements which exist within the fictive world of the work and is understood by both reader and characters with the same physical properties. However, some elements sit somewhere in between and are understood by both the reader and the characters in different ways, like speech balloons which a reader sees and a character in the fictive world hears.

It is clear then that image elements exist on a sliding scale similar to the one used by Scott McCloud in his discussion of image abstraction in comics (McCloud, 1993). In this example, McCloud suggests that all images rendered in comics exist on a scale of abstraction from realistic to meaningful. Realistic images (like those produced by photographs) represent a 1:1 reproduction of the real world in the fictive world of the work whilst meaningful images are less realistic and must be interpreted by the reader.

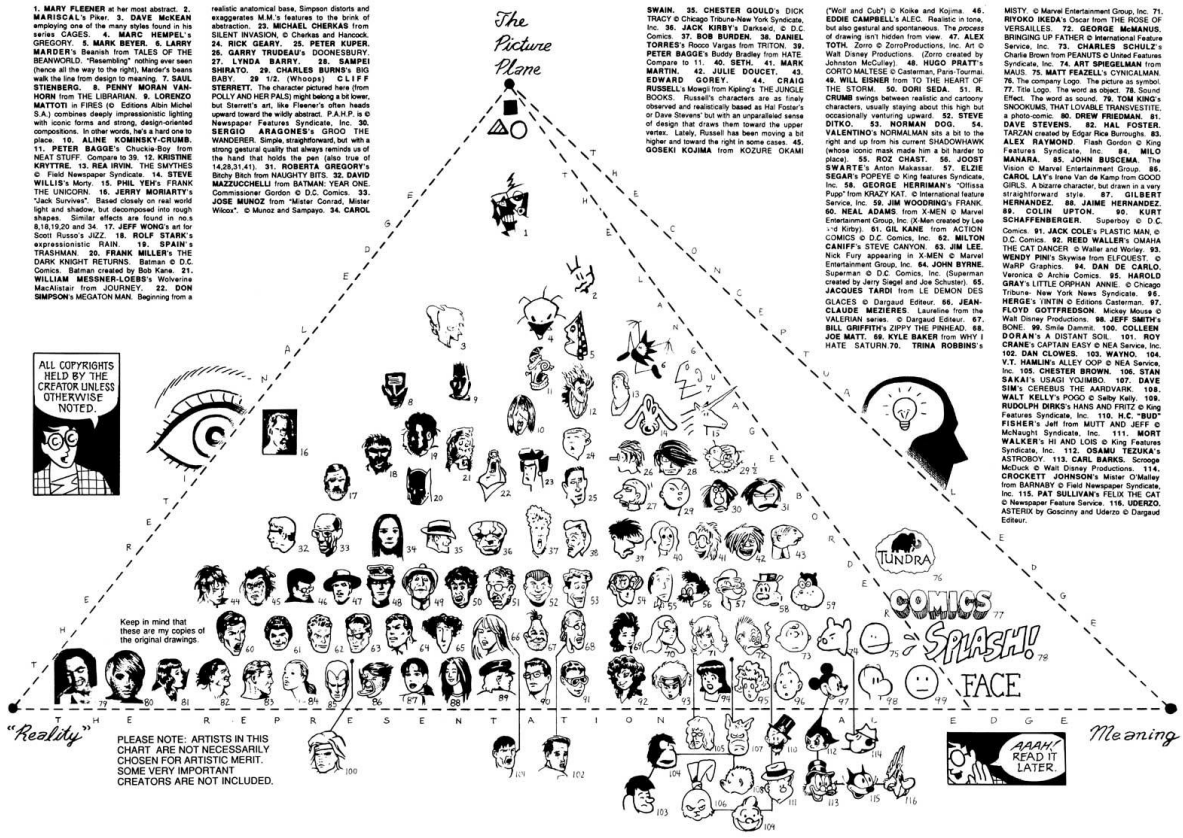


Fig. 2.14 McCloud's Reality → Meaning Graph from *Understanding Comics* (McCloud, 1993: 52-53)

This scale takes a similar approach to mapping image elements. However there are important differences between McCloud's schema and my own. McCloud's scale is ultimately identifying art styles and levels of detail rather than the representational qualities of different image types. Whilst I will take a similar approach in methodology, my graph does not aim to plot levels of realism but instead aims to identify the different conceptual and physical positions of images within the fictive world that are understood by the reader. Producing this graph will allow me, and others discussing comics images from the perspective of representational meaning, to identify the types of images held within any given comic panel relative to those around them for the purposes of understanding the types of reading activities which might be involved in their understanding.

I propose a sliding scale of representation in comics panels from the physical-internal elements which resemble discernible objects and are a part of the fictive world, to the conceptual-external elements which present concepts to the reader in forms which are entirely non-diegetic and not understood by the characters within the fictive world. By using a sliding scale like this, it is possible to identify the visual elements which make up a comics panel in a way which is non-binary and therefore does not attribute every piece of visual information as either wholly physical to the world

or wholly conceptual in nature. This allows for the visual communicators of comics to be positioned based on how conceptually or literally they present information.

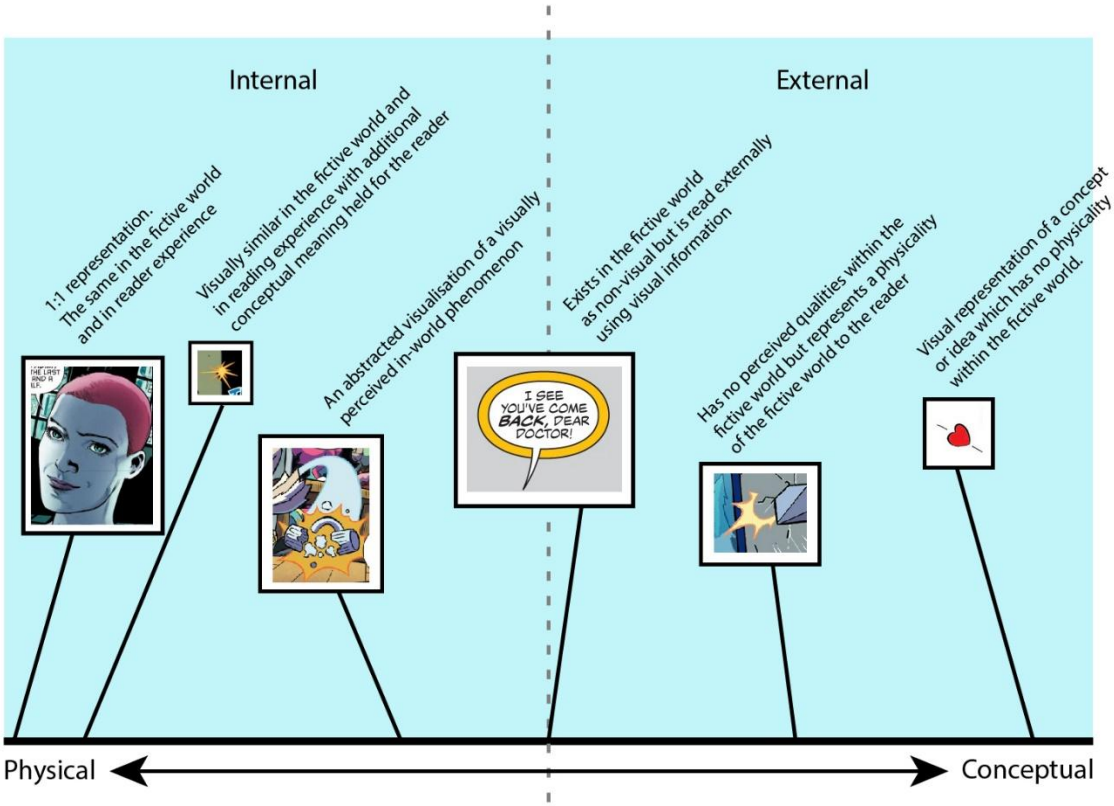


Fig. 2.15 The Sliding Scale of Physical ←→Conceptual for Different Image Types Art from: *Detective Comic #934* (Tynion IV, Barrows, Ferreira et al., 2016), *Convergence: The Question #2* (Rucker, Hamner, et al., 2015), *Sonic the Hedgehog #3* (Flynn, Hernandez, et al., 2018), *Blambot.com* (Piekos, n.d.), *Sonic the Hedgehog #5* (Flynn, Yardley, et al., 2018), and in *Donald Duck #5* (Grey, Martina, et al., 2017)

As we can see from the illustration above, each element can be applied to the scale between the physical on the left and conceptual on the right (Fig. 2.15). It is easy to map any image classified as a direct-image element on the scale as these image elements all sit at the physical end of the spectrum, since, by definition, the direct-image elements depict the fictive world of the comic. They will almost always be internal to that world and represent its physicality. Conceptual metaphors, on the other hand, fit further towards the conceptual end of the scale, although it is worth noting that these are not usually entirely external as they most commonly present a concept tied to the fictive world of the direct-image in some way. For example, action lines and impact stars may communicate a sense of physicality to suggest the perceived, visible blurring effect of a fast-moving object. In these cases, the image element communicates both a concept of motion to the reader, by mimicking how they might experience a fast-moving object in the real world, and also a visual phenomenon perceivable in the story world. Similarly, speech balloons fit centrally on the sliding scale as they

communicate the concept of sound experienced in the fictive world though visuals not perceived in that world. In most cases the conceptual metaphor images of upfixes are more external to the world of the work and so fall on the far end of the scale near the conceptual end, as do some impact stars which do not represent a physical flash but instead the concept of energy transference. In these cases the images represent conceptual information for the benefit of the reader rather than anything with physical presence within the fictive world.

We have seen throughout this chapter that images modify one another through their proximity and interactions within the compositions of the panel image. I have shown that images in comics communicate a variety of types of information from the visual physicality of the fictive world to conceptual ideas of motion, sound, emotion, and action. We have seen that the reading of these images is reliant on a reader considering the smallest meaningful units of the morphemes and combining these to form understandings of image objects, and that these image objects can be modified with conceptual meaning through their relationships with conceptual metaphors. This set of modes of interpretation forms an important part of the visual literacy that comics relies on in its readers. However, comics requires a second primary form of literacy which accompanies its image reading activities; the reading of text. Most American periodical comics communicate speech visually, through the use of word balloons, as we have seen, and these word balloons usually contain written language which a reader would likely be expected to read. At this stage it is important for us to investigate these text-based components of comics and identify how they communicate through interactions and engagement with the visual.

Chapter 3: Reading Different Forms of Text in Comics

3.1 Introduction to the Multiple Literacies of Comics Reading

As a predominantly visual form of communication, images make up the majority of the narrative elements of comics. However, most American periodical comics rely on text-based communication alongside the images of the panels, and so it is important to consider how these text-based elements contribute to the communication of comics narrative. This chapter focuses on the ways in which text-based elements are understood by readers. It is important to note that most studies of the text-based elements of comics tend to focus on the meaning of words and the messages they convey rather than treating words as visual components. However, I will be focussing on the visuals of words rather than their meanings.

The discussion of text as a visual component is most often focused on its juxtaposition with images in the work, rather than on the visual or pictorial qualities of the text itself. This may be because of the tendency of practitioner-theorists like Eisner and McCloud to discuss visual representations from a position of the creative impact. It may also be the tendency for academic comic criticism to distance itself from comparisons with more traditional prose and to prove its distinctive worth or uniqueness through a focus on the pictorial visual. As such, to begin the discussion of the text-based literacies involved in reading comic it is perhaps best to consider how the visual variation of text impacts the understanding of messages communicated by written language elements.

3.2 Visual Variations in Text

Fig. 3.1 Font examples from DC's *Robin #3*, IDW's *Sonic the Hedgehog #4* and Marvel's *A-Force #1* (Williamson, Melnikov, et al., 2021; Flynn, Stanley, et al., 2018; and Wilson, Molina, et al., 2016)

Comics tend towards a standardised visual representation of text-verbal elements. This standardised visual representation has its origins in hand lettering and, whilst hand lettering is still used, digital tools have become more common in mainstream American periodical comics (Piekos, 2021). In broad terms, the shape and form of lettering may be referred to as a font, a term derived from typography and not usually applied to hand lettering. Whilst fonts are usually digitally created and

presented, for the sake of clarity I am using the term here to describe all letters with a distinct visual style of representation, both those rendered with digital tools or by hand. The term 'font' indicates that all the letters share distinct visual characteristics and that each letter is consistent. Large publishers of superhero comics such as Marvel or DC will usually use a standardised font across most of their works for text-verbal elements. These fonts, as well as many others used by smaller or independent publishers, tend towards a similar visual style (Fig. 3.1). The letters are usually uniformly upper-case, and do not connect to one another directly. Letterforms which share a similar shape and may be confused with each other, such as L and I or O and D, tend to be rendered with unique features to help with easy identification. There may even be variations in different usage situations such as the crossbar “I”s used when the letter is presented alone, not as part of a word (Fig. 3.2) (Piekos, 2021). The lines used to render the letters tend to be bold and thick and have soft, rounded points at their ends, with strokes using varying thicknesses and curving slightly along their length. Each of these traits combines to create a visual style of text that most people, even those who do not read comics regularly, would recognise as distinctly a comics-style font. These fonts are themselves based on the styles popularised by the early American periodical comic, from a time when all lettering was done by hand (Piekos, 2021). As such they retain a distinctly hand-written appearance even when rendered using digital tools.

Fig. 3.2 A typical comic book font used in American Periodical comics with both crossbar and vertical stroke “I”s from *Blambot.com* (Piekos, n.d.)

Regardless of its origins, this style of font is one that is distinctly recognisable in comics. From my observations and close readings, I would propose that the most important feature to note about the comics font is its versatility of expression. In traditional hand-lettered comics, the size and weight of the font can be easily varied by the artist drawing the letters onto the page. As a result, the text-elements of the comic have developed commonly-used visual variations for communicating

additional meaning in the narrative. It is common for the comics font to take on a bolder appearance for certain words to add emphasis to them in the mind or the reader (or the 'voice' of the character). Equally, the font may vary from the standardised visualisation to imply a greater level of importance given to particular words or phrases (Fig. 3.1). The letters themselves may even take on other visual properties or shift in font style for different situations and types of emphasis. This is a very different use of visual rendering of text to that of prose fonts on paper or screen. Whilst some variation might be used in these narrative forms to draw attention to titles or links, there is a far greater observable selection of visual variation in comics' fonts.

3.3 Visualising the Voiced Qualities of Text

In comics, text often has an associated voice attached to it: a character is saying or thinking the words, or a narrator, author or editor is talking directly to the audience (Khordoc, 2001). Whilst descriptive text is evident in some comics, it is rarely used in modern American periodical comics because the works' predominantly visual and pictorial makeup makes this unnecessary (Eisner, 1985; McCloud, 1997; Groensteen, 2013). This is a prime example of comics' multiple literacies at work. In prose fiction, the physical features and visual appearance of elements of the fictive world must be described verbally, meaning that the blocks of text make up a much greater proportion of the work. In comics, the fictive world and the actions therein are usually presented in pictorial form as we saw in the previous chapter and so text is predominantly used to present conceptual information such as speech or thought. In prose, spoken/thought words of characters are usually identified by quotation marks and descriptions within the narrative sequence. Visual variations in the text conventionally hold less meaning than the words used to describe other (spoken/thought) words. For example, in comics, the idea that a character is shouting would usually be communicated by words that are rendered in a larger size than others in the work to identify them, visually, as loud (Fig. 3.4b). However, in a typical prose text the loudness would be verbally described in some way (Fig. 3.4a). Such a description would usually be inappropriate in the more visual landscape of the comics panel and so alternative means need to be employed in order to communicate the same information.

"For Robert!" he shouted, and came up snarling, lifting the frost-covered longsword with both hands and swinging it around in a flat sidearm slash with all his weight behind it.	
Fig. 3.4a Text only indication of Shouting in *A Game of Thrones* (Martin, 1996)	Fig. 3.4b Visual representation of shouting in *A Game of Thrones: Graphic Novel, Volume One (A Song of Ice and Fire)* (Martin, Abraham, et al., 2016)

Fig. 3.4 Comparison of the Visual Qualities of Voiced Words in *A Game of Thrones* (Martin, 1996; Martin, Abraham, et al., 2016)

As comics are a primarily visual combination of literacies, the comics font has developed visual variations to communicate what cannot be described. Through a series of observations and close readings I have seen that there are many ways in which the standardised comics font style uses visual variation to communicate meaning to the reader. Most of these variations appear to stem from the hand-written letters of the American periodical comic, where variations can be made to suit the content of each panel and deliver any additional or altered emphasis required (Witek, 1989). We can see in the page above by Jack Kirby that alterations to the text are common in the hand drawn traditions that apply to the standardised font style (Fig. 3.5). These have become standard visual variations of the comic book font style for both traditional and digital lettering used in modern comics as well. As seen in the example, larger renderings of letters suggest that the words are said in a louder voice than those in the other areas of the page. Additional emphasis is also given to key or important words in the small text-blocks seen in the top-most balloons. This additional emphasis is created with a bold and italicised rendering of letters that implies an alteration in the (perceived) spoken/voiced qualities of the words - in this case highlighting words which emphasise the importance and majesty of the subject in question.

Fig. 3.5 An example of visual variations of text in *Thor #158* (Lee, Kirby, et al., 1968)

As we have seen, the visual rendering of words is an important component of how comics communicate meaning. So far, I have discussed what might be termed the 'standardised' comic font style. However, comics regularly alter the meaning of the text in ways beyond visual variations of the standardised font. Comics may also use illustrated fonts which take on different visual traits to imply different tones of voice or other attributes of speech beyond volume or emphasis (Eisner, 1985). They may also pair the text elements with other visual components such as word balloons, as discussed in the previous chapter, in order to change the perception of meaning by the reader.

3.4 Text as Image

There are often other instances of text-based communication which are rendered in more unique ways that do not conform to the visual style of the standardised comics font. In cases where words are included as part of the image artwork within the panel, and are not held within a word balloon, they act as illustrations as well as text. Eisner describes one particular use of these illustrated texts as 'text-as-image' where the letters are rendered in such a way as to become part of the pictorial information of the comic (Eisner, 1985). These text-as-image words usually have a greater number of illustrated qualities and are commonly rendered as part of the image within the panel, rather than in the standard comic font contained within a balloon. As such they usually fall into similar categories of representation to those identified in the discussion of images in the previous chapter.

When discussing images, I identified communicating categories as direct and conceptual-metaphors and was able to plot each onto a graph from physical to conceptual. When treating text-based elements as images, it stands to reason that we would be able to do the same and I will now outline the types of visual representation that are typical in comics. It will then be possible to plot these against a similar graph to identify where similarities and differences in understanding may occur. I will also go on to examine text-as-image used for the representation of sound and consider how the visual presentation of text communicates conceptual information that is central to the physical-internal → conceptual-external graph.

Fig. 3.6 Physical-internal text-as-image in *The Flintstones #2* (Russell, Pugh, et al., 2016)

'Physical-internal text-as-image' refers to words which exist within the fictional world of the work and can be 'seen' by those characters occupying that fictive world. Words that appear on signs and billboards, or written on other direct-image elements, read as having a physical existence within the fictive world. Any words that characters within the comic panels can see and react to can be considered physical-internal and therefore a part of the diegesis (Beard and Gloag, 2004). These then act as direct-images which depict text within the fictive world that characters therein can perceive. We can see an example of this type of physical-internal text-as-image used to communicate written text on a sign in the panel above from *The Flintstones #2* (Russell, Pugh, et al., 2016) (Fig. 3.6).

'Conceptual-external text-as-image' elements are text elements which appear uncontained within the panel and have non-standardised visual properties but are not presented as part of the fictive world of the work. This makes conceptual-external text-as-image non-diegetic and so they are not read as literally appearing in the fictive world. The extreme examples of these types of text-as-image elements are only understood or experienced by the reader and they often represent conceptual information about the world or the nature of something rendered within it. They do not present an object within the world but represent a concept instead.

Fig. 3.7 Text-as-image Titles/credits in *Superman #1* (Perez, Merino, et al., 2011)

In most cases the conceptual-external illustrated text elements occupy a conceptual space completely separate from the world of the work and are read as entirely external to the world. This is the case when illustrated titles are used within a panel solely to communicate to the reader. This form of text-as-image might be used for titles, character names or other informational text as seen in Fig. 3.7. Alternatively, conceptual-external text-as-image elements may occupy a less straightforward conceptual space which both communicates or relates to actions within the panel but remains external to the world. This suggests a sliding scale on which illustrated text elements are placed based on whether they are more or less conceptual or physical like the one used earlier for defining image types.

3.5 Sonic Text-as-Image and Onomatopoeias

Sonic text-as-image often occupies a middle space on the scale between that which is entirely physical-internal and that which is conceptual-external in nature. Sonic text-as-image elements are those elements which represent the auditory qualities of sound through visual representation and these fit fairly centrally between physical-internal and conceptual-external text-as-image elements. Commonly these are onomatopoeias, which are illustrated with qualities which help the reader to interpret a sound in a medium which is, by its nature, entirely silent. Onomatopoeias are observably widespread in comics and are closely associated with the styles of visualisation that commonly appear in American periodical comics. Below I will identify several different onomatopoeias presented in various genres of American periodical comics based on my close readings. The onomatopoeias here come in different styles and are all visually distinct, depending on the type of sound they represent. They communicate both verbally, by spelling out sounds, and visually, in representing the properties of those sounds.

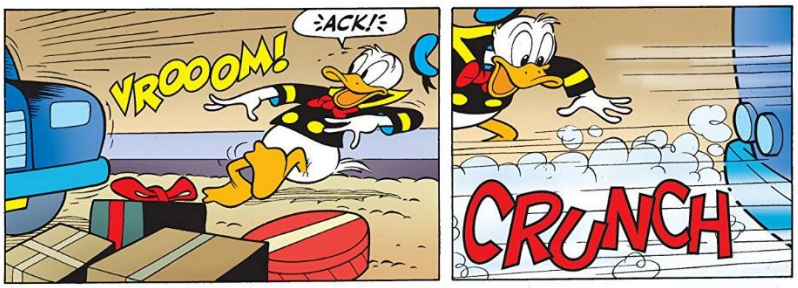


Fig. 3.8 Onomatopoeia in *Donald Duck #4* (Cimino, Torcivia, et al., 2017)

The text-verbal content of onomatopoeia can be placed within two categories, those that are conventionalised and those that are echomimetic. Conventionalised onomatopoeias use a collection of defined words which describe a sound, or are onomatopoeias whose "sound description uses the derivation of conventional word classes with an onomatopoeic meaning (such as "sigh", "sob") (Kaindl, 2010: 39). Examples of these conventionalised-onomatopoeia can be seen in a wide variety of American periodicals such as the 'cartoon-like' style *Donald Duck #4* (Cimino, Torcivia, et al., 2017) on the page above and superhero comic *Green Arrow* (Smith, Hester, et al., 2002) below (Fig. 3.8 and Fig. 3.9). Words such as "crunch", "clink", "drip" and numerous others are all conventionalised-onomatopoeia because they are based around a text-verbal element which has a dictionary definition that includes the sound something makes. They are commonly used in comics and are particularly useful for sound repetition and recognition.

Fig. 3.9 Drip Onomatopoeia in *Green Arrow* (Smith, Hester, et al., 2002)

In some cases, onomatopoeias for specific types of sounds will be standardised across multiple panels or series. The onomatopoeia 'BLAM' is used regularly in American periodical comics to represent the sound of gunshots and can be seen in comics from multiple eras (Fig. 3.10). Due to its long history of use within comics, it has become conventionalised like the onomatopoeia 'drip' however it is not considered a real word in the same way and does not a have a dictionary definition meaning ‘The sound that a gun or small explosion makes.’ As a result, 'BLAM' is not a true conventionalised onomatopoeia but instead, it is better to say that it has become what I will refer to as ‘standardised’. This standardisation allows the text-as-image element to be used repeatedly throughout comics and communicate a specific sonic property within the world of the work (a gunshot). Its repeated use serves to deliver an internal consistency of sound to readers and offers a recognisable onomatopoeia to make interpreting the meaning of the sound easier for readers. This standardisation allows readers to understand the sound of a gunshot through encyclopaedic memory in similar ways to those we have seen in examples upfixes in image reading.

Fig. 3.10 BLAM Onomatopoeia in *Gunsmoke Western #67* (Lee, Keller, et al., 1955)

Other onomatopoeias are less conventionalised. These are echomimetic in nature and imitate the desired sound more directly through the use of letters. In these cases, "sound imitation creates new artificial words which, based on the sound qualities of vocals and consonants, creates onomatopoeia that fit the situation (e.g., roooooaaaaaaar for a lion's roaring, drrrrrrrrrring for the ringing of a telephone, etc.)" (Kaindl, 2010: 39). These echomimetic-onomatopoeias more directly mimic the qualities of sound using the text elements of the text-as-image rendering. The repetition of letters suggests a lengthening of that part of the sound for example.

Fig. 3.11 Echomimetic Onomatopoeia in *New Challengers #1* (Snyder, Gillespie, et al., 2018)

In the panel above we can see an example of an echomimetic-onomatopoeia which lengthens the sound of the crashing aircraft by repeating the letters of the illustrated text-as-image (Fig. 3.11). The word "Skree" would communicate the same basic sound here, however the elongation of the "k", "r" and "ee" sounds enhance the understanding of the intended noise and lengthen the reading of the sound.

Conventionalised, standardised and echomimetic onomatopoeias text-as-image elements appear frequently in modern comics as ways to present sound elements to the reader and communicate the conceptual sonic qualities of the fictive world. Whilst the text structure of these text-as-image elements operates differently in each case, each uses visual variations to communicate sonic information. Depending on their visual qualities, the sound is communicated and likely read differently by the reader. The visual properties of the letters do not usually affect whether or not an onomatopoeia is read as external or internal. However they do affect how a sound might be read or used to enhance or clarify the properties of a particular sound. Whilst there is much variation in the visual representation of onomatopoeia, there are likely to be some similar features of onomatopoeia for similar sounds within genres and publishers, such as straight, strong edges of words suggesting metallic sounds or drop-like extrusions from wet sounds. These repeated and recognisable features assist the reader in understanding the type of sound they are decoding when reading the text-as-image element.

This collection of onomatopoeias, from conventionalised to echomimetic, shows a sample of the use of sonic text-as-image in comics and illustrates how these text-based elements communicate the information of sound through the varied use of visuals to a reader. This is a highly complex process of interpretation that relies on the reader decoding both text and image in order for intended meanings to be fully understood.

3.6 A Sliding Scale of Text-as-Image

Now that I have identified some of the ways that sonic text-as-image elements communicate and rely on multiple literacies, it is important to relate my findings to the previously established scale of visual representation from the end of Chapter 2. I will do this by considering the same ideas of position within the fictive world between physical-internal or conceptual external. Physical-internal text-as-image tends towards a close resemblance to real-world counterparts when rendered in the fictive world. For example, the words on shop signs in comics will often closely resemble the visual properties of words seen on real-world shop signs (Fig. 3.6). On the other end of the spectrum, conceptual-external text-as-image is not experienced by the characters within the fictive world at all (Fig. 3.7). These present an illustrated text-as-image which is entirely outside of the fictive world of the work and is not experienced by the characters within it. There are also text-as-image examples which are neither 1:1 reproductions of what they represent nor are they wholly external to the world of the work. As such, it is clear that text-as-image elements exist on a sliding scale similar to the one proposed as part of the discussion of image elements earlier.

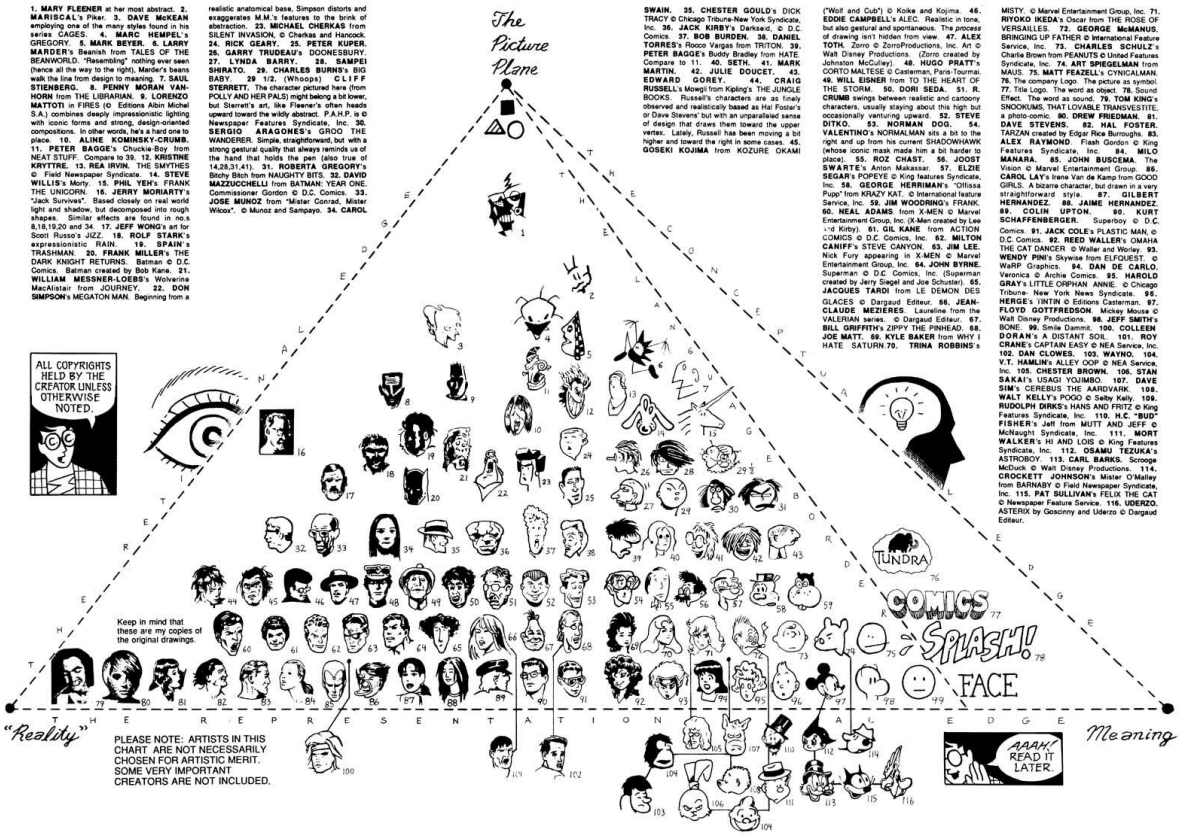


Fig. 3.12 McCloud's Reality → Meaning Graph from *Understanding Comics* (McCloud, 1993: 52-53)

When considering the multi-dimensional role played by text, it is worth noting that McCloud's graph, discussed earlier, has more than the single axis of Reality ←→ Meaning and includes a third category of "the picture plane" (Fig. 3.12) (McCloud, 1993: 51). The picture plane refers to how closely the visual qualities of the drawing resemble what they represent. In the graph presented by McCloud, a collection of abstract shapes (a triangle, square and circle) are presented at the top of the graph to represent the picture plane. His argument here appears to be that these shapes do not resemble a face even though they may be used to represent one. In such cases there is a high level of abstraction. However, this causes some difficulties with the graph when discussing text, as both text and a simplified (meaningful) face made up of "two dots and two lines" are also heavily abstracted forms of representation (McCloud, 1993: 46). This causes the graph to be highly problematic as it muddies the arguments being made and effectively separates text from image, treating each separately. As such, a more straightforward approach needs to be considered.

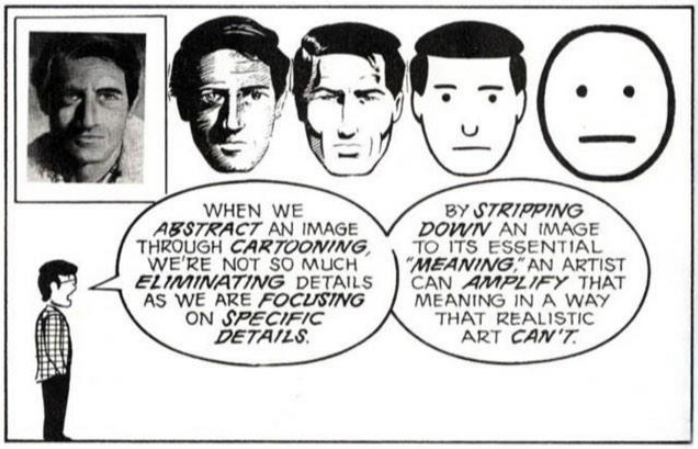


Fig. 3.13 McCloud's Abstraction and Simplification from *Understanding Comics* (McCloud, 1993: 30)

Whilst McCloud's graph has a similar aim in presenting degrees of realism presented to the reader within the world of the work, it is not entirely suitable when discussing text-as-image. McCloud designates all words as being highly meaningful or abstracted, which I argue is not the case. In some instances, as we have seen, text is rendered within the panel as entirely representational (or realistic). As such I would suggest that words, particularly text-as-image elements, be removed from McCloud's graph entirely. This removal of words actually strengthens McCloud's graph as the inclusion of the word "FACE" on the reality ←→ meaning axis is quite confusing concerning the overall point McCloud is trying to make. The word "FACE" in no way resembles a face and should therefore be much higher on the picture plane. It merely *represents* a face but does not *resemble* it; in the same way that the abstract shapes of the picture plane do not resemble a face but could represent one.

As such I have presented text-as-image on the same sliding scale as the one I used earlier for image elements. This addresses some of the problems presented by McCloud's graph. The horizontal axis across the bottom uses 'physical' as the leftmost point. Any text-as-image element which appears at this extreme leftmost point on the graph depicts exactly what it represents within the fictive world of the work. i.e. the text has the same meaning and presentation to characters in the fictive world as it does to the reader. At the opposite end of the axis is the category 'conceptual' where text-as-image elements which do not exist in, or interact with, the fictive world appear. This is to say, those that deliver a concept to the reader but do not exist for characters in the fictive world. In the centre are instances of text-as-image which deliver a mix of conceptual and internal information within the fictive world, and so exist in some form that the characters can experience, but do not literally reproduce what is experienced within that fictive world.

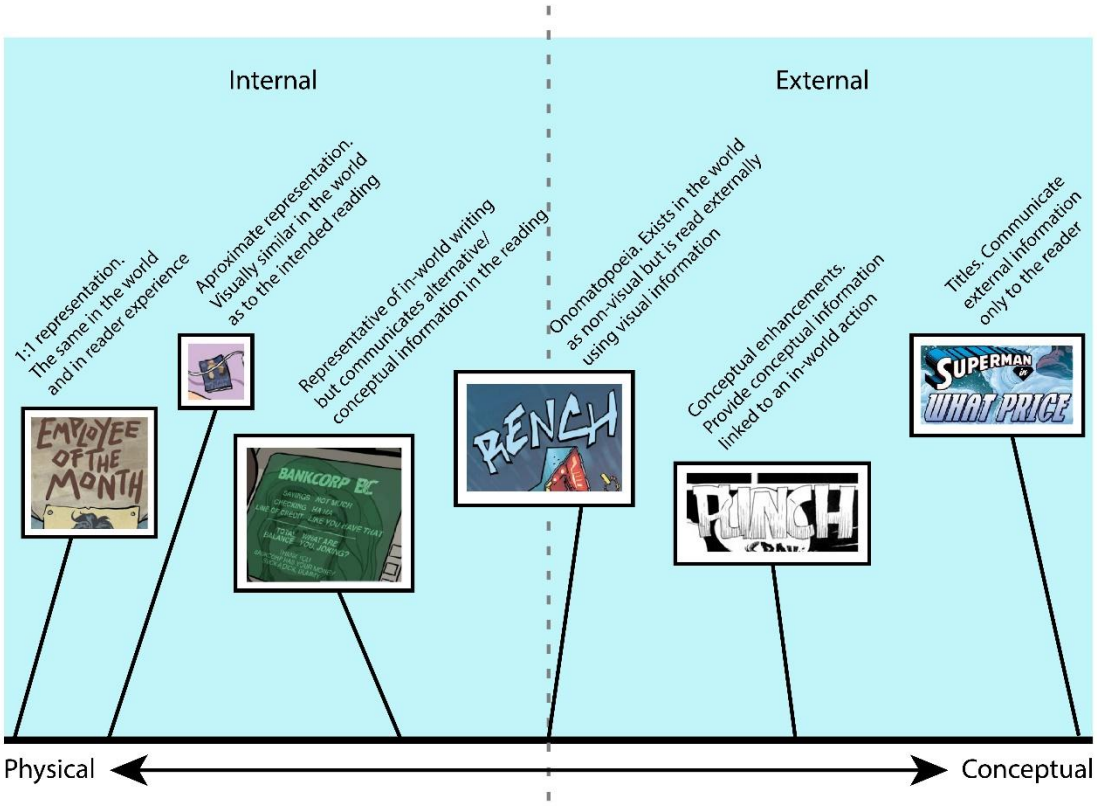


Fig. 3.14 The Sliding Scale of Physical ←→Conceptual Visualisation and Understanding. Art from: *The Flintstones #1* (Russell, Pugh, Chuckry and Sharp, 2016); *Sex Criminals #18* (Fraction and Zdarsky, 2017); *New Challengers #1* (Snyder, Gillespie, et al., 2018); *Cerebus* (Sim, 1998); and *Superman #1* (Perez, Merino, et al., 2011)

Sonic text-as-image occupies areas in this central position on the scale. Onomatopoeias, for example, represent sounds within the world of the work but do not literally present the reader with an audible sound. Instead, the reader understands the concept of a sound presented by the artist as illustrated-text whilst the characters within the fictive world experience the actual 'physical' presence of the sound. Or, put another way, the reader understands the text-as-image of the onomatopoeia and interprets it as sound whereas the character within the fictive world simply experiences the sound. The example of an onomatopoeia is central on our graph here because the word itself does not occupy physical space within the fictive world but still represents something (sound) existing for characters. This is also true of a combined text and image reading of speech balloons and their content, which, as we saw earlier, also sit at a central position and represent sound.

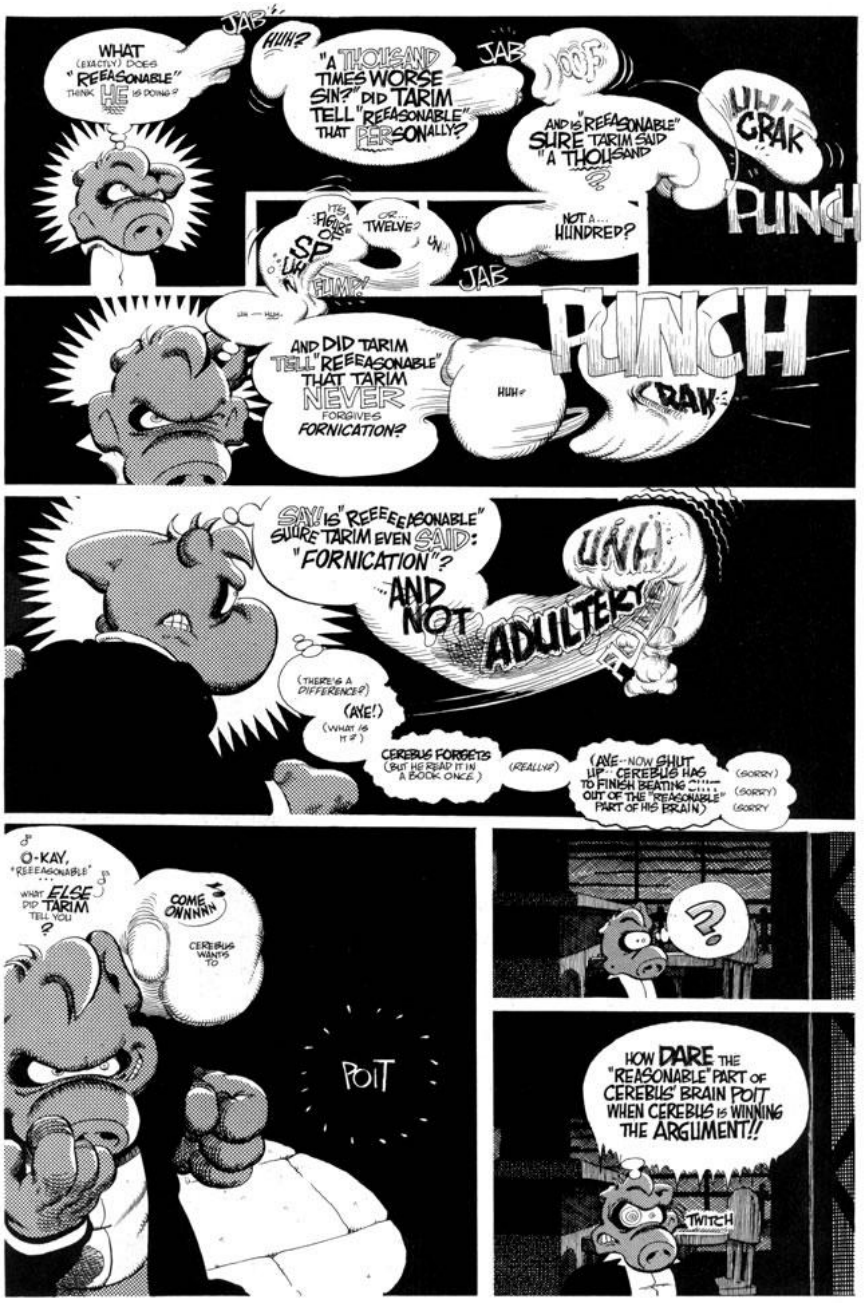


Fig. 3.15 Conceptual Text-as-image in *Cerebus #226* (Sim and Gerhard, 1998)

The example of text-as-image from *Cerebus* (Sim and Gerhard, 1998) is useful for comparison here because the illustrated text resembles an onomatopoeia but some of it sits at the other side of the line dividing elements as internal or external to the fictive world (Fig. 3.15). For example, the word "PUNCH" is not onomatopoeic because it does not represent sound. Instead, the word "PUNCH" represents the concept of an impact deliberately delivered by one entity to another. This means that the illustrated-text "PUNCH" is more conceptual than physical. However, the concept is reflected in the fictive world as present in the character's mind and so the text-as-image element does not sit at the extreme right of the scale. Rather, it is more conceptual than physical. In this way text-as-image

in comics can be used to represent the physical, the sonic or the conceptual within the panel. Illustrated text-as-image can be used as art, sound or meaning or a combination of all three and we can see from the collection of examples discussed here that they communicate in complex and nuanced ways depending on how they are presented.

My physical ←→ conceptual graph gives us a starting point from which to build an understanding of the reading processes of comics. Each of the key elements of comics that a reader observes in the panels needs to be understood as either physical or conceptual or somewhere in between. As we have seen from the examination of both text and image in comics, both conceptual information and physical information are presented to a reader through the same visual medium. Readers must be able to interpret this information as either physically present within the fictive world, or conceptual information not present within the fictive world. In many cases, such as where sonic elements of speech or onomatopoeia are presented visually, a reader will need to decode the text-as-image as both physical-internal and conceptual-external as part of the complex reading process of comics. We have seen that this is also true of the pictorial elements of the panel but it is important to note that the text elements of comics clearly demonstrate the visual versatility of representation for both depiction of the fictive world and the readers' conceptual understanding of that world. They also demonstrate the intrinsic multiple literacies of image and text reading and how they intertwine in the creation of meaning within the mind of a reader.

Chapter 4: Combining the Text and Image Reading

4.1 Introduction

It is clear at this point that whilst it is important to isolate the meaningful elements which appear in a comics panel so that we can understand how they provide meaning, each element can only communicate effectively when read in combination with the other elements that make up the whole panel-image. It is now prudent to examine not just the elements which make up the panel-image but whole panels and how meaning is created when combining each of the text and image elements together. This section will draw on the previously established findings in order to present a unified reading of complete individual panels before discussing panels presented in sequence.

The content of a comic panel is usually made up of the two primary forms of communicating information discussed above – image and text. Neither of these operates entirely independently and both are part of a complex structure of intertwined languages which make up a combined comics language. It is important to set out some of the relationships between the text and image communicators and how they create meaning. I have already touched on this idea when talking about how proximity impacts our understanding of text and image elements when they are positioned and read together. Words can deliver meaning based on their relation to other words and become meaningful units when collected into expected proximities with one another, as they do in sentences. We have seen that images work similarly, with meaningful units (e.g. eyes, nose and mouth) in particular spatial combinations creating larger meaningful units (e.g. faces) (McCloud, 1993).

The panel reading process is therefore made up of a complex intertwining of these image and text proximities and, whilst the previous chapters have looked at specific instances of proximity of text and image objects, a more complete reading process of a panel requires a much greater number of associations between objects to be made. This chapter considers more complete readings of the image and text elements read together within a single panel-image and then discusses how a reader might prioritise and compartmentalise these interactions to form a reading of the panel as a whole. Of course, all panels will be read differently because the content of each panel will be made up of varying different elements. However, looking at several panel examples allows us to understand core reading rules and approaches to comprehension a reader may take when reading a panel in its entirety.

4.2 Panels and Panel Containers

Panels in comics are defined by Eisner as 'segments' which contain the images and text that make up the narrative elements of the comics sequence (Eisner, 1985: 38). He suggests that the comic language is made up of “words and pictures” which depict events in the narrative, and in order “to deal with the capture or encapsulation of these events in the flow of the narrative, they must be broken up into sequenced segments”, and that “these segments are called panels or frames”(Eisner, 1985: 38). I will be using this generally accepted definition of a panel. However, I would argue that the frame is a part of the panel and that the term should not be used as a synonym for the panel. Instead, the frame is a visual component of the panel border. Groensteen echoes this by identifying that panels compartmentalise the narrative moments in a spread, and that the frame serves multiple functions which assist in the reading of panels (Groensteen, 2007).

As such, panels are defined by their purpose and, like other comics elements, do not have a singular visual appearance. The frame is the visual representation of the boundary, inside which the text and images depicting a moment in the narrative appear. The frame is also a visually depicted part of the panel and, when combined with the space within which contains the panel-image, becomes a part of the panel unit as a whole. The panel-image is the combined totality of any text and image elements contained within the boundary of the panel border or frame.

Groensteen observes several functions of the frame, including closing a panel and separating it from other narrative moments (Groensteen, 2007). In short, for a reader to be able to identify the content of a panel, they must be able to isolate it from the content of any other panels which might also appear in a given spread. The frame facilitates this process and is therefore an integral part of the reading of comics. In some cases, the visual qualities of the frame may impact the reading of the panel-image itself. Eisner sums up this notion succinctly by saying “in addition to its primary function as a frame in which to place objects and actions, the panel border itself can be used as part of the non-verbal ‘language’ of sequential art” (Eisner, 1985: 44). Eisner outlines some typical examples of different visual representations of frames. He identifies that whilst there are no specific rules for each of these frame representations, they are each recognisable and deliver meaning once learned. This means that some of the visual variations are conventionalised, in a similar way to the visual signs we have seen before when looking at speech balloons, upfixes and other conceptual metaphor, and that they are read with similar application of encyclopaedic memory.

The most used frame in American periodical comics is rendered as a solid black rectangular border, as seen in Fig. 4.1 below. Eisner, McCloud and Groensteen recognise this, and it is generally accepted across most discussion in the field (Eisner, 1985; McCloud, 1993; Groensteen, 2007). McCloud states

that “panels come in many shapes and sizes, though the classic rectangle is used most often”(McCloud, 1993: 102). McCloud does not offer much beyond this statement. However Eisner discusses the narrative function of the frame. Typically, he suggests, this frame type acts “to contain the reader’s view, nothing more,” (Eisner, 1985: 43-44). Similar to the solid black ovoid line with a white fill of the normal speech balloon, this frame acts as a ‘normal’ representation of the panel border. The solid black outline contains the panel-image and identifies it as a moment in the narrative sequence but generally does not offer any modified meaning beyond this. As a result, alternative visualisations of borders which differ from the ‘normal’ will suggest a modified reading of the panel-image contained within. Just as the visual renderings of a word balloon modify the text within itself.

Fig. 4.1 A Solid, Standard Panel Frame Border from *Batman: Nightwalker* (Lu, Moore, Wildgoose, Trinder, 2019)

The establishing of this normal visual representation of the frame lends meaning to other representations: examples include frames with wavy edges to suggest dreams or memories as well as those with spiky edges which suggest explosions or explosive actions which reverberate beyond the confines of the frame (Eisner, 1985). As Groensteen observes, some panels have no visible frame to isolate the panel-image from others (Groensteen, 2007). When paired with the ‘normal’ frame as the most common, the lack of a visible frame is meaningful. This, as Eisner suggests, “speaks to unlimited space” and conveys an expansive and open environment (Eisner, 1985: 45). Since the frame acts to contain the panel-image, its lack suggests an absence of containment and a feeling of openness and expansiveness to the depicted scene.

We can see this effect utilised in the below panel from *Winnie the Pooh* (Moore, 1983) which uses the standardised frame representation on the left side but removes the frame from the right (Fig. 4.2). The removal of the frame here suggests that the environment in which the characters (Winnie the Pooh and Piglet) are depicted extends beyond the edge of the panel image. This frame, or the

lack thereof, is then read as part of the visual metaphor for ‘unlimited space’ and contributes to the reading of openness in the full panel reading. Thus, it communicates a conceptual meaning to the reader, as we saw other visual conceptual metaphors do in the discussion of images earlier.

Fig. 4.2 Open Panel Border in *Walt Disney’s Winnie the Pooh* by Richard Moore, July 5 1983 (Moore, 1983)

The opposite can also be true when the frame is rendered as a part of the fictive world, such as a scene viewed through a doorway or within an enclosed space. Including the frame’s visual elements as part of the direct-image of the panel arguably lends the panel-image the frame’s containing properties and often leads to a reading of enclosed physical space within the fictive world. This moves the frame from the conceptual-external end of the spectrum towards the physical-internal end. In cases where the frame is rendered in this way it becomes part of the fictive world and so is experienced by characters contained within, giving both the reader and the characters the feeling of enclosure. Like other image and text elements, frames can be both physical-internal, representing objects through which panel content is viewed, such as keyholes or doors, or conceptual-external representing ideas like memories or dreams. Frames then, operate on the same plane of communication as other image elements but also act as containing units for the moments of time depicted by the panel image.

4.3 Combined Literacies

Combining this understanding of the frame with that of the discussed image and text elements we can begin to discuss the reading of whole panels. In order to read a panel, it is important that a reader can interpret and identify each of the meaningful units which make up the parts of the panel-image. They can then relate each recognisable element to the others surrounding it and form connections which lead to a comprehension of the meaning of the whole panel-image. This panel-image may then be given a locational, temporal or contextual reading by associating the frame with the meaning of the content. Groensteen also notes the importance of the frame in separating the

panel from those around it here to create discrete narrative moments (Groensteen, 2007). Further, context from previous or subsequent panels will likely influence the reading of meaning in the greater narrative, which will be covered later.

As such, the process of reading a panel requires a reader to undertake the text and image reading processes we have discussed so far and combine them. They must also be able to swap back and forth between them to read contextual relationships which modify each component of the panel image.

Fig. 4.3 Image Only Panel used for Close Reading from *Looney Tunes #47* (Slott, Álvarez, et al., 1998)

The panel above, from a Barksian style American periodical comic (*Looney Tunes #47*), contains two primary groups of image-objects which the reader needs to identify and associate together in order to understand the full meaning (Fig. 4.3). One of these groups is the collection of meaningful units which make up the character, Wile E Coyote. The group here includes the head and upper torso of the character and their corresponding component parts (eyes, ears, nose). The other group is the collection of stars, circles and lines which comprise the up-fixes and motion lines surrounding the head unit. Once the two primary units have been identified the reader must actively translate the units into meaningful parts of a narrative. The character unit would likely be identifiable through experience with previous instances of the character and as such this understanding may utilise encyclopaedic memory and recognition as discussed in Chapter 2 earlier. Even if the reader has no experience with the character from previous panels or comics (which is unlikely) there is a clearly defined head, neck and upper torso which can be identified based on a more universal understanding of both human and non-human animals. The up-fixes can be identified through their proximity with the head and so a relationship between the two image groups can be formed. A reader would likely identify the up-fixes as signifiers of a particular concept and associate that concept with the character. Here, the reading is likely to be that of pain, dizziness and grogginess, or

'seeing stars'. The details of the character unit also reinforce this idea with similar grogginess circles supplanting the pupils of the eyes, the unnatural angle of the neck and the crookedness of the ears suggesting a state of discombobulation and injury. The full reading of this panel combines each of these elements to form a likely complete reading of 'Wile E Coyote in a state of confusion and dizziness from an injury'. This reading would almost certainly be reinforced by the surrounding panels which would offer further context to the sequence of narrative events that lead to this injury/dizziness/confusion of the character. Whilst at first glance the reading of this panel may look simple, a complex series of associations between different units need to be made by the reader in order for them to fully comprehend its meaning.

Fig. 4.4 Image and Text Panel used for Close Reading from *A-Force #1* (Bennett, Willow Wilson, et al., 2015)

The panel above from *A-Force #1* (Bennett, Willow Wilson, et al., 2015) includes both image and text elements contained within the normalised frame (Fig. 4.4). Each element has a relationship with the others around it and forms a part of the whole panel-image meaning. For example, the speech balloon, which points to the character (She-Hulk), is associated with that character and so text elements within read as spoken by the character. The green narrative boxes also reflect She-Hulk's colours and suggest a relationship between the two. The relationships between each of the other image elements allow the reader to understand depth and read the winged lion statue as closer to their viewpoint and the birds as further away. Together a likely reading is 'She-Hulk walking past a winged lion statue towards a building in the background whilst speaking'.

As with identifying individual image or text elements, this is a holistic process. The order is not strictly predetermined and may be performed in different orders by different readers. Whilst levels of experience are beyond the scope of this study, I propose that this process is similar to applications of reading memory described by both Cohn and Miodrag in their discussions of reading (Cohn, 2013b; Miodrag, 2013). Both of these discussions of understanding sequence through reading memory will be investigated in more detail in a later part of the thesis but at this stage it is useful to consider how similar ideas of reading memory might apply to the visual elements within panels. Miodrag suggests

that memory of previously read layouts aids in the reading of similar layouts when they are viewed later in a comic or series (Miodrag, 2013). This relies on readers understanding, and building literacies around, how comics are constructed at a higher, or more macro, level which involves panel layouts rather than images. However, it seems likely that similar applications of memory activities apply in the recognition and association of visual elements at the lower levels of reading – in the panel image. Similarly, Cohn identifies cognitive scripts as useful in helping readers find expected narrative relationship between panels based on memory of previously read narratives. Here he suggests, based on research into cognitive narratology, that a reader is most likely to connect panels in ways that meet their expectations of event sequences (Cohn, 2013b; Herman, 2003; Jahn, 2005). Or, put another way, that readers apply memory of previous narrative connections between panels to help them understand connections in new sequences. If a reader finds no contradictions, like the ones Cohn outlines in his discussion of "agreement violations", they may not need to associate every direct-image detail of the panel-image to every other in turn to comprehend meaning (Cohn, 2013b: 42). Considering these applications of memory in reading at higher levels of the comics structure, it seems reasonable that similar activities might be understood at lower levels of the panel-image as well. As such, I propose that readers use memory of previously read narrative elements to prioritise the connections of visual elements they perceive as most likely to be relevant, similar to how they might apply cognitive scripts or memory of previous panel layouts to associate larger narrative units. Further, I would suggest that the constructions of meaningful units in panel-images form a visual hierarchy of information which assists readers in understanding narrative importance, similar to those seen in information design (Coates, 2014). I will investigate this in the close reading of an example panel below to reinforce the ideas of how these hierarchies of information might be applied. It is worth identifying here that this panel was chosen as an example against which to test theories relating to hierarchies of information and the ideas are not derived from this comic specifically.

4.4 Hierarchy of Information

As a reader becomes more familiar with the common associations and rules of reading panel-images they will likely take cognitive shortcuts to meaning through prioritisation of elements. In design theory, this type of reading shorthand is referred to as a hierarchy of information (Coates, 2014). In a hierarchy of information each piece of information is ordered by levels of importance. For such a hierarchy to work, each of the components must be visually identifiable from one another and the level of importance needs to be clear. Elements are also likely to be laid out so that a reader's attention is brought to the elements of higher importance in the hierarchy first.

In panel-images the hierarchy of information is complex, with readers being required to identify a sophisticated variety of image objects and place them on a hierarchy of importance. Characters and key objects tend to be high on the hierarchy of information but there is no absolute rule, and each panel is different. For example, an object may be at a higher level on the hierarchy than a character if the object is the focus of the narrative moment or is the visual focal point of attention. In other panels the character will be of high importance and objects will be low on the hierarchy. In some panels the conceptual metaphors of actions might be the more important and so be higher in the hierarchy. Each panel's hierarchy of information is unique, and it is up to the reader to discover the levels of importance of each rendered element as part of the understanding process.

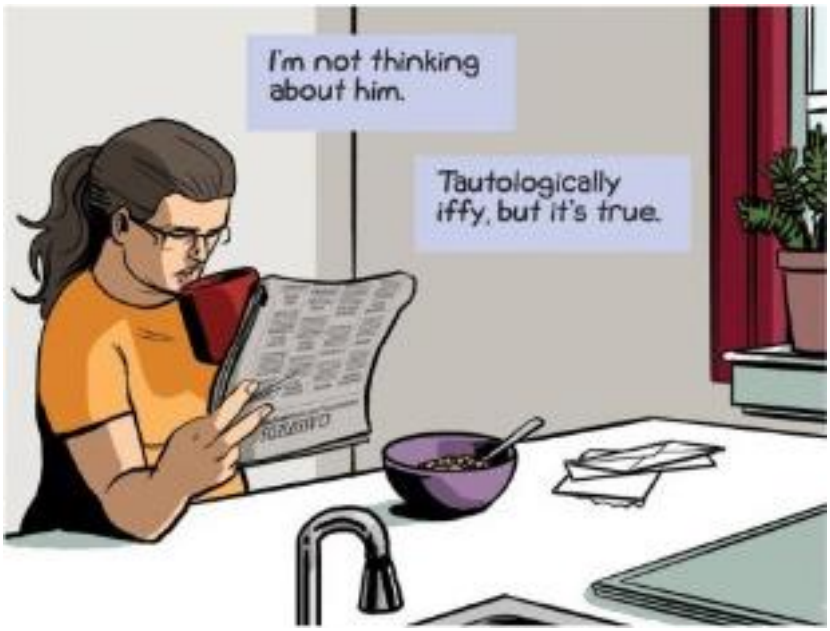


Fig. 4.5 Image and Text Panel from *Sex Criminals #18* (Fraction and Zdarsky, 2017)

In the above panel from *Sex Criminals #18* (Fraction and Zdarsky, 2017), the hierarchy of information is relatively straightforward (Fig. 4.5). The most important part, or focal point, of the panel-image is the character (Dr. Kincaid). She is also the only active entry, as Cohn calls it, in this panel, meaning that she is repeated in adjacent panels in different states or positions (Cohn, 2013b). This puts her at the highest level of the hierarchy and makes her the most important element. The next direct-image in the hierarchy is the key-object of the paper. This object is lower on the hierarchy than the character but is more important to the reading of the scene than, for example, the curtains in the background. The key-object here presents a direct relationship to the character and so is read as narratively relevant. The paper, once identified, communicates what the character is doing ('Reading the classifieds') and is important to forming an understanding of narrative ('Dr. Kincaid is looking for a job'). The other image-objects in the panel-image are lower on the hierarchy, however they are still

relevant to the reading of the panel. In this case they set the scene and identify the location. The bend of the tap and corner of the sink (identified through proximity, mnemonics and encyclopaedic knowledge even though they are not rendered in their entirety) against the white counter surface, as well as the coffee cup and bowl, help a reader to identify the location ('the kitchen') (Kennedy, 1974). They also suggest a time of day ('morning') by implying breakfast. This idea is reinforced by the inclusion of opened envelopes, suggesting the morning post (understood through stereotypical signifiers of morning). Further, the vertical line and shading in the background, as well as the window, curtains and plant-on-windowsill, suggest the interior of a house, supporting the communication of the 'kitchen'. This setting is less important to the communication of narrative than the inclusion of the character or the newspaper and therefore constitutes a lower level of importance on the hierarchy however all elements contribute to a complete reading of the panel-image: a reading likely to be similar to 'Dr. Kincaid reading the classifieds in the paper whilst having breakfast in the kitchen.' Importantly, whilst the narrative is entirely readable without the reader noting the image-objects lower on the hierarchy they contribute to the holistic messages of the panel-image here. That of the 'normality of routine' which is important to the tone and meaning of the full sequence of panels in the spread.

There are also word balloons in the panel-image which need to be addressed. Text objects contained by word balloons within the panel-image also tend to be high on the hierarchical scale and will likely draw the reader's attention to them. Because of the visual nature of comics, text information is likely to have high levels of narrative importance otherwise, it would probably not be included by the artist/writer. This is not always the case but applies as a general reading rule in most comics, particularly when placed in a word balloon. Groensteen identifies this hierarchy between balloons and the panel-image and notes that the balloon is given an importance through its relationship with other elements of the panel (Groensteen, 2007). Thus, the textual information's position in the hierarchy will often be highest and readers will prioritise it in the reading sequence. In this case the word balloons represent a character's thought. The identification of the word balloons as thought is established within earlier panels of the comic and in this panel-image the use of the word 'I'm' is particularly important to locating the text object in context with the direct-image elements and placing it on the hierarchy. 'I'm' suggests a first-person attribute to the text and the word balloon "is a symbol representing the idea or the notion that characters are speaking," (Khordoc, 2001: 161) or in this case, thinking. Collectively, the thought balloon and the text it contains are intended to be associated with the character. This attribute of the text suggests a hierarchical position that is secondary or, at least, not more important than the direct-image of the character. The text is narratively important and acts here as a counterpart to the image-object of the paper within the

panel and holds a similar level on the hierarchy of information. The complete reading of the panel when including direct-images and word-balloons is something like ‘Dr. Kincaid reads the classifieds in the paper whilst having breakfast in the kitchen and thinks about 'not thinking about him'.’ Further to the literal representation of elements here is the suggested narrative meaning that Dr. Kincaid is trying not to think about 'him' (another character not indicated in this panel) whilst going about the routine of the day. The hierarchy of information is therefore:

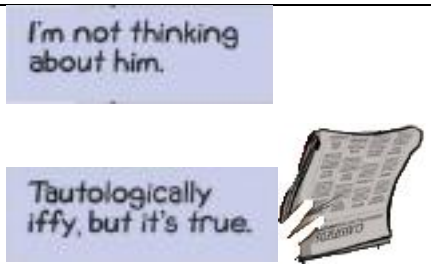
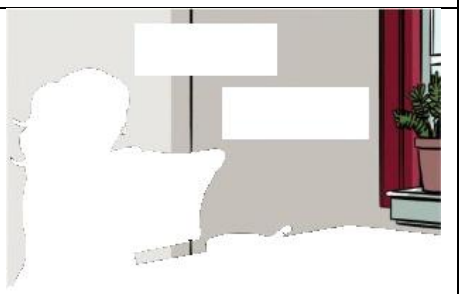
Top Level	Character (Dr. Kincaid)	
Secondary Level	Text-objects (Thought balloon(s)) Key-object (Paper)	
Tertiary Level	'Breakfast' image-objects (coffee cup, bowl-with-spoon) 'Kitchen' image-objects (tap, sink, counter) 'Morning' image-objects (opened letters)	
Body level	Scene-objects (wall, window, plant-on-windowsill)	

Fig. 4.6 Likely Hierarchy of Information in a Panel from *Sex Criminals #18* (Fraction and Zdarsky, 2017)

When looking at several examples of panels, the hierarchy of information can offer useful shortcuts to understanding for readers. Not all panels have an expected hierarchy and so in some cases more complex associations, and therefore readings, need to be made. However, by grouping objects and identifying those which are usually the most important, the need to associate every meaningful unit

with every other meaningful unit in the panel is reduced. This makes the reading process more straightforward and reduces the effort required in the combination and subsequent understanding of the elements.

Having considered the hierarchy of information, it should be clear that certain types of elements within the panel-image have greater impact on the understanding of the panel as a whole. Cohn discusses this when considering types of panel and further considers the ideas of active and inactive entries (Cohn, 2013b). We have seen that, in each panel, different image elements can have different levels of importance. The understanding of these levels of narrative importance, through the application of a hierarchy of information, allows the reader to comprehend the meaning of the whole panel and create a reading.

4.5 Panel Types

The hierarchy of information directs the reader to the suggested meaning of the panel and identifies the key elements to the narrative. Cohn discusses a similar concept when considering the idea of 'panels as attention units' and suggests that the content of any given panel can be broken down into 'active entities' and 'inactive entities' (Cohn, 2013b: 56). His definitions for each are dependent on panel sequence and he states that “active entities are those that repeat across panels by engaging in actions or events of the sequence (i.e. the characters of the scene), whilst inactive entities do not move across panels (i.e. are elements of the 'background')” (Cohn, 2013b: 56). Whilst Cohn is clearly focusing on the idea of panels in sequence and not the reading of individual panel units, some of the ideas of active and inactive elements within a panel can be seen in the hierarchy that we have discussed. These active and inactive entries are also reflected in Groensteen’s discussion of sequence where he notes that the progress of action relies on the visual changes in the object or character which is the centre of attention for the narrative moment (Groensteen, 2013). Comparing Cohn’s definitions with the findings of my own close readings we can see that active entities tend to be those highest on the hierarchy, i.e. those which involve the key elements of the narrative such as characters. Conversely, those elements which constitute Cohn’s inactive entities are those found lower down in the hierarchy, i.e. elements which make up the background or scene. This is not always the case and so further investigation into the suitability of these definitions of panel-sequences as applied to individual panel reading needs to be undertaken.

In Cohn’s discussions, he defines different types of panels based on the number of active or inactive entities that appear. He breaks these panel types down into four categories: Macro ('depicts multiple active entities'), Mono ('depicts single active entities'), Micro ('depicts less than one active entity (as in a close-up)') and Amorphic ('depicts no active entries (i.e. only inactive ones)') (Cohn, 2013b: 56).

Macro, Mono and Micro panels are all considered to be active panels whilst Amorphic panels are considered to be inactive. This final panel type is problematic when considering the hierarchy of information as, if we suggest that active elements are those high on the hierarchy, containing no active elements would mean that there is no hierarchy of information in such panels. This is very unlikely to be the case in American periodical comics but not impossible. Instead, it is likely that in cases where no active elements are present, there is a hierarchy within the inactive elements. The image of a building, by Cohn's definition, cannot be an active element within the panel since it is not 'engaging in actions or events' (Cohn, 2013b: 56). However it can be highest on the hierarchy if it is the focus of the narrative moment. In cases like this it must be acknowledged that the active and inactive elements do not define the hierarchy. It is instead the importance to the narrative of the panel that defines an element's position in the hierarchy of information. It is also worth noting that defining panels as macro, mono and micro has been challenged by others, such as Grennan, because they do not offer enough robustness to stand up to scrutiny (Grennan, 2017.) However, for the purposes of this research the important element is the active or inactive nature of the panels rather than their definition as macro, mono, micro or amorphic and we shall continue the discussion with this in mind.

As we can see from Cohn's discussion of panels as attention units and his definitions of active and inactive panels, sequence plays a crucial role in many definitions of panel types. We will discuss sequence in the next section. However, before we move on to this discussion of sequence it is useful to further consider panel types in isolation. Cohn's active and inactive panels are a useful place to start but the definitions will need expanding in order to be useful in describing individual, isolated panels. Broadly, active panels contain elements which are suggested to have moved or changed between one panel-image and the next, i.e. depictions of elements that are read as having changed state between each panel in the sequence. As Groensteen points out, these elements would usually be characters or key objects, which are commonly the highest on our hierarchy of information (Groensteen, 2013). However, some panels will place a greater level of importance on inactive elements rather than active ones when read in isolation. Whilst Cohn's definitions of Macro, Mono, Micro and Amorphic can be applied here they would require readings of the panels before and after the isolated panel in order to assign them. Instead, McCloud's research may be more useful when defining isolated panels. This is worth considering as we have seen Grennan take opposition to Cohn's definitions of active and inactive panels which aligns with the problematic nature of inactive entries discussed above (Grennan, 2017). As such, the consideration of other approaches to defining panel types could prove useful in establishing their usefulness.

McCloud suggests that there are six distinct types of panel transition which can be understood when reading panels in sequence (McCloud, 1993). Transitions are the meanings readers understand between the connected elements of each panel in sequence and rely on the recognition and connection of active and inactive entries. The six suggested transition types are 'moment-to-moment', 'action-to-action', 'subject-to-subject', 'scene-to-scene', 'aspect-to-aspect' and 'non-sequitur' (McCloud, 1993: 70-73). Again, these transitions are intended as part of the discussion of panels in sequence. However the definitions given by McCloud presuppose specific panel types without defining them. His theory is that between panels a reader understands different types of connection based on the content presented in each. For example, an action-to-action transition depicts two moments in a single action each presented in juxtaposed panels, whilst subject-to-subject transitions depict two different individual elements (subjects) presented in juxtaposed panels. Groensteen proposes similar transition types, noting that readers need to recognise causal relationships between panels of different types (Groensteen, 2013). In each of these cases, for the transition to be comprehended, the reader must be able to identify the type (or types) of panel they are looking at. The individual panel must be recognisable as depicting an action, a subject, a moment in time or one of the other key features that allow for the understanding of transition types to be made. It is clear then that we need to take a step back from transitions and first identify the individual panel contents and its focus. Our hierarchy assists us in doing this as the focus of the panel-image defines the type of panel a reader is looking at. McCloud's six panel transitions do not suggest the existence of six different panel types. However they do require that some varying panel types exist beyond those that are simply active or inactive. Instead, we can look at these suggested transition types to help identify panel types involved.

Looking at all six transitions, there are three core types of panels: action panels, subject panels and scene panels. Action panels focus on an action within the panel as the most important part of the panel-image and the highest on the hierarchy of information. Subject panels focus on a specific subject within the panel-image, such as a key object or character, where that element is the most important aspect of the panel reading and is highest on the hierarchy of information. Finally, scene panels are those containing panel-images with a holistic collection of subjects in which no one is the focus. These panels are usually those used as establishing shots which set the scene for later panels in the sequence like the one below (Fig. 4.7).

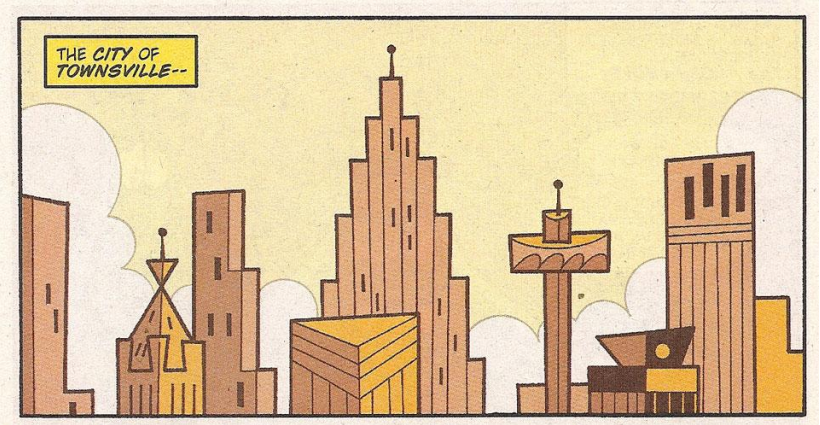


Fig. 4.7 Panel with no active entries from *The Powerpuff Girls #14* (Rozum, Moy, et al., 2001)

These three core panel types do not have strict structural boundaries as each panel-image may contain elements from multiple types. This is a scale and so a panel may be defined as having a subject-action type or a subject-scene or action-scene type. In such panels, the panel-image includes multiple different types of elements at similar levels on the hierarchy. A panel in which both the action and the subject are given the same level of importance to the reading is then defined as action-subject (or subject-action). This would be likely in panels where characters are seen performing an action or an object is shown travelling along a motion path. Similarly, a panel containing a panel-image in which a subject and the scene are given equal importance on the hierarchy would be defined as a subject-scene panel. This might be a panel-image depicting a character looking out over a cityscape or other landscape. In such panel-images the environment (or scene) depicted alongside the character has equal importance and positioning on the hierarchy.

At this stage it may be clear that the image hierarchy, which helps establish the interpretation of panel-images thereby establishing connections between the individual image-objects, also helps in defining the most important elements of the panel. It also seems likely that this would help readers understand the transitions between panels. If both panels are action-panels then the transition between them is likely to be read as an action-to-action transition. Alternatively, if the first panel is a subject-panel and the next is a scene-panel then it is likely that the transition will be read as one that is scene-to-scene. There are several other combinations, all of which would create the transitions suggested by McCloud. The use of panel-type definitions also helps us to connect the theories of Cohn's panel types and their transitions with those of McCloud. Panels which are classified as active can only be classified as such once a transition between them has been read and for a reader to understand a transition they must identify the panel types which they are reading. Because the defining feature of Macro, Mono and Micro panels is that they contain active entities a reader must connect the panel-image of one panel with the panel-image of the next in order to identify which

elements are active and which are not (i.e. which image-objects are redrawn across panels in different positions or states). For them to do this they must also understand the transition between each panel and thus must be able to identify what type of panel each represents.

This leads us to the end of the discussion on what makes up an individual panel and into a discussion of panel sequence. However, before we begin, it is important to pause to acknowledge the importance in being able to read an individual, isolated panel before it is possible to understand meaning between multiple panels in sequence. As we have seen, this requires a reader to engage with complex multiple literacies so that they can identify and understand each of a comics component parts. These multiple literacies intertwine and work together to modify one another with additional meaning as we saw with the visual variation of text, speech balloons and whole panel readings. Through recognition, reading memory and complex grouping activities, readers can decipher highly complex narrative images combined of multiple forms of communication. Through application of theories to example panels from a range of American periodical comics I have discussed how the identification of the physical and conceptual image and text forms also intertwine to create readings of concepts within the fictive world which are understood to be experienced in a different form to the depicted visual qualities. The combination of these reading observations into whole panel-groups and the consideration of how their contents fit together then allows readers to identify the narratively important elements of the individual panel-images and create a reading for each. Only once these observations and understandings have been undertaken can readers comprehend narrative in sequences of panels beyond the individual panel-image.

Section 3 –

How is Sequence Understood?

Chapter 5: Reading Panel Combinations

5.1 Introduction

So far we have looked at how panels are constructed of image and text elements and how meaning is formed by the combination and comparison of these elements. We looked at how images and text come together in their different forms and how the proximity of elements facilitates the comprehension of meaning in individual comics panels. Additionally, we were able to categorise text and image elements by the level of importance to the narrative through application of principles of information hierarchies and we discussed how this influences the reading process, finishing the discussion by categorising panels containing different focal elements into types. We acknowledged that this was a requirement for the understanding of panel transitions as discussed by both Cohn and McCloud(Cohn, 2013b, McCloud, 1993). This section of the research continues the discussion of sequence and focusses on how a reader understands narrative and reading sequence across *multiple* panels and panel groups. We will begin with a continuation of the discussion of panel types and the transitions between those panels juxtaposed next to one another, before developing a more holistic understanding across larger panel groups.

5.2 The Reading Contract

In establishing that different panel types exist, I considered both Cohn's ideas of active and inactive panels and McCloud's panel transitions (McCloud, 1993; Cohn, 2010b; Cohn, 2013b). Both of these key theories rely on the idea that panels juxtaposed in sequence create meaning beyond that of their isolated visual components. The connectedness of panels is a foundational underpinning of how comics languages function and requires the acknowledgement and understanding that each panel in sequence has a relationship to those before and after it. Many theorists suggest that the relationships between panels goes further than just those in immediate proximity, with Cohn, Miodrag and Groensteen all considering ideas of sequential relationships of panels across larger distances of separation (Groensteen, 2007; Cohn, 2013b; Miodrag, 2013). However, before we can discuss these larger spatial transitions, we must first establish how the immediate transitions between two panels in direct juxtaposition are understood by the reader.

Groensteen provides a useful insight into the sense making processes that allow readers to understand narrative transitions between one panel and the next. This discussion outlines some of the complex, yet generally accepted, reading rules associated with comparing and contrasting juxtaposed panels to create narrative understanding (Groensteen, 2007; Groensteen, 2013). In his book *The System of Comics,* Groensteen discusses what he refers to as a 'restrained arthrology' of

comics in which he outlines how a reader understands narrative by connecting panels in direct physical proximity with one another (Groensteen, 2007: 103). He identifies that first it must be accepted that panels presented in sequence do indeed offer a narrative connection to one another. This is a fundamental, grounding decision assumed on the reader's part on entering into the reading of the comic. This expectation that readers will be presented with a series of still images which must be associated together in order for narrative to be understood, is core to comics literacy. There is then, a reading contract between author and reader which establishes the expectations and requirements of both parties. In the case of the authors, this is to present cohesive connections between each panel which the reader can find, and for the reader it is to search out and attempt to understand these connections. Groensteen identifies this idea in his writing as he outlines the connections between panels in an example page, illustrating how narrative connections are made. He suggests that an individual panel cannot "be held to be intrinsically narrative. It is from their juxtaposition that I[the reader] can deduce a narrative proposition" (Groensteen, 2007: 108). Or, put another way, two panel-images positioned in immediate sequence by the author suggests that narrative sequence be read between them by the reader. It is worth noting that narrative can, as we have seen, be demonstrated *within* individual panels. However, in most cases in American periodical comics, individual panels viewed in isolation do not deliver narrative but instead actions and moments within a narrative (Groensteen, 2013).

Fig. 5.1 Two Panels in Groensteen's Transitions Example (Groensteen, 2007: 109) from *Alack Sinner: Rencontres* (Muñoz and Sampayo, 1984)

How narrative is understood is dependent on how the contents of each panel are connected by the reader as they compare the juxtaposed images. In the case of Groensteen's example above, the narrative is understood even though no image-elements are repeated or rendered in altered states between the two panels (Fig. 5.1). In the first panel a newspaper is the key object at the top of the hierarchy whilst a window-frame offers secondary importance. A reader associates these two objects together to form the reading of the panel-image ('A paper reading, "John Lennon Killed" is blown against the window'). The next panel depicts the face of a character on a background of high contrast

black and white. The character is the only object recognisable in the panel-image and so represents the most important element on the hierarchy. The reading is keyed entirely to the character's face and is 'character looking to their right'. In this example there is no active entry by which to understand the connectedness between the two panels at first glance. However, by entering the reading contract, a reader agrees to read these two seemingly unrelated panels as related due to their proximity in space – or what Groensteen refers to as the spatio-topical system (Groensteen, 2007). Instead of reading these two panels as unrelated images, there is the assumption that a reader chooses to associate them to uphold their part in the reading contract (Groensteen, 2013). Because of this contract, a reader can reasonably assume that panels are placed "in deliberate sequence" by the creators and are intended to communicate narrative connection (McCloud, 1993: 9). As such, the contract sets out a rule that suggests the two panels should be connected through some form of transition from one to the next based on their proximity in space.

It is here that both Cohn's and McCloud's ideas as we have discussed them so far are insufficient to comprehend the narrative. Cohn's active and inactive panels rely on elements repeating across panels, which is not the case here. Repeated elements do apply across the larger sequence which Fig. 5.1 is taken from but in the immediate juxtaposition that we are discussing here the ideas are of little use in understanding the connection between the panels. The lack of active entries to help in the understanding of the immediate transition here suggests that the reading of the panels must rely on other activities or indicators in the understanding of a narrative connection between them. McCloud's transitions can be applied here. However the transition type is not easy to pin down and could be read as either scene-to-scene, aspect-to-aspect, subject-to-subject or possibly even non-sequitur (although having entered into the reading contract with the author(s) we are likely to almost never read panel transitions as non-sequitur) (McCloud, 1993). Subject-to-subject is most likely the intended reading, but the reading relies on the reader choosing this transition. As such, it is this motivated choice-making by the reader, as part of the reading contract, that allows for narrative connections to be made in the immediate juxtaposition of these panels. Hatfield identifies reader choice as part of the reading process and the idea is important to the discovery of the narrative transition in Groensteen's example (Hatfield, 2005). Here, and in many places throughout comics, the reader is posed with a choice, based on the hierarchy of elements presented by the panels, of which transition is the appropriate one. The reader then chooses this transition based on the likelihood of that sequence and applies that transition as part of their understanding. It is important to note that whilst reader choice plays a key role in understanding immediate transitions, a reader's understanding is likely to be confirmed or denied when reading the larger sequence and connecting panels over greater distances, as we will discuss shortly. Simply put, whilst active and inactive entries

and transition types are useful to the reading process, it appears they cannot operate alone as they do not account for the reading of all juxtaposed panels. As such, reader choice, as Groensteen suggests, plays an important part in understanding narrative across panels and relies on a variety of learned and remembered associations such as the ones outlined in the previous chapters (Groensteen, 2007).

The reader then, is ultimately in control of the reading of transition. However, authors will usually have an intended reading which they will try to facilitate. The narrative intentions of author(s) are an interesting field of study within comics and often deal with ideas beyond the scope of this study such as representation and meaning. However, narrative intention is an important part of the author's side of the reading contract and we will look at some ways that authors can guide the reader to understand narrative sequence in an upcoming section. For now, it is enough to note that creators play a role in leading the reader through the construction of the elements to form narrative understanding across transitions. In Groensteen's example, the second panel-image is rendered in a way which suggests that it relates to the first (Fig. 5.1). As we established earlier, the individual panel-reading of the second panel is 'character looking to their right'. If we consider the construction of the *sequence,* the character is looking towards the previous panel. This suggests, in a subtle and almost subliminal way, that the character is looking *at* the paper depicted there, even though the two objects do not appear within the same panel-depiction at any point in the sequence. The composition of the two panel-images, combined with the contractual expectation that the panels should have some relation, suggests the reading of a subject-to-subject transition. Or, a combined reading of the two panels in sequence as 'A paper, reading "John Lennon Killed", is blown against the window and is seen by a character looking right'. This is a complex reading task guided by the author to reach narrative meaning. As such it comprises of a number of key reading tasks, including the choice to enter the reading contract and to look for connectedness, identification of individual panel readings, the recognition of a transition between them, understanding of any guiding visual cues, comparison of the panel images and the understanding of connectedness between the panels.

Each of these activities is used in the reading of sequence and is built on top of the image and text readings we discussed in the previous section. It is through their combination that a reader is led to the comprehension of narrative sequence. As acknowledged by most of the key theorists mentioned here (Cohn, McCloud, Hatfield et al.) and specifically identified by Groensteen, "the meaning of a panel can be informed and determined by the panel that preceded it much like the one that follows it" (Groensteen, 2007: 110). In clearer terms, the reading of a panel is informed by both the panel before and after it in sequence. This may seem like a fairly obvious observation, but it is worth noting nonetheless as it brings into focus the ideas of reading memory.

5.3 Closure

In order to talk about transitions in a meaningful way, it is important to discuss the dominant ideas of closure popularised by McCloud in *Understanding Comics* (McCloud, 1993). For a transition to take place between panels we have established that a reader must make the choice to connect them in the first place. McCloud suggests that the very act of associating any two (or more) panels together in sequence requires a reader to become an active participant in the narrative. They must *choose* to bridge the gap between one panel and the next. This bridging of the gap and the process of filling in missing moments between static images is, broadly, what McCloud refers to as 'closure' (McCloud, 1993). The term 'closure' has its root in concepts of gestalt psychology where it refers to the mental completion of a shape or action which is only partially seen (Hartmann, 1935; Kennedy, 1974; Peterson and Berryhill, 2013). However, as Gavaler and Beavers note, McCloud's definition of closure is only "gestalt-like" and encompasses more aspects of connectedness beyond gestalt. (Gavaler and Beavers, 2020: 184) This broad definition can be applied to a number of reading activities in comics but what McCloud is discussing when talking about closure is the imagining of a transition between one still image, depicted by a panel, and another. Gavaler and Beavers expand on McCloud's discussion here as well, suggesting that "closure is typically but not necessarily limited to immediate juxtapositions but can apply to any two images regardless of the number of images between them." (Gavaler and Beavers, 2020: 186) Groensteen also suggests that rather than just being tied to filling the missing moments between panels, which he refers to as "what has intervened", closure may require readers to identify what is signified (Groensteen, 2013: 38). Or, put simply, because not all transitions are action-to-action, the connections between panels may require understanding of more than just what has happened between adjacent depicted moments.

Building on this idea, Gavaler and Beavers identify a number of ways that closure can be applied to different types of content transition. (Gavaler and Beavers, 2020) Whilst it is not useful to repeat the entire list of closure types they identify, it is important to note their key takeaway; that closure activities can be both discursive and diegetic. As they indicate, "discursive closure describes the non-representational relationships between physical marks" whilst "diegetic closure describes the story-world relationships triggered by the representational qualities of those marks." (Gavaler and Beavers, 2020: 186) Simply put, these two types of closure relate to the association and connection of the marks which make up the depiction of the direct-image or visual metaphor, and the connection of narrative meaning or story elements. This expanded view of closure goes beyond the connecting of an object or character in one panel to another seen in the next panel and more broadly considers the connection of content across the panel network.

Reflecting the core ideas which McCloud identifies in his original proposal of closure as a term, it is important to note that Gavaler and Beavers suggest that "closure occurs in a viewer's mind after the viewing of the second image in relation to the first." (Gavaler and Beavers, 2020: 186) They identify that this might be through memory recall, which we identified as part of reading memory in an earlier section, or through the visual revisiting of the first panel. In either case, it is through the mental connection of the panels that sense is made, and where closure occurs. It is in the ways outlined here that this dissertation uses the term closure to encompass not just the connecting of panels through immediate transition, but through wider discursive and diegetic connections as well. As such, closure as used for the following discussion relates to the connectedness of panels, and the panel-images which they contain, more broadly to include the range of forms of visual and conceptual connectedness between panels.

Going further, for a transition to be understood, however vague or ill-defined, some mental act of connecting must take place on the part of the reader. This is reflected in the ideas of those discussed above as well as Kukkonen, quoted by Gavaler and Beaver, who states that performing closure is to "infer connections on the level of the mental model." (Kukkonen, 2013: 31, Gavaler and Beavers, 2020: 182) As such, closure is the connection of images, both conceptually and direct, in the reading process. Closure not only brings together the panels of a comic but also brings together the ideas presented by the panel-images in readers' minds. For example, the act of understanding that an action-to-action transition is the continuation of one action depicted in two places, or states of completion, calls not just for the reader to comprehend the panels and link them in logical sequence but also to willingly fill in the gap between them. As such, the active participation in closure is the process by which the reader chooses to create meaning and, far from simply connecting the panels, it constructs the narrative. Not just between one panel and the next but between each panel with which it interacts narratively. Closure then *is* the sense-making process of comics.

5.4 Cohn's Hierarchy

Having looked at panels in immediate juxtaposed relation to one another we must now broaden our consideration to meaning created by reading a larger group of panels in immediate sequence. Here we can begin to discuss the wider sense making processes of comics reading. Cohn suggests that a linear panel sequence approach is not sufficient to consider the comics language and he has developed a reading hierarchy (not to be confused with the hierarchy of information discussed earlier) which brings together many of the elements of the reading we have covered so far in an effort to understand the reading process (Cohn, 2013b).

Cohn suggests that there are three main ideas used to describe and discuss the sense-making process in reading sequence. He breaks these down into 'linear coherent relationships', 'promiscuous transitions', and 'general cognitive scripts' (Cohn, 2013b: 66, 67, 68). Linear coherent relationships relate to the reading of panels only in immediate sequence, which I have already discussed. Promiscuous transitions relate to the interconnectedness of all panels to all other panels in the sequence. When discussing this form of transition, Cohn references the work of Groensteen who suggests that “every panel exists, potentially if not actually, in relation with each of the others” in the sequence (Groensteen, 2007: 146). This is the core idea behind promiscuous transitions in understanding sequence and, although I would argue that Cohn is either misunderstanding or oversimplifying Groensteen’s quote here, there are clear connections made to the ideas of reading larger sequences of panels. General cognitive scripts suggest that we read based on expected structures and logical sequence. These rely on the reader recognising a structural template of panels and using it to inform understanding across the extended sequence. We discussed a similar process of recognition when looking at how a reader identifies direct-image elements in individual panels through encyclopaedic knowledge and reading memory. Which is to say, they identify them as objects seen before as part of processes of recognition. In this case however, a reader recognises not only the visual components of the panel-images but the narrative structure of the panel sequence based on those they have read before, and can use this recognition and understanding to guide them in connecting panels in sequence. This of course, does not account for unexpected sequences and so can only be applied in some instances. Cohn acknowledges the validity of each of these approaches but suggests that “each approach is not sufficient on its own” for establishing a complete reading of sequence (Cohn, 2013b: 69). My research, which has tested these ideas against example comics, confirms this. I will not spend time reiterating what Cohn has already addressed in his own work here. However, it is important to our understanding that we outline Cohn’s resulting suggestions for how meaning is made in panel sequence beyond that of the immediate transition.

Cohn suggests a hierarchical relationship between panels based on their content and relevance to the greater sequence. In summary, Cohn’s hierarchy breaks a narrative sequence into groups of panels which are then associated together based on levels of importance to the narrative. In this way Cohn identifies that, to understand the narrative, the whole sequence must be taken into account before a completed reading can take place. This idea reflects concepts of general cognitive scripts in the identification of the structure of a sequence by the reader. It is also similar to how I suggest the hierarchy of information is used in the association of visual elements of the panel image, only applied to panel sequences rather than individual image elements. Once a sequence has been identified the reader must group panels into narrative moments within the sequence. This develops an

understanding of time in the immediate sequence through association. The reader must also classify the panels by levels of importance based on criteria similar to, and in some cases based on, the hierarchy of information which we discussed previously.

In order to understand a given sequence of narrative, Cohn suggests a reader must be able to identify a panel's relevance to it. He identifies six "basic narrative categories" into which each panel falls based on its contribution to the overall script of the narrative sequence; the 'orienter', 'establisher', initial', 'prolongation', 'peak', and 'release' (Cohn, 2013b: 70). Each serves as part of what Cohn refers to as the 'visual narrative grammar' which has expected orders in sequence that allow a reader to comprehend narrative (Cohn, 2013b: 70). Each one of these categories can be considered a 'phase' in a narrative 'arc' (Cohn, 2013b: 70). The term 'arc' is used by Cohn to define a shorter narrative sequence with a beginning and end that is contained within the gross narrative of the whole story and is based on well-established narratology applied to comics (Prince, 2003; Bal and Van Boheemen, 2009; Todorov, 1990). The phases are the different parts of that arc.

Cohn's explanations of the different phases are so succinct as to almost warrant no summary. However I will outline them here briefly so that each can be made clear for the purposes of this discussion. Cohn first offers explanation of the peak phase in a narrative arc. It is interesting to note that he has chosen to cover this element first although it is rarely the first panel in an arc – a nod to its importance. He suggests that the **peak** phase is the most important element that "motivates the meaning of the sequence" (Cohn, 2013b: 71). Panels which represent the peak of the arc are those that depict the key moment of the narrative sequence presented by the arc. They represent a moment of significant change or the conclusion of an action or tension in the narrative. **Initials** are considered the second most important phase in the arc by Cohn. These are the panels which initiate the actions or events of the sequence. They represent the beginning of an action or tension in the narrative arc. They are the set-up for the narrative peak. The **release** phase in turn comes after the peak and is "the aftermath of the peak's action", or depicts the results of an action depicted in the peak phase (Cohn, 2013b: 73). A release panel is usually the conclusion of the narrative arc and often depicts the moment following the action of the peak, allowing a reader to reflect and to mark the end of action. This moment of reflection is an important part of the wider reading process and so the release of an arc is important. **Establisher** phase panels provide reference and context for the sequence. The establisher sets up the narrative status quo before the initial and peak phases disrupt it. These panels contain key characters or objects rendered in their state before a significant change occurs. **Prolongations** extend the sequence without progressing the narrative. These panels reinforce actions or encourage a reader to understand an extension in narrative time. They often come between the initial and peak phase panels to add extra beats to the action. Lastly, **orienters** offer

additional or contextual information to the arc. They often do not have direct impact on the arc itself but instead orient the reader within the space of the arc. These panels are likely to be those that contain only inactive elements which do not change, or perhaps even simply appear, in the subsequent panels. Orienters can also exist outside of arcs in some cases and may act as contextual information given prior to, or after a complete arc.

Cohn gives a number of examples of how these different phases come together in simple panel sequences to form arcs. Not all of the phases need be present in all sequences however and he considers the peaks, initials and releases to be 'core categories', whilst the establishers and prolongations he describes as 'more peripheral' (Cohn, 2013b: 77). Orienters are not included in either of these categories because they can exist entirely outside of the arc. The idea of core and peripheral phases in the arc suggests that for narrative to be understood each of the three core phases must be present in the reading. This is not the case and Cohn demonstrates this in the use of examples which do not contain a release. He does always include an initial and a peak phase, however.

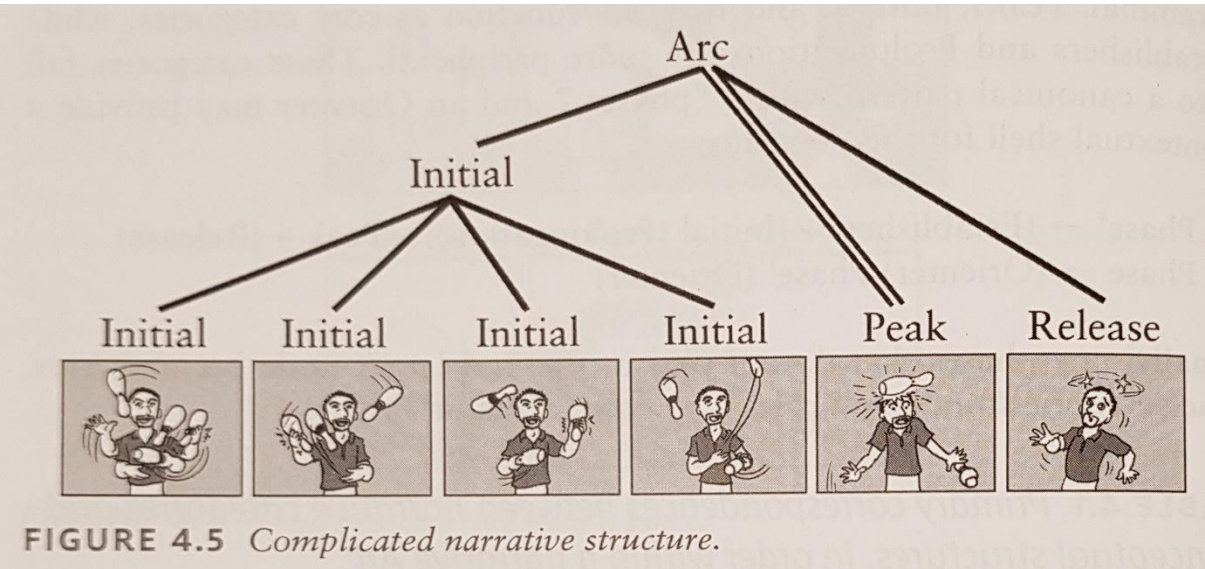


Fig. 5.2 Cohn's Example Narrative Hierarchy from The Visual Language of Comics: Introduction to the Structure and Cognition of Sequential Images (Cohn, 2013b: 78)

This suggests that the understanding of the arc itself revolves around the reader's ability to identify 'the peak' and 'the initial'. Once the reader has established a peak or initial, they can then identify the corresponding initial or peak within the arc followed by any of the other phases offered by the remaining panels. To do this there is the assumption that the reader understands all the panels in the arc in order to draw associations between the content and connect them together with narrative transitions. Here the process is highly reliant on a holistic reading of the whole arc rather than simply

of each image in immediate relationship with those juxtaposed beside it. The reader must not only be able to identify the panel-image elements and the panels themselves but also the potential narrative properties they contain. This process of reading requires both a bottom-up reading of elements from smallest to largest and a top-down reading of arc to phases to comprehend narrative meaning. Collectively then, Cohn's argument is that a simple one-to-one transition between each panel and the one(s) immediately next to it is not sufficient and instead the whole arc must be considered and broken down into individual phases of narrative to understand the full sequence.

For this sense-making process to be manageable in more complex sequences, Cohn proposes that phased groupings are considered in understanding narrative meaning. Here he outlines how a reader might apply immediate transitions between two juxtaposed panels of the same type in order to group them into a larger phase made of multiple phases of the same type. This arguably simplifies the reading process as only the meaning of the group needs to be considered when determining its narrative impact on the arc. Additionally, Cohn suggests the potential groupings of adjacent panels into shorter actions which contribute to the larger arc. In the example below, he groups initial and peak panels together to form an initial-peak group action which acts as an initial phase in the larger arc (Fig. 5.3). It then leads to another initial-peak group action (together grouped as the ultimate initial of the whole arc) and then a final initial-peak group which acts as the peak of the arc. This complex grouping and hierarchical structure of different shorter actions serves as a shorthand for the reader who only needs to consider a few transitions between groups in order to comprehend the narrative of the arc. It is at this stage that I would suggest the ideas of top-down and bottom-up readings become difficult to attribute. It is clearly possible for a reader to start with smaller groupings first before working *up* the narrative tree (illustrated nicely in Cohn's diagrams) to comprehend the final meaning of the total arc (Fig. 5.3). Top-down reading is, however, much harder to determine because of the number of groupings which must be made in complex examples. This calls into question how effectively the grouping of images by readers can be ascertained in a standardised way, or even whether a standardised way of grouping narrative phases does exist.

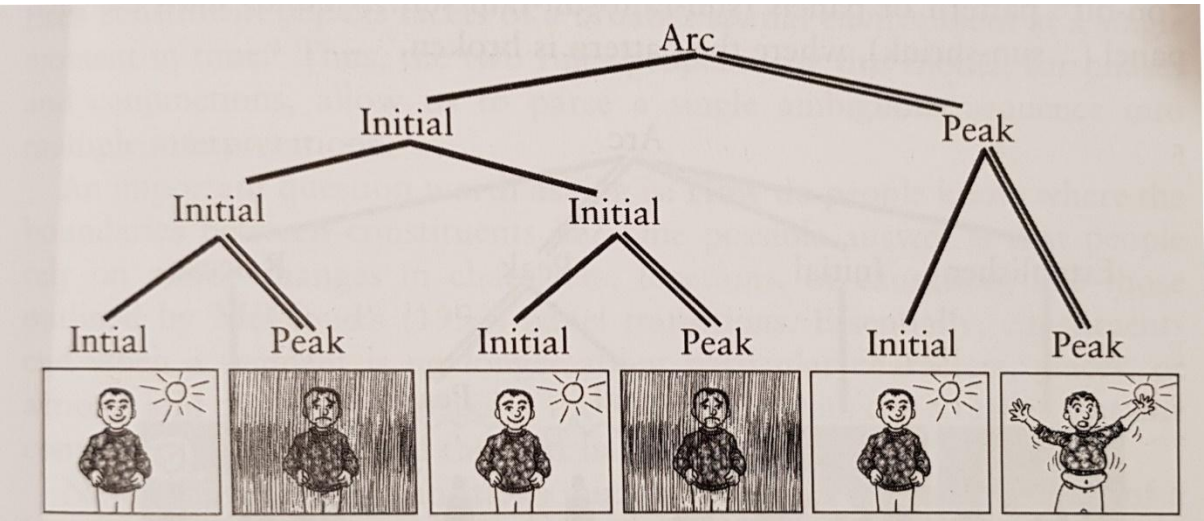


Fig. 5.3 Cohn's Example of Narrative Hierarchy Groups from The Visual Language of Comics: Introduction to the Structure and Cognition of Sequential Images (Cohn, 2013b: 81)

In order to establish the validity and usefulness of Cohn's hierarchy it is important to apply them to examples from outside his own work. Below I begin with an example in which a short arc can be identified, then move on to longer arcs.

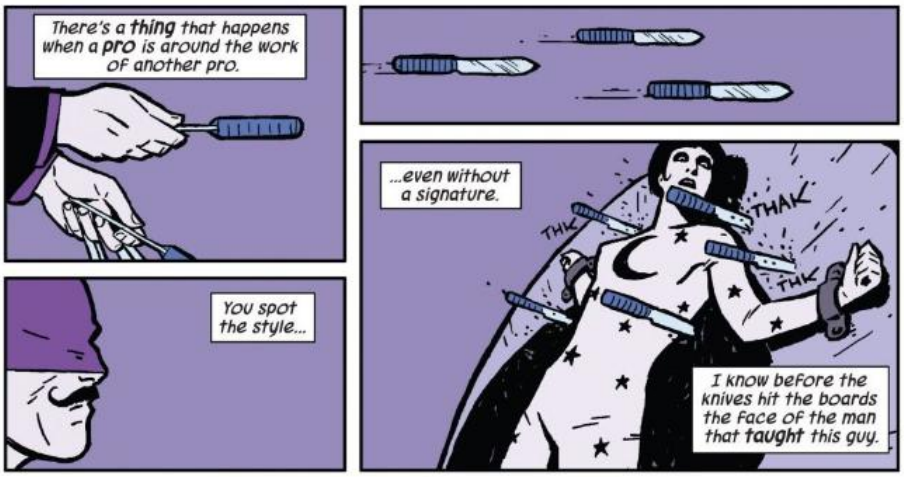


Fig. 5.4 Arc from *Hawkeye #2* (Fraction, Aja, et al., 2012)

In the above example from *Hawkeye #2* (Fraction, Aja, et al., 2012) we have a four-panel arc which depicts a short sequence read as 'a character wearing a blindfold, throws knives at another character who is strapped to a wooden surface' (Fig. 5.4). The first panel represents the initial and begins the action of the arc: the knives being thrown. The final (fourth) panel presents the peak in which the knives thrown in the first panel are suggested to have embedded in the wood of the target, narrowly

missing the character strapped there. The other two panels in the arc represent prolongations. The first prolongation is a straightforward illustration of the knives as they travel through the air and suggests the motion, trajectory, and speed at which the knives were thrown. The third panel does not depict the knives but instead, narratively, serves to prolong the time as the thrower waits for the knives to land in the final panel. Using Cohn's hierarchy then, this arc would be presented as shown in the image below (Fig. 5.5).

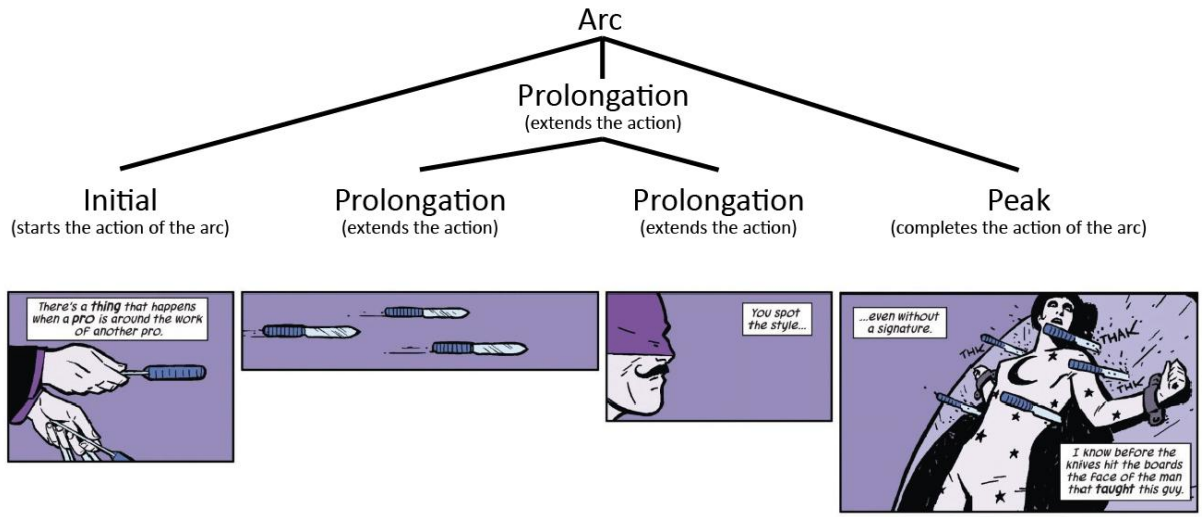


Fig. 5.5 Arc with Hierarchy from *Hawkeye #2* (Fraction, Aja, et al., 2012)

Looking at the phases of this arc, it becomes clear that a reader must apply transitions to the juxtaposed panels in order to both understand meaning within the sequence and to categorise the panels into phases. The transition between panels one and two illustrates this particularly well as neither actually depicts the knives being thrown. Instead, the reader must connect the two panel-images in sequence and perform closure in order to understand the action. The throw is not shown. However the hand holding the knives, followed by the knives travelling through the air suggests a throw occurred between the panels. This is an action-to-action transition and requires the motivated participation in closure which McCloud discussed (McCloud, 1993). The rest of the sequence requires similar acts of closure to be performed however the third panel requires a reader to take a more holistic approach to their application as it interrupts a linear action-to-action sequence with a prolongation that does not depict the action. Without Cohn's hierarchy, a reading solely based on juxtaposition would be far more difficult here because the path of the knives from hand to target is broken by the extra panel.

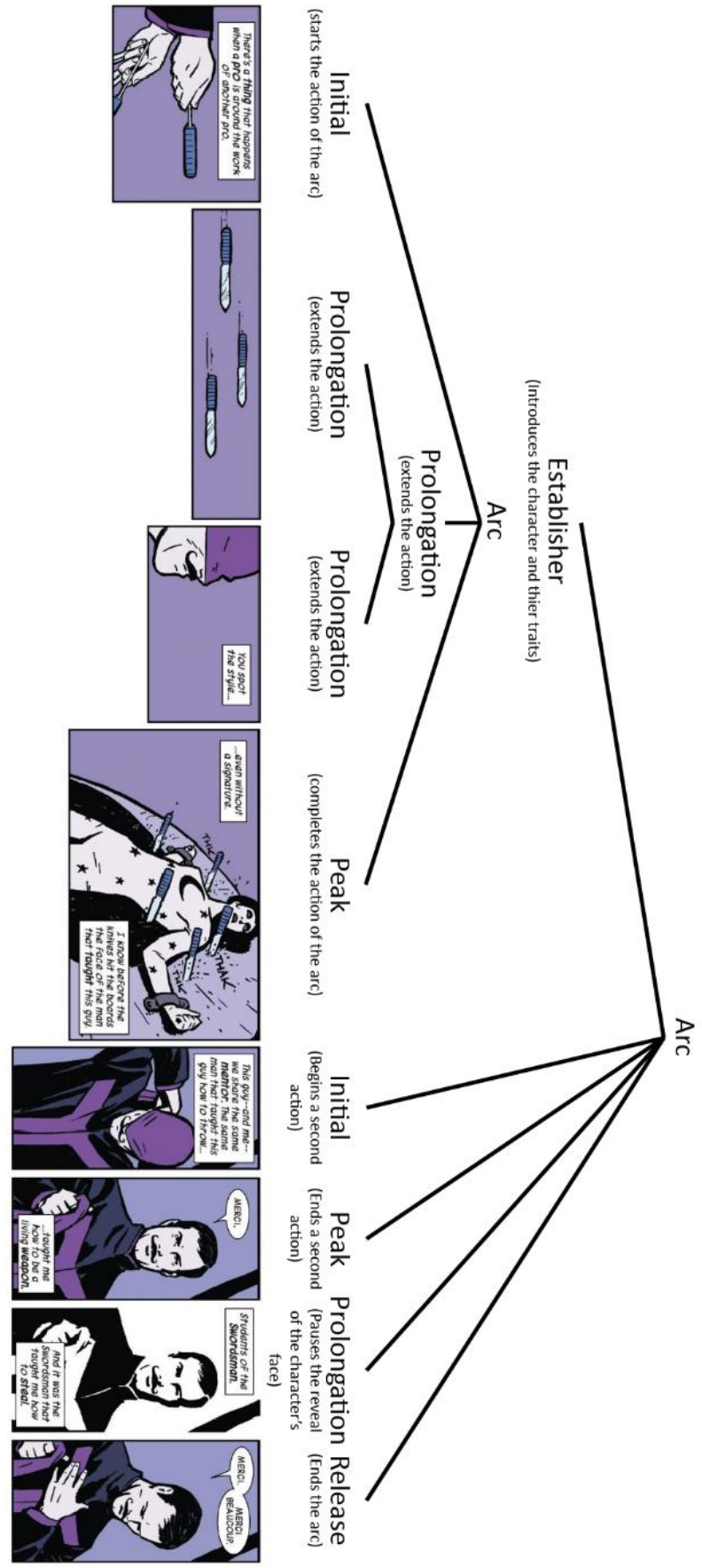


Fig. 5.6 Multi-Arc Hierarchy from *Hawkeye #2* (Fraction, Aja, et al., 2012)

In the hierarchy of the above sequence, it is possible to see that in the shorter arc we have already looked at is part of a longer arc in which it serves as the establisher phase (Fig. 5.6). The shorter arc establishes the character and introduces the reader to their key features both physically (the moustache) and conceptually (they are an expert knife thrower). Using an arc of connected panels to present a single phase in the narrative demonstrates an applied use of Cohn's hierarchy outside of the examples in his own writing.

In the following example from *Sex Criminals #18* (Fraction and Zdarsky) we can see an example of similar length with a different reading hierarchy (Fig. 5.7). Here we can see nested arcs within the larger one, as we saw before. However, in some panels the caption boxes and the images relate to different phases in the arc.

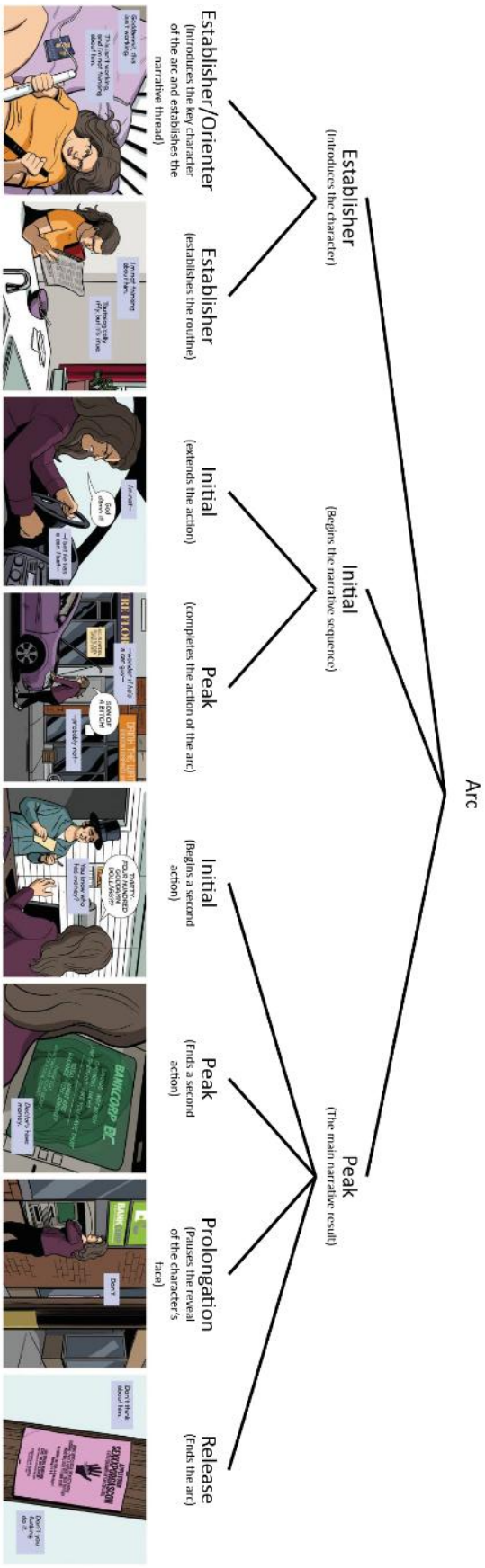


Fig. 5.7 Multi-Arc Hierarchy from *Sex Criminals #18* (Fraction and Zdarsky, 2017)

The above arc demonstrates a set of short arcs which combine to form one larger arc. The first two panels act as establishers which set up the narrative scene. The first panel introduces the reader to the character around which the sequence revolves (Dr. Kincaid) and to a key narrative idea of the arc: that Dr Kincaid is "not thinking about him". This panel acts as an establisher based on the text caption but the image also offers the functions of an orienter. The text establishes the idea and themes of the arc whilst the image orients us with the character. The establisher function then over-rides the orienter category. The second panel is also an establisher and further illustrates the scene. These two panels are grouped into a single establisher phase of the arc which introduces the reader to the character's situation and thoughts which carry the narrative forward. The remainder of the panels in the arc are broken down into two smaller embedded arcs. The first is made up of an initial and a peak which depict Dr Kincaid's car breaking down. This is followed by an arc which contains four panels with the phases of initial, peak, prolongation and release. The narrative depicts Dr. Kincaid needing money (initial), checking her bank account and finding she has no money (peak), contemplating her lack of money (prolongation) and identifying a way for her to earn money (release). Collectively, the three arcs here act as an establisher (formed of two establisher panels), an initial (formed of initial and peak panels) and a peak (formed of initial, peak, prolongation and release panels) which form the whole arc.

It is important to observe that the process of applying the hierarchy is an inexact science and a number of concerns need to be addressed which may act as hurdles. Firstly, the arc depicted here does not use action-to-action transitions as its primary transition type but instead uses mostly moment-to-moment and scene-to-scene transitions. This means that between each panel in the sequence there are a large number of changes, and as a result a longer suggestion of time. This requires the reader to comprehend longer sequences of events, as well as more imagined actions, when they participate in the act of closure between each panel. It also makes neat phases for each panel more complicated to comprehend. For example, between the first and second panel, which make up the establisher phase, the character has changed location and is suggested to have performed multiple actions between the moments depicted in each of the panels. In performing closure between the panel images the reader will likely understand that Dr. Kincaid has changed location, put her hair up, poured a drink, prepared a bowl of cereal and collected (and potentially read) her post. All of these actions are suggested to have happened *between* the two depicted moments and require highly motivated engagement from the reader in order to connect them. By separating the panels over these longer periods of narrative time the phases are much more complicated to identify in some cases. Additionally, the use of this type of transition means that individual panels may be read as depicting multiple phases at once. In panels three, four, five and six

of the arc, the reader is shown the peak of an action suggested to have begun in the gutter, or, which requires the reader to imagine the initial of the action as part of the process of closure. For example, panel four depicts the peak of the action of 'looking at the engine' which requires the reader to identify that Dr. Kincaid has exited her car, walked to the front, and opened the bonnet to look inside. This 'opening of the bonnet to look inside' is then the initial of the action.

As a result, it seems clear that, for the narrative meaning and arcs of the sequence to be understood, multiple phases must be considered by readers. Whilst each of these panels does depict a peak phase in an action, they cannot *only* depict this phase for a cohesive reading of the sequence to be made. Instead, panels might perform different functions at different levels of reading and at different levels on Cohn's hierarchy. Each panel in this example contributes to an individual action, an individual phase in an arc and a grouped phase which contributes to the reading of the whole arc.

From looking at these examples we can see that the hierarchy which Cohn proposes is very useful in helping us to understand and describe the comics reading process. However, further consideration needs to be given to how this hierarchy fits into the larger process of reading and how it interacts with other proposed reading models. I have begun to investigate this here in considering how closure and panel types interact with arcs however it is important to consider other types of connectedness between panels before a more developed reading toolkit can be proposed.

5.5 Groensteen's Arthrology

It is now important to investigate Groensteen's arthrology, which he suggests as a method of understanding the connections between panels presented in sequences (Groensteen, 2007; Groensteen, 2013). He proposes two applications of arthrology which discuss two types of connectedness between panels. Restrained arthrology considers the immediate panel-to-panel reading, which we have already discussed, and reflects the same conclusions we found there. His general arthrology, however, focusses on connections beyond those of immediate juxtaposition and the ideas are far more useful in building on the understanding of panel connections which we have discussed so far. Groensteen's general arthrology suggests that any panel exists in relation to all others in that same sequence and allows for panels to be connected across much greater distances of reading space and time (Groensteen, 2007; Cohn, 2013b). As Cohn points out, the idea that every panel is *directly* connected to every other panel, and requires a direct narrative transition of closure is unworkable from a sense-making perspective (Cohn, 2008; Cohn, 2013b). He suggests that it would require far too complex a cognitive process on the part of the reader and "overload the working memory of the human mind" (Cohn, 2013b: 68). This does not mean that panel

relationships across larger distances cannot or do not exist however, and it is important to identify how these panel-relationships might function by considering Groensteen's work.

Let us first address the ideas of panels connecting over large distances in comics more broadly. We have already discussed Cohn's hierarchy in detail but in summary, he applies the ideas of panel transitions (restrained arthrology), promiscuous transitions (general arthrology) and general cognitive scripts to short sequences or arcs to form a reading hierarchy (Cohn, 2013b). This reading hierarchy demonstrates how direct transitions are used to determine phases in the narrative and promiscuous transitions are used to relate each phase into expected scripts as shortcuts to understanding. Since this hierarchy applies across an arc and relies on promiscuous transitions, there must be some connectedness across larger gaps between panels than just the gutter separating those in immediate proximity. Whilst Cohn argues against the ideas of general arthrology, citing the cognitive load of making connections between every panel, I would argue that he does not apply Groensteen's ideas in a nuanced way which would lead to more useful analysis.

It is therefore necessary to consider how panels can be connected across larger distances without overloading the working memory of a reader. I would suggest that there is a problem with the idea of working memory as used by Cohn here. The term 'working memory' accounts only for immediate, or short-term, memory (Baddeley, 2010). When discussing memory for the purpose of narrative transitions beyond immediate juxtaposition, or those that are simultaneously visible, it is important to understand that working memory is not enough and a broader set of memory activities, like the ones discussed earlier and those by Miodrag need to be considered (Miodrag, 2013). These memory activities relate to how readers connect their understanding of the current narrative moment with those they read earlier in the process and form narrative connections using that memory. For example, the memory of an object, character, moment, or feature from a previous panel can impact how a panel is read by adding context and referring to earlier narrative elements. This collection of memory activities is part of the reading memory I outlined in the earlier section of this thesis. It is of course important to note that there is an individuality to memory that is not considered here because it relies on understandings of the individual reader or reading group which are beyond the scope of this research. Instead, the focus here is on activities of remembering for the purposes of reading. Or what I have been referring to up to this point as reading memory. Considering these ideas, I propose that two conclusions can be drawn regarding narrative connections across reading time and space. First, that all panels cannot exist in *direct* transitional relationship with all others because the cognitive load would be too great. Secondly, that all panels can be related *indirectly* via an understanding of the entire read sequence. The discussion which follows will help to identify how I came to this understanding of long-distance panel connections through consideration of discussion

around the connectedness of panels over the wider network, beyond what is simultaneously visible in a single spread.

5.6 Reading Across the Wider Network

Having looked at the various ways that narrative connections can be made at the level of the simultaneously visible, it is now important to consider connections across wider reading distances. We haves looked at how panels can be connected in sequence through a combination of arthrology, Cohn's hierarchy and closure. It is clear from these discussions that various associations need to be made between panels, and their content, in order for understanding to be formed. This constitutes a key part of the reading process of comics and is evident in all the discussions that we have had so far – from the smaller image-objects to the visible sequence of panels. In addition to these immediate connections and the simultaneously visible, there are several ideas around the connection of panels over larger reading distance that are worth considering before we can consider an expanded toolkit for reading. Key among these are ideas of reading memory (which I noted earlier to include various long-term memory activities in addition to the short-term memory activities mentioned above), visual referencing and Groensteen's braiding.

Groensteen identifies braiding as an important trait of general arthrology. He describes braiding as the process by which visual elements are connected in the reading mind at the level of the series. The series, as defined by Groensteen, is "a continuous or discontinuous succession of images linked by a system of iconic, plastic or semantic correspondences." (Groensteen, 2007: 174) Put plainly, the series refers to panels that contain pictorial elements which resemble or reference one another and can therefore be linked through comparison of direct-images or visual conceptual metaphors. It is important to note here that Groensteen appears to think of braiding as primarily concerning relationships which are more poetic or metaphorical (such as the meaningful repetition of shapes or other motifs), rather than the comparisons of direct images which communicate action and progress through the story. However, as we have seen, there is no hard line between these two image forms, with some image elements communicating in both a direct and metaphorical mode, and so it is worth considering both as we discuss the connections of braiding. It is also important to identify that Groensteen indicates that braiding is "a supplementary relation that is never indispensable to the conduct and intelligibility of the story" and is therefore not a requirement for the understanding of narrative in the ways that Cohn's Hierarchy and closure are suggested to be (Groensteen, 2007: 146-147). Rather, braiding can be seen to add value to a comic and offer expanded forms of connectedness beyond the immediate.

Groensteen breaks braiding down into two distinct types of operation. The first type operates “synchronically” and the second operates “diachronically" (Groensteen, 2007: 147). Synchronic braiding is the process of connecting visual elements of panels across a single spread or hyperframe whereas diachronic braiding connects elements which are not simultaneously visible.

Synchronic braiding operates at a similar level to the types of connections Cohn suggests between panels and phase groups within the hierarchy, where the connectedness of panels can be understood across distances greater than those next to one another but still contained within the same arc. Because braiding is primarily concerned with relationships between visual element at a thematic level, synchronic braiding also considers all other visible content. This means that the braiding connections can extend beyond the individual narrative arc and to the broader spread, which may contain multiple arcs, or even parts of arcs which are continued in subsequent spreads. Synchronic braiding allows a reader to interpret thematic connections within the spread (such as rhythm, symmetry, repetition etc.) without being tied to a specific narrative connection, like those of the hierarchy. As such it is not reliant on completed arcs to function. Instead, the thematic, poetic and visual connections of synchronic braiding are reliant on the simultaneous visibility of panels and their content.

Whilst a short discussion of synchronic braiding is useful for the sake of completeness, it relates to the discussions had above and so we will look at a simple example to compare key ideas before moving on to discussions of diachronic braiding. In the example below from *Aquaman/Green Arrow – Deep Target #3* (Thomas, Cliquet, Et. al, 2021) the layout employs synchronic braiding through poetic connections in the visual content of adjacent panels (Fig 5.8). In this sequence the spread (and subsequent spreads, it should be noted) presents the stories of two characters, and therefore two different sequences of events. On the left, Aquaman’s story unfolds. Whilst on the right we see Green Arrow’s. The contents of panels on each side of the spread resemble one another, emphasising the similarities, and differences, between their stories through visual connection, such as the compositions and blocking of elements within the frames. This creates a sort of poetic visual relationship between adjacent panels even though narratively they present two different sequences of events, each narratively distinct and not reliant upon the other to be understood. This is what Groensteen is discussing when he outlines synchronic braiding; the connecting of narrative elements through visual poetics. It is important to reiterate here, that each narrative is functional without synchronic braiding and the synchronic braiding is additive, or “supplementary” as Groensteen puts it, rather than integral to understanding (Groensteen, 2007. P.146). Regardless, these connections are clearly meaningful and modify the reading of narrative, offering clear visual connection between

simultaneous images, so it is important that we acknowledge them as a part of the larger ideas of visual connections associated with reading activities.

Fig. 5.8 Synchronic Braiding in *Aquaman/Green Arrow: Deep Target #3* (Thomas, Cliquet, Et. al, 2021)

Whilst synchronic braiding can take place as part of the connections made at the level of the simultaneously visible, diachronic braiding takes place between multiple visual elements which are *not* visible simultaneously. Where diachronic braiding connections can be made, the poetic visual elements are separated by greater reading time and are not visible simultaneously. This type of braiding relies heavily on reading memory and an understanding of the larger narrative by the reader.

Miodrag discusses memory activities which relate to this type of braiding in her book *Comics and Language: Reimagining Critical Discourse on the Form* (Miodrag, 2013) in which she explores the ideas of reading memory and read-back. Groensteen's diachronic braiding, and braiding in general, is heavily linked to the ideas of reading memory as it relates to the connecting of what has been read previously with what is being read now. This cognitive activity happens continuously as part of the reading process and is used in the recognition of the image-elements within the panel, including when connecting visual elements poetically or thematically. As part of the earlier discussion, I mentioned that a reader identifies image elements based on their reading memory, recognising objects and characters, for example, if they have seen them before. This process of remembering elements from earlier in the comic (or later in a subsequent re-reading of the narrative) facilitates diachronic braiding and allows a reader to recognise connections between visual elements separated by multiple spreads. It is worth noting that diachronic braiding activities and the connecting of narrative moments which are not simultaneously visible should not be conflated. It is clear from Groensteen's writing that he considers braiding to be a part of the larger activities of reading but that they are "supplementary" and never "indispensable" to the understanding of the story (Groensteen, 2007). As such, braiding can be seen as a part of the larger activities of reading and a part of the supplementary connectedness of panels but not something that is always required in their connection.

Miodrag also discusses ideas of the network which Groensteen puts forward (Groensteen, 2007; Miodrag, 2013). The idea of the interconnected network of panels is the underpinning of both forms of braiding, as well as ideas related to narrative connectedness across the larger sequence. A reader understands connections between the different narrative moments presented in the panels based on their reading memory, similarly to how they might for diachronic braiding. Miodrag gives an example in her book which illustrates this point nicely. In an example comic she identifies the repetition of an image-element (a face) from an earlier panel, on an earlier page spread in the narrative (Miodrag, 2013). This panel depicts the face of a women exerting herself whilst performing a manual labour task. The exact face is reused 13 pages later to communicate the laborious nature of a sexual act. Whilst the reading of each arc and the understanding of the larger narrative is not reliant on a reader

recognising the exact reproduction of the face, the connection here is clearly meaningful and may colour a reader's understanding of the narrative. This is only achievable by remembering the face in the previous panel and recognising a connection between what is currently visible and what has previously been seen. This symbolic repetition, connected through reading memory, is a form of diachronic braiding which *also* facilitates narrative. The repetition here is meaningful from a metaphorical standpoint but also from a narrative one and so relies on both reading memory of narrative and diachronic braiding. It is worth noting that there is no application of transition here as the panels do not depict sequentially connected moments but instead connect conceptual information for narrative effect. Additionally, the connecting of these panels and application of braiding is not required for narrative understanding but is still a meaningful connection of panels across the larger network.

In another example Miodrag suggests that the author wants the reader to access their reading memory, or potentially to read-back, in order to connect two panels separated across multiple pages (Miodrag, 2013). In this example, Miodrag identifies a text element held within a word balloon that references a moment presented in a panel earlier in the comic which is on a different page. In the later panel the text refers to the look given by a character earlier in the sequence. As Miodrag explains, the connectedness of the panels might be understood through either reading memory or read-back. The depiction of the look that the text refers to may have been identified at the time of reading and remembered by the reader, in which case the connection between the moments is made by applying reading memory. Alternatively, the recognition that the text element refers to an earlier panel may cause the reader to read-back in order to re-read the referenced panel and then connect them to form their understanding. Key to the understanding of these methods of connection over the larger network is that the sign-post of the text indicates the narrative relevance of the earlier look, and so a reader is encouraged to recall the moment or to read-back to it. Importantly, this connection does not engage with diachronic braiding as the relationship is not poetic or metaphorical but is instead solely narrative-based.

At this stage it is important to identify that reading memory activities can be applied across varying reading distances (and timeframes) throughout the network and the key defining structural feature is the lack of simultaneous visibility which requires the recall of currently unseen elements and narrative moments. As such, some connections may only be separated by a single spread and may be part of the same arc. When this is the case the reading process is like that described in Cohn's hierarchy, only with connections across the larger network of currently unseen panels applied in addition to synchronic or simultaneously visible ones. When the panels which form an arc are not simultaneously visible, memory of the panels in the previous (no longer visible) spread needs to be

applied to allow for the transitions between panels to be understood. This is a relatively straightforward process that relies on the same reading tasks as those described in Cohn's hierarchy for the understanding of the connectedness of panels, but crucially relies on the accessing of reading memory to recall that which is currently unseen rather than on comparison of the simultaneously visible.

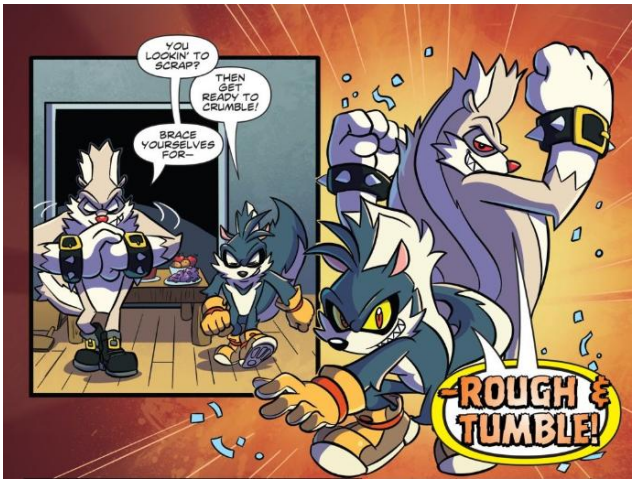


Fig. 5.9a Panel group A (Earlier)

Fig. 5.9b Panel group B (Later)

Fig. 5.9 Connected panels separated by multiple spreads in *Sonic the Hedgehog #3* (Flynn, Hernandez, et al., 2018)

As panels are separated by greater distance, the connections are often either more general or more poetic and rhythm based, and therefore rely more on braiding (Groensteen, 2013). In the example from *Sonic the Hedgehog #3* (Flynn, Hernandez, et al., 2018) we can see two connected panel sequences separated by three spreads (Fig. 5.9). In this example reading memory can be used to connect panels separated by multiple spreads for the purpose of narrative symmetry and humour. In the first panel group (Fig. 5.9a) the antagonists of the narrative (Rough and Tumble) deliver a coordinated rhyme through speech balloons. In a later panel group (Fig. 5.9b) the protagonists of the narrative (Sonic and Knuckles) mimic this rhyme with their own altered version. This repetition creates humour in the later panel group by connecting it to the first. This is only possible through the application of reading memory activities between the current panels (Fig. 5.10b) and the previous panel group (Fig. 5.10a), or at least, the events of that panel group. This connectedness relies on the reader remembering the previous events of the comic narrative even though they have read multiple arcs since. They can then draw narrative, and rhythmic, connections between the two sequences in order to understand that the protagonists are mimicking the antagonists' actions/dialogue from earlier. To facilitate and point out this connection, the second panel in Panel group B reminds the reader that the antagonists made a similar rhyme earlier. It does this by including the speech balloon element which reads "That's our thing!", suggesting to the reader that some mimicry has taken place in case they missed it.

Fig. 5.10 Diachronic Braiding between issues in *Sex Criminals #24* (Fraction and Zdarsky, 2018)

Similarly, the example from *Sex Criminals #24* (Fraction and Zdarsky, 2018) has visual and thematic connections with a previous set of panels through repetition of key phrases and visual elements which rely on reading memory for their understanding (Fig. 5.10). In this case the connection does not span just multiple spreads but multiple issues as well. The panels which the sequence in issue #24 make reference to appeared in issue #2, 22 issues earlier (Fig. 5.11).

Fig. 5.11a Panel A

Fig 5.11b Panel B

Fig. 5.11 Two panels from *Sex Criminals #2* Diachronically Connected to Panels from Issue #24 (Fraction and Zdarsky, 2013)

Reading memory, and the diachronic braiding it can facilitate, connects the panel sequence from issue #24 with the two panels from issue #2 by way of repetition. The two panels in the sequence in issue #24 reference the two panels in issue #2 in two different ways. The first panel in #24 uses the phrase 'king of Cumworld' to connect back to the character's (Jon's) story in issue #2 where he referred to himself using the same moniker (Fig. 5.11b). The second panel in #24 re-uses the visual element of the motion path to connect the two panels (Fig. 5.11a). Narratively, the reference suggests that Jon has not moved on from his childhood, figuratively and literally. The panels from issue #24 depict, narratively, the same location (the sex shop) from his childhood and the visual and text-based elements are intended to reflect that earlier issue, reminding the reader that this is where Jon was during his teenage years. The ribbon paths used to indicate the path taken by Jon as he escapes the shop (and situation) in both sequences, for different reasons, also connect metaphorically through application of diachronic braiding. As such, the panels from issue #24 might remind a reader of the narrative of issue #2. In this way the two narrative moments depicted suggest a meaningful relationship between the events of issue #2 and issue #24 through both narrative and poetic/visual repetition. With a likely reading being that Jon has been unable to move on from the moments depicted in issue #2. This reading relies heavily on reading memory over a large amount of both narrative and, potentially, real-world time. If a reader has been keeping up with publications, the time between releases (and potentially reading each issue) is years (October 2013 – May 2018). Clearly this is a highly complex example of how diachronic braiding and narrative connections can be made, which engages reading memory and comics reading literacies that not all readers may exercise. As such, the narrative of issue #24 is not reliant on the connectedness of these panels and can be understood without it. Instead, this illustrates how diachronic braiding and memory activities facilitate an enjoyment of the reading process for readers by engaging with the complex literacies which they possess and allowing them to be applied to the reading over the entire read narrative sequence.

Whilst ideas of individual reader experience are somewhat beyond the scope of this thesis, it is important to note that this example is highly complex and relies on a sophisticated and highly comics-literate reader. For this type of connection to be effective with more readers authors will often point to the panel or narrative relationships more directly. As such, the connecting of elements across multiple issues is often directly signposted in American periodical comics. When the actions, events or dialogue of one issue or series refers to those of another a narrator-caption-box is often added to the panel (Fig. 5.12). The use of caption boxes like this allows for connections to be understood by a reader who may not have as robust a reading memory and helps to suggest read-back of previous elements in the narrative deemed important by the creative team telling the story.

In this way a reader can read-back to the previous issue without needing to remember the details. In some cases the reader may go back in the narrative sequence to read an issue they have not read before to gain greater context whilst in others it may remind the reader of when a relevant moment happened and encourage them to recall it. Each of these approaches is useful for the creation of connections between panels which can extend far beyond those in immediate juxtaposition or even those connected as phases of an arc. All of which rely on reading memory and connecting activities such as Groensteen's braiding and Miodrag's discussions of association.

Fig. 5.12 Narrator-Caption-Box to Direct Diachronic Braiding in *Edge of Spider-geddon #3* (Latour, Zonjić, et al., 2018)

Whilst synchronic and diachronic braiding account for a number of thematic and poetic interactions within panels there is a clear limitation to these when applying them to narrative and arcs which occur over multiple non-facing pages. As such, synchronic and diachronic braiding is not enough to fully establish the reading connections within a comic and whilst Cohn's hierarchy accounts for the immediate connections of narrative across multiple spreads it does not account for the connection made in long-distance connections or reading memory. Instead, some combination of each of these reading connections is evident when bringing the different discussions together; Cohn clearly outlines immediate narrative connections in his discussions of arcs, Miodrag and Groensteen's discussions of connections over the larger network account for narrative connections across the gross narrative, and Groensteen's braiding considers looser thematic and poetic connections outside of narrative connectedness. Each of these rely either on the simultaneously visibility of elements or the recalling of them through reading memory. As such, it is useful to consider terms which differentiate between reading activities which rely on simultaneous visibility and those which rely on reading memory. I propose we borrow "synchronic" and "diachronic" from Groensteen. Referring to reading connections reliant on simultaneous visibility as *synchronic connections* and connections

between elements that are not simultaneously visible, which instead rely on reading memory and recall, are referred to as *diachronic connections*.

As we can see, both the hierarchy set out by Cohn and reading memory activities set out by Miodrag and Groensteen are in play as part of the reading processes of comics. Synchronic connections address immediate physical and narrative connections between panels in the same spread but do not account for the immediate narrative connections between phases of an arc with panels which appear on multiple preceding or proximate spreads. Equally, diachronic connections accounts for ideas of read back and connections made between different arcs throughout the larger sequence but falls short when applied to arcs which appear over multiple continuous spreads. Cohn's hierarchy fills in the gap between the two forms of connectedness and illustrates where they can overlap to form a holistic reading process.

In looking at some sample comics when considering both diachronic and synchronic connections I have established the usefulness of braiding, reading memory and the ideas of general arthrology. However, in addressing the broader understanding of general arthrology it is important to note that the prevailing definition of this concept is that *all* panels connect to all other panels in the larger narrative. I would argue that this is indeed the case but not as described by Groensteen. I have clearly established that braiding *does* apply in the ways which Groensteen describes for the purposes of thematic and poetic connections. However, it would not be likely that a reader could hold in their memory every aspect of every panel and then relate it back to all others before making narrative connections. As Cohn notes, this would be an overwhelming reading task (Cohn, 2013b).

Instead, I would suggest that general arthrology applies *not* between an individual panel and every other panel in the whole narrative but rather between an individual panel and the narrative itself. In this case, general arthrology is applied in a much more general way which is plausibly far less cognitively taxing on a reader. In order for any larger narrative to be made sense of the reader must consider arcs together in relation to one another (e.g. this sequence of events happened after that sequence of events. Or, this sequence of events happened *as a result of* that sequence of events.) Effectively, general arthrology operates in a similar way in the whole sequence to the way that restrained arthrology operates in the arc. That is, an individual panel is identified relative to the larger group. When a reader applies general arthrology they apply their understanding of the depicted panel-image to their understanding of the gross narrative up to that point. The panel may reference part of the narrative earlier in the sequence or it may simply fit into that sequence but in either case it holds a relationship with the narrative as a whole, and by extension with every other panel via that sequence.

In this chapter we have seen that a series of approaches to how the connecting of panels can be observed. We saw that panels can be connected over different distances by applying these different approaches; immediate transitions, constructed arcs and promiscuous relationships. It is clear from the discussions of proposed existing models presented, and their application in close readings used as examples, that each plays a key role in how panels are connected as part of the reading process. I identified that each of these activities relies on reader recognition and reading memory activities and that no one of the approaches can be observed to work without the consideration of the others. This leads to a broader understanding of the types of connections which can be made between panels which can be used to help us in understanding how comics are read. It was also observed that the different connections rely on structural components such as layout and spreads in defining how each of the systems works. It is therefore important to next consider these comics structures and how they impact on reading.

Chapter 6: Reading Comics' Structure

6.1 Introduction

Cohn suggests that reading relies on a bottom-up understanding of structure (Cohn, 2013b). This implies that a reader should start with the identification of the smaller components and work their way up to the largest in order to expand their understanding of the elements and the relations between them. Using a bottom-up reading as a starting point, we will look at each of the structural elements of comics and how they contribute to narrative understanding. This expanded structure will consider each of the elements discussed so far and demonstrate how each component forms an important part of the structure of reading. As such we will begin with an investigation of how the panel-image and its components fit into the structure and build upward to consider panels in immediate sequence followed by panels across the whole multiframe. In taking this bottom-up approach I will reflect the order in which key structural and narrative components might be encountered in any given piece of work according to Cohn. We will then look at a more ambiguous order which might be involved in the process of the sense-making to work towards a collection of core reading skills that are used in a reader's understanding of narrative informed by the structure.

6.2 The Bottom-up Reading of Structure

The Nested Structure of Comics

Having investigated the many component parts of comics and how they are linked together with closure I will now bring together the disparate ideas discussed so far into a combined structure of comics. We might think of the structure of comic in terms of a series of nested elements, one within the next. To describe these nested levels of comics' structural components, it is useful to visualise each component in turn. The following diagram is representative of the *Hawkeye #2* example we looked at earlier, with the content removed from the panels for the purposes of clarity (Fig. 6.1). The visualisation of the structural elements presents a series of nested levels of structure each of which contains the elements from the levels below it.

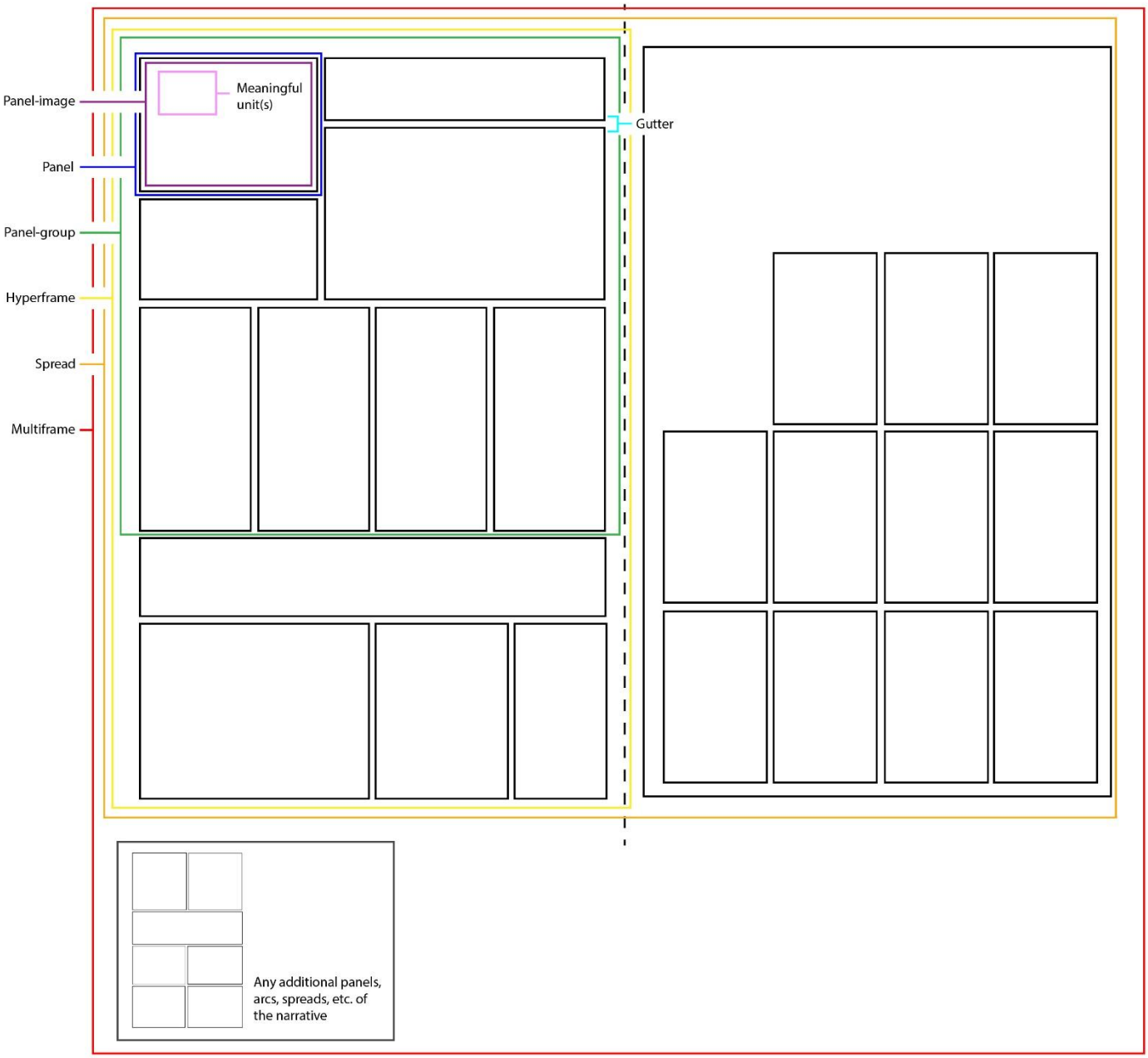


Fig. 6.1 Visualisation of the Nested Structure of Comics in *Hawkeye #2* (Fraction, Aja, et al., 2013)

An expanded bottom-up reading of the comics structure comprises:

- **Meaningful units** which appear in…
- **Panel-images** which are in…
- **Panels** which are separated by…
- **Gutters** which together with panels form…
- **Panel-groups** which are contained by…

- **Hyperframes** which combine to form…
- **Spreads** which are collected into…
- **Multiframes** which form the entire work.

Beginning with the smallest components, which form the basis around which the other elements fit, we have **meaningful units**. These meaningful units represent the marks, lines or shapes which collectively have a recognisable meaning within the work (Cohn, 2013b; McCloud, 1993; Eisner, 2003; Potsch and Williams, 2012; Khordoc, 2001, et al.). Meaningful units might be seen as the foundation of comics narrative and they tend to represent pictorial elements which make up the depicted elements of the work (such as balloons, characters, objects conceptual metaphors). These elements are also essential to the comprehension of both narrative and structure. By identifying meaningful units, it is possible to create and understand associations with other meaningful units within the same panel-image and other panel-images in the narrative (Cohn, 2013b; McCloud, 1993; Groensteen, 2007; Miodrag, 2013, et al.). Whilst these meaningful units are the lowest in the structural-hierarchy, they are vital for a comprehension of the narrative and remain a constant point of reference for the reader (Cohn, 2013b; McCloud, 1993; Eisner, 2003; Miodrag, 2013).

A grouped collection of meaningful units makes up a **panel-image**, which is the next level up in the structure. A panel-image is the combined totality of all meaningful units and other visual elements held within a single image (Eisner, 2003; Cohn, 2013; McCloud, 1993). Here, meaning depends on the grouping of image and text elements and the application of a hierarchy of information to identify the meaningful units which are most important to the narrative (Cohn, 2013b; Khordoc, 2001; Tang, 2013; Potsch and Williams, 2012). There is a requirement on the reader's part to perform acts of closure as part of the reading process and to apply connections between the current panel-image and other meaningful units, panel-images and narrative elements from multiple levels in the structure (McCloud, 1993; Groensteen, 2007).

Panels and **gutters** are the next level up in the structure and delineate the panel-images, separating them from one another to suggest distinct moments. The panel is usually formed of the panel-border, and everything contained within it, whilst the gutter separates the panels in space. A panel is a structural unit which contains the panel-image and any meaningful units within (Eisner, 2003; McCloud, 1993). The gutter and the panel-border share structural functionality as both help to delineate the panels from one another and as such panels can be presented without the gutter between them if the panel-border is used as a mark of separation between each panel-image. The reverse is also true, and the panel-border is not always required providing that the gutter offers enough separation in space for the panel-images to be read as separate panels, marking them as

individual moments. These structural elements facilitate the application of closure by the reader as they indicate a structural, and therefore narrative, separation (McCloud, 1993). Without structural elements like the panel and the gutter the identification of time and transition would be significantly harder for a reader.

As suggested in Cohn's hierarchy, the panels (along with their contained panel-images) and gutters are grouped into arcs and phases (Cohn, 2013b; Cohn, 2014b). Both arcs and grouped-phases fit within the same structural unit which I will call **panel-groups**. This structural element is heavily tied to the narrative function but refers to any groupings of panels into one larger structural element. Groups of panels which appear within other panels, or panels with other panels inside them, are often grouped into panel-groups. As I observed earlier, these usually make up arcs of grouped phases as part of the reading or are used to highlight associations between narrative elements. Panel-groups help readers to create combined readings which can be held in reading memory and are often used in processes of closure by the reader.

Panel-groups are often contained within the larger group of the "hyperframe" or spread (Groensteen, 2007). The **hyperframe** is usually the page in printed comics and contains any panels and panel-groups which are connected by a single, unbroken reading path. The **spread** is the structural container for all panels which are simultaneously visible and, traditionally, would contain two hyperframes (one for each page) in print. More broadly, the spread is all simultaneously visible panels grouped as a whole and contains at least one hyperframe. The hyperframe is defined by its function as a containing unit for the reading path, whilst the spread is the structural element that contains all the visual elements seen together regardless of the reading paths it contains. In hyperframes and spreads we saw that Groensteen (2007) suggested that the reader comprehends narrative via the application of synchronic connecting of each of the other structural and narrative elements together in space (Groensteen, 2007, Cohn, 2013b).

Finally, all spreads, and all other structural elements which they contain, are themselves contained within what Groensteen refers to as the **multiframe** (Groensteen, 2007). This multiframe is the highest level of structural element and so, in a bottom-up reading – a reading that begins with the smallest components working up to the largest - would be the last considered by a reader. We can see the multiframe as a broad structural element which contains the complete work of the comic. It is the totality of the narrative and would likely contain multiple spreads which a reader is expected to connect through reading memory and other diachronic connections. The multiframe is usually the totality of all pages in the narrative and might span multiple bound tomes or issues of the work.

Each of these components and their communication were discussed in detail in the earlier chapters but have here been brought together as part of the larger structure of comics. In doing so we can identify each of the levels of the structure and see where each of the proposed ideas of how comics components communicate fits within them. Examining comics from the smallest structural elements (meaningful units) up to the largest (multiframes) demonstrates a set of nested levels which combine to form an expanded structure of comics. The navigation of this structure is relatively straightforward as it constitutes the bottom-up reading which Cohn suggests (Cohn, 2013b). The comprehension of narrative is less straightforward however, since, as I have demonstrated throughout the discussions so far, a reader must switch back and forth between reading different levels in the structure in order to understand meaning between the structural elements.

As such a simple bottom-up reading method does not allow for sophisticated diachronic connections at the higher levels of the structure which we have seen in the discussed examples. I would also argue that Cohn's narrative hierarchy requires a more nuanced reading in the creation of grouped phases of the narrative. Therefore, a different strategy for reading, which accounts for the switching back and forth between levels of the structure, needs to be considered. It is here we can see the importance of the structure to the overall reading process.

The Ambiguous Orders of Level Switching when Performing Reading Activities

Given the complex interrelationships we have seen between the different elements of comic, it is clear that the form's legibility demands an awareness on the reader's part (McCloud, 1997; Cohn, 2013; Groensteen, 2013). There is the assumption that a reader must be able to switch back and forth between the levels of the outlined nested structure in order to comprehend meaningful relationships across the narrative. These levels of comics reading are referenced in several studies of comics reading but are often taken as a given (Cohn, 2013b; Davies, 2019). I note that, for many of the ideas of connecting panels to function as we have seen they do, it is necessary for readers to consider multiple levels of the nested structure and make associations across them. The level switching that is considered in other writing is usually in discussions of the switch between image and text reading and other low levels of the structure which deal with panel-image components, such as direct-images, word balloons and text (Helsby, 1999; Davies, 2019). It is therefore important for us to go beyond this focus on the lower levels of structure to consider those higher up. As an example, a reader might not only need to identify the meaningful-units of the panel-image upon entering a panel, which requires engagement at the direct-image level. In addition, we have seen that they also need to apply synchronic and diachronic connections to understand that panel-image, narratively, within the larger sequence. In so doing, a reader must switch from the lower levels of the

reading to the highest before narrative understanding might be thought of as complete. Put another way, to read image-elements at the lowest level of the structure the reader may need to engage with connections at the highest level of the structure, thus relying on the switching from bottom to top levels of the structure without engaging with those in the middle.

Therefore, it is not enough simply to say that readers read in a bottom-up manner, by following the structure from the smallest comics element to the largest. Clearly, a more nuanced consideration of reading activities needs to be taken. I propose that whilst the structure of comics may be understood and outlined from the bottom up, the reading order is more ambiguous and that a set of general reading activities account for a better understanding of how comics reading is performed.

6.3 General Reading Activities

Identifying the General Reading Activities

Considering each of the ideas outlined so far, I have identified three key categories of reading activities which are core to the reading process. These three categories are: identification - the recognition of meaningful units, panel types and narrative purpose; grouping – of micro-units, panels and narrative phases; and closure – connection of panels and objects through transition, braiding and reading memory. Each of the approaches to reading discussed in this thesis fits into one of these three general activities of reading comics.

Identification activities are the processes involved in recognising elements and their purpose. For example, we have seen that a reader needs to identify an object or character depicted in a panel to follow it throughout a panel sequence. This identification needs to be performed repeatedly in order for each object, character, action, etc. to be understood in each panel, and for those identified elements to be compared and contrasted via transitions. We have also seen that identification is required at higher levels of the structure to allow for recognition of full or completed arcs, or to identify repetition as it may relate to braiding or reading memory activities as outlined by Groensteen, Cohn and Miodrag (Groensteen, 2007; Cohn, 2013b; Miodrag, 2013). This is to say, identification activities facilitate the other activities and serve as a foundation for understanding.

However, it is clear from this research that the identification of elements alone does not allow for narrative comprehension. The activities of identification rely on the activities of grouping and closure, just as we will see that grouping and closure rely on activities of identification. For example, we have seen that each identified element must be compared with others for transitions to be applied between them, and for narrative meaning to be comprehended (McCloud, 1993; Groensteen, 2007; Cohn, 2013b; Miodrag, 2013, et al.). This requires the closure activities to be

performed as part of the process of establishing narrative connections. It also requires elements to be grouped into larger units like those seen in the breakdown of structure. This grouping activity is essential so that a reader does not need to apply closure between every mark which makes up the work with every other mark in the work. As discussed previously, this type of connection, where each element is directly connected with everything else in the narrative, would overwhelm the working memory of the reading mind (Cohn, 2013b). Instead, groups are made and stored in reading memory to allow for more general connections to be made (Groensteen, 2007; Cohn, 2013b; Miodrag, 2013).

Grouping then, is the activity of collecting identified or identifiable elements together into groups which can be stored in reading memory as meaningful wholes. As with each of the activities we are discussing, grouping activities are performed at all levels of the reading of structure. For example, a reader must group identified panels into phases for Cohn's hierarchy to function, but they must also be able to group individual marks into meaningful units when identifying image-elements (McCloud, 1993; Cohn, 2013b). Similarly, text needs to be grouped with its surrounding balloon for contextual meaning to be understood (Khordoc, 2001). Thus, the grouping activity is intrinsic to each of the ideas presented in the earlier chapters which would allow a reader to identify elements as well as to associate them together.

Closure activities also need to be performed in order for any of the identified elements to be grouped and for any of the grouped elements to be associated together to form narrative meaning. It should be remembered that I am using the term closure more broadly than it is applied by some and consider closure to be the connecting of each panel with those it interacts with narratively, not just of panels in direct juxtaposition. During the performing of closure activities, as outlined by the ideas discussed in the previous chapter, a reader builds understanding of connections through transition, braiding, recognition, reading memory, read-back or any other cognitive connecting of elements within the narrative. Closure therefore covers a broad range of reading skills, but all of these relate to the connecting of elements for the purposes of understanding narrative meaning within the work.

Whilst these three categories of activity can be identified and isolated conceptually there is no hard-line separation between them in the act of reading. Based on what we have seen in previous discussions, a reader will often have to perform all three activities almost simultaneously, swapping back and forth between them constantly during the reading process (McCloud, 1993; Khordoc, 2001; Groensteen, 2007; Cohn, 2013b; Miodrag, 2013). In considering each of the proposed ideas discussed, it is clear that there are potentially dozens of combinations, if not more of these activities which the reader may go through in the act of reading, but in each case the core three activities are all performed so that sense-making can be achieved. As such, for each of the proposed ideas which

were presented by others, and discussed throughout the previous chapters, to work together, there must be an ambiguous order for these three activities. Otherwise, the ideas would not all be possible as part of the reading process.

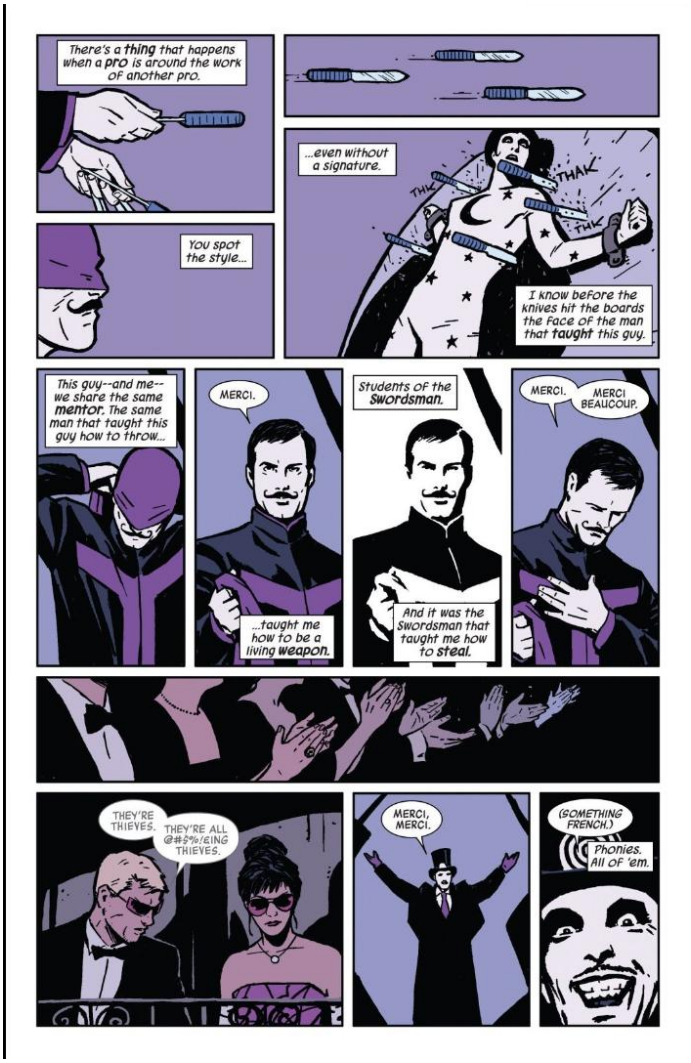


Fig. 6.2 Complete Spread from *Hawkeye #2* (Fraction, Aja, et al., 2012)

Combining the General Reading Activities

Whilst not necessarily indicative of the complexities of the holistic reading process and the constant swapping between levels, it is useful to look at the general reading activities I have identified above as they relate to the structure which was outlined previously. This offers a useful illustration of some of the combinations of activities which might be used in reading comics. I will start by looking at the smallest elements. It is important to note that, as we have already established, the order that these activities are performed in a holistic reading is not bottom-up and is instead dependent on both the comic and the reader. This discussion is simply an illustration of how some potential connections

between the activities might be made and not an exhaustive look at all possible applications of the various activities.

Beginning with the meaningful-units of the panel, a reader must perform both grouping and identification activities to understand a panels meaning based on the ideas outlined in Chapters 2 and 3. These were the grouping of morphemes into meaningful units and the interpretation of the visual meaning and significance of identified visual elements based on, for example, reading memory or proximity. Using *Hawkeye #2* as an example again, the first panel contains the meaningful units comprising the representation of hands and knives (Fig. 6.2). The hands are understood by grouping the image-elements such as fingers, thumbs and wrists, themselves made up of grouped marks on the page (McCloud, 1993; Cohn, 2013b). The grouping here facilitates the understanding. Additional closure activities are applied to the hands, as it is likely that a reader will imagine that these hands are connected to arms and the arms are connected to a body and so on, through the application of principles of gestalt psychology (Crawford, 1981; Hartmann, 1935). This imagined completion of the meaningful units requires a reader to participate in closure. This type of closure is summarised well in Eisner's *Comics and Sequential Art* (Eisner, 1985) where he suggests that, in examples of truncation like this, "the reader is expected to assume that the entire figure exists and to deduce out of memory and experience the posture and detail" (Eisner, 1985: 42). In this case the complete figure is difficult to imagine in detail since this is the character's first appearance within the comic. However, the reader is likely to assume that the entire figure 'exists' (in the narrative world) nonetheless. In grouping and identifying the meaningful units then, the reader can apply closure to imagine connected elements not shown, but expected, as part of the whole object.

The meaningful units must also be grouped for their narrative purpose to be understood by the reader (McCloud, 1993; Cohn, 2013b). This grouping of the meaningful units creates the panel-image, the next level up in the structure. A panel-image is itself a group of the meaningful units and the reader must understand as much to comprehend the panel-image's meaning. We discussed earlier that a hierarchy of information needs to be applied to the meaningful-units which form a panel-image for narrative purpose to be understood. This process of identification and grouping can then be used in connecting the narrative relationships between elements of the panel-image through closure. Closure might be applied here to identify the relationship between a balloon and a character, as described by Khordoc (2001), the source → path → goal → relationships of direct-images and conceptual metaphors in motion events as outlined by Potsch and Williams (2012), or simply the proximate relationship between two rendered objects (Khordoc, 2001; Potsch and Williams, 2012; Cohn and Murthy, 2015). Collectively these identifications, groupings, and closure relationships help form an understanding of the whole panel-image. These identified and grouped

meanings can also communicate narrative transition between the panel-image and subsequent or previous panels through closure.

Closure of this type, which relates to the connections between juxtaposed panels, is reliant not only on the hierarchy of information and panel-type identification but also on reading activities performed at higher levels of the structure. This closure between juxtaposed panels in immediate sequence is the transition which is discussed by McCloud and Groensteen, as outlined earlier (McCloud, 1993; Groensteen, 2007). Here the identification of panel and gutter is important to reader's understanding because it is at this level where a reader applies transitions between immediate panels. As such an identification–closure activity set applies, with the reader first identifying the separation of the panels and then applying closure between them (Eisner, 1985; McCloud, 1993). Here there is the assumption that a reader would search for connections between the panels and participate in the act of closure which connects narrative moments across the gutter as part of their reading contract (McCloud, 1993; Hatfield, 2005; Groensteen, 2007). In the first two panels of *Hawkeye #2*, the knives are identified and repeated across each panel separated by the gutter (Fig. 6.2). Applying an action-to-action transition, which relies on closure to connect to panels depicting actions, and remembering or reading-back to the hands, suggests the narrative reading that the knives were thrown. This reading is only possible through the application of a closure activity on the part of the reader.

It is at the next level up on the structure that the reading processes of Cohn's hierarchy are applied (Cohn, 2013b). Each of the processes Cohn describes when outlining his hierarchy can be defined as part of one of the three general activities of reading which I propose. The process of reading panel-groups linked by transitions relies heavily on the identification of phases and arcs. These phases and arcs can also be collected into grouped-phases that form part of a larger arc. These activities fall into categories of identification (of phases and grouped-phases and arcs) and grouping (of phases into grouped-phases and arcs). These groupings are connected into narrative arcs which require the application of closure to understand. In the established reading of the first arc in *Hawkeye #2* the narrative meaning of 'a character wearing a blindfold throws knives at another character who is strapped to a wooden surface' relies on the grouping of the narrative moments identified in the transitions and panel-images (Fig. 6.2). Further, the additional understanding that this group of panels represents an introduction to the key features of the character, and identifies their throwing technique as a key feature, is only possible by way of a grouped reading. In grouped readings like this, synchronic connections are necessary as part of the closure process of reading panels separated across multiple panels but still simultaneously visible. In Hawkeye #2, Cohn's hierarchy is applied in the identification and grouping of the narrative elements into complex narrative-based panel-groups

which are understood by the application of closure. As part of this closure process a reader connects panels, panel-images and meaningful units through application of synchronic connections to understand narrative meaning which can be held in reading memory. As such, the complex closure activities of both synchronic connectedness and Cohn's hierarchy are applied together to associate the identified and grouped visual elements.

These panel-group readings are also connected across the higher levels of the structure through similar combinations of identification, grouping and closure activities. Within a single hyperframe or spread, multiple panel-groups may form a single reading of narrative and may be connected to subsequent or previous spreads (Groensteen, 2007; Miodrag, 2013). The narrative connections may also span the multiframe and be connected by closure when visual or textual references are identified. Here, the application of diachronic connections as part of closure can only be applied if similar elements are identified in reading at the lower levels of the structure (Miodrag, 2013). The examples of diachronic connections considered earlier show how these reading activities connect in narrative sensemaking over multiple levels of the structure. In each case the identification of meaningful units which mimic those seen in earlier panels are connected by a closure activity performed at the multiframe level via reading memory or read-back (Groensteen, 2007; Miodrag, 2013). A reader might then identify the elements whilst considering the meaning of the panel image (or the meaningful units within it) and, by applying closure, can read them as connected to elements identified, grouped and stored in reading memory earlier on. This complex reading, whilst no longer restricted to a single level, or even adjacent levels, of the structure still operates based on the three general reading activities which I am proposing here.

6.4 Summary of the Comics Reading Structure

The above discussion presents a set of parameters for understanding narrative in a panel sequence based on the investigations of comics reading discussed in the previous chapters. As we have seen, it is important to be able to interpret the structure of comics and perform my proposed general reading activities based on specific ideas, such as transition, synchronic and diachronic connection, arthrology and Cohn's hierarchy (Cohn, 2013b; McCloud, 1993; Groensteen, 2007). By applying a bottom-up approach to defining the elements which make up this structure I have been able to identify a vocabulary of terms which can be used in the discussion of specific comics elements, and which will be used in the remainder of this thesis. In addition, I have proposed that the general reading activities of identification, grouping and closure collectively accommodate each of the more specific reading tasks suggested by key theorists such as Cohn, McCloud, Groensteen, et al., (Eisner, 1985; McCloud, 1993; Khordoc, 2001; Groensteen, 2007; Cohn, 2013b; Miodrag, 2013). By

combining these ideas and identifying similarities to propose the general reading activities I have begun to move discussion towards the understanding of a more robust comics reading process which will be further developed and tested throughout the remainder of this thesis.

In investigating this approach to structure, it has become clear that the reading order of elements needs to be ambiguous for each of the proposed ideas of others to function together, and that comics narrative is understood by applying the general reading activities rather than via a strict step-based process that can be applied to every comic. The idea that reading order can be ambiguous poses an important problem. How does the reader understand narrative order? As established in the discussion of synchronic and diachronic connections, a reader is not expected to experience the whole narrative simultaneously and so there must be an order of experience in the narrative structure of the comic. This is what can be referred to as the reading path. What we have discussed so far does not adequately explain or address this reading path, and so further consideration needs to be given to this crucial element of the reading. Since the order of narrative comprehension does not determine the reading sequence of panels, a path through the narrative needs to be found based on other criteria. It is this path-finding process of the reading which is important to the next chapter of the research and where another substantial contribution to knowledge can be found.

Chapter 7: Reading Sequence

7.1 Reading Order vs Reading Sequence

As outlined in the previous chapter, the order in which general reading activities are performed is ambiguous. The order of application of these reading activities can be referred to as the reading order. That is, the order in which operations are performed by the reader or, which reading activities are performed in which order. This reading order is an important part of the reading of comics and facilitates the connections of narrative elements across the larger sequence by the reader. However, the reading *order* is not the same as the reading *sequence*. Reading order and reading sequence differ in that the reading sequence concerns the order in which panels are experienced rather than the order in which reading activities are performed. The defining feature of reading sequence is the path along which the reader's eye is assumed to travel, and in which order the sequence of events of the narrative are expected, by the author, to be understood. This expectation that the author will present readers with panels that connect in an expected sequence represents a part of the author's side of the reading contract.

As Hague notes, "our eyes tend to move over the page of a comic in a particular way and following a generally linear path" (Hague, 2014 :48). This is what can be referred to as the reading path. The reading path from panel to panel is integral to a reader's understanding of sequence, both from the perspectives of narrative and reading. The path of the reading sequence suggests the sequence of events in a narrative and reinforcing meaning created by general reading activities. It also indicates which panel transitions to which other panels around it in sequence and allows for the understanding and application of the general reading activities associated with pathfinding. The path operates at two levels. The first is the micro-reading path which runs through the content of a panel, leading the reader into and out of the panel-image. The second level is the macro-reading path which runs through the layout of all simultaneously visible panels in a spread. Together these create the complete reading path which guides the reading sequence.

By following the reading path, eye movements through the comics space often reflect narrative movement through time. This seems to be where McCloud gets his idea that space equals time in comics (McCloud, 1993). This idea suggests that the more space a panel, or series of panels, takes up, the more time is understood to elapse. The way that McCloud discusses this idea in his book is limited in several ways and he oversimplifies the complex relationships between the reading path and the narrative time perceived by the reader. However, the core ideas serve as a useful foundation on which to build further study. Cohn, for example, demonstrates several ways which the perception of time can be manipulated using space which are contrary to McCloud's idea of space equalling

time, including where depicted actions suggest a prolonged timeframe within one small panel which takes up limited space (Cohn, 2013b).

The key structural component to consider when discussing the reading path is layout. In many cases the layout of panels is considered by some to be correct or incorrect based on how it interferes with, or adheres to, certain expected reading paths. This is true both in comics scholarship and wider discourse, with many 'how to' guides on the creation of comics suggesting certain panel layouts to be confusing and labelling them as incorrect (Shono, 2012; Davidson, 2013). I would argue with this idea of 'correct' or 'incorrect' layouts in favour of an approach which instead considers how a reader is guided through an unexpected or complex reading path. As I will demonstrate, by considering content a comics author can guide a reader through the sequence of a complex layout, even those considered incorrect by some practitioners.

7.2 Macro-Reading: Paths through Spreads

The Culturally Defined Reading Raster

When we read, our eyes follow a reading path through the information presented by the comic. This is true of most types of reading as it allows a reader to comprehend information in sequence. In traditional prose reading we follow each line of text from one end to the other before moving onto the next. This movement through text is a taught rule of reading and differs based on culture and location (Feng, Miller, Shu and Zhang, 2009). In each case however, it becomes the standard pattern by which a reader expects to read and becomes a part the reading contract between reader and author. I refer to this standardised reading path as the culturally defined reading raster: a set of reading rules that are learnt as the standard method of determining the sequence of the reading in a particular cultural environment (Nichols, 2016). Since the order in which a reader performs this raster scan is different depending on the culture in which they learned to read, the term raster needs further definition as culturally dependent. Thus, the term "culturally defined reading raster" is used here to identify the traditional reading path based on the culture in which a comic was created (Nichols, 2016: 94). In western culture the reading pattern is from left to right, top to bottom as illustrated by the image below (Fig. 7.1). This culturally defined reading raster is referred to as the "Z-path" by Cohn as it follows the same basic rules as the "Z" shape (Cohn, 2010b).

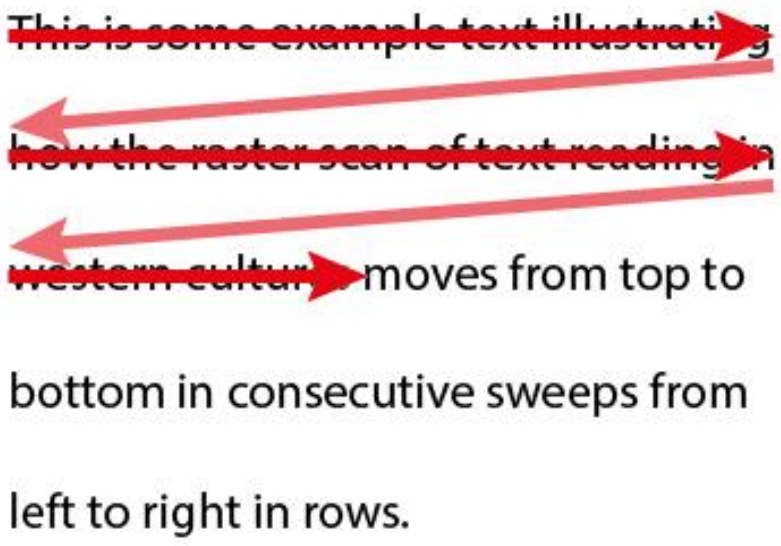


Fig. 7.1 The Z-path Reading Raster of Western Culture

In other cultures, the reading raster of text may form a different pattern (Gray, 1956). In traditional Japanese, for example, the reading order is top to bottom, right to left (Fig. 7.2). Just as with the Z-path of western reading, the culturally defined reading raster of Japan instructs the reader to perform consecutive sweeps from line to line. In this case, however, the reading path starts at the top right and moves down the line before moving back up to the top of the line to the left of the one just read and then down again and so on.

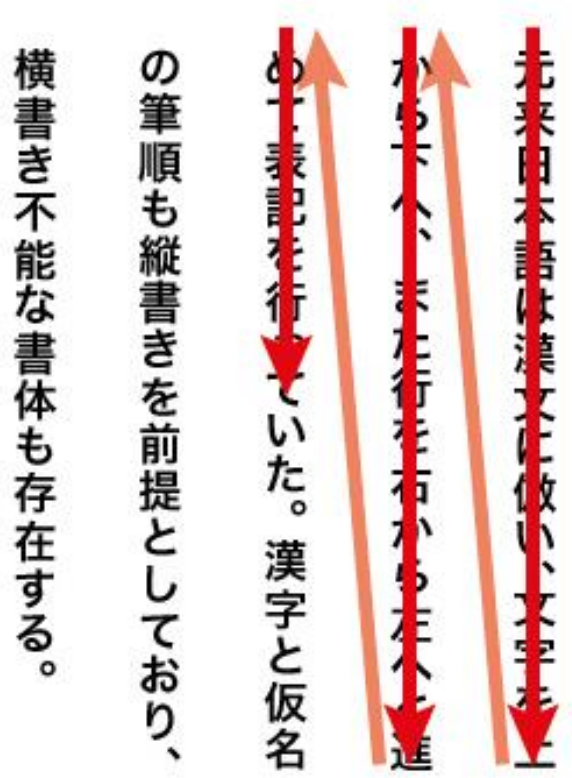


Fig. 7.2 The Top-to-Bottom, Right-to-Left Reading Raster of Traditional Japanese Culture

As such, the raster reading process is part of a set of reading rules or strategies that are learnt in a particular cultural environment. Reading in any other pattern is not likely to result in a readable, decipherable or meaningful text. As a result, the expectations that the reader will read in this culturally standardised pattern form a foundation of the reading contract between reader and author. This means that a reader is expected, by the author, to approach a comic based on the culturally defined reading raster and the author is expected, by the reader, to present information which can be understood based on the culturally defined reading raster.

It is important to note that this standard raster pattern of reading text is an acquired habit established whilst learning to read and is separate from any clues or cues in the text which go beyond the regular (and expected) line spacing and distribution of letters, words and punctuation marks. Equally, the eye movement of a reader is not a continuous sweep but instead takes a series of short rapid movements known as saccades from one moment of fixation to the next (Cohn, 2013b; Omori et al., 2004; Osaka, 1987). As such the general raster pattern of reading through text a line at a time does not preclude the gaze jumping around, ahead or back as the reader makes meaning from the words. It simply identifies the *intended* reading path of the text. This path then, has an implicit chronology which structures the basic reading pattern of the text and the rhythm of the reading.

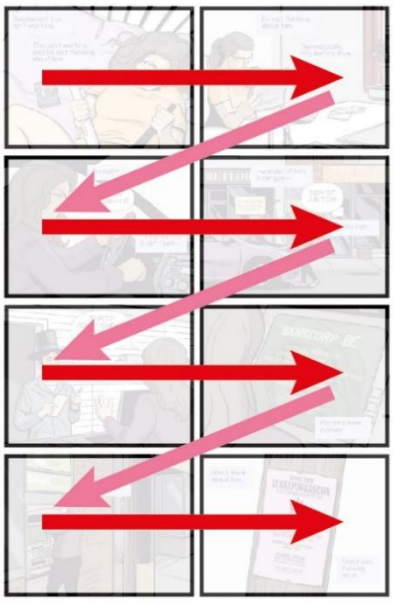


Fig. 7.3 Z-Path Reading in *Sex Criminals #18* (Fraction and Zdarsky, 2017)

In comics the same basic principles of the culturally defined reading raster can also be observed. In western comics, a reader's eye movement through a spread is also structured by this standard Z-path reading and the saccades move them from one point of focus within the panel to the next (Cohn, 2013b; Laubrock, Hohenstein, and Kümmerer, 2018). In Fig. 7.3, a reader is expected to enter the spread from the top left, as is the rule of reading in the Z-path tradition, then move from left to right across the spread of panels. As a reader performs this action, they enter a panel and follow the micro-reading path through the panel-image content, engaging with the general reading activities of the panel as they do. They then exit the panel and move to the next in the sequence. In this case, that is the panel immediately to the right of the one which they have just exited. If there is no panel to the right, the reader moves down to the left-most panel on the next row and moves through the sequence from left to right in the same way. This very closely resembles the path through text-only reading and is the Z-path through comics panels which Cohn suggests (Cohn, 2013b). This Z-path reading pattern is also supported by comics studies which utilise eye-tracking such as those of Mikkonen and Lautenbacher (Mikkonen and Lautenbacher, 2019). These studies are not usually intended to prove the Z-path of reader but rather investigate the saccadic rhythm in comics, however, most indicate a Z-path base. It is important to keep in mind that the path through each panel may not be a straight line and a reader's path inside the panel may move up and down or back and forth within the panel depending on its content, as we will see later.

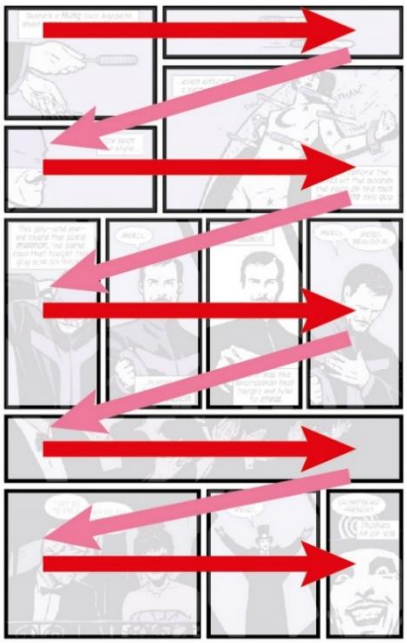


Fig. 7.4 Z-path Reading in *Hawkeye #2* (Fraction, Aja, et al., 2013)

In many cases a comic's layout, and therefore the reading path through it, will subvert the culturally defined reading raster by presenting panels in layout which cannot be read by following the Z-path alone. Many comics, such as the ones presented in Fig. 7.4 and Fig. 7.5, do not utilise uniform panels throughout the whole multiframe. Often, panels of varying shapes and sizes combine into layouts that make up the spread or hyperframe. Moreover, some of these spreads have panels which are not uniform sizes and shapes but can still be read by applying the Z-path reading raster with no (or at least limited) alteration (Fig. 1.4). In other cases, the combination of panels of different sizes and shapes into a more complex layout may require the reader to break from the culturally defined reading raster of the Z-path in favour of a subverted reading raster path.

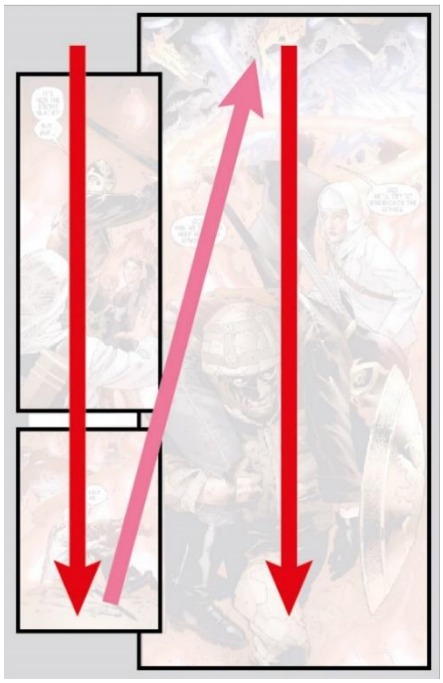


Fig. 7.5 Subverted Reading Raster from *Captain Britain and MI13 #8* (Cornell, Kirk, et al., 2008)

The above image from *Captain Britain and MI:13 #8* (Cornell, Kirk, et al., 2008) shows a panel layout which does not follow the traditional western culturally defined reading raster but instead subverts the reading slightly (Fig. 7.5). The starting point of the reading path remains the top left-hand side of the spread, as is customary in the Z-path raster. However, the path does not follow horizontal sweeps and instead required the reading of panels through vertical sweeps. As a result, for sense to be made of this sequence, the reader is expected to read all the way down the left-hand side of the spread before moving back up to read down the right-hand side. A panel layout like this subverts the culturally defined reading raster and changes the reading path through the panel sequence. I referred to this type of non-standard layout as meta-rastic in nature as it disrupts the normal reading raster and changes the raster scan of eye movement required of the sequence (Nichols, 2013.)

For a reader to navigate a meta-rastic layout in a way that results in meaningful, coherent narrative sequence, they must be able to identify when *not* to follow the culturally defined reading raster. Faced with a novel, meta-rastic layout, in which meaning is partly held in visual language means that the reader, in working out an altered reading sequence, has a puzzle to solve in the discovery of the next part of the sequence and moment in the narrative. The solving of this puzzle and the understanding of the meta-rastic sequence is reliant on two key principles. Firstly, a set of reading 'rules' which govern how a reader groups and understands sequence based on common layouts of panels. These general rules for navigating the meta-raster of subverted layouts are proposed by Cohn and are much like the Z-path in that they are learned solutions to particular layouts and so form a

part of the comics literacy acquired by readers (Cohn, 2013b; Cohn, 2013a). Whilst the proposed rules clearly offer some insight into how learned structures assist readers in comprehension and navigation of the reading path, I will argue that they do not operate wholly independently. Instead, the second principle is that of the “meta-rastic indices” which I propose as the guiding elements of the panels that lead the reader through the sequence of a subverted raster. (Nichols, 2013; Nichols, 2015)

Cohn’s Preference Rules

When confronted with subverted layouts Cohn suggests a set of “preference rules” to determine the most appropriate path through the panel sequence (Cohn, 2013b: 96; Cohn, 2013a). Cohn bases his preference rules on the Z-path culturally defined reading raster of western comics. They operate on the idea that a reader should, where possible, aim for retention of the culturally defined reading raster as part of their reading contract. In simple terms, the preference rules act as 'if-then' rules that say, '*if* you cannot follow the culturally defined reading raster, *then* do this instead'. The preference rules which Cohn proposes can be broken down into four broad categories: entry rules, sequence rules, assemblage rules and the unread panel rule. The first category aims to assist the reader in finding the starting point of the narrative sequence whilst the second assists in finding the macro-path through the sequence. Assemblage rules are somewhat more complex and relate to finding a path which does not bypass any panels by performing panel grouping activities. For example, if the Z-path reading skipped a panel in the sequence, assemblage rules might suggest an altered reading path. Finally, the unread panel rule simply states that if any panels have been left unread then the reader should go back and read them. A summary of these rules is listed below:

- Entry rules
    1. "Go to the top left corner" (Cohn, 2013b: 97).
    2. Otherwise, go to either the topmost panel or the leftmost panel.
- Sequence rules
    1. "Move to the right" when panels align horizontally (Cohn, 2013b: 97).
    2. Otherwise, "Move straight down" when panels align vertically (Cohn, 2013b: 97)
- Assemblage rules
    1. Group panels to avoid bypassing panels as part of the sequence.
    2. Then, apply the Z-path reading to panel groups.
- Unread panel rule
    1. "Go to the panel that has not been read yet" (Cohn, 2013b: 98).

These rules allow a reader to navigate a subverted sequence by offering alternatives to the Z-path rules if the normal reading rules cannot be followed or would lead to a nonsensical narrative sequence. These rules operate as a complex set of reading operations that state "if the Z-path reading does not lead to cohesive narrative sequence then one should follow the next preference rule in the list. If that still does not lead to cohesive narrative sequence, then follow the rule after that". In the entry rules, for example, the reader is expected to follow the normal Z-path reading rule of "go to the top left" when beginning a path through a new spread. If there is a panel in the top left, they can continue to the next rule in the Z-path reading ("Move to the right when panels align horizontally"). Otherwise, they are expected to "Go to the topmost of leftmost panel" as this is the next preference rule. Then, once a panel has been found, continue reading based on the Z-path sequence rules if possible. If followed correctly by a reader, the entry rules operate as follows:

> **If** there is a panel in the top left corner, **then** begin the reading path here. **Otherwise**, look for the topmost or leftmost panel.

This *if-then-otherwis*e format works particularly well for the first two parts of the preference rules as it helps in retaining the culturally defined reading raster, which is important as it is the starting point for the rules as outlined by Cohn. In beginning with the leftmost panel a reader preserves the 'rightward reading motion' of the Z-path whereas beginning with the topmost panel preserves 'a continuous path of reading motion' (Cohn, 2013b: 97). The continuous path which Cohn refers to here is based on an understanding that a reader should not skip, bypass or otherwise miss any panels in the sequence - which is another part of the expectations established by the reading contract.

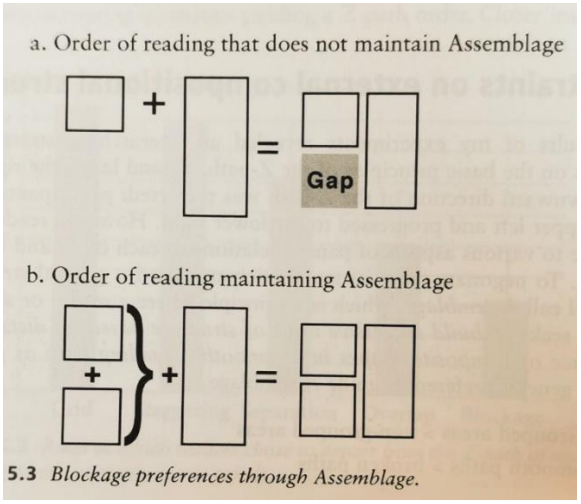


Fig. 7.6 Cohn's Assemblage Rule from *The Visual Language of Comics: Introduction to the Structure and Cognition of Sequential Images* (Cohn, 2013b: 96)

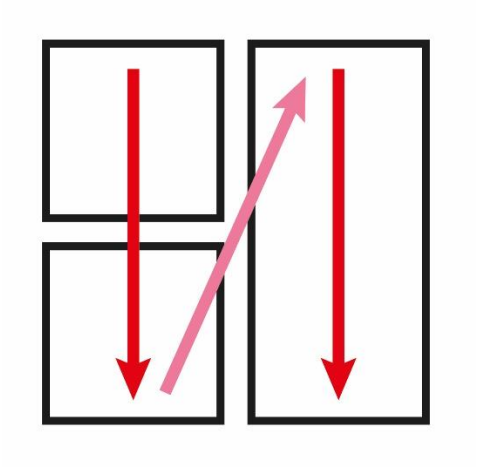


Fig. 7.7 The Expected Reading Path Based on Cohn's Assemblage Rule (above)

Cohn notes that, in subverted layouts which require an altered reading raster to avoid the skipping or bypassing of panels, assemblage preference rules are useful in helping readers understand sequence (Cohn, 2013b). Broadly speaking assemblage is an underlying principle of the reading which suggests that a reader should read all the content of the spread and should not miss or skip any panels. By skipping panels a reader does not maintain assemblage and a reading path that does not pass through each of the panels in the sequence is likely to be understood as incorrect (Cohn, 2013b). For example, if the first panel read in a subverted reading sequence, whether topmost or leftmost, leads to a path which does not include all panels it is likely to deemed confusing, incorrect or both by the reader. Cohn suggests that the reader applies rules of assemblage by grouping panels into chunks and then applies rules of the Z-path to those groups, as illustrated by Figs. 7.6 and 7.7. However, whilst this might be true of an expert reader, it is unlikely to be true of all readers. Cohn acknowledges this and suggests that a non-expert reader is likely to skip assemblage rules in favour of Z-path rules. As such I would argue that, whilst the rules of assemblage do apply in some readings, they do not apply in all. Instead, it seems likely that assemblage offers short-cuts to discovering the reading path for expert readers but does not represent an effective method of discovering the reading path for all readers.

The above discussion sets out the collection of preference rules, as presented by Cohn, which apply to most western comics (Cohn, 2013b; Cohn 2013a). In summary we can see four distinct sets of rules which apply to the reading of different areas of the sequence. These are:

- **entry rules** which allow a reader to determine the start point of the path
- **z-path rules** which set up the standard rules for following the path and underpin all other rules

- **assemblage rules** which are used by expert readers to group panels and clarify pathfinding decisions
- and **the unread panel rule** which makes sure that all panels in a spread are read

Cohn indicates that these rules can be applied to the reading of any comics spread and I am in general agreement. However, I would argue that these rules *alone* are often insufficient in the discovery and following of the reading path. I will therefore propose a set of additional ideas which support these preference rules based on observations made throughout this thesis.

The rules outlined here, based on Cohn's work, are a useful tool for a reader in the understanding of sequence and are likely to be learned and used throughout the reading process by readers. However, these rules are highly complex and likely do not account for reading performed by readers of different levels of experience. Whilst ideas of individual reader competencies and experiences are not the focus of this study, it is worth acknowledging them here as there is likely a need for further reading activities to supplement these highly complex ideas if reading is to be achievable by readers in a more general sense. As such, I propose a second reading process for navigation from one panel to the next is likely to be used in addition to preference rules. It is directly linked to the micro-reading path through the panel, which we will discuss shortly and is often tied with the entry and exit points which lead readers into and out of panels. I have observed throughout this study that often artists and writers will signpost the path from one panel to the next using what I call "meta-rastic indices" (Nichols, 2013; Nichols, 2015). These meta-rastic indices act as a secondary set of guiding units which can lead the reader along the reading path and through a subverted layout of panels.

Meta-rastic Indices

The purpose of meta-rastic indices is to indicate the intended path of the raster, or meta-raster, using visual cues in the layout. They act as indicators or guides through the network of panels and help a reader to discover the reading sequence of the panels in any given spread. Meta-rastic indices come in many different forms and comic authors will often engage with these different forms to guide the reader along the path of a sequence. This effort to guide the reader through the sequence reflects a key part of the author's agreement in the reading contract. The meta-rastic indices are crucial in the reading and path-finding processes of many comics, particularly those with a subverted reading raster.

The meta-rastic indices may be overt or covert in nature but in each case they guide the eye along the path through the comics layout. Overt meta-rastic indices explicitly delineate the path of the narrative, usually using icons such as arrows or numbers, to lead the eye from one panel to the next. Hague also identifies these types of visual cues in discussing how readers follow the path through a

sequence (2014). Covert meta-rastic indices lead the reader from one panel to the next using subtler visual methods. These subtle, non-intrusive cues and clues can be used to help the reader solve the puzzle of the subverted reading raster, many of which appear as part of the unfolding depiction of the narrative world. Not all panels need include meta-rastic indices and some may rely solely on the culturally defined reading raster and preference rules to connect them in sequence. However, the meta-rastic indices are observable in most American periodical comics.

Fig. 7.8 Explicit Meta-rastic Indices in *Airbus A319-A320 Air 41 Safety instructions 2021* (Air41, 2021)

Overt meta-rastic indices use external icons and symbols which are independent of the panel-image and are conceptual visual signifiers rather than part of the fictive world of the narrative. In Fig. 7.6 the reading order is explicitly suggested using numbers above each panel to indicate the order in which they are intended to be read. As Witek identifies, these types of overt meta-rastic indices were commonly used in American comics up to the 1930s, however they are rare in modern American periodical comics (Witek, 2009). Instead, overt meta-rastic indices are more likely to be used in comics which are intended for a broader audience who may not have much, if any, experience navigating a comics layout. The example here is from a comic featured on aeroplane safety instructions aimed at this type of broad audience. The numbers allow readers to easily follow the path of the narrative without requiring an engagement with potentially complex path-finding skills of preference rules or subtler meta-rastic indices. It also identifies the normal reading raster in an environment where readers with different cultural standards for reading may be found and where the culturally defined reading raster may not be immediately obvious. A similarly overt and explicit meta-rastic indices is the arrow icon. This literally points the reader from one panel to the next and indicates which panel comes after which. Using arrows in this way gives the reader a visual representation of the path which they are expected to follow through the sequence. Like numbered panels, this removes the need for a reader to engage with complex sense-making processes in finding their way through the sequence.

The more covert meta-rastic indices most commonly use the comics direct-image and conceptual metaphor elements to create the guiding units. These types of covert meta-rastic indices are observably far more common in modern American periodical comics and often rely more heavily on readers engaging with the content in more complex ways. I propose four main types of these covert

meta-rastic indices, each taking advantage of different visual features of comics: panel-shape, position, the ellipsis and entry/exit points.

Panel-shapes which do not conform to the standard rectangular shape can be used to guide a user through the layout. An example of this might be rendering a panel in an arrow or pointed shape which 'points the way' through the sequence. This is a subtler variation of the overt arrow meta-rastic indices and so, whilst not separated from the artwork of the panels, offers similar visual significance to path finding. Beyond arrows, other shapes and sizes of panels may also be used which draw the eye through the layout. Through this use of shape an author can guide the eye along the reading path and suggest the sequence. Uses of shape often also rely on the next category of meta-rastic indices, position, to help reinforce this suggested sequence.

The position of panels within the layout can also be used as meta-rastic indices to suggest closer connections with some surrounding panels than others. Overlap and gutter space are particularly useful to suggest a connectedness (or separation) between one panel and those around it. For example, if one panel overlaps another it suggests that the two panels have a close narrative relationship and should be read in sequence. There are some similarities between this idea and that of assemblage, as two of the potential layout manipulations which Cohn identifies when discussing assemblage referring to "separation" and "overlap" which both reflect qualities of meta-rastic indices (Cohn, 2013b: 93).

In comics, separation is the size of the gutter which separates panels. A large gutter space between a panel and those around it can be used to separate it in sequence, in some cases, removing it from immediate sequence altogether. Equally, a narrow gutter space can suggest a close relationship between panels and so suggest a connectedness in sequence. As a result, panels which have a smaller gutter space, and are separated by less distance, are likely to indicate a closer narrative relationship and lead the reader from one panel to the next. Whilst this is heavily reliant on preference rules and assemblage, its use of a visual trait which assists in path-finding means it fits the definition of meta-rastic indices.

Overlap is what happens when the gutter space between two or more panels is reduced to less than zero, in which case all or part of one panel appears to be on top of, or overlapping, others. This overlap suggests a connection between the panels, and therefore the reading path, and indicates a path through the raster. This is not always the case and other types meta-rastic indices might be used in combination with this approach to reinforce or deny the relationships, and path, suggested by the application of separation or overlap. In the example below from *Amazing Spider-Man #9* (Spencer, Ramos, Bandini, et al., 2018) overlap has been used to lead the reader from one panel to the next in

a subverted sequence (Fig. 7.9). The third panel is of most interest here and the overlap leads the eye through it as a reader moves down the page.

Fig. 7.9 Overlap Meta-rastic Indices in *Amazing Spider-Man #9* (Spencer, Ramos, et al., 2018)

The ellipsis, or three-dot meta-rastic index is a common example of an element which connects one text-based element with another and helps to guide the reader from one panel to the next. Most commonly this meta-rastic index is seen within speech balloons where a sentence begins in one panel and concludes in the next. This connectedness is identified using an ellipsis at the end of a text element contained within a balloon. This suggests that the utterance continues elsewhere and, often, another ellipsis will begin a text element held within another balloon to suggest its connection to an earlier pane. Once learned, a reader will recognise this meta-rastic element at the end of the text within a balloon and then look for a balloon in the panel, or an adjacent one, which begins with an ellipsis to continue the text reading. This type of meta-rastic index is highly codified and would need

to be recognised and learned in similar ways to those discussed in image recognition in Chapter 2. The ellipsis is an important example of a meta-rastic index as it illustrates that the elements which guide a reader's path are not always image elements and that they may take many forms of codification. In the example below from *Checkmate #2* we can see the ellipsis used as meta-rastic indices (Fig. 7.10). In this short panel-sequence, ellipses are used at the end and beginning of two text elements to suggest a connectedness between them. The first appears in the first panel in the sequence and the second appears in the second, connecting them together conceptually and suggesting a reading path from one to the next. This is a relatively straightforward connection but an important one as it reinforces the reading path to the reader.

Fig. 7.10 Ellipsis: Meta-rastic Indices in *Checkmate #2* (Bendis, Maleev, et al., 2021)

Many meta-rastic indices tend towards the use of the panel-image to communicate sequence. The visual elements of the panel-image which guide a reader into and out of panels are of particular importance. These are often guided by the reading path through panel content, which we will discuss shortly, but it is the entry and exit points which are most likely to act as meta-rastic indices and authors will often render the meaningful units in ways which guide the reader out of the current panel and into the next in the sequence. As such, the exit point of one panel will often lead the eye to the entry point of the next and therefore may act as a meta-rastic index. These are the most commonly used types of meta-rastic indices in modern American periodical comics based on my observations and can be seen in many example panels used throughout this thesis. We will look closely at how the elements of the panel-image lead a reader through the content of a panel shortly but these entry and exit elements, which guide a reader into and out of panels, are of crucial importance to how a reader finds their way through the macro-path of the sequence as they engage with general reading activities.

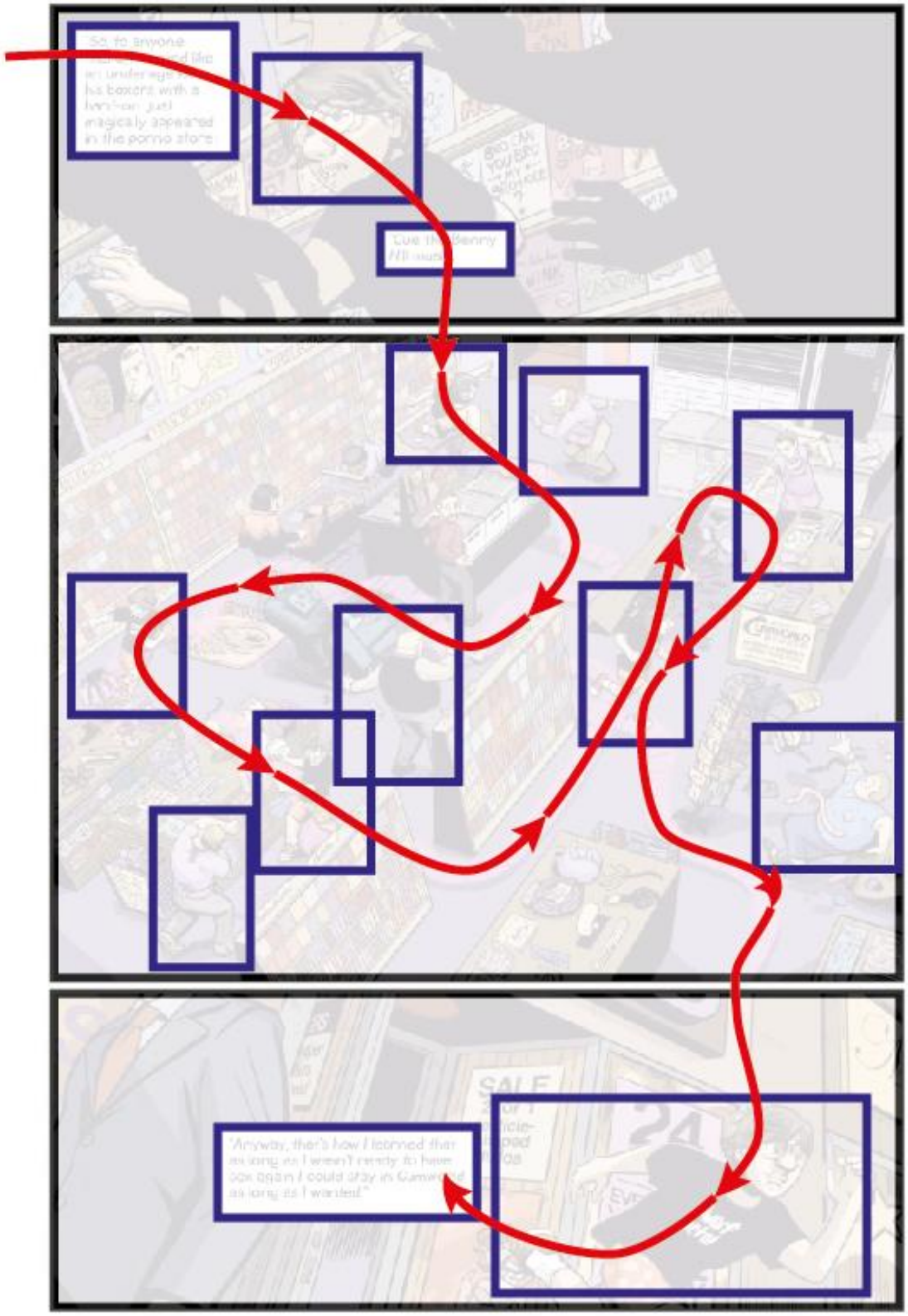


Fig. 7.11 Panel-image Meta-ratic Indices in *Sex Criminals #2* (Fraction and Zdarsky, 2013)

The above example from *Sex Criminals #2* demonstrates the way the guiding entry and exit elements work (Fig. 7.11). The reading path through the first panel leads the reader to leave at the bottom. They then enter the next panel in the sequence and follow the line of action down from the exit point of panel one to the entry point of panel two. The reading path of this panel also leads the reader out of the panel's bottom and into the top of the next. This final panel then marks the end of the spread (and the sequence) and so its exit point does not lead to another panel. Instead, this path through the spread ends here signalling to the reader that an action is required to take them to the next spread, and subsequently, the next part of the story.

The meta-rastic indices in the above example are contained within the panel-border. However, in many cases the guiding elements on the panel-image expand beyond the border of one panel and, in some cases, literally connect panels together. I have identified two key types of meta-rastic indices, which expand beyond the containing unit of the panel, which I will refer to as breaches and bridges. Miodrag uses similar terms in describing word balloons which either connect (bridge) across or overlap (breach) the gutter and panel border (Miodrag, 2013). Breaches are elements which expand outside of the panel border or boundary into the gutter without entering another panel. Bridges are similar in that they expand beyond the boundary of the panel however they do not end in the gutter and instead reach across it to overlap or enter the border of an adjacent panel. Both elements are excellent tools for creators to guide a reader from the exit point of one panel to the entry point of another.

Fig. 7.12 Breach Meta-rastic Indices in *The Brave and the Bold #13* (Waid, Ordway, et al., 2008)

In the example above, from *The Brave and the Bold #13* (Waid, Ordway, et al., 2008), used by Potsch and Williams in their discussions of action, the motion path breaches the top left corner (Fig. 7.12) (Potsch and Williams, 2012). The weapons breach the panel in the top right indicating an exit point. These breaches offer simple indicators of where to exit the panel, and potentially where to enter the next. In a subverted raster sequence, breaches can be used to reinforce the entry and exit points of panels and guide a reader through a subverted meta-raster, acting as meta-rastic indices.

Whilst breaches end in the gutter, bridges cross over it entirely. One of the most common types of bridge in American periodical comics is the speech balloon. In some cases, for example, the balloon will overlap two panels whilst in others a connecting tail will be drawn. This second type of use connects two elements of speech to the same utterance, similarly to the ellipsis. In the example below from *Sex Criminals #1* (Fraction and Zdarsky, 2013) we can see that the first panel is overlapped by the first speech balloon of the second and the second is overlapped by the first speech balloon of the third (Fig. 7.13). These overlapping elements create bridges which lead the reader from one panel to the next without use of the gutter. Once the first panel content is read, the overlapping balloon of the second panel leads a reader into it at that location. Similarly, on completing the reading of the second, the reader is lead into the final panel by the overlapping speech balloon. And here we can also see the use of the ellipsis meta-rastic indices connecting the last balloon in the second panel with the first in the third panel. This is a nice example of how multiple different meta-rastic indices can be used at once in the guiding of the reading path.

Fig. 7.13 Balloon Bridges Meta-rastic Indices in *Sex Criminals #1* (Fraction and Zdarsky, 2013)

Balloons are not the only elements used to bridge the gap between one panel and the next. Direct-image elements can also be used. In the example below from *Sonic the Hedgehog #7* we can see that a part of the character (Sonic) in the first panel overlaps the panel-border of the second, connecting the two together (Fig. 7.14). In this example the exit point of the first panel is Sonic's foot. The foot overlaps the next panel in the sequence which leads the reading path across the gutter and into the next panel. A meta-rastic index like this sets up both the exit point of one panel and the entry point of another in the same way as the balloon bridge, except, in such cases, no singular utterance is suggested, and a broader connection can be made. These functions allow the guiding meta-rastic elements to lead a reader from panel to panel along the reading path without leaving the eye in the gutter and serve as an efficient way to indicate the reading path in layouts which might otherwise be difficult or confusing to navigate.

Fig. 7.14 Image Bridge Meta-rastic Indices in *Sonic the Hedgehog #7* (Flynn, Thomas and Breen, 2018)

Thus far we have seen evidence of both overt, external meta-rastic indices and those which are subtle and internal parts of the meaningful units of the panel. I propose that these form two ends of a spectrum on which meta-rastic indices exist. In complex layouts which are highly subversive of the culturally defined reading raster there are several common strategies observable for the implementing of the meta-rastic indices. Some of these meta-rastic indices remain internal, like the ones in *Sex Criminals #2,* whilst others take on more direct, overt meta-rastic meaning. In the spread

below, for example, from *Batwoman #12* (Blackman, Williams III, et al., 2012) we see a complex subverted reading raster (Fig. 7.15). In this layout a reader is required to navigate the spread in an anti-clockwise spiral from the top left to the centre. The reading path starts in the top left corner. It then follows the panels down the left-hand side of the spread to the bottom left corner. The path then leads across the width of the spread to the bottom right-most corner before moving upwards from the bottom right to the top right. It then moves leftward to the top centre of the spread and out of the panel at the top of the page. Finally, the reader must move to the central panel to complete the spread by applying the unread panel rule of the preference rules. Here, the meta-rastic indices are both overt and representative of in-world details of the panels. The direct-image arrows are representative both of markings on the floor, internal to the fictive world, and of the reading path. As such they act both as physical-internal and conceptual-external in their reading. The path here is very different to that of the culturally defined raster norms but still begins based upon it and allows for a reader to progress through the narrative based on the clues given by the meta-rastic indices. These arrows provide explicit directional instruction to the reader and guide the reader through the complex meta-rastic path of the spread. Complex spreads like this, which break from the standard Z-path so dramatically, would be difficult to follow without the meta-rastic indices. In this case, the authors of the comic have elected to use overt arrow symbols to point the way through the spread in an effort to assist the reader in finding the meaningful reading path however bridges, panel shape or other meta-rastic indices could also have been used.

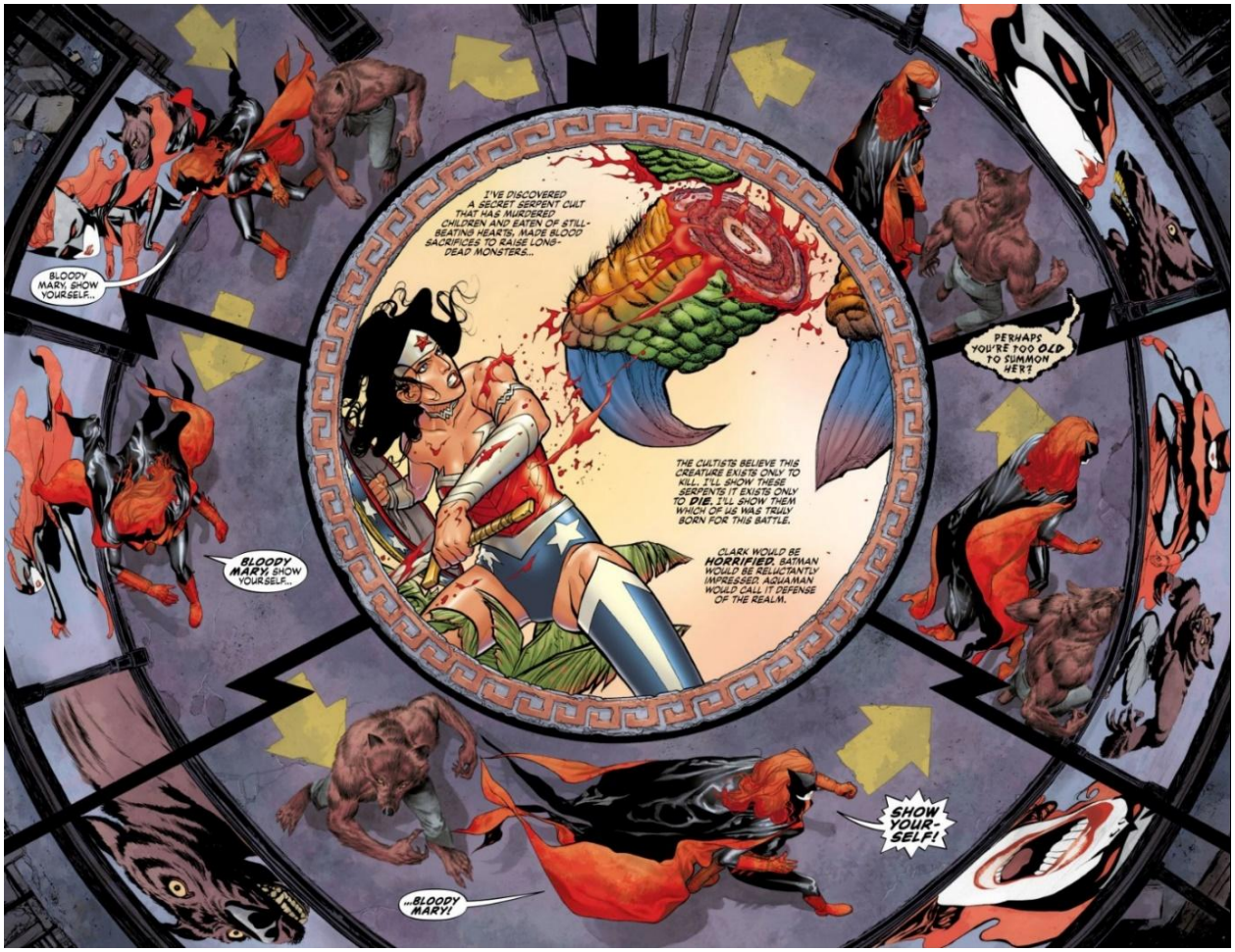


Fig. 7.15 Subverted Meta Raster in *Batwoman #12* (Blackman, Williams III, et al., 2012)

As illustrated by the discussion here, the meta-rastic elements perform two key functions: the first is to lead the reader through the layout of the panels. The second is to guide the reader into and out of each panel at the position which leads to the next in sequence. This is particularly important when confronted with complex layouts which subvert the normal Z-path reading because the meta-rastic indices guide readers in how to navigate sequences which could otherwise be confusing or easily read out of order. It is clear then, that the meta-rastic indices which I identify and outline, are integral to the reading of sequence in comics and support Cohn's preference rules for non-expert readers, and in some cases, expert readers as well.

7.3 Micro-Reading: Paths through Panels

Moving Through Panel Content

To conclude the discussion of reading sequence, we need to examine the reading path at the panel level. I refer to the reading of this level as the micro-reading. As we have discussed already, the panel contains the panel-image which itself contains the meaningful units of images, text and conceptual-metaphors. The micro-reading path is the path taken from each of these elements to the next as a

reader works their way through the content of a panel, engaging with the general reading activities as they do. In fact, it is the sequence of reading inside a panel.

McCloud considers something similar to a micro-reading path in *Understanding Comics (McCloud, 1993)* where he discusses how time is understood within panels. McCloud's discussion is specifically related to his idea that space equals time in comics and that by moving through space a reader understands time. Our discussion here is not specifically about time and I would argue the reading movement of a reader's eye allows for the perception and understanding of more than time, however it may be one of the narrative readings understood by a reader in some cases. Regardless, McCloud's visualisation of the reading path is useful because it outlines ideas by which the discovery of the reading sequence through a panel can be understood.

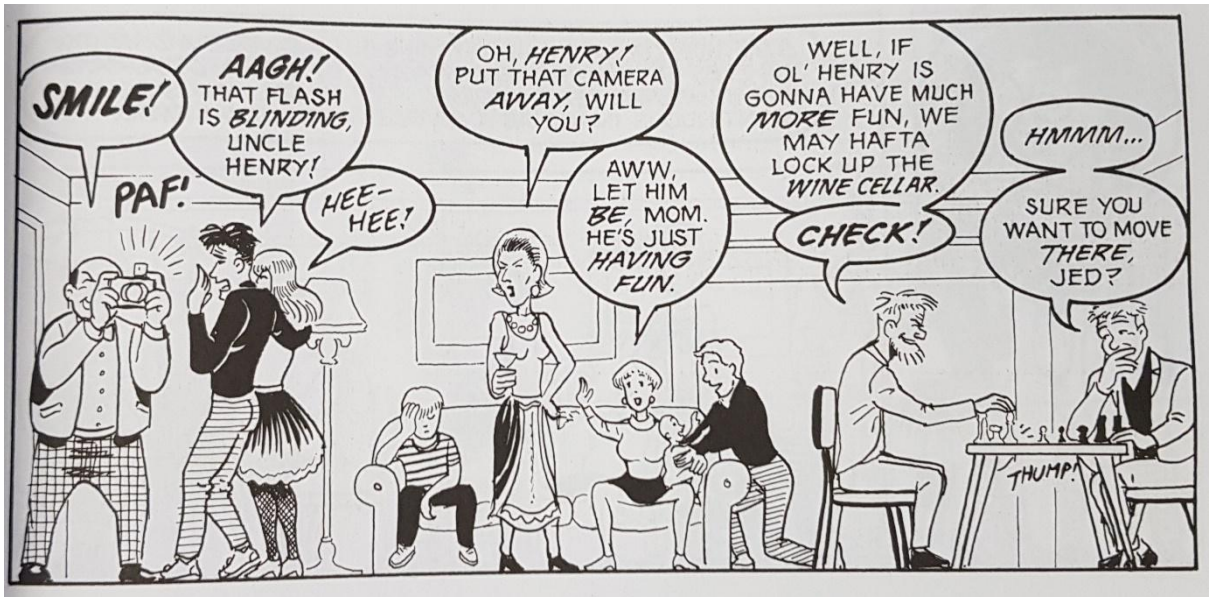


Fig. 7.16 McCloud's panel example to which a reading path can be applied (McCloud, 1993: 95)

McCloud uses the panel above to illustrate how a reader might follow a micro-reading path through a panel by moving from one meaningful unit to the next (Fig. 7.16). We can see in the panel below that he suggests a path through the panel which winds from one balloon to the next (Fig. 7.17). In this image McCloud suggests that the reading path winds through the panel, winding up and down as the readers eye moves through the balloons. This takes into consideration only reading movement from one text element to the next and does not represent a full reading of all elements however it does suggest that a reader enters at one end of the panel, follows a path through the content, and then exits the panel at the other end. Whilst McCloud's path does not account for the total reading path, it does allow him to break the panel-elements into smaller groups which he refers to as "operating as several panels" (Fig. 7.18) (McCloud, 1993: 97). Thinking of this panel as being made of multiple smaller panels is not particularly useful and does not serve McCloud's arguments beyond

immediate observation. However the ideas he applies in breaking the panel down into smaller parts does resemble the more useful, and academically robust, ideas of attention which Cohn discusses in his work (Cohn, 2010b). In combining the two approaches we see that a much more meaningful understanding of the movements along a path can be developed. By applying the principle of the winding path, and considering the work of others who, like McCloud and Cohn, discuss movement through panels, I can propose a more developed idea of how the reading path through a panel operates.

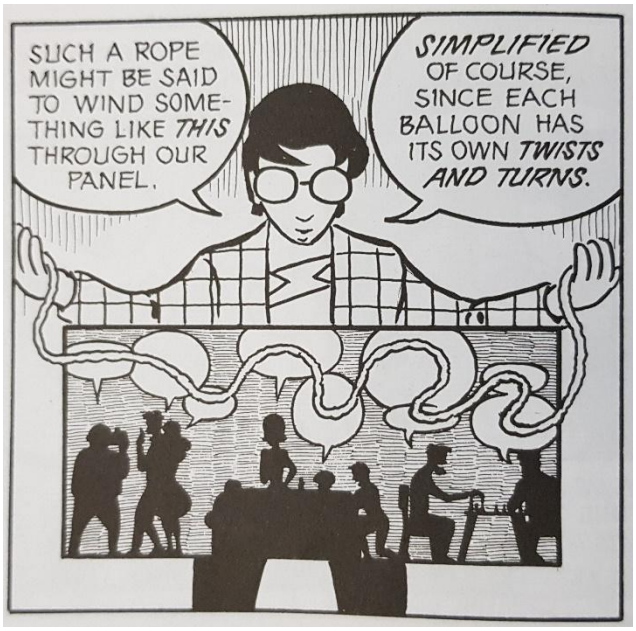


Fig. 7.17 The reading path through the text elements of McCloud's panel (McCloud, 1993: 96)

Differential Zones of Attention

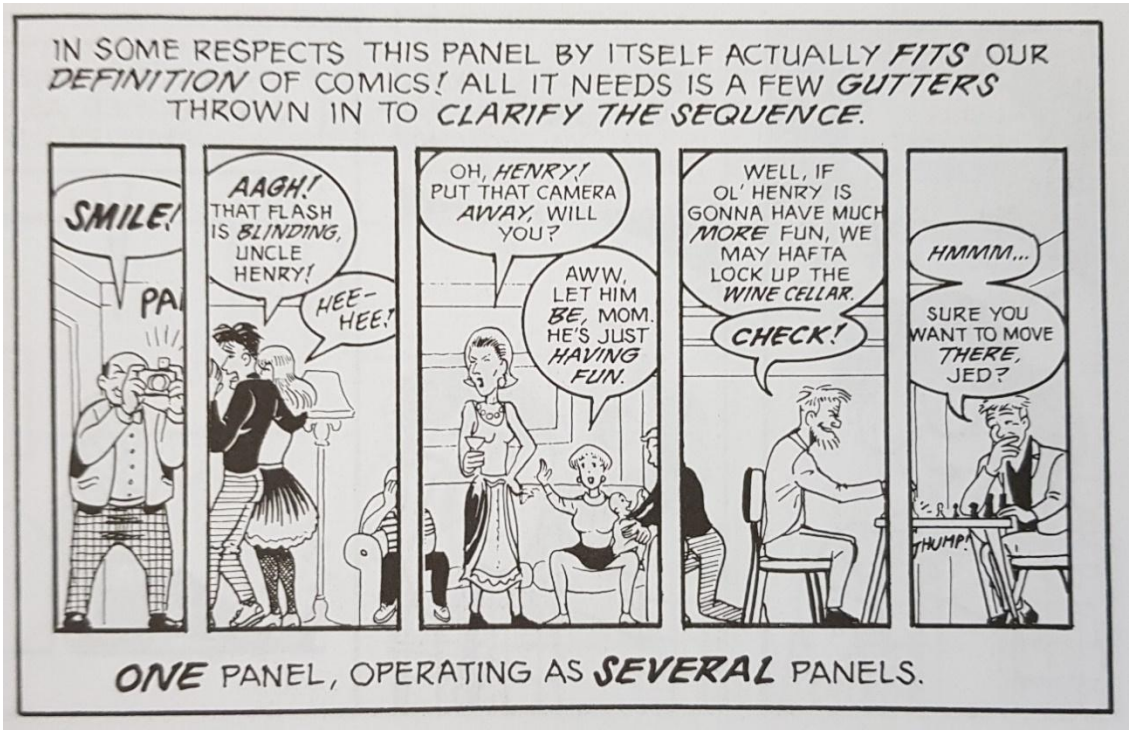


Fig. 7.18 McCloud's panel broken into differential zones of attention (McCloud, 1993: 97)

In discussing the content of the panel, McCloud breaks the larger panel into a collection of smaller panels (Fig. 7.18). This suggests that the panel can be broken down into smaller component parts for the purposes of reading, using grouping activities as a reader follows the path through the panel. This idea clearly reflects the ideas outlined in the general reading activities, but the way McCloud has grouped the narrative moments is a little haphazard and shows limited consistency. For example, there is no reason that the central panel could not be broken down into two panels, one for each character and their associated balloon. Alternatively, panels one and two could easily have been grouped as one panel as the exchange suggests no more or less time than the central panel. Rather than trying to identify moments within what Cohn would call the "macro" panel to create "mono" panels, as McCloud appears to have done here, it would perhaps be better to consider the grouping of meaningful units that we discussed earlier (Cohn, 2013b; Cohn, 2016: 56). As we saw, the grouping activities rely on the identification of meaningful units in the panel-image and a consideration of their connections with other elements in the panel. By applying this idea, we can consider how a reader is led from one meaningful-unit to the next by following the micro-reading path. In taking this approach, we are breaking the reading of sequence into two main components: the path and the differential zones of attention.

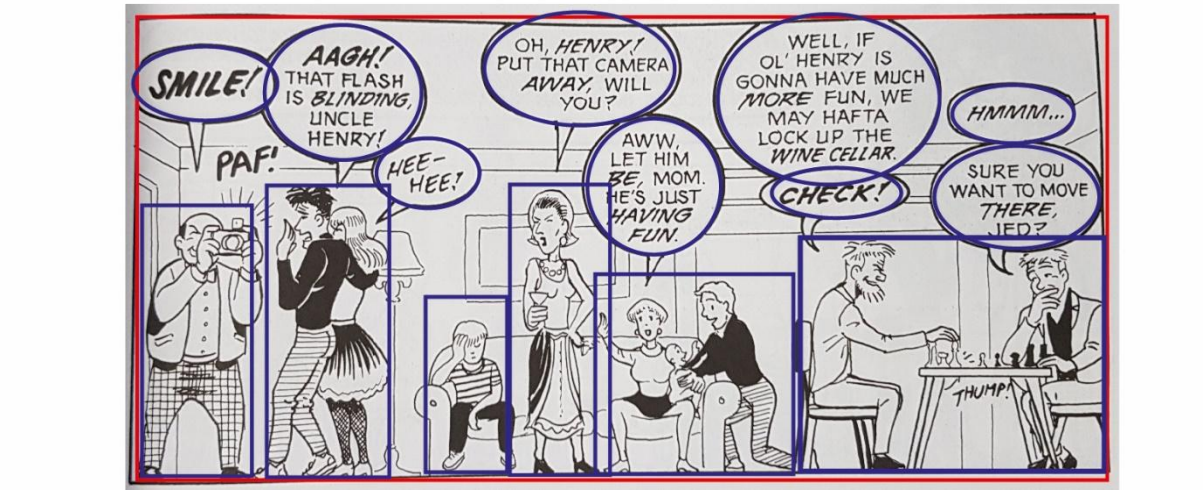


Fig. 7.19 Differential zones of attention applied to McCloud's panel (McCloud, 1993: 95)

Looking first at the differential zones of attention (outlined in blue) we can see that the elements of the panel can be broken down into blocks which isolate and contain a meaningful unit each (Fig. 7.19). Each of these identified units could be broken down into smaller meaningful units as we discussed in section 2 of this thesis, but for the purposes of reading sequence these are the key groupings which make up the attention units of the narrative. These differential zones of attention are narratively relevant, and the path of the reader's eye would likely travel through them as they read the sequence within the panel.

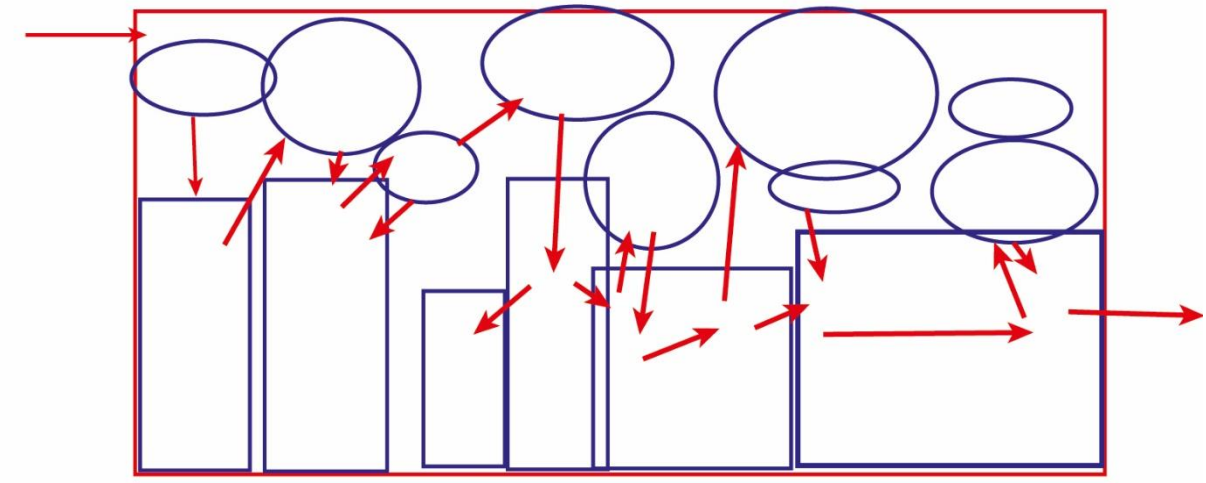


Fig. 7.20 A path connecting the differential zones of attention in McCloud's panel

The micro-reading path travels through the panel by following these differential zones of attention and usually connects each of the key elements together in sequence. The reading contract is important here as the connecting of the differential zones of attention by following the path is dependent on the reader choosing to do so (Groensteen, 2007; Cohn, 2013b). This is also dependent on the authors facilitating this process through their choice of layout and their agreement to guide

the reader from one element to the next. The path from one differential zone of attention to the next is visualised in Fig. 7.20 where arrows indicate the path and its direction and the boxes and ovals indicate the differential zones of attention. As McCloud suggests, the content of the speech balloons requires the following of a text reading path upon entering the balloon (McCloud, 1993). If we add arrows to represent these additional eye movements, we can see that the path through the text is clearly quite complex (Fig. 7.21).

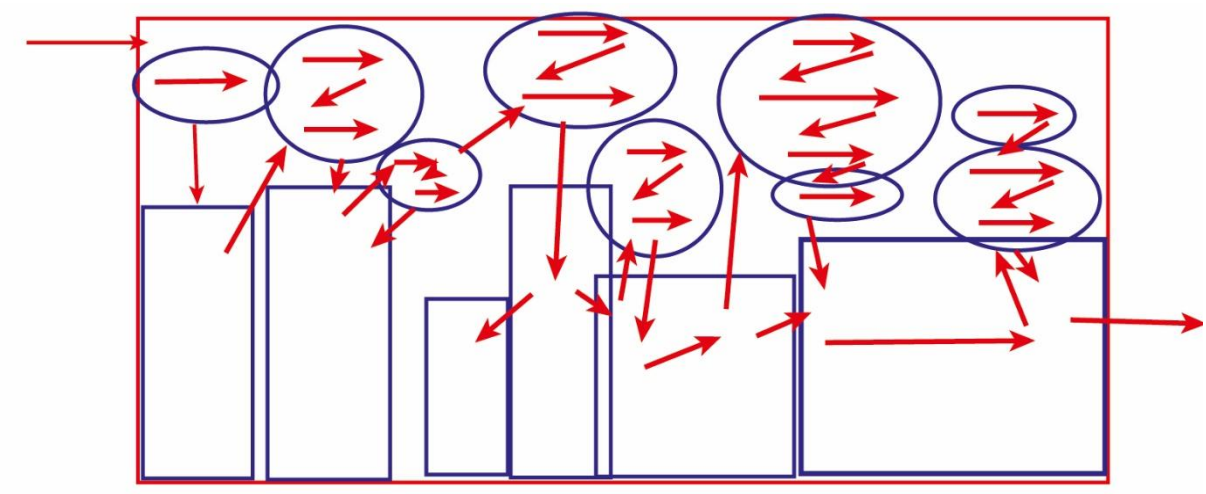


Fig. 7.21 A path through the differential zones of attention in McCloud's panel

Whilst this indicates a comprehensive reading path through McCloud's panel it is important to note that this is not the only path along which the reader's eye may travel. Variations in the path are likely to occur from reader to reader based on reading memory and the order in which they apply the general reading activities. We can also see that the path is not entirely linear and there are areas where the reader's eye may wander from the left to right reading path before returning to it and continuing through the depicted scene. For example, the child sitting idly on the sofa with a bored expression on his face has no connected balloon and is tucked into the space between other characters and below speech balloons. This character marks a visual element through which the reader's eye may travel as a tangent from the rest of the path. Similarly, a reader's eye may follow the path to the lady with a baby on her lap either by following a path from the 'mom' character or from her speech balloon. The image is drawn in such a way that the line from the elbow of 'mom' leads down and along the arm of the lady-with-baby and some readers are likely to follow this line to read the figure of lady-with-baby before moving up to the balloon. Other readers may read the balloon attached to 'mom', then the figure of 'mom', then the balloon attached to lady-with-baby, then the figure of lady-with-baby. This means that there is more than one path along which the readers eye can travel in the comprehension of meaning. There are other alternatives as well. As such it is important to note that whilst the micro-reading path offers a directionality through the

panel-image, it does not override activities of looking or seeing and a reader needs to also engage with these processes as part of the general reading activities as they follow their path through the panel. However, in all likely, meaningful, variations the path is governed by the left-to-right reading which guides the eye through the panel. This indicates a general directionality of the micro-reading path which is determined and altered by the differential zones of attention.

Based on the observations and close analysis of the ideas and examples of others presented here, it seems sensible to propose that the differential zones of attention may not be read in exactly the same order by every reader but the path through the text remains relatively similar in guiding the reader from the entry point to the exit point from the panel. The panel below illustrates this general directionality of the path which accounts for the minor variations in order but plots a general sequence through the differential zones of attention (Fig. 7.22). This is similar to the idea of the rope illustrated in McCloud's work but allows for more general reading which includes all differential zones of attentions and not just the balloon elements of the panel.

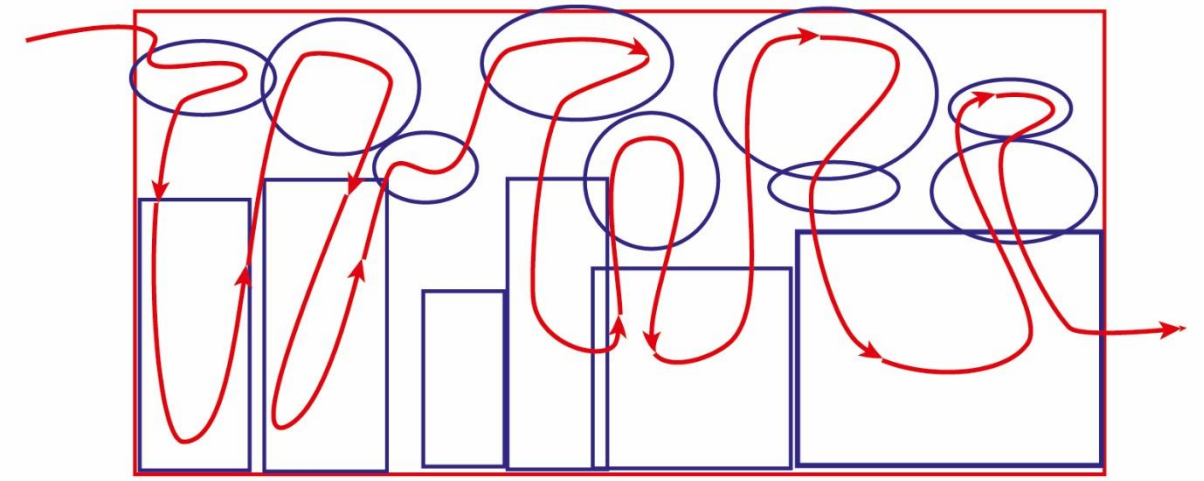


Fig. 7.22 General reading path through the differential zones of attention in McCloud's panel

Our analysis of the example presented by McCloud here demonstrates a complexity in the reading path of image and text elements within a panel. However, more complex examples of micro-reading paths exist, like those in Fig. 7.25 and Fig. 7.26 below. For example, some paths may loop back on themselves, or spiral around the panel, or involve any number of alterations to the direction of the path. Each guided by the content of a panel image and the general reading activities associated with them. Additionally, McCloud's example does not demonstrate consideration of all the common types of meaningful element which could appear in comics such as conceptual metaphors (Potsch and Williams, 2012; Cohn, 2013b, et al.). As we have seen, conceptual metaphors are often used as part of the panel-image and these can dramatically alter the micro-reading path through a panel (Potsch

and Williams, 2012). In some cases they may even change the direction of the eye movement through the panel from an expected left-to-right direction to a non-traditional one. Motion paths, in particular, are often used by authors or artists to guide a reader through a panel-image as seen in the examples below (Fig. 7.23, Fig. 7.24, Fig. 7.25, Fig. 7.26). Atkinson identifies this in his paper *Movements within Movements: Following the Line in Animation and Comic Books* (Atkinson, 2009) which discusses how the movements of a line lead the eye through movements of the panel-image. His discussion, more broadly, considers how the marks made by an artist or author in the rendering of the panel-image create a sense of movement within, and through, the panel. His writing indicates that the micro-reading path through a panel-image needs to be considered before the path taken through the macro-path of panel layouts can be applied (Atkinson, 2009). This reflects the importance of the micro-path in leading the reader to the exit point which we looked at in discussion of the meta-rastic indices. The entry and exit meta-rastic indices are part of the micro-reading path that facilitate understanding of the macro-reading path and demonstrate a clear connectedness between the two paths discussed here. Ultimately, it is clear from the application of McCloud's ideas to a range of example panels, coupled with an understanding of the established general reading activities, that the micro-reading path offers a guided directionality through the content of a panel as readers engage with activities of identification, grouping and closure.

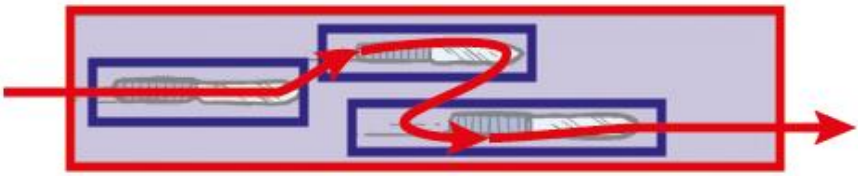


Fig. 7.23 A simple reading path in *Hawkeye #2* (Fraction, Aja, et al., 2012)

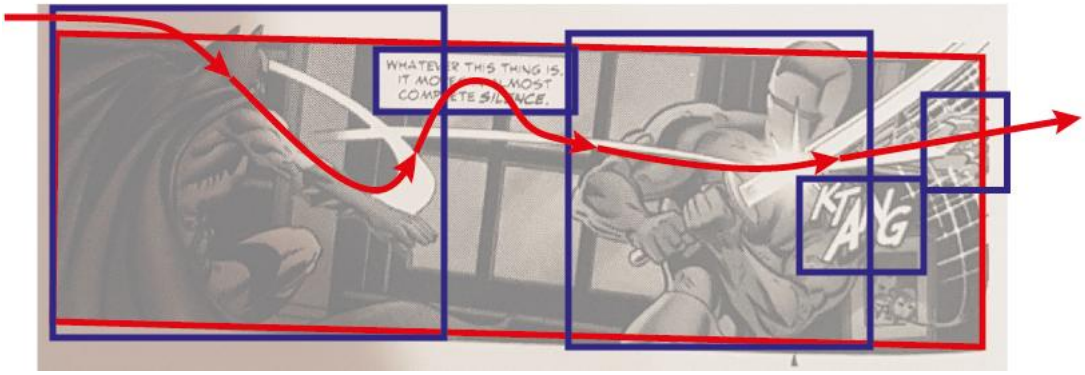


Fig. 7.24 Action lines to guide the reading path - *The Brave and the Bold #13* (Waid, Ordway, et al., 2008)

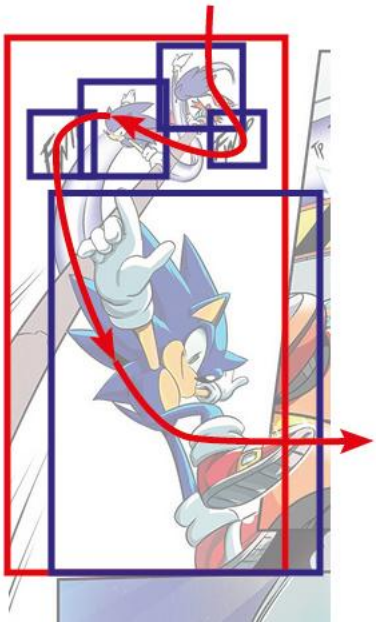


Fig. 7.25 A Top-to-bottom reading path - *Sonic the Hedgehog #7* (Flynn, Bryce Thomas and Breen, 2018)

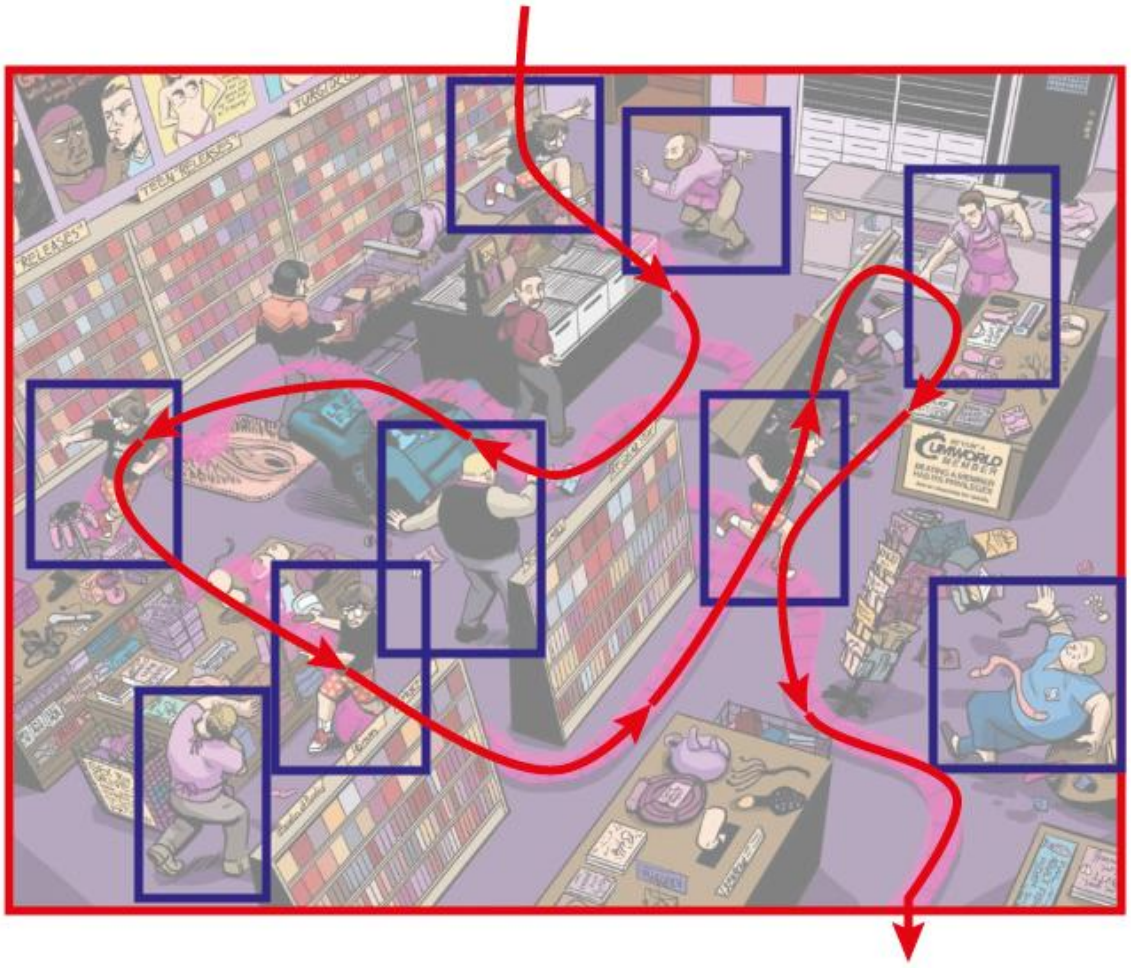


Fig. 7.26 A complex reading path guided by a motion path - *Sex Criminals #2* (Fraction and Zdarsky, 2013)

Pauses Along the Path

Atkinson suggests that the micro-movements through the micro-reading path of the panel-image are crucial to the understanding of movement in comics narrative (Atkinson, 2009). These micro-movements are the small movements the eye makes when traveling from one element along a reading path to the next. In comics, the elements are the differential zones of attention, and the micro-movements are the individual paths from one to the next. In reading studies the micro-movements might be referred to as saccades and I will use this term to describe the movement of the eye in comics (Omori et al., 2004; Bouma and De Voogd, 1974; Kowler and Anton, 1987; Vergilino and Beauvillain, 2000; Blais et al., 2009). The saccades are the rapid movements of the eye as it moves along the reading path between each differential zone of attention. As a reader reaches each of the differential zones of attention, they pause for a moment before performing the next saccadic movement along the path to the next differential zone of attention, and the saccades collectively create the micro-reading path through a panel.

As such the pauses along the micro-reading path of a panel tend to correspond to the differential zones of attention and rely on reader recognition and engagement with reading activities. It is, as Atkinson argues, in these pause moments where the reader is most likely to contemplate the meaning of the images that they are seeing and consider their impact on the narrative (Atkinson, 2012). It is then likely that the paused saccades of the reading path facilitate the activity of closure we discussed previously. In summary, as each new differential zone of attention is entered the reader pauses. In those moments of pause they can consider the meaning of its content in relation to the rest of the narrative moment, before moving along the reading path to the next element.

This being the case, it is worth discussing the ideas of the pause and contemplation within a panel as there is a potential conflict between the pause of attention zones and the pull of the path. Atkinson considers this to be one of the fundamental contradictions of the comics language and suggests that there is a constant tug-of-war between the contemplation of art and the pull of narrative (Atkinson, 2012). In summary, he suggests that the nature of art encourages a reader to pause in contemplation of what they see whereas the nature of narrative encourages a reader to continue so as to uncover the next part of the story. Groensteen also identifies a pull of narrative, which encourages the reader to move from panel to panel, in his own discussions of rhythm (Groensteen, 2013). Similarly, Hatfield's "sequence vs. surface" tension reflects the same interaction between these different functions of the panel, suggesting that each panel acts simultaneously as "both a moment-in-sequence and design element" (2005: 48). These relationships between the contemplative pause of art and the narrative pull to continue can be seen in the relationship between the differential zones

of attention and the path. In reading a panel-image in the ways described here a reader must pause in contemplation of the differential zone of attention in order to perform some of the general reading activities discussed earlier. In doing so, the reader pauses their movement along the reading path. They must then return to the reading path to continue the consumption of narrative. This drawing of the reader back to the reading path through which elements are connected is the pull of the narrative. As a result, this pause and pull relationship between contemplation of content and movement through narrative creates a rhythm of reading through the panels, which is part of Atkinson's research (2012). Whilst there is little empirical research available, it seems likely, based on my own research throughout this study, that the pause-pull relationship is an inherent part of the reading of comics. Groensteen appears to agree with this hypothesis and notes a "beat" which readers follow as they move from panel to panel (Groensteen, 2013: 136). This combines saccadic movement with pauses in contemplation which allow for a reader to understand narrative within panels. The movement through the panel, and the general reading activities performed in the paused moments, can therefore be considered an integral part of comics reading and as such should not be separated from the larger movements of the macro-reading path.

Art as a Guide to Micro-Reading Sequence

When considered together, the pull-pause relationship of the direct-image and the narrative, and the relationship between saccades and differential zones of attention show parallels in how reading takes place within a panel. It is clear from the above discussion that the panel content is the guiding force which leads the reader along the micro-path of the panel as they engage with reading activities. The path, made up of smaller saccadic eye movements, is connected by the differential zones of attention and these guide the shape of the path. We can see this clearly in the example panels above where the path of the reading is determined, in each case, by the depicted panel-image elements (Fig. 7.21, Fig. 7.22, Fig. 7.23, Fig. 7.24). These examples also demonstrate one of the ways that the reader finds their way through the larger sequence of the spread. In each case the content of the panel guides the micro-path to an exit point of the panel. This exit point would usually correspond to the entry point in the next panel and in this way the content of the panel-image guides the reader's eye into and out of each panel as they move through the macro-reading path of the spread as we saw previously. Consequently, there is always a sense of general directionality tied to the eye-movement through panels, which usually corresponds to the culturally defined reading raster, however the micro-path is guided by the panel content as the eye moves from one differential zone of attention to the next during the general activities of reading.

Each of the elements discussed here form an expanded understanding of the micro-reading path through the elements within individual panels however a reader must also be able to navigate the reading path through the larger layout of a spread or spreads. It is important to remember that the complex micro-reading paths of the individual panels underpin the macro-reading process by assisting with the discovery of entry and exit points of each panel and leading a reader through the smaller components within.

7.4 Conclusion

In investigating how the reading sequence of comic layouts is understood, it has become clear that a number of complex activities need to be performed. First, whilst the order in which the general reading activities are performed is ambiguous, the sequence of panels is not, and there is usually an intended order in which the panels are expected to be read. I have established that the understanding of sequence is based on two key levels of interaction with the structural components of comics. At the micro-reading level, a reader must find a path through the content of each panel, and at a macro-reading level must connect each panel together in sequence to find a path through the larger narrative.

The culturally defined reading raster, which in western culture takes the form of the Z-path, is the foundation of the path through western comics and forms a part of the reading contract that defines the expectations of both reader and author. A reader will generally follow this culturally defined reading raster unless confronted with a layout which subverts of otherwise disrupts it (Cohn, 2013b). Where the layout subverts the culturally defined reading raster it can be said to be meta-rastic in nature. To effectively navigate a subverted meta-raster, I have outlined two strategies for the discovery of the path through the sequence by the reader.

On a micro-reading level, the reader needs to find the path through the content of a panel. To do so they will likely move from one differential zone of attention to the next, starting at the entry point of the panel and leaving at the exit point, reading the panel content as they go (McCloud, 1993; Cohn, 2013b). The reader may stray from this path by widening their view of the panel content when they pause in contemplation of differential zones of attention or following tangents to secondary direct-images but are likely to return to the main path through the panel-image as they are led to the exit by the pull of the narrative (Atkinson, 2012). So, the reading path through a panel is governed by the meaningful units and the entry and exit points.

On a macro-reading level, a reader is likely to apply preference rules of reading to understand sequence (Cohn, 2013b). These preference rules are proposed by Cohn and suggest if-then rules for readers to follow in finding sequence. Each of the preference rules rely on the culturally defined

reading raster as a starting point and suggests that if the culturally defined reading raster can be followed *then* do that. Otherwise, apply the next preference rule in the list. The rules are subsequently grouped into four categories and relate to finding the beginning of the path, following the culturally defined reading raster, grouping panels with assemblage and reading any unread panels (Cohn, 2013b). These preference rules are useful and offer shortcuts to understanding subverted sequence to expert readers.

I have identified that for preference rules to be effective for all readers there must be additional guiding elements which indicate sequence. I have defined these as the meta-rastic indices (Nichols, 2015). These meta-rastic indices are visual clues within the panels and panel-groups which indicate to the reader which order to read panels in. Some indicate where to exit and enter each panel or otherwise lead a reader from one panel to the next in the sequence. These serve to guide the reader along the reading path and connect the micro-reading paths of each panel together with the macro-reading path of the panel sequence. Other meta-rastic indices offer overt reading instructions using external icons or numbers. Whether overt or covert, the meta-rastic indices indicate the expected reading order to a reader. I argue that these meta-rastic indices are an essential part of the reading of panel sequences. Particularly those which are subverted from the culturally defined reading raster.

At this stage I have discussed, outlined and defined the elements which make up the comics language, the structure of comics and the reading of sequence in comics. This creates an expanded understanding of the reading processes involved in the general comics form. However, I have avoided discussions related to a reader's physical interactions with the comics form. The following section of this thesis will address this and discuss how the delivery of American periodical comics is altered by the different forms of delivery, and how these differences impact the reading processes which we have discussed so far.

Section 4 –

The Reading Toolkit in Presentations of the American Periodical

Chapter 8: The American Periodical in Print and on Screens

8.1 Introduction

Thus far, I have outlined how comics are comprised of text, image and conceptual-metaphor objects collected into panel-images and organised using panels and panel layouts. I set out the multiple literacies required to read these elements and have proposed an expanded structure of comics based on the academic work of scholars and practitioner-theorists. I also proposed an expanded view of the reading process of comics in which the understanding of sequence is based on general reading actives, preference rules and meta-rastic indices. It is these elements which I argue serve to guide a reader through the structural components and provide an expanded understanding of the reading processes of comics. It has also been outlined that these reading processes are guided by a set of culturally defined reading rules upon which other reading activities are based.

The intention of this study has been to develop an understanding of the ways the structural components of comics are understood, on a general level. It has also outlined the common reading activities which can be applied to comics in a broader sense. It is clear that the culturally defined reading raster and other culturally defined core reading rules can impact the comics reading practices. For the purposes of this thesis the western traditions have been favoured in examples and the remainder of this research, which addresses the form, will continue to address these western traditions with a focus on the American periodical. That is, the printed and screen editions of the traditional American periodical and the conventions needed to read them. This section of the research examines reading activities specific to different presentations of the American periodical in an effort to understand how form might impact on the reading toolkit proposed so far.

8.2 The American Periodical Comic

Before we can examine any form-specific reading activities or actions, it is necessary to identify the main modes of presentation of American periodical comics. In western culture, comics are most presented in the format of the codex book. The codex book is defined by its pages and is composed of leaves of material, usually paper, bound along a single edge. This is commonly referred to simply as a book or, when referring to comics, a comic book. In western society the pages are traditionally bound along the left-hand edge to facilitate the left-to-right reading process of the culturally defined reading raster. The binding of the page edges connects them into a singular artefact and in American periodical comics metal staples are usually used to hold the individual pages together, as what is known commonly as an issue. In trade paperbacks (TPBs), which collect multiple issues into a larger tome, stitching or glue would commonly be used instead (Brown, 2019).

The form that comics take has always been defined by the media of the age and as such the comic has evolved alongside the dominant media forms and their production techniques (McCloud, 1993). As the codex book became the dominant form of media in western society, comic books as we know them today began to appear and have developed in this form from basic illustrations, to the short strip of newspapers, to the comic books and graphic novels (Sabin, 1996). Not only did comics adapt to the form of the codex book as it became the primary media format in the west, but they also developed alongside the technological processes associated with the form. Sabin outlines an expansive history of comics in *Comics, Comix and Graphic Novels* (Sabin, 1996) and McCloud addresses production techniques in *Understanding Comics* (McCloud, 1993). Both are useful resources in understanding the history of comics and its relationship to the codex form but are outside the scope of this discussion.

Whilst the codex comic book might be the most common form of American periodical, the wide adoption of mobile display devices has led to a proliferation of information and media artefacts on screens. Comics are no exception to this shift and American periodicals are commonly distributed via digital media. The digital environment of the screen allows for a variety of types of communication not available in print and these bring with them several different forms of screen-exclusive reading, and the literacies associated with them (Sabin, 2000; Campbell, 2006; Groensteen, 2013; Goodbrey, 2013a; Goodbrey, 2015; Goodbrey, 2017). Some examples include interactive media, moving image, sound and game features, among others. This leads to a huge variety in the types of digital comics available, and a diverse range of reading activities. The wide variety of digital comics forms is beyond the scope of this thesis, and it is important to narrow the scope of study.

I will be looking at the American periodical electronic comic. Electronic comics, or e-comics as they are referred to by Eisner, are digital comics which adhere to the same restrictions of static representation found in print comics, or which were originally created for distribution in print (Eisner, 1985). These e-comics do not engage with additional forms of communication offered by the screen such as moving image, sound or game elements.

American periodical comics are regularly presented in the form of e-comics as well as in the printed codex form. However, the American periodical e-comic is just one form among many in the same way that the American periodical print comic is just one in a similarly wide variety of forms. Short comic strips, like those found in newspapers, are often presented on screen and these are also a form of e-comic. It is also true that some e-comics are created for the screen and have no printed counterparts or versions. Regardless of whether a print version exists or not e-comics are those which do not require additional literacies to read beyond the ones we have discussed so far. These engage with

static image and text-based literacies of comics reading without engaging with new literacies of moving image, sound, interactivity, or others.

As such, this study will focus on the e-comic and printed codex forms of American periodicals as they share the same required literacies. American periodical e-comics most commonly present the same content as American periodical comics created for print and as such often adhere to the same basic structural restrictions. That is, the same panels created for the printed American periodical are presented on screen without alteration to their content. As we will see, the delivery of spreads may be different, but the narrative is expressed using the same direct-images, panels, and other visual elements. This allows for the application of my proposed reading toolkit to comics with identical content presented in print and screen forms and will allow me to more reliably attribute any differences in reading activities to changes in the structure of spreads, rather than changes in narrative content.

However, before I can consider the application of my proposed reading toolkit to American periodical e-comics, it is necessary to discuss the substrate devices on which these e-comics are commonly presented, as this is usually the defining factor in how layouts are altered. Unlike the print American periodical, which has a standardised form of delivery, the e-comic can be presented on several different types and sizes of screen (McCloud, 2000; Goodbrey, 2013a; Goodbrey, 2015; Wang, Hu, Hengeveld, and Rauterberg, 2019). These devices are typically desktop or laptop computers and portable touch-screen devices like smartphones and tablets. Most PCs have fixed displays which are attached either to a table or other base and are intended to remain in a fixed location and landscape orientation. Laptops, whilst portable devices, are also intended to be placed on a surface, in a fixed position, with the screen in a landscape orientation during use. Tablets and smartphones on the other hand, are designed to be hand-held and their orientation can be much more easily manipulated through acts of physical rotation.

Whilst e-comics are available for viewing on each of these types of devices, I will focus on portable display devices of tablets and smartphones because these most closely resemble the portability and form factor of the more traditional print American periodical comic book. American periodical e-comics are uniquely suited to the shape and size of traditional 10-inch tablet screens and other similarly sized portable touch screen devices. The traditional size of an American periodical comic page is close to that of the tablet screen and so the layouts created for each traditional print American periodical page can typically be repurposed in the e-comic version with relatively little alteration. The key difference here is that a tablet screen can only present one page at a time at full size. As American periodical comics viewed in this way separate each page-spread into discreet

visible units. Unlike in their codex book form where two pages are usually visible simultaneously. By looking at American periodical comics presented in this single-spread-at-a-time form I will be able to consider the impact of spread presentation on application of the reading toolkit.

Smartphones are very similar to tablets in their operation but are smaller in size and do not share the same convenience in presenting a full single page-spread unaltered. They are, however, almost ubiquitous as devices in modern day western society with over 90% of people in the UK owning one (Statistica, 2025). As a result, it is hard to overlook smartphones as important devices for reading American periodical e-comics on screen. It is therefore useful to investigate how American periodical e-comics can be read on these smaller screens and whether this significant shift in the size of the surface of display also requires a significant shift in how the reading activities of my reading toolkit are applied. As we will see, smaller screen sizes will often necessitate a shift in presentation from larger spreads to individual panels and smaller panel groups. Given that a large part of my proposed toolkit for reading relates to how readers might follow reading paths through spreads it is important to consider the impact on reading activities that these smaller presentation methods have.

8.3 Different Viewing Methods for American Periodical Comics

My research is focussed on the formal structures of comics which need to be learned by readers and so it is important to consider how the presentation of American comics impacts, informs and challenges the delivery and reception of narrative. In the printed form pages are the defining feature of the codex and as such they have key reading and narrative purposes which require the understanding of, and participation in, reading activities associated with them. In codex comic books, pages present spreads of information across two facing pages. These facing pages present a single surface on which one or more hyperframes may be shown.

Whilst the codex comic book presents content on the surface of printed pages, the American periodical e-comic can be viewed on both tablet and smartphone devices through two common modes of delivery. The first is the traditional spread-based delivery which displays one hyperframe of panels at a time. This presents each spread of panels simultaneously to the reader, usually at a size which fills the screen. The second way American periodical e-comics are presented is through methods similar to what Goodbrey refers to as 'panel delivery' (Goodbrey, 2017: 68). In this view the original spreads are presented in smaller chunks, either in small panel-groups or one panel at a time. This second view removes the simultaneous visibility of the original spreads but presents the panels at more easily readable sizes and reduces the need for zoom actions to be performed as part of the reading. Each of these views present the exact same content of the American periodical comic in different ways, each with their own benefits and challenges to the reading activities.

Page-based Delivery

Fig. 8.1 Single Page, Single Hyperframe from *Strange Adventures #6* (King, Gerads, Shaner, et. al., 2020)

Up to now this research has generally avoided using the word "page" because it is tied to the specific physical form of the book. However, I have identified a similar element in the comics structure referred to as the hyperframe (Groensteen, 2007). The hyperframe and the page are not the same, but they do have similar organisational and functional properties. The hyperframe, identified by Groensteen, contains any panels and panel-groups which are connected by a single, unbroken reading path (Groensteen, 2007). Commonly this hyperframe will be contained by a single page and so, in these cases, the hyperframe is the same area as the page (Fig. 8.1). In other cases, the hyperframe will span two adjacent pages in a double-page spread. Below you can see two examples of spreads. The first illustrates two hyperframes on adjacent, facing, pages i.e. one hyperframe per page (Fig. 8.2). The second illustrates a double-page spread with a single hyperframe that spans two adjacent pages (Fig. 8.3).

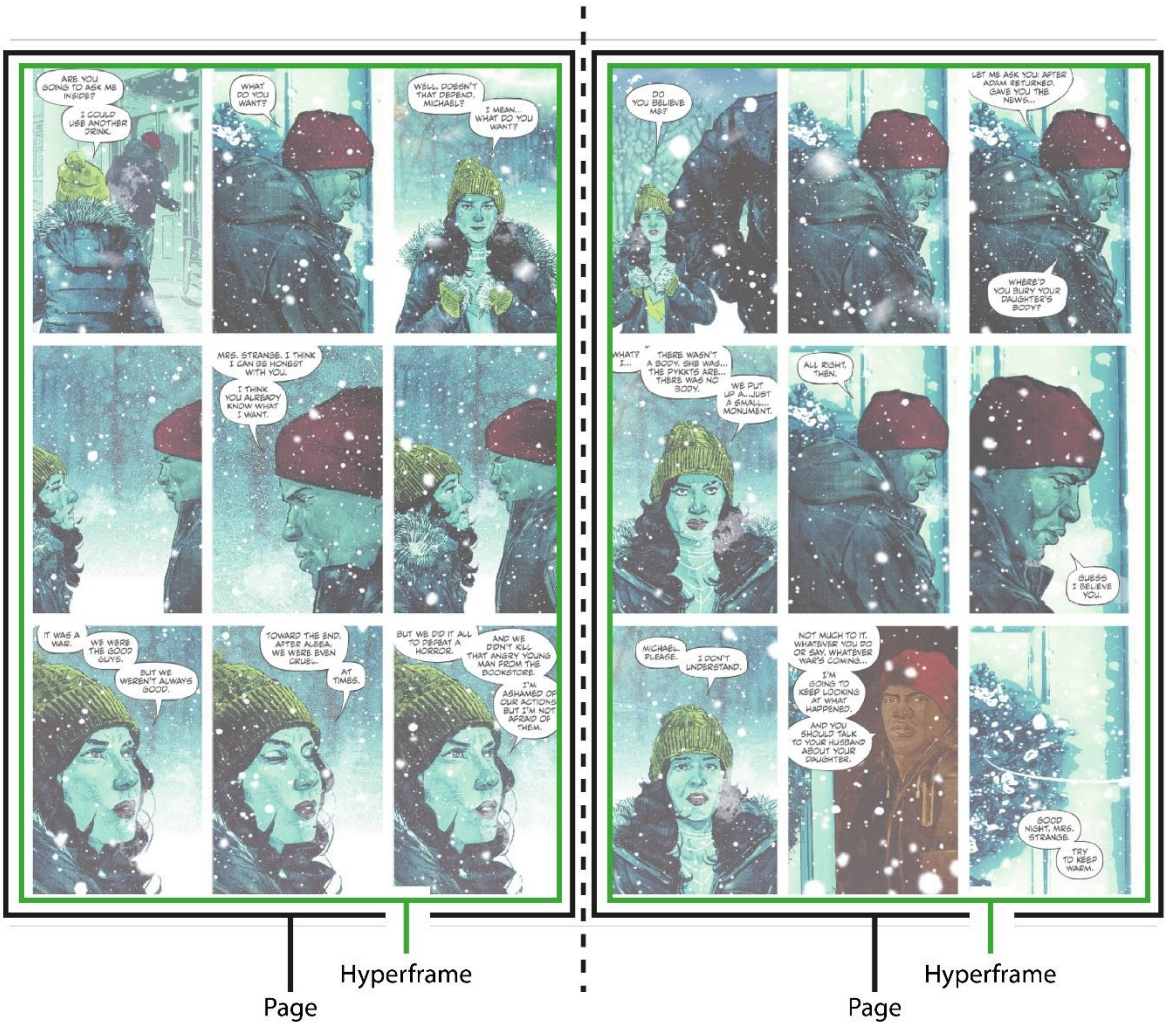
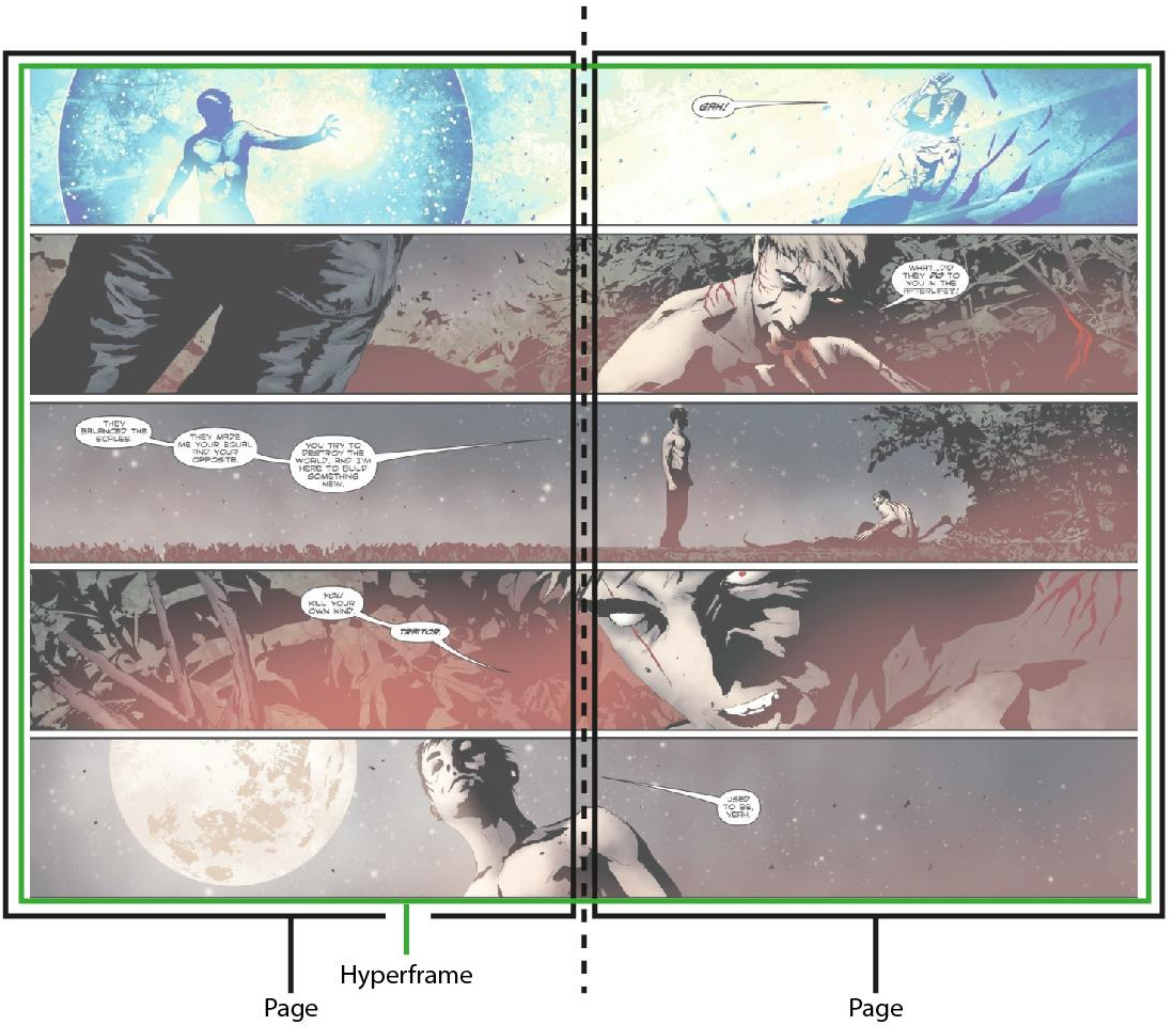


Fig. 8.2 Two pages, two hyperframes from *Strange Adventures #6* (King, Gerads, Shaner, et. al., 2020)



(Fig. 8.3) Two pages, one hyperframe from *I, Vampire #8* (Fiakov, Sorentino, et al., 2012)

The pages in Fig. 8.2 each contain an individual hyperframe, meaning that each page should be read one after another. The expectation is that the reader follows the left-to-right, top-to-bottom reading path on each page individually, one at a time. In Fig. 8.3 from *I, Vampire #8* (Fiakov, Sorentino, et al., 2012), the reading path spans two pages and so does the hyperframe. As such the expectation here is that the reader follows a path from the far left of the first page to the far right of the second before they move down to the next line, as expected of the Z-path reading (Cohn, 2013b). Clearly then, whilst there can be an overlap between hyperframes and pages, they are not always the same. Instead, the page is a unique element and has its own reading rules and literacies associated with it.

Based on the two example spreads above, a new reading activity can be identified which is specific to the paged form. In Fig. 8.2 the reader is likely to read each page in the spread individually, one after the other. However, in Fig. 8.3 they would be expected to read the two pages together, following a path all the way from the far left of the left-hand page to the far right of the right-hand page before moving down to the next row of panels. In fact, there are two ways which facing pages can be

approached - either one at a time or as a whole. Identifying which of these two approaches is expected is a key page-reading activity specific to the form of the book, or in this case, the comic book. As discussed in the previous chapter, the formal rules which allow one to understand the order and sequence of panels is based on the culturally defined reading raster. As such the interactions between the Z-path and the layout need to be considered in deciding whether to read pages as one or two spreads. In considering these interactions we can identify structural components of the codex book which need to be deciphered as part of the reading process.

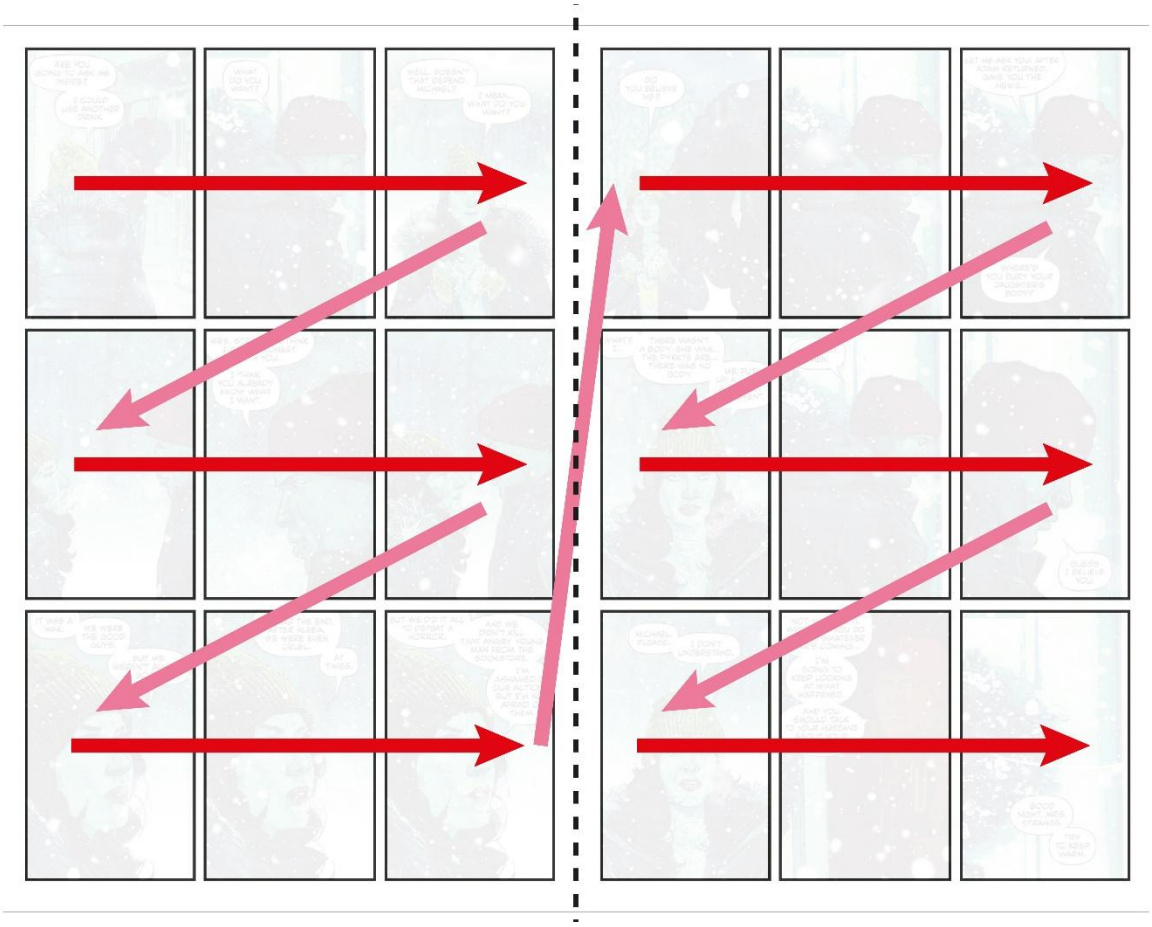


Fig. 8.4 A facing pages reading path from *Strange Adventures #6* (King, Gerads, Shaner, et. al., 2020)

In a traditional Z-path reading, when a reader reaches a spread, it is expected that they follow the culturally defined left-to-right, top-to-bottom reading raster through the leftmost page as established previously (Cohn, 2013b). Once they reach the bottom of the leftmost page, they move to the exposed page to the right of it and perform the left-to-right, top-to-bottom reading raster again until there is no content left unread in the spread, as illustrated in Fig. 8.4. This is based on engagement with the reading contract discussed earlier and might broadly be seen as the normal reading of the paged book form in western culture (Groensteen, 2007; Cohn, 2013b). This is the culturally defined reading process of a spread in a codex book for western society and these reading rules are what

guide a reader's path through the text. If a gutter, on the right-hand side of the left-hand page, spans the inner join of the book, where the two pages in the spread meet, a reader will likely follow the normal reading path of the culturally defined reading raster and move down to the next row of the page. As a result, such a gutter where two pages meet, acts as a structural guide to the reading path through the spread. I will refer to this as the central page-gutter to avoid confusion with this gutter and those between panels.

Often, the central page-gutter at this inner edge of the pages will be wider than the regular spacing between panels on the page, taking advantage of the assemblage rule of separation to act as a meta-rastic indices (Cohn, 2010b). This can be seen in Fig. 8.4 above, where the reading raster moves across the top row of panels on the first page and then moves down and to the left before the inner edge where the pages meet (denoted by the dashed line in the diagram). At this rightmost edge of the left spread we can see the central page-gutter is a different size from the gutters between the panels themselves. This acts as a visual cue to the reader that the two adjacent pages contain separate hyperframes and should be read one after another rather than together. This is a typical reading, and these would be the expected reading rules for most codex books in western society.

In Fig. 8.3, the reading path does not follow the standard path of the western reading raster as applied to the codex book but instead follows a subverted path, albeit a relatively straightforward one. In this layout there is no gutter at the right-hand side of the left-hand page and the top panel in the sequence spans the full width of both pages. Thus, the structure of the spread has only one hyperframe and the pages are expected to be read together rather than separately, resulting in a reading path like the one below (Fig. 8.5). The top panel in the spread spanning the central page-gutter here acts as a cue that the reader is expected to follow a path across both pages rather than read them one at a time. As a result, in this double-page spread the reader would likely follow the path of the panels from the leftmost side of the left-hand page to the rightmost side of the right-hand page and then move down to the left-most panel on the next row. This subverts the culturally defined reading raster usually associated with the pages of the codex form in favour of following the micro-reading path of the panel-images through each panel before moving down. It is the lack of central page-gutter (or indeed a panel gutter) which indicates this reading path, and this visual cue acts as a meta-rastic indices for the reading raster through the spread presented across two adjacent pages.

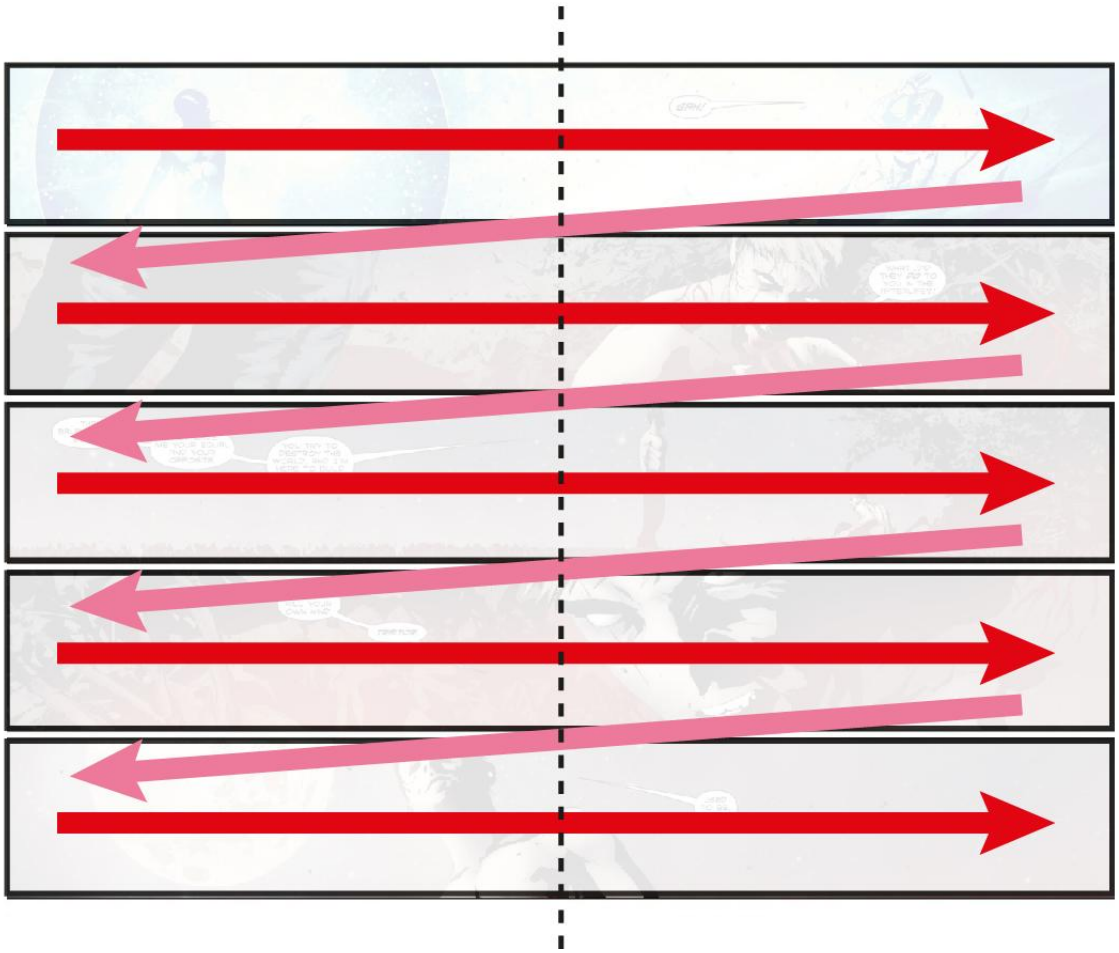


Fig. 8.5 A Double-page reading path from *I, Vampire #8* (Fiakov, Sorentino, et al., 2012)

In Fig. 8.6 the sequence is more complicated and has multiple panels per row. Even so, the formal cues suggest that the panels should be read across the width of both pages in the spread before moving down, rather than following the traditionally taught reading raster of individual pages. The same type of meta-rastic indices apply to the reading here as they do in Fig. 8.3; the middle panel of the top row bridges the inner edges of the pages and so a reader would likely read the full width of the spread rather than moving down the left page and then the right. This top row then establishes the rules for this simultaneously visible set of panels and indicates that the two pages should be read as one hyperframe rather than two.

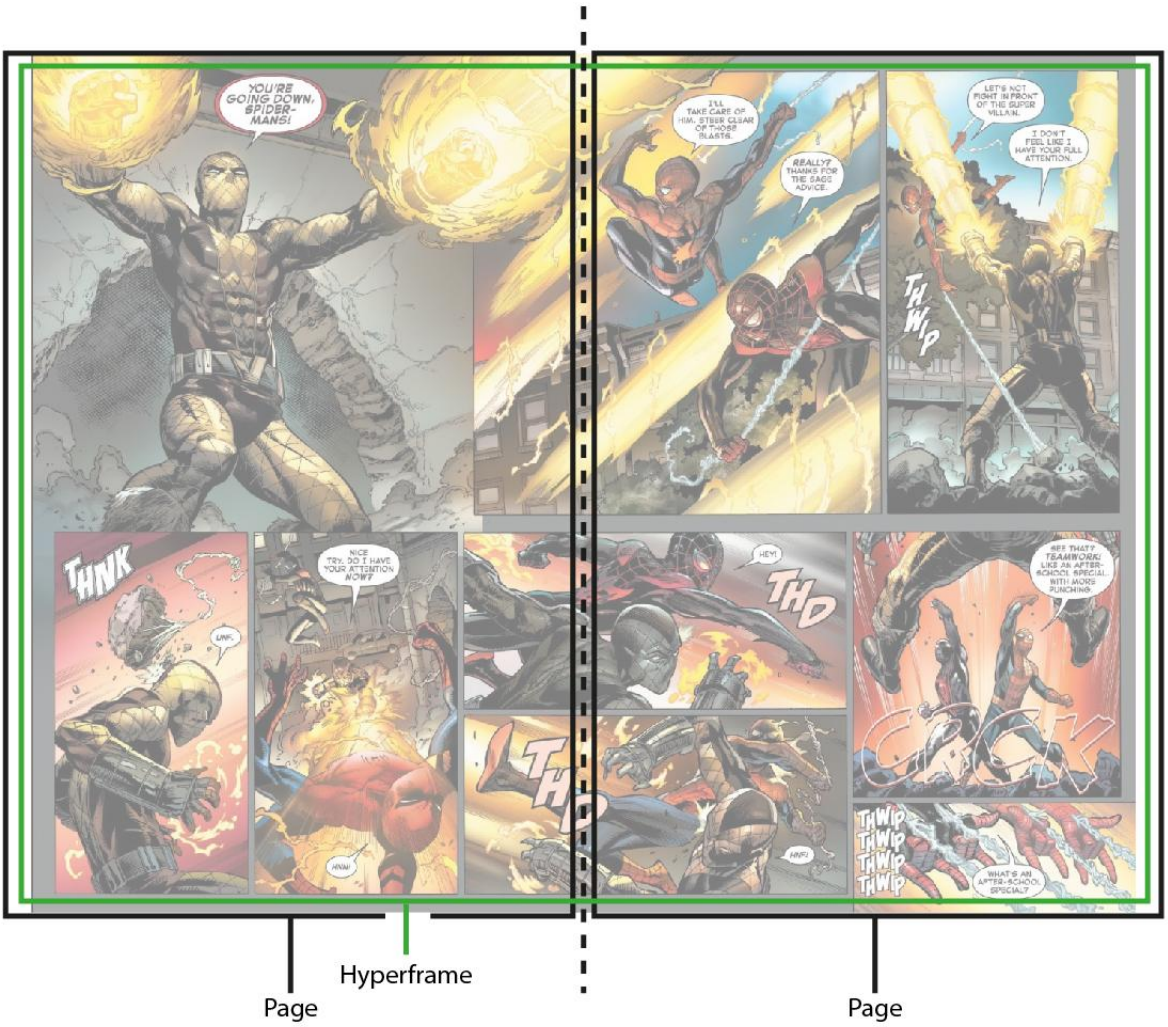


Fig. 8.6 The Lack of Central Page-Gutter as a Reading Guide Through a Double-page Spread *Free Comic Book Day 2019 Spider-Man #1* (Ahmed, Taylor, et al., 2019)

Clearly, the inner edges where the pages meet serve an important role in guiding the reader through the layout. In instances where the inner edges of the pages are not bridged by panels the expectation is that each page would be read one at a time based on the culturally defined reading rules of the codex. However, when the inner edges of the pages are bridged by panels, the reading path is likely to stretch the full width of the spread across both pages. This form-specific feature of the inner edges is then an indicator of reading sequence and so becomes an important part of the literacies associated with the codex form.

Spread-based Delivery

Due to the physical nature of the codex book, hyperframes are rarely delivered one at a time unless a comic is made up entirely of double-page spreads. This is quite uncommon in print American periodical comics although not impossible. Instead, the nature of facing pages usually means that some hyperframes will be presented next to one another, simultaneously visible within the paged

form. In American periodical comics presented on the screen, the restriction of facing pages is not present and so each hyperframe can be presented one at a time, in isolation from others. The spread-based delivery presents hyperframes in their entirety but isolated from others in the sequence. As a result, the reading in most cases is the same as it would be in the printed form, except for reading activities associated with identifying the central page-gutter. This is because, unlike in the facing pages of the codex comic books, hyperframes are not displayed next to one another. This means that there is no need for a visual indicator like the central page-gutter to guide readers towards a standard or subverted reading raster as all spreads present hyperframes in isolation. As such, the central page-gutter (as the name suggests) is unique to the paged codex form.

One of the chief difficulties in the spread-based delivery of American periodical e-comics is the variety of screen sizes which portable touch-screen display devices can have. As mentioned, the 10-inch tablet touch screen display is similarly sized to a single page in print, at approximately 6 x 10 inches. This means that a single page-sized spread can be displayed with minimal alteration required by either a reader or author on these devices. However, double-page spreads, which are double the width of a single page, require more significant alteration to be read effectively. Because the simultaneously visible space of the tablet screen is significantly smaller than that of the print American periodical's facing pages, the double-page spread is usually displayed by default at a much smaller size in the centre of the screen (Fig 8.7). This retains the simultaneous visibility of panels in a spread, however the reduced physical space means that content is displayed significantly smaller than it would be across two facing pages. This smaller size of the panels, and their content, can often make elements difficult to read and so additional reading actions might be required.

Fig 8.7 A double-page spread displayed on tablet screen held in portrait orientation from *I, Vampire #8* (Fiakov, Sorentino, et al., 2012)

Two potential, and commonly used, reading actions facilitated by the tablet device are often practiced here. One has the reader reorient the tablet whilst the other requires them to zoom in on the content. As such, both actions require additional engagement and interaction with the device beyond the typical reading activities we have discussed so far.

The reorientation action requires the reader to alter the position of the tablet device, rotating it so that the screen is held landscape rather than portrait. Adjusting the position of the tablet in this way will alter the physical state of one or more sensors built into the device which in turn will result in an alteration to the visuals displayed on the screen. Once the rotation action triggers this software response, the spread will also rotate to fit the now landscape screen, increasing the overall size of the spread (Fig 8.8). The action thus allows the spread to reorient itself to fill the screen and so makes the spread larger whilst also keeping it simultaneously visible. From the perspective of additional reading activities, the reader must recognise that they cannot read all the content easily and then consider the device-specific action which needs to be taken. This represents a reading

activity that is unique to the presentation of spreads on the tablet device in the same way that the recognition of the central page-gutter is unique to the paged codex. However, whilst the central page-gutter reading relies on reading activities of identification (of the page edge) and grouping (of panels into spreads), the rotation of the tablet device relies on reader *action* which triggers a change to allow for reading.

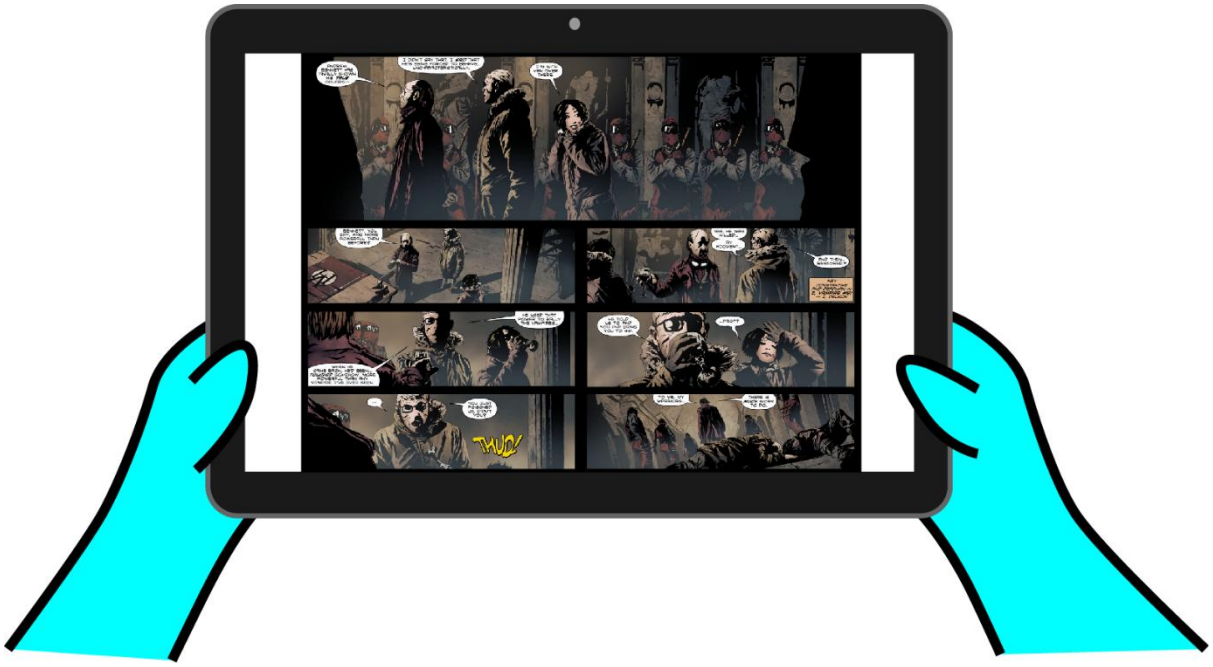


Fig 8.8 A double-page spread displayed on tablet screen held in landscape orientation from *I, Vampire #8* (Fiakov, Sorentino, et al., 2012)

Alternatively, the zoom action allows a reader to increase or decrease the visible size of a comics content displayed on the touch-screen manually. This is not unique to the tablet screen but allows for the reading of spreads which are larger in size, like those seen in double-page spreads. These zoom actions allow a reader to enlarge or shrink content on the surface of the screen, facilitating their reading and allowing them to tie physical interactions to their navigation of reading elements.

Many portable touch-screen display devices have much smaller screen sizes which struggle to present spread-based layouts of panels in full at readable sizes. This is particularly the case with smartphone devices which usually have screen sizes between 4 and 6 inches, under half the size of the display of a typical 10-inch tablet or printed page. With these smaller sizes, spread-based delivery becomes more difficult without alteration from either the reader or the authors/publishers. When viewing an unaltered spread displayed on a smartphone the reader will be able to experience the simultaneous visibility of the panels but is unlikely to be able to read the content of panels effectively without performing a zoom in action. In performing a zoom in action, the reader is

electing to lose the simultaneous visibility of the whole spread in order to more closely inspect individual panel-groups, panels or panel-elements. This action is therefore tied closely to the level at which the reader is reading and the general reading activities with which they are engaging. If the reader engaging with reading at a micro-reading level (e.g. following a path through a panel image, identifying image objects, reading the condense of speech balloons, connecting a balloon's tail to its source, etc.), in which they are considering the content of a panel or small group of panels, they will likely need to zoom in to inspect the elements which appear along the micro-reading path. If they are engaging with macro-reading activities of Cohn's hierarchy or performing pathfinding activities through layouts of panels, they may zoom out to bring more panels into simultaneous visibility (Cohn, 2013b). The reading action of zooming in or out then becomes an important part of the portable touch screen reading as it facilitates general reading activities and pathfinding on smaller devices.

The zoom in action relies on reader interaction with the substrate device. However, many publishers of American periodical e-comics offer an alternative view which takes away the reader-controlled zoom in action and replaces it with automatic zoom in and out functions. This removes the need for the reader to engage with the additional action and automates the process of zooming and focussing attention. In automating this process, the delivery of the comic moves from a spread-based delivery to a panel-based delivery, commonly referred to as guided view.

Guided View Based Delivery

The term guided view is taken from the name of the system of delivery as it was referred to by the popular digital comics platform Comixology (now Kindle) and is used in common discourse of the subject (Kirchoff, 2019). The guided view presentation of the American periodical e-comic makes significant alterations to the traditional delivery of spreads as they might appear in the spread-based or the printed codex forms of American periodicals. Traditionally the American periodical has been restrained by standardisation of the size, shape and number of pages of each printed tome (Gabilliet, 2010; Nodelmann, 2012). In the e-comic form this is not the case. By breaking the larger single and double-page spreads of a comic down into smaller units and presenting panels individually or in small groups, the difficulties in presenting spreads at readable sizes on smaller screens are mitigated. Visual elements, panels, and panel-groups can be shown at readable sizes without additional actions being required of a reader. This allows screens smaller than those found on the 10-inch tablet to deliver comics content in a more streamlined way and moves the presentation of a comics narrative from page or spread-based delivery to panel-based delivery. The alteration in presentation allowed

by this panel-delivery method is useful but has its own challenges resulting from the segmenting of the spatial map of a spread.

In transitioning from spread or page-based delivery, some panels and panel-groups can be problematic because they were originally created with the page in mind as part of an overall composition. Crucially, large panels which take up large amounts of space may still not be readable on smaller screens even when isolated from surrounding panels. However, guided view comics do not have to deliver full panels all at once and instead can prioritise specific panel-elements, delivering these at readable sizes at the expense of showing a complete panel. In the example below, taken from *I, Vampire #9* (Fialkov, Sorrentino & Maiolo, 2012), we can see that the full panel is too large to display at a readable size on smartphone screen in its normal vertical orientation (Fig. 8.9a). Instead, when using guided view in the Kindle app, the content is automatically enlarged and cropped to a readable size, much as it would be if the user had performed a zoom-in action (Fig. 8.9b). Problematic panels, which are large and cannot be shown in their entirety at readable sizes, take advantage of this enlarge and crop functionality. Guided view automatically zooms in and move between focus-points within panels, leading the reader from one differential zone of attention to the next (Cohn, 2013b; McCloud, 1993). Whilst this method of focusing can be useful in avoiding the need for readers to engage in potentially intrusive actions it also helps guide readers through complex panels (Johnston, 2013, Kirchoff, 2019).

Fig. 8.9a Large panel isolated and resized but unreadable Fig 8.9b Large panel enlarged and cropped to be readable

Fig. 8.9 Panel-based Delivery of a Large Panel in *I, Vampire #9* (Fialkov, Sorrentino, et al., 2012)

However, by cropping panels to allow focused reading of panel-elements the simultaneous visibility of the panel can be lost. This might drastically alter the reading of an American periodical comic between its page-based, spread-based and panel-based deliveries. The loss of holistic panel reading, for example, could alter how a reader understands a scene or moment in the narrative because it alters how the synchronic connections we discussed earlier can be applied (Groensteen, 2007). As a result, comics delivered using guided view will often perform automatic zoom-out functions before or after each of the focused panel-elements are delivered independently. For example, in *I, Vampire #9* the large panel is displayed by the Kindle app with three different crops as part of the panel-based delivery viewing (Fig. 8.10). The first crop of the panel focusses on the two left-most characters (Van and John) and their speech balloons, cropping out the other key character (Tig) and the masked figures in the background (Fig. 8.10a). The next crop displays these previously cropped elements on the screen so that Tig and her speech balloon can be read (Fig. 8.10b). This removes Van and John and their speech from the display. Finally, in the third crop, the panel is shown in full to allow the reader to see each of the elements delivered in the previous two crops relative to one another, as

well as some additional background details not seen earlier (Fig. 9.2c). This allows a reader to understand each of the panel-elements in context with the others which form the whole panel-image. It is worth pointing out that panel-elements, such as key characters and speech balloons, high on the hierarchy of information, are prioritised in the focussed views of this panel-based delivery, and the three views guide the reader first through the micro-reading path and then expand the view to encourage reflection of the whole panel before guiding them to the next panel along the macro-reading path.

Fig 8.10a Large guided view Crop 1

Fig 8.10b Large guided view Crop 2

Fig 8.10c Large guided view Crop 3 (isolated but uncropped)

Fig. 8.10 Guided View Panel-based Delivery of a Large Panel from *I, Vampire #9* (Fialkov, Sorrentino & Maiolo, 2012)

Whilst I have identified how guided view presents panels, it is important to note that whole spreads of panels can have meaningful spatial relationships which are not demonstrated when each panel is seen in isolation. Miodrag and Atkinson discuss some of the possible effects that panel layouts can have on the understanding of time and rhythm which rely on the spatial relationships between panels (Atkinson 2012; Miodrag, 2013). Many of the other comics academics referenced over the course of this research also discuss the importance of the spatial relationships of panels (McCloud, 1993; Eisner, 2008; Atkinson, 2009; Cohn, 2013b; Miodrag, 2013, et al.). It is not necessary to outline each of these spatial interactions here as we have discussed many of them throughout the course of this thesis. Rather, it is worth noting those which are most important to understanding the reading activities of the proposed toolkit. In particular we have seen how spatial relationships impact the connecting and grouping of panels as part of Cohn's hierarchy and in Groensteen's synchronic braiding, as well as other synchronic connections between adjacent and proximate panels (Cohn, 2013; Groensteen, 2007). Whilst I have identified ways in which panel-based delivery, such as guided

view, might assist in overcoming boundaries in presenting comics on smaller displays, the alteration of the spatial map of a comic can have significant impact on the reading of a comic's content (McCloud, 1993; McCloud, 2000). Particularly when a comic is originally written with the page in mind. To mitigate this loss of the spatial map when presenting panels one at a time, I observe that guided view will often display a new spread in its entirety before or after the automated zoom and crop alterations occur on each spread, even on smaller screens. This helps to establish the simultaneous visibility of the panels in relation to one another. In doing so the reader is encouraged to consider the spatial map of panels and the meaningful spatial relationships between them. This encourages a macro-reading of the panels and their relationships.

8.4 Reading Actions in American Periodical comics

As noted throughout the discussions so far, many of the reading activities associated with the different forms of delivery rely on form-specific reader actions. Whilst printed comic books are operated through interaction with pages, tablets and smartphones are both operated through interactions with the surface of a touch-sensitive screen. For a reader to read an American periodical comic, whether in the printed codex form or on the portable touch screen display, they must perform reading actions which are associated with the device. It is therefore important to consider these actions and how they might fit into the reading activities we have discussed so far. It is worth noting that these actions are not related to the size or number of spreads but rather are intrinsic to the operation of the substrate technology. As such, I will break this discussion into two parts. Firstly, we will look at reader actions associated with the codex book, then reader actions associated with the touch screen display.

The Page Turn

As indicated earlier, readers follow a path through spreads based on the conventions of the culturally defined reading raster. This is also true when a subverted raster calls on preference rules and meta-rastic indices (Cohn, 2013b; Nichols, 2015). In each case the process is assumed to have ended when the reader has read all the available content of a spread. At which point the reader must perform a physical action as part of the reading activities. This action is an interaction with the substrate material and in the codex form is usually the turning of the page.

In western culture, books are begun with the binding on the left and, during the reading process, each page is turned by way of moving the outer edge from the rightmost side to the leftmost side. This is the page turn and is the core mechanical action performed by a reader when operating a codex book. When a reader reaches the end of the sequence displayed on the last page of a spread, they are required to turn to the next to continue the consumption of the narrative. This is part of the

understanding of the reading process of the codex form and a part of the culturally defined reading raster associated with it. The physical action of turning the page is an act which requires the reader to acknowledge that they have reached the end of the entire sequence of a spread and to turn to the next. Due to the cultural ubiquity of the form, and its relative simplicity, this action of turning the page is likely to go almost unnoticed by many readers.

This sort of unnoticed action is most often discussed in interactive media theory and as such it is in studies of digital comics where the impact of the page turn seems to get the most attention in comics criticism. This is usually in the form of considerations about how the lack of pages impacts reading and interaction with comics. Hague, Goodbrey and Wilde all note the nature of the page turn as important to traditional comics when discussing the digital, for example (Goodbrey, 2013; Hague, 2014; Wilde, 2015.) Hague specifically notes the page turn as “generic” (Hague, 2014: 108). A generic action, which does not intrude on the reading, and instead acts as an almost automatic part of the reading process, can also be referred to as 'redundant' (Peacock, 2000). A redundant action would be described as an action of immediacy by Bolter and Grusin due to its limited disruption to the reading (Bolter et al., 2000). Aarseth would call such an action extranoematic as it has no additional meaning to the experience other than as an operation (Aarseth, 1997). However, I will use the term 'redundant' throughout this discussion for simplicity. This term does not mean that an action is unimportant but instead that it does not interrupt the reader from their consumption of the story being told to them. As a primarily narrative form of communication, comics self-evidently aim to engage readers with story. It is therefore reasonable to expect that readers aim to discover story and that interruptions to the consumption of narrative are likely to be considered intrusive (Aarseth, 1997). We have seen this in the discussions of sequence finding in earlier chapters and it is reflected in the works of Cohn and McCloud who identify that, if a reader is left in a state of confusion as to how to follow the reading path through the narrative, a layout is often considered incorrect by creators and readers (McCloud, 2006; Cohn, 2012; Cohn, 2013a). As such, reading activities that break a reader from the comprehension or contemplation of narrative are usually undesirable. The aim to retain an absorption in narrative reflects ideas of flow presented by Csikszentmihalyi (2013). Flow is a broad and highly complex area of study which applies to any number of activities outside of comics and is therefore beyond the scope of this study. However, the idea as it applies here is that when performing an activity, in this case reading, the person performing that activity can enter a state of flow in which they are absorbed in what they are doing without conscious awareness of how that activity is performed. When reading comics, or indeed prose fiction, the flow state is entered when the reader is fully absorbed or focused on the act of reading (Thissen, 2021). In the case of comics that is performing activities of the reading toolkit outlined in the previous section. As such, a

redundant action facilitates this flow in reading activities. As Peacock (1997) identifies, an action can be referred to as redundant when it is one "where established convention is followed" and, whilst this idea is usually applied to digital interactive media artefacts, it can also be applied here as the turning of a page is an integral part of the established convention of reading a codex book (Peacock, 1997: 23). Whilst the page turn action may appear to be relatively straightforward due to its redundancy and lack of intrusion to reading it is a highly meaningful part of the structure of the comics form.

Comics, in their codex form, are very often written to the turning of the page and writers commonly use the page turn as a narrative device to enhance or control the delivery of narrative elements as discussed by Eisner (1985). Earlier I proposed a set of general reading activities which can be performed in an ambiguous order to facilitate understanding. Because of this ambiguous order of the general reading activities an author cannot strictly control the order in which elements in a spread are revealed to the reader. Instead, using the page turn to hide surprises, punchlines, and other narrative reveals on the next unseen spread can give authors control over the release of information important to the creation of some narrative effects (Eisner, 1985; Nichols, 2015). This in turn gives them greater control over the order and pacing at which the narrative information is revealed. By hiding narrative information behind the turn of the page the author can separate out the narrative phases (such as the set up and punchline of a joke) and enforce reading order. Eisner outlines some of the narrative effects which can be achieved using the page turn in his book *Comics and Sequential Art* (Eisner, 1985). Whilst the different narrative effects that can be facilitated by the page turn is not the focus of this writing, there are clear implications to the reading order and sequence that the breaking of the reading path creates.

One of the key aspects of the page turn is that it can be used to pause the reading process, effecting what Paul Atkinson refers to as the "visual rhythms that inform the reading movement" (Atkinson, 2012, 63). This idea of the visual rhythm governs the rate at which a reader moves from panel to panel and the time spent paused in contemplation of the content. There is therefore a sort of tug-of-war between the consumption of narrative and the appreciation of art which we considered earlier (Atkinson, 2012; Atkinson, 2009). Comics, as Atkinson reminds us, is a primarily narrative form and as such it tends to draw the reader along a path from one panel to the next. However, the nature of reading the images which create the fictive world of the narrative requires readers to spend some time contemplating the meaning of the visuals, (Eisner, 1985; McCloud, 1993; Cohn, 2013b). Not necessarily as artistic endeavours, which is the focus of Atkinson's writing, but as constructed visual artefacts that present narrative. The amount of time a reader spends in contemplation of any panel image, or collection of panel images, as part of the narrative impacts the rhythm of the reading

(Atkinson, 2009; Miodrag, 2013; Groensteen, 2013). This rhythm is highly complex and warrants further study beyond the scope of the research here. However, it is important to identify that the rhythm of reading is tied to the reading of the formal qualities of comics. As a reader comprehends meaning they must, by necessity, spend time considering what they have seen for the purposes of identification, grouping and closure before moving on to the next panel in a sequence. So, there is a link between contemplation and narrative which is necessary for the comprehension of meaning within a comic as it has been outlined in earlier sections. As suggested by Atkinson, these two practices of understanding are seemingly opposing forms of reading activity, as narrative encourages a reader to move on along the path whilst contemplation encourages the reader to stop and consider what is being seen (Atkinson, 2012). The interplay between these two practices is what creates a rhythm of reading and depending on the construction of the elements the rhythm may change substantially (Miodrag, 2013; Groensteen, 2013).

As Miodrag points out, the construction and layout of panels has a marked impact on the reading rhythm of comics (Miodrag, 2013; Groensteen, 2013). However, so too does the physical form and delivery. As such the codex book form can alter the rhythm of the reading by enforcing moments of pause at the page turn. When a reader reaches the end of a spread and is required to operate the codex form by turning the page, they are momentarily removed from the path and given the opportunity to pause and reflect. This pauses the pull of the narrative and allows the reader time to contemplate the narrative and images. Where an arc is split by the page turn, the reader may move on to the next page more quickly without stopping to revisit panels from the spread now completed. In such a case the reader is likely to be pulled by the narrative to the next event in an effort to conclude the arc, reducing the length of time paused in contemplation. The need for conclusion which draws the reader through the story and from one panel to the next represents an aporia/epiphany relationship like those outlined by Aarseth (1999).

Whilst not referring to comics directly, Aarseth suggests that when left in a state of not having the answer to a puzzle or problem, readers are left in a state of aporia. In comics, this aporia state is created by a desire to know what happens next in the story and reflects what Atkinson describes as the pull of narrative (Atkinson, 2012). To solve this puzzle and find out what happens next a reader must continue along the reading path. Once they find the solution, which might be the conclusion of an action, event, or arc, they enter a state of epiphany. When a reader reaches epiphany, the problem is solved and so the pull of narrative likely reduces to allow for a moment of pause. Clearly then, there is a connection between aporia and the pull of narrative and epiphany and the pause of contemplation which help us to better understand how the page turn can influence the rhythm of reading.

Considering the pause-pull relationship suggested by Atkinson alongside the similar ideas of aporia and epiphany presented by Aarseth, I propose that the page turn is important to reading because if a reader ends the reading of a spread in a state of aporia they are likely to be driven to move on more quickly than if they end it in a state of epiphany. By considering whether the final panel of a spread pulls or pauses the reader's progress through the narrative at the page turn, an author can create narrative effects and control the pace and reveal of information to the reader. Eisner and McCloud both suggest this in their discussions of the form. However they do not discuss ideas of aporia and epiphany as I do here (Eisner, 1985; McCloud, 1993). By considering aporia and epiphany and Atkinson's ideas of pause-pull relationships, alongside Eisner and McCloud's assertions that comics authors use the page turn to create narrative effects, it becomes clear that the page turn is important to comics delivery of narrative. By choosing to end an arc in the final panel of a spread the author leaves the reader in a state of epiphany and encourages them to pause in consideration of narrative before moving on and turning the page. Conversely, if the author does not conclude the arc on the current spread but instead hides the peak or release on the next page, the reader is left in a state of aporia and so is encouraged (or pulled) to seek the solution to the narrative puzzle by turning the page immediately. In either case however, the action of performing the page turn forces a pause in the movement along the narrative path. In the case of an epiphany-state close, the end of the page and the associated action of the page turn, act as an opportunity to reflect. Whereas in the case of an aporia-state close, the turn of the page acts as a barrier to the conclusion of a narrative arc and so the pause forces a moment of suspense. In each case the page turn acts to encourage a reading response. When a reader reaches the end of the reading path through a page-spread, and no unread panels are visible, they are encouraged to perform one of two activities: contemplate what has happen and review the present panels before turning the page or, turn the page immediately in an effort to continue the story.

As a result, it is clear that the page turn is an important action associated with the reading and formal properties of comics as it allows authors to control both narrative release and reading pace. Because of this, American periodical comics are often written to the turn of the page (Eisner, 1985). However, the paged form of the codex also offers a functionality beyond that of narrative pace: the form itself has an inherent set of navigational properties which facilitate other reading activities beyond the redundant action of the standard page turn.

Flippy-throughiness

Hatfield, Sabin, Groensteen and Hague all discuss the physicality of codex comics and identify it as an important part of the comics reading experience (Sabin, 1996; Hatfield, 2005; Groensteen, 2013;

Hague, 2014). Each identifies the connected nature of reading and the physical form a comic takes. Most importantly, Hague suggests that "we can both read and feel (and hear and smell) the work simultaneously" (2014; 22). The following discussion will focus on the interconnectedness between the reading and the feeling of a comic book.

The physicality of pages in the codex form offers the reader navigational benefits in interacting with a comic using touch. The most important of these is what I refer to as the “flippy-throughiness” of the codex book (Nichols, 2016: 97). The term flippy-throughiness refers to the physical makeup of the form which allows the reader to navigate the material text by flipping through pages. This property allows readers of the American periodical comic book to easily read back or forward in the text to find, re-read or re-examine aspects of the narrative (Groensteen, 2007; Miodrag, 2013).

The ability to flick through pages gives the American periodical form a flippy-throughiness that is produced by a combination of the codex’s physicality and reading memory (Groensteen, 2013). If, for example, a reader wants to find a previous panel or sequence to the one they have just read they can use their reading memory of where in the larger sequence that panel occurred, coupled with knowledge of the physicality of the book, to flip through and find it. This allows for continuous double-checking and confirmation of the diachronic connections between panels and panel groups. We have already seen these ideas of memory and diachronic connectedness discussed by Miodrag and Groensteen (Groensteen, 2007; Miodrag, 2013). Flippy-throughiness is not necessary for diachronic connections to be made, however the paged form of the codex, and its flippy-throughiness, offers a significant read-back utility which prompts a focus primarily on the narrative.

A key component of flippy-throughiness is the physical weight of the codex book and how it ostensibly shifts from one side to another as the reader progresses through the narrative, as noted by Hague (2014). A codex comic in western culture presumes a move from left to right and the turning of each page accordingly. The continuous and repeated performance of this action alters the physical state of the codex in important ways. At the starting point in the reading, an open comic positions most of the weight of the pages on the right-hand side. This uneven balance on the left and right of the codex is important and communicates significant meaning to a reader. The pages on the right, for example, represent the narrative left to be read whereas the pages on the left represent the pages already read. At the beginning of the reading, there are far fewer pages stacked on the left of the open codex than on the right. Towards the end of the reading the opposite is true with most pages stacked on the left. The page turn then, goes beyond revealing and moving the narrative into view for the reader. By performing this reading activity, the reader is shifting the physicality of the codex, increasing the number of pages stacked on the left and decreasing the number stacked on the

right. As Hague observes (2014), this gives a physical indication of progress through the comics' narrative. A reader can both see and feel how much has been read on the left-hand side of the open codex and how much is left to be read on the right-hand side, offering a physical sense of progress through the narrative and thereby facilitating other reading actions. By considering the physical weight of the pages on the left and right, a reader might perform actions facilitated by the flippy-throughiness of the codex. For example, a reader may reach a panel or arc near the end of the narrative which relates to one found near the beginning. If the reader wants to flip back to the earlier arc to reaffirm the connectedness of the two arcs they can recall not only the arc itself, as Miodrag describes, but its relative position in the physical space of the codex book by considering the approximate number of pages that were on the left and right when they first read the earlier arc (Miodrag, 2013). This physical memory can then aid in the finding of the arc for re-reading and thus connects the physical state of the codex with the reading memory of a particular narrative moment.

The Naviscroll

Due to the dominance of print and the codex book for much of western culture's recent history, the development of digital technologies has often adopted or mimicked practices of the codex book. This is a type of remediation like that suggested by Bolter and Grusin (Bolter and Grusin, 2000). Websites, for example, are made up of what are referred to as web *pages* even though they do not resemble the physical page, or actions associated with them. Instead, they serve the same purpose of compartmentalising information and breaking it up into discreet units viewed one at a time, just like pages in a codex book. This is also true in comics, particularly e-comics which often aim to replicate and present the content of printed comic books on the screen. As such, one of the most important actions of the touch screen e-comic mimics the page turn.

When reading e-comics which aim to mimic the page of their printed counterparts on the touch screen there are several different reader actions which can be performed to move from one visible display of panels to the next. The most common processes are to tap or swipe on the surface of the screen to move to the next spread of panels. This removes the current spread from display and replaces it with the next in the sequence in a similar way that turning a page hides the current spread of panels and reveals the next. Because of the multitude of actions which can be taken to progress from one spread to the next I use the general term 'naviscroll' to refer to actions which perform this function of progression through the comic (Nichols, 2015; Nichols, 2016). The naviscroll is an action performed in order to move from one digital spread to another which does not include any visual prompts such as a hyperlink, jump or other visible interactive object. As such it occupies a similar space in the reading activities as the page turn in that it does not rely on any visual cues to

indicate an action must be taken, and the only sign that reader action is needed is that no further content can be accessed. Like the page turn, the naviscroll action is redundant as, once learned, it does not intrude on the reading of narrative (Peacock, 2000). This redundancy is a key feature of the naviscroll and allows it to replace the turn of the page without significantly altering the reading process. As I established earlier, the redundancy of the navigation action is important to a reader's retention of flow in the narrative and their focus on the reading activities (Aarseth, 1997; Bolter and Grusin, 2000; Csikszentmihalyi, 2013; Thissen, 2021).

Hague suggests a similarity between the physical actions of print and digital comics in his discussion of touch (Hague, 2014). He does not specifically address the actions of e-comics and their print counterparts however he does clearly argue that a number of the physical activities of comics apply to both those presented in print and on screen. The naviscroll and the page turn are examples of such similar actions. Both represent a redundant action of navigating the content of an American periodical comic and both occupy the same space within the reading activities. As such, the naviscroll is similarly important to the unfolding and revealing of narrative events in the e-comic as the page turn is in the print comic.

Zoom Actions

The zoom-in action allows a reader to increase the size of the spread and more easily read smaller content. The action is not one which mimics one seen in our discussion of the print periodical and is a feature unique to the screen that takes advantage of the mutability of content presented in this way (Hague, 2014; Rose, 2016). This mutability allows the content presented on the surface of the screen to be altered through interaction by the reader and can often be beneficial as a reading action that facilitates the application of reading activities when text or image elements are displayed at small sizes. Once zoomed-in, additional interactions with the touch screen may be required to move the content and reveal parts of the spread that are hidden or missing. This is usually done by touching the screen with one finger and dragging it across the surface. The spread then moves as though it were a physical object being moved across the surface by the finger.

The zoom action may challenge readers who are unfamiliar with touch screen devices as there is no similar interaction facilitated by the printed medium. Groensteen observes this briefly, and notes that the action disrupts engagement with the rhythm of reading (Groensteen, 2013). Whilst ideas of reader experience levels are somewhat beyond the scope of this study it is worth noting that zoom actions, as they become more commonly used by a reader in every-day reading, become more redundant to readers who use them. According to Gotts, Chow and Martin this is true of many repeated actions, and so their repeated use by readers likely makes zoom actions less likely to

interrupt reading flow the more familiar a reader is with them (Gotts, Chow and Martin, 2012). Regardless of the potential for these zoom actions to become redundant, their potential intrusiveness to reading activities has led to some popular platforms which deliver e-comic automating the zoom-in and zoom-out processes. We already looked at an example of this automated zoom and focus functionality in Fig. 8.10 and it is worth noting that whilst manual zoom-in and zoom-out actions are available, they will not be the focus of discussions going forward. Instead, it will be taken as given that where zoom actions are necessary for reading to be undertaken, they can be considered redundant, or automated to ensure redundancy. Automated zoom actions within guided view or panel-based delivery only require readers to engage with naviscroll actions as, upon completion of such an action, panels and panel-content are automatically displayed at a size which is likely to be readable on the screen of a smartphone device. This ties the zoom action directly to the naviscroll action and removes the need for readers to engage with it.

Both the naviscroll and the zoom action facilitate the reading activities of American periodicals on screen in similar ways to the page turn and flippy-throughiness in the codex form. The naviscroll mimics the function and action of turning the page and occupies a similar space within the reading activities. On the other hand, the zoom action facilitates a link between reading and action, similar to the way flippy-throughiness does in the codex book. The key difference here is that whilst flippy-throughiness facilitates diachronic connections over the larger narrative, zoom actions facilitate synchronic connections within the immediate narrative, allowing readers to reaffirm connections between panel-image elements and those of the spread.

It has been important to define and identify these key actions of the screen in comparison to those of the paged codex as they will serve as a useful foundation for further discussion. However, it is evident that the key difference between comics displayed on screens and the paged codex is the distribution and display of panels and spreads. I have already touched on this when defining the types of screens most commonly used to display American periodical e-comics, but now that we understand the key actions used to interact with these displays it is important to investigate these different presentations of layout more thoroughly.

8.5 Conclusion

In sum, the American periodical comic has some important features tied to its physicality. The most important of these are its pages in print and its flexibility of viewing on screens. Pages offer reading actions associated with the reading activities discussed earlier. Notably, flippy-throughiness is seen to facilitate activities of read-back and diachronic connection whilst the touch screen, on the other hand, lacks pages but offers a mutability of content. Through zoom actions readers can take a closer

look at small elements and focus their attention on activities of identification and synchronic connections. Whilst the paged codex form of American periodical comics tends towards a standardised page size, touch screen display devices come in different sizes. As such, the e-comic can be viewed in two different ways: spread view and panel view. In the spread view, these e-comics can be presented in a similar way to their codex counterparts, especially on the 10-inch tablet display which shares a similar shape and size to a single print American periodical page. The naviscroll action is important here as it offers a redundant action for progressing from one spread of simultaneously visible panels to the next which mimics the functionality of the page-turn in a digital environment. Both this naviscroll action and the page turn allow for moments of pause and contemplation to be enforced between spreads. However, spread-based delivery on smaller devices like smartphones, often requires readers to engage with additional zoom actions. These zoom actions, much like those associated with flippy-throughiness in the codex, are more intrusive than the naviscroll but are unlikely to remove readers of the touch-screen from their flow in reading as the actions are directly associated with reading activities (Peacock, 1997). These actions allow readers to enlarge or shrink content to sizes which are more easily read on smaller screens.

Panel-based delivery refers to when panels are delivered, not as the spreads of simultaneously visible panels like those found on the printed page or spread, but as small panel groups or individual panels. These individual or small groups of panels are commonly delivered through guided view, which removes the need for the reader to engage with the zoom actions and instead automates the process to allow them to view content of a readable size.

It is clear from this overview of the substrate devices which American periodical comic are most commonly presented through, that there are some key reading actions to consider alongside the proposed reading toolkit. Similarly, the various sizes and physicalities of these substrate devices leads to three distinct delivery methods; page-based delivery which presents either one or two hyperframes across two facing pages, spread-based delivery which presents a single hyperframe at a time isolating it from all others, and panel-based delivery, which presents individual panels or panel-groups removed from the larger spread of panels. Having looked at actions and presentation methods associated with each form it is now important to identify how these might impact my proposed reading toolkit from the previous section. In the next chapter I will look at the reading toolkit applied to a sample American periodical comic presented in the three delivery methods discussed and identify where shifts in the application of the reading activities might need to be made in each.

Chapter 9: Applying the Reading Toolkit to a Sample American Periodical

9.1 Introducing the Proposed Reading Toolkit

Having identified the different physicalities and interactions in the common modes of presentation of American periodical comics, it is now important to investigate how these different forms of delivery impact the reading toolkit. In doing so the differences in reading between spread-based and panel-based deliveries can be identified. As such, I will now outline the toolkit as understood so far before applying it to an example comic presented through both spread-based and panel-based delivery.

As established by the studies of comics academics such as McCloud, Cohn, Groensteen, et al., we have seen that comics are read by decoding the content of each panel then drawing complex narrative associations between that panel and the other panels in the sequence. The decoding of panel content has been shown to rely on multiple literacies, including those of text, image and conceptual metaphor, and identification and grouping activities (McCloud, 1993; Cohn, 2013b; Khordoc, 2001; Potsch and Williams, 2012). I propose that these activities allow readers to understand panel content on a sliding scale of physical to conceptual and to identify a panel's type and level of importance to the narrative through the consideration of a hierarchy of information. In doing so, readers can form a reading of a panel which can then be related to others in the sequence through complex synchronic and diachronic connections. The connecting of content is achieved by reader application of the processes of reading contract, closure, Cohn's hierarchy, arthrology and braiding (McCloud, 1993; McCloud, 2000; McCloud, 2006; Groensteen, 2007; Cohn, 2010b; Cohn, 2013b). Each of these techniques works together to allow for the reading of the connectedness and sequence of comics' complex structure.

By engaging with a reading contract, readers agree to apply sensemaking in an effort to form narrative connects between the disparate images of panels (Groensteen, 2007; Hatfield, 2005). This reading contract facilitates the application of closure to connect depicted panels as moments in time and to imagine transitions between them (McCloud, 1993). However, because narrative structures of closure are more complex than the connecting of one panel to the next, a reader will also need to apply Cohn's hierarchy and identify panel phases connected with general arthrology (Groensteen, 2007; Cohn, 2013b). In identifying these phases, and grouping panels into arcs, readers apply Cohn's hierarchy to draw connections between moments separated in reading space. This in turn requires the application of synchronic and diachronic connections similar to those outlined by Groensteen and Miodrag (Groensteen, 2007; Miodrag, 2013). Both synchronic and diachronic connections may

be required of the reader for the understanding of the narrative between simultaneously visible panels and those held in reading memory. In making synchronic connections, readers engage with the complex structures of layout presented in many modern comics to decode the connectedness of the simultaneously visible panels and apply closure and Cohn's hierarchy to them (McCloud, 1993; Groensteen, 2007; Cohn, 2013b). Similarly, a reader will likely need to engage in complex activities of reading memory by applying diachronic connections between panels currently visible and previously read but no longer visible, allowing for narrative connection to be made across greater reading distances than single spreads of panels (Groensteen, 2007; Miodrag, 2013).

By applying this complex range of reading processes, we have seen that readers can navigate the complex structural components of comics' layouts and apply some general reading activities to form an understanding of narrative sequence. These general reading activities allow readers to engage with the specific processes above and facilitate an ambiguous reading order necessary for sensemaking in the ways outlined throughout this thesis. I broke the general reading activities of reading into three types: identification, grouping and closure. As we saw, for the ideas of others to function as described, a reader must be able to engage with all three of these reading activities to make sense of narrative. However, the order in which they apply them will likely vary from comic to comic, and potentially reader to reader. To be able to understand what place something has in the narrative a reader must first be able to identify it. This might be an image-object, a word-balloon, a panel, or a phase, for instance. In performing identification, the reader can then assign meaning to that element in order to ascertain its relevance to other elements surrounding it. Grouping must also be performed to identify elements, or to connect them in relation to one another. Grouping, like the other two general reading activities, needs to be engaged with at multiple levels of the comics structure for meaning to be comprehended and can be seen in most of the partial models looked at in this research. For example, readers will need to group meaningful units to identify image objects, image objects to identify panel-images and phases, phases to identify arcs, and so on. These grouping activities are also necessary for the connecting of elements through application of closure. Closure, as a general reading activity, is the act of connecting identified elements and groups narratively. Again, this type of activity is observed at multiple levels of the comics structure and relies on the application of the different reading processes (McCloud, 1993; Gavaler & Beavers, 2020). Closure activities are performed within panels, to create narrative connections within groups of image objects, or to connect phases or arcs with narrative meaning, or several other meaning-making connections.

These general activities are proposed to form the foundation of the reading of comics and allow for the decoding of the complex structures and multiple literacies used in comics visualisation. To be

successful, I suggest that these reading activities need to be flexible and so are applied in unrestrained orders from one reading moment to the next, with readers switching between them almost constantly during the reading process. I will also suggest that it is this flexibility which allows for the shift in the balance of reading processes between different presentations of comics spreads in the remainder of this chapter.

9.2 Considering the Delivery of American Periodical Comics

To ascertain how the proposed toolkit for comics reading shifts between American periodicals presented in different forms we need to identify significant differences in presentation. Whilst some distinct differences have been identified in the physical attributes of the codex and the touch screen display there are clear similarities in the delivery of spreads at similar sizes. As we have seen, there are similarities between the size of a spread presented on the single printed page and the 10-inch tablet screen. However, we also observed that there are some differences in how larger spreads are presented. In print, the facing pages of the codex form allows for larger double-page spreads which are double the width of a single-page spread. These do not fit at a similar size on the surface of the 10-inch tablet, which has similar dimensions to the single page. As such, there are two different presentations of what I will refer to as spread-based delivery: as single spreads or as double-page-sized spreads. Usually, these spreads are presented in full whether in print or on tablet screens in spread-based delivery and so I will discuss them together. However, in the upcoming example I will be sure to include consideration of facing pages and double-page-sized spreads so as not to overlook this difference in formatting.

In smaller environments, such as on the smart-phone screen, spread-based delivery is often replaced by panel-based delivery. As such panel-based delivery offers an alternative mode of delivery for the panels of an American periodical spread which does not aim to maintain the simultaneous visibility of the spread-based deliveries. This is a distinct contrast in the ways in which comics narratives can be presented and it is important to consider these in the upcoming discussions. There are, therefore, two distinct delivery types for American periodical comics to which we can apply the reading toolkit: spread-based delivery and panel-based delivery.

For the remainder of this chapter, we will look at a single example comic as a case study and apply my reading toolkit to it in different presentations. We will look at some example spreads from this comic to discuss the reading activities, actions and pathfinding in the spread-based and panel-based deliveries. These represent different presentations of the same comics content with different levels of panel isolation. The example comic I have chosen is *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016). This issue was chosen not in an effort to represent the corpus of American

periodical comics but rather because it presents a diverse set of spread layouts which allows for effective testing of the model in a single example.

9.3 Reading American Periodical Comics as Spreads

Reading Activities of the Panel

I will begin by applying my reading toolkit to single spread-based delivery as this method of delivery can be seen in both the print American periodical and the e-comic American periodical. This single spread-based delivery presents one hyperframe at a time, in isolation from others. It is worth noting, of course, that several examples of comics layouts presented through single spread-based delivery have been seen throughout this thesis. However, these were used for testing the partial models being discussed and so it is worth summarising how the reading toolkit comes together when these different theoretical frameworks and models are applied together.

Fig. 9.1a – Spread number 6 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.1b – Spread number 8 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.1c – Spread number 12 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

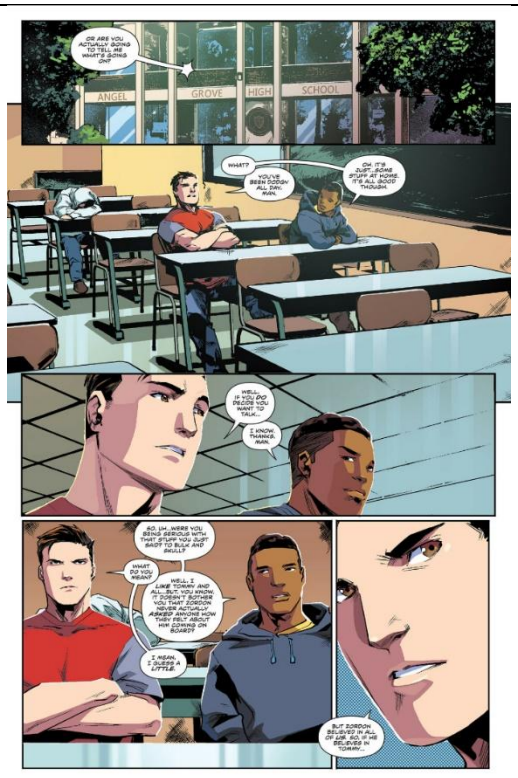


Fig. 9.1d – Spread number 13 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

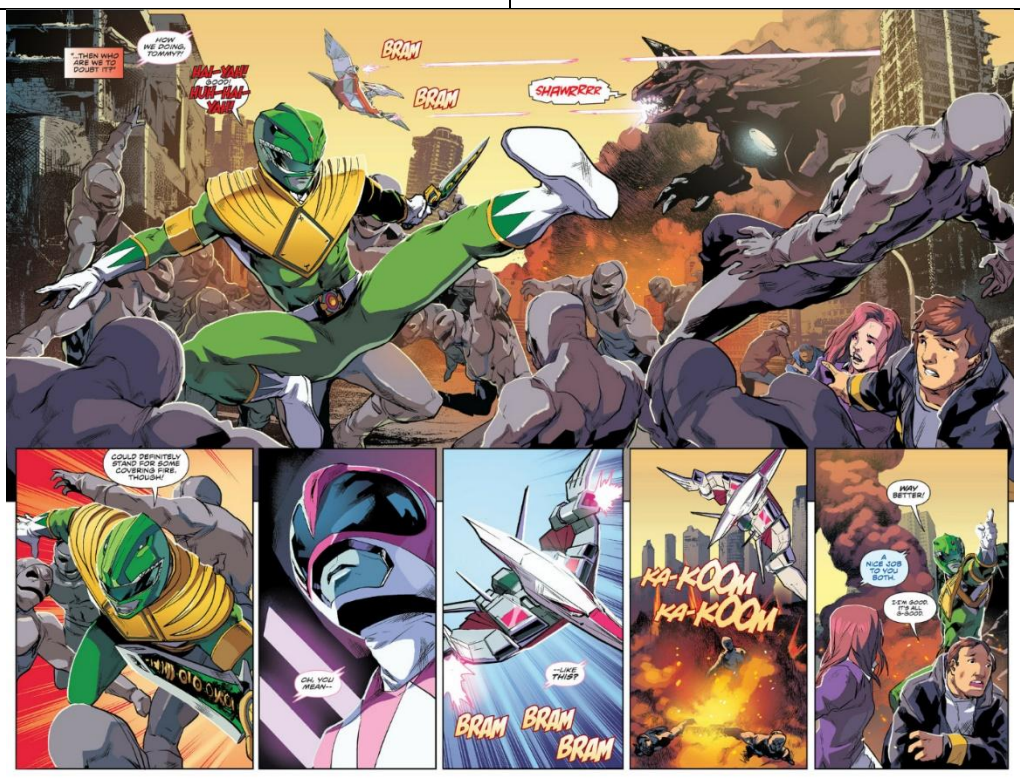


Fig. 9.1e – Spread 14 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.1 – Single Spread-Delivery of Four Spreads from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

In the above examples my proposed reading toolkit applies with a reliance on the reading activities related to simultaneous visibility (Fig. 9.1). Individual panels are read through a combination of identification and grouping activities which allow a reader to understand what each panel-image is depicting. In doing so, the reader applies a hierarchy of information to identify the elements most likely to be narratively important such as characters, key objects, and word balloons. The path through each panel leads the reader from one visual element to the next, which make up the differential zones of attention (Fig. 9.2). As they follow this micro-path through the panel the reader must continuously apply the general reading activities to understand the narrative relationships of the elements presented and form a complete reading of the panel-image. To do this the reader needs to perform identification in the recognition of elements, grouping of image and text elements into differential zones, and closure in the connecting of these elements narratively. This forms a final understanding of the panel-image at a micro-reading level. At this level, the reading applies as we have seen before however it is worth examining how the reading toolkit might be applied in an example panel for the sake of clarity and completeness.

Let us take the first panel from Fig. 9.1e, which spans the full width of the top of the spread. Applying the toolkit here gives us a sense of how the micro-reading activities might function throughout the rest of the example spreads. It is worth noting at this point that, whilst we are focussing this analysis on reading a single panel, a reader will likely look at the entire spread once it appears in view, before they begin the application of reading activities. However, it is only when a reader engages with activities of the toolkit and the reading contract that they move from observation of surface elements which make up the visual landscape of comics images to actively reading narrative. (Groensteen, 2007; Cohn, 2010; Atkinson, 2012)

Beginning with an application of the reader contract, a reader would be expected to enter in the top left of the panel as is typical of the z-path reading in western reading (Cohn, 2013b). Upon entering the panel, the reader is likely to first read the red caption box closest to the left corner. This caption box is presented with visual properties which help a reader understand its context (Khordoc, 2001; Miodrag, 2013). At the most basic level, the box contains text which needs to be read through an engagement with text-reading literacies. Beyond this there are two other key features which signal to a reader its diachronic connections with the last panel on the previous spread (unseen by the reader at the moment of reading this panel and spread.) (Fig. 9.1d) These two features are the ellipsis, or three-dot meta-rastic index, and the colour of the box's background. As we discussed in Chapter 7, the three-dot meta-rastic index is a codified visual sign that links one text-based utterance to another (Nichols, 2015). In this case, the text in the caption box begins with the three-dot index, suggesting a connection with the previous text-based utterance at the end of the previous panel, on the previous

spread (Fig. 9.1d). This diachronic connection is initiated by the three-dot index which ends the text of the previous balloon (in the previous panel), signalling to the reader that the utterance there will be completed in the next text-based element thereby encouraging them to look for it. As such the three-dot meta-rastic indices in each word-balloon suggest and reinforce their connectedness visually. The second visual indicator engages with image-based literacies and suggests a connection between the caption box and a character in the previous panel. In this case, the red colour suggests the utterance belongs to the Red Ranger (Jason). In this comic, each of the protagonists is associated with a different colour and wears those colours in most depictions. The visual representation of the word balloon therefore takes on properties which visually mirror or represent the character to whom the words are linked by using the same colour. As such, there are two visual properties here which require a reader to engage with the general reading activities beyond immediate text and visual literacies. These rely on identification of the text and container (as well as their properties), grouping of the text and container into a single unit and closure between the visual elements and those seen in the previous panel. This engages reading memory of the character and their utterance seen before as well as diachronic connecting of those elements with the ones currently being read. Alternatively, a read-back action may be taken to revisit the previous panel should reading memory not be enough to reconcile the diachronic connections between the visual elements in the two panels (Miodrag, 2013). It is important to remember that the order of operations of the general reading activities of identification, grouping and closure may vary, and the suggested order in my writing may not be true of all readings. However, each of these general reading activities of the reading toolkit still needs to be applied for reading to undertaken.

Moving rightward from the caption box, as is expected of the z-path of the reading contract, a reader would likely move to each of the other word balloons in turn. The proximity of these guiding the reading eye from one to the next as discussed in Chapter 2. In each word balloon presented here there are visual variations of both text and image elements that can be decoded through application of reading activities. In the first balloon, the non-standard border suggests an alteration to the audible qualities of the words within, similar to a reporting clause in sentences (Khordoc, 2001, Tang, 2013.) As such, the text reads not as normal speech, with a ‘said’ reporting clause, but rather as broadcast with a ‘said with electronic distortion’ or ‘said over the radio’ (or similar) reporting clause. This reading relies on a combination of the general reading activities of the toolkit in identifying and then grouping the text and balloon. In addition, the balloon border needs to be identified as non-standard based on encyclopaedic knowledge of how normal voiced qualities of utterances are presented in this comic, relying on reading memory of previously read instances of the standard speech balloon (Khordoc, 2001). Similarly, the next utterance group of text and balloon also modifies

the voiced properties of text through visual variation, this time not through variation of the balloon but of the words themselves. The visual variation of these words acts similarly to that of the non-standard balloon in that they present the words as not spoken with a normal 'said' reporting clause. By presenting the words 'HAI-YAH!' and 'HUH-HAI-YAH!' with large, red letters they are suggested to be voiced much louder than the other word in the balloon, which is presented in the normal size and weight for this comic (suggesting normal speech.) This visual variation engages visual literacies in the reading of text-based elements and so these can be considered text-as-image as discussed before (Eisner, 1985.) In both balloons the visual variation relies on the combined general reading activities of grouping the text and the balloon, along with the identification of those elements, as well as the identification of the standard and non-standard representations of the elements through encyclopaedic knowledge in reading memory.

The balloon also includes a tail which points to the character suggested to be making the utterance (Khordoc, 2001). Whilst we will not look at every visual element within this panel, in the interest of succinctness, it is worth noting that this tail is what indicates to a reader that the text-as-image elements are utterances by a character rather than onomatopoeia like the word "BRAM" seem in another part of the panel. As such the tail also communicates important information through comparison and codification that a reader will likely engage with as part of the identification and grouping activities. This tail also leads the reader along the micro-reading path of the panel to the character as their next differential zone of attention. (Fig 9.2e) This character is the main focus of the panel-image and a reader would likely already have seen, and perhaps identified, this character upon seeing the panel when the spread was brought into view. This reminds us that the general reading activities are not linear and may be conducted in any order, so a reader may look at elements in a spread or panel, or identify or group certain elements, before engaging with the reading path through content. The eye is therefore not precluded from wandering and, as Atkinson and Hatfield note, pausing to look at content before, after and during reading is a key tension of visual narrative in comics. (Hatfield, 2005, Atkinson, 2009, Atkinson, 2012) Regardless of whether a reader has observed this character already, they are likely to return to it having read the balloon and followed the line from the tail to the character. This character engages readers in more grouping activities as they identify meaningful units (such as head, legs, arms, torso, costume, etc.) and group them into a reading of "character", or more specifically "Green Ranger" (Tommy) through closure activities and encyclopaedic knowledge of the character seen before in reading memory (Cohn, 2013b). Following the line of the leg (which also maintains the left-to-right reading direction of the culturally defined reading raster) the next zone of attention is the grey character (a putty) with which the kick is implied to have connected (identified and grouped in a similar way), which in turn leads the micro-reading

path out of the panel. There are several other 'putties' in the scene which modify the reading to suggest a larger number of enemies engaged with the Green Ranger and these would likely be identified as the reader travels along the path of the two key characters. At this stage it is worth noting the hierarchy of information upon which each image-object and visual element can be placed. So far, the word balloons and key characters are all likely to be considered high on the hierarchy of information as they construct the core narrative elements of the depicted scene. A reading of just these elements would likely be identified as something like "The Green Ranger fights a group of putties and talks to someone over the radio." These would be the elements considered by Cohn as active entries however this identification is also reliant on transitions like those proposed by McCloud. (McCloud, 1993, Cohn, 2013b) The reader would therefore need to look at the next panel in the sequence and apply synchronic connects between the two panels in order to confirm this, relying on both the activities of closure and of reading memory or read-back as they compare the repeated elements and read the connection between them. In this case the connection is likely to be action-to-action as the active entries connect through the depiction of actions taken by the same character.

There are clearly other elements within this panel that could also be read however these are not integral to this core reading of the scene and so would be considered lower on the hierarchy. For example, there is a secondary action sequence which runs across the top on the panel in which a robotic pterosaur shoots at a giant monster in the background. This can be read through a combination of identification, grouping and closure activities between various image-objects, onomatopoeia and conceptual metaphor action lines. These are all elements of the visual presentation that enhance the narrative by adding context, rather than being the focus of the narrative action in this depicted moment. As such, they present additional information and modify the reading to something like "The Green Ranger fights a group of putties and talks to someone over the radio whilst a robotic pterosaur shoots a monster behind them." These are not entirely superfluous alterations to the reading, and may still have narrative importance, but are not required for a reading to be understood.

Of note here is that a reader is likely to observe these elements as they travel along the micro-reading path of the panel image based on their proximity. It is through the general reading activities that the reader would identify, group and perform closure of these seen objects with the others in the image to modify the reading. As such, the acts of looking and seeing are essential parts of reading and the micro-reading path is not separated from these activities. Rather, the pathfinding and general reading activities of the toolkit work together as part of the reading processes of comics reading.

Having looked at a single panel in our example American periodical we can see that there is a complex set of multiple literacies, general reading activities and pathfinding activities which work together at a panel level. We will not explore these panel-reading activities of the toolkit any further, but it is worth noting that the path through differential zones of attention, along with tangents and observations of supplementary elements through broader viewing, allow for the construction of narrative by way of identification, grouping and closure activities. Most panels in a spread will engage with the grouping of differential zones of attention and the identification of paths through them, and these can be seen for each of the example layouts in Fig. 9.2.

Whilst useful as an exercise in understanding how my proposed toolkit applies to the example at a panel level, the panels in each method of spread presentation are the same and as such very little variation can be observed between applications of the toolkit at this level. See Fig 9.8 as a comparison. It is only when we look at the application of reading activities at higher levels that spread-specific reading can be identified.

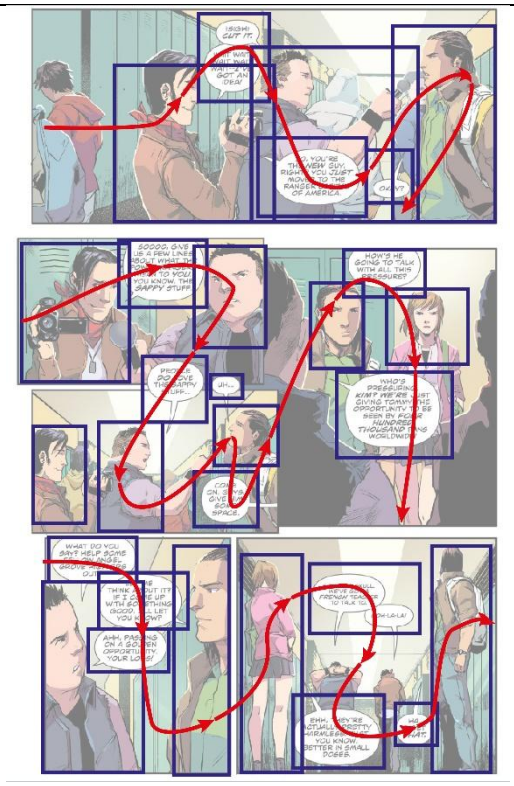


Fig. 9.2a – Spread number 6 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

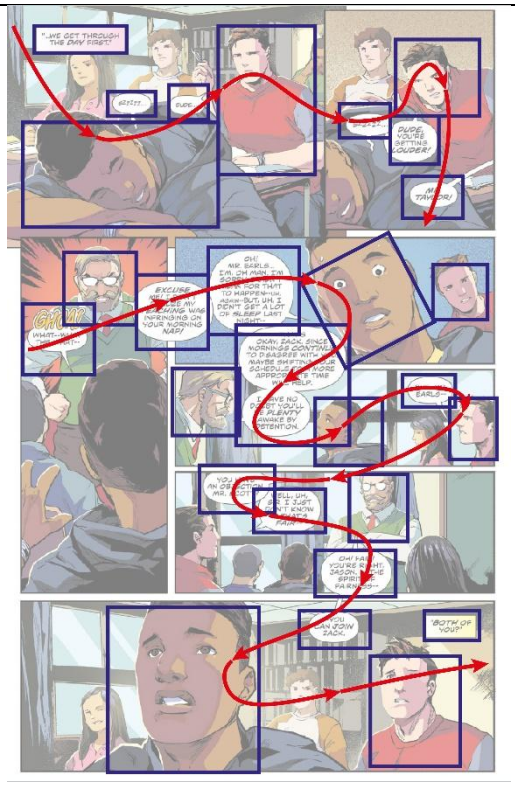


Fig. 9.2b – Spread number 8 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

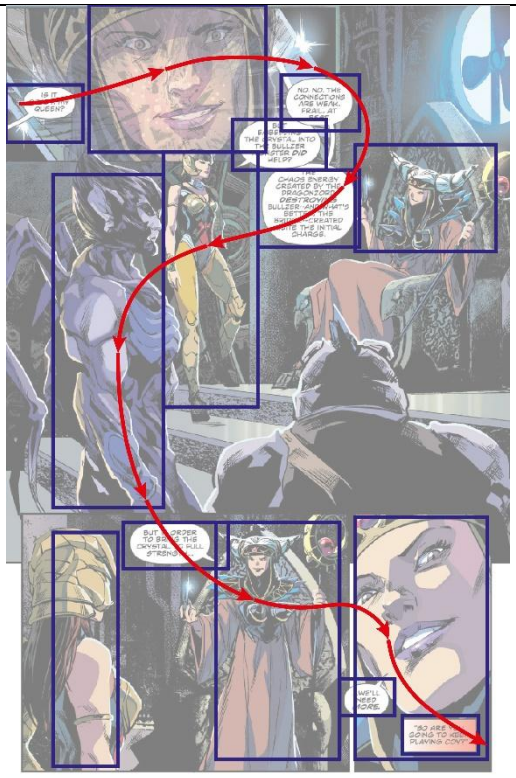


Fig. 9.2c – Spread number 12 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

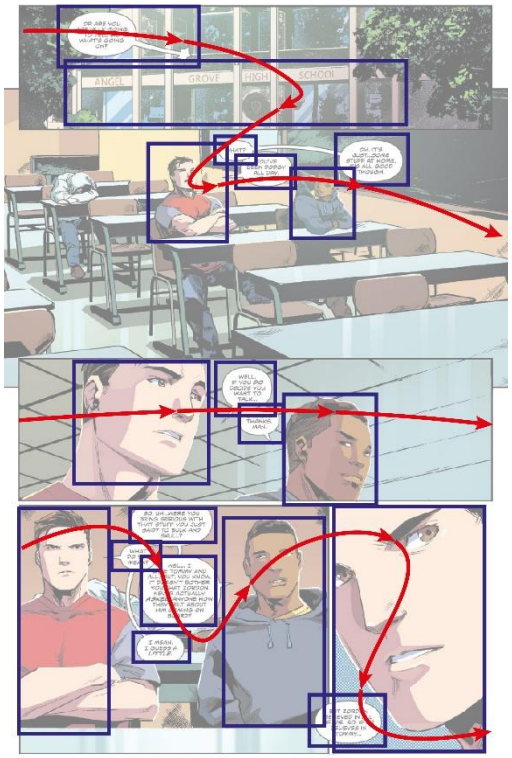


Fig. 9.2d – Spread number 13 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

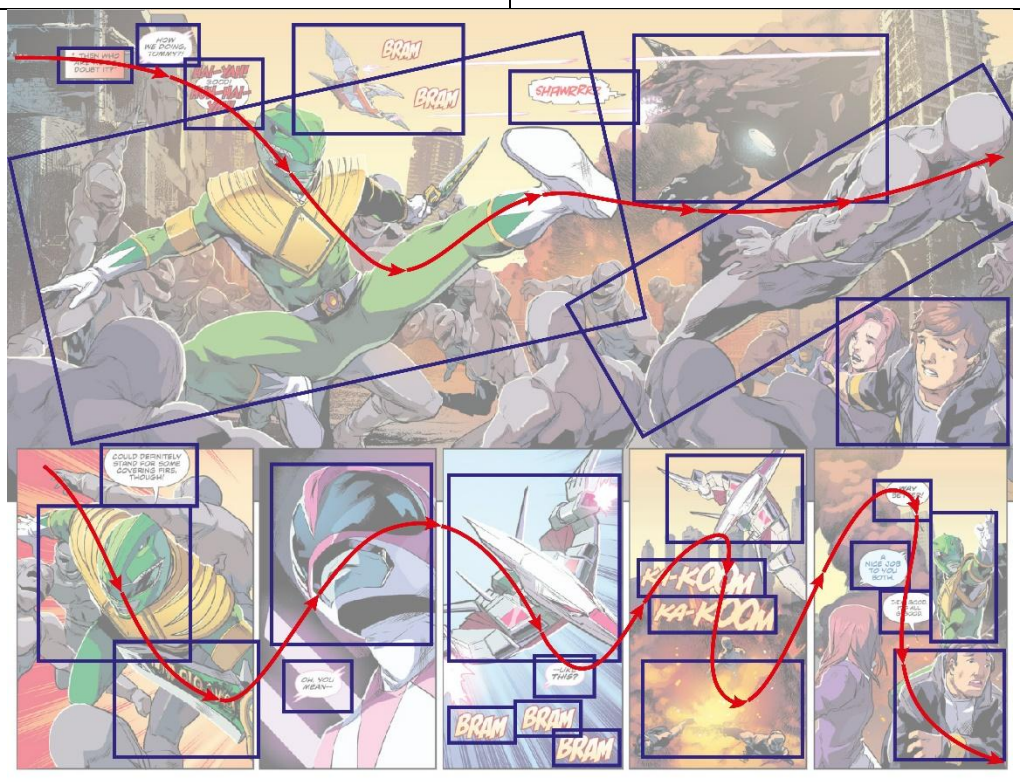


Fig. 9.2e – Spread 14 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.2 – Five Spreads with Micro-Reading Paths and Differential Zones of Attention from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Single Spread-Based Reading Activities

Based on the research conducted so far, it is clear that spread-based delivery of comics narratives requires readers to engage with both the simultaneous visibility and the synchronic connecting of panels. The simultaneous visibility of the panels allows synchronic connections to be used in the reading of arcs through the application of Cohn's Hierarchy (Cohn, 2013b). By determining the narrative categories of each panel-image the reader can group the panels into arcs which present meaningful sequences in the narrative. Through the identification of these narrative categories, along with the type of content presented within a panel-image, a reader can perform closure to understand transitions between panels and connect them into groups of narratively meaningful arcs (McCloud, 1993; Cohn, 2013b). The reading of these panels as narratively meaningful short sequences relies on two key ideas which are directly impacted by spread-based delivery: synchronic connections and macro pathfinding. For synchronic connections to be applied, panels must be present within the simultaneously visible spread. Through their simultaneous visibility the panels can easily facilitate read-back activities to other moments depicted in the spread and invite comparison of the visual components which make up the panel images (Groensteen, 2007; Miodrag, 2013). The comparison and connecting of simultaneously visible panels is part of the reading processes of synchronic connections and it is used to inform narrative as part of the reading. Through the application of synchronic reading activities readers can compare panels that are present in the visible spread without having to engage in the more complex diachronic reading activities. If the reader can no longer see a narratively relevant panel, they must connect it using diachronic connections which relies more heavily on reading memory of previously read panels in the mind's eye. As a result, the simultaneous visibility of spread-based delivery means that arcs are commonly connected through the application of reading activities which require synchronic connectedness.

For example, in Fig. 9.1e, synchronic connection activities allow for visual elements within different panel images to be compared and narrative arcs to be formed. As noted before, the Green Ranger character appears in both the first and second panels of the spread and the action-to-action connection between these two panels is read through a comparison of the simultaneously visible content. As such, the connection is made through synchronic connections. Similarly, there are synchronic connections between panels one, four and five in this spread which all depict the robotic pterosaur and can be compared visually, even though they are not all connected in a linear transition from one panel to the next. Rather, these three panels are connected through activities which engage with Cohn's hierarchy to build narrative connections (Cohn, 2013b.) In short, panel one of the sequence acts as an establisher for the robotic pterosaur, presenting its existence within the world of the work and its physical relationship with the key character (Green Ranger) in the arc. Panels four

and five then present a short, action-to-action relationship which reflect a peak and release in the arc, respectively. Whilst these three panels are not presented in linear sequence they are likely read as connected moments through the combination of identification (of the robotic pterosaur in each panel), grouping (of panels into an arc), and closure (of the narrative relationships of the panel-depicted moments) activities of the toolkit. All facilitated by synchronic connection activities of read-back.

The simultaneous visibility of spread-based delivery is also an important part of how the reader understands the reading sequence of the macro-reading path. Both preference rules and meta-rastic indices rely on the simultaneous visibility of panels in order for readers to effectively apply them in the reading of sequence (Cohn, 2013; Nichols, 2013; Nichols, 2015). Here, the preference rules of the American periodical comic are reliant on reader engagement with the culturally defined reading raster for the discovery of the expected reading sequence of a spread. In so doing, a reader agrees to read from left-to-right, top-to-bottom as part of the reading contract, as well as not to skip any panels in a sequence (Cohn, 2013b).

For example, in Fig 9.3a we can see that the reading path breaks from the left-to-right top-to-bottom z-path when navigating panels two, three and four. The macro-reading path here relies on assemblage to ensure that panels are grouped into sequences which avoid the skipping of panels and are supported by the meta-rastic indices which point readers along the expected macro-reading path of the narrative (Fig. 9.3a). The preference rules set out the expected approach as part of the reading contract and, when not challenged by subverted sequence, make it easy for readers to find a macro-reading path through the spread. In Fig. 9.3d this standard left-to-right top-to-bottom z-path reading is maintained through the straightforward layout of panels. When subversive panel-layouts are used, like in panels two, three and four of Fig. 9.3a, the preference rules help a reader find their way through the macro-path by indicating that, if the culturally defined reading raster cannot be followed, the reader should maintain either a left-to-right or top-to-bottom reading motion through the spread (Cohn, 2013b). In this case the reading is top-to-bottom from panel two down to panel three, then left-to-right to panel four. Through the application of the preference rules of the reading contract, the reader is then able to read the sequence of the spread. In addition, meta-rastic indices offer visual cues that lead the reader along the macro-reading path using elements of the micro-reading path. Here, the meta-rastic index takes the form of a speech balloon which spans the gutter between panels two and three. This presents an overt cue to the reader that they should follow a subverted macro-reading path. By following the direction of the balloon from panel two to panel three the reader is therefore guided through the meta-rastic layout in a way which reinforces or assists in reading alongside the preference rules. Clearly then, meta-rastic indices and assemblage

preference rules are useful in the pathfinding activities of reading when panels are presented through spread-based delivery.

Whilst these aspects of pathfinding are not exclusive to spread-based delivery, their application is more complex with spreads than with individual panels. When the subverted meta-raster is presented in this form of delivery, the application of the preference rules relies on assemblage and meta-rastic indices for macro pathfinding through the sequence. Assemblage helps readers in understanding a subverted panel sequence whilst the meta-rastic indices help them to find the entry and exit points of panels in order to link them in sequence. It is the simultaneous visibility of panels which makes the subverted meta-raster possible, but also what allows the meta-rastic indices and assemblage rules to function so readers can discover a meaningful path through the narrative sequence. Without the simultaneous visibility of spread-based delivery, some of the complex assemblage rules, and the meta-rastic indices, are not necessary in the reading. Although in some cases they may still be possible.

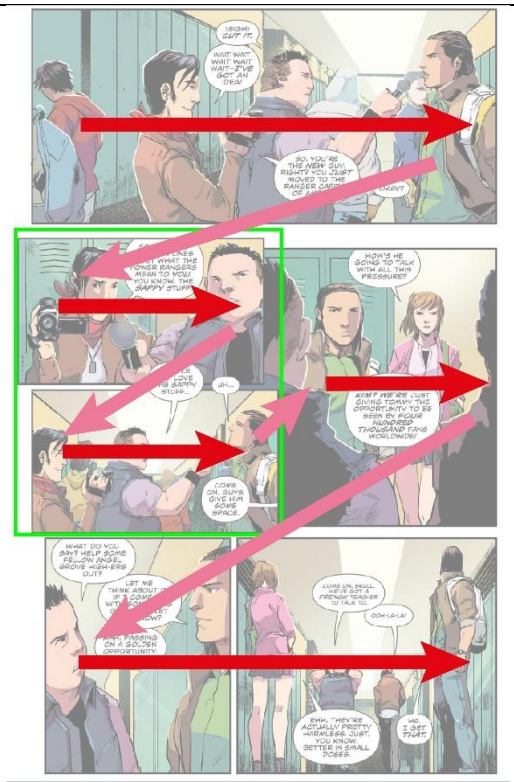


Fig. 9.3a – Spread number 6 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

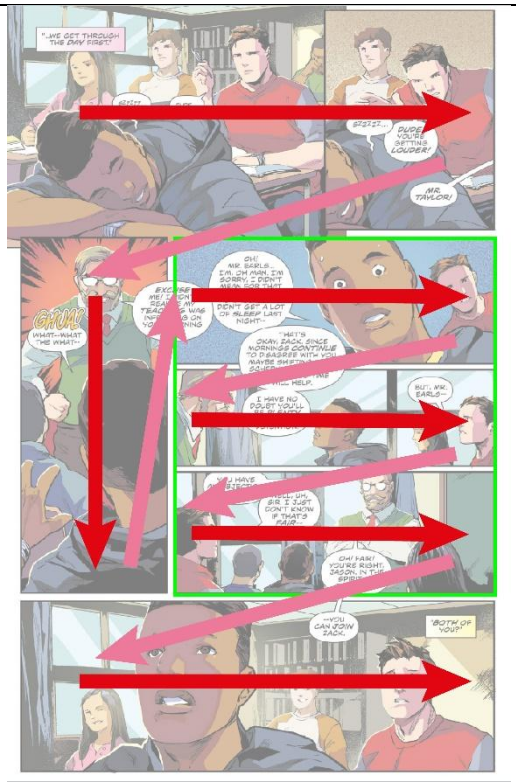


Fig. 9.3b – Spread number 8 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.3c – Spread number 12 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

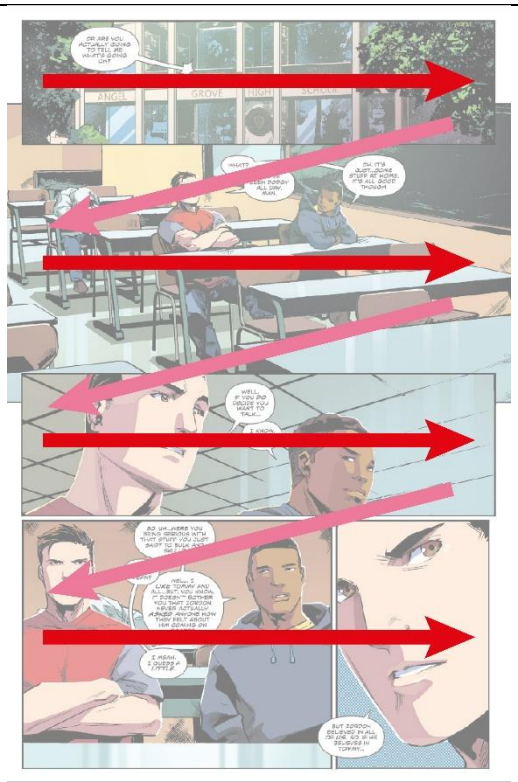


Fig. 9.3d – Spread number 13 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.3e – Spread 14 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.3 – Five Spreads with Macro-Reading Paths from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Double-Page-Sized Reading Activities

Before we move onto a consideration of panel-based delivery, it is worth briefly looking at some of our example spreads as they appear in the double-page-sized delivery. This will allow us to briefly remind ourselves of some key reading activities related to the preference rules and meta-rastic indices which are exclusive to this type of spread-based deliver. In Fig. 9.4 we can see two spreads presented in double-page-sized spread delivery. Fig. 9.4a shows two hyperframes presented in a single double-page-sized spread whilst Fig. 9.4b shows a single hyperframe presented in a single double-page-sized spread (Groensteen, 2007). The second of these presents identically to the single spread-based delivery discussed above (Fig. 9.1.e) whilst the first shows an expanded set of simultaneously visible panels not shown when the hyperframe was presented earlier, in single spread-based view (Fig. 9.1a).

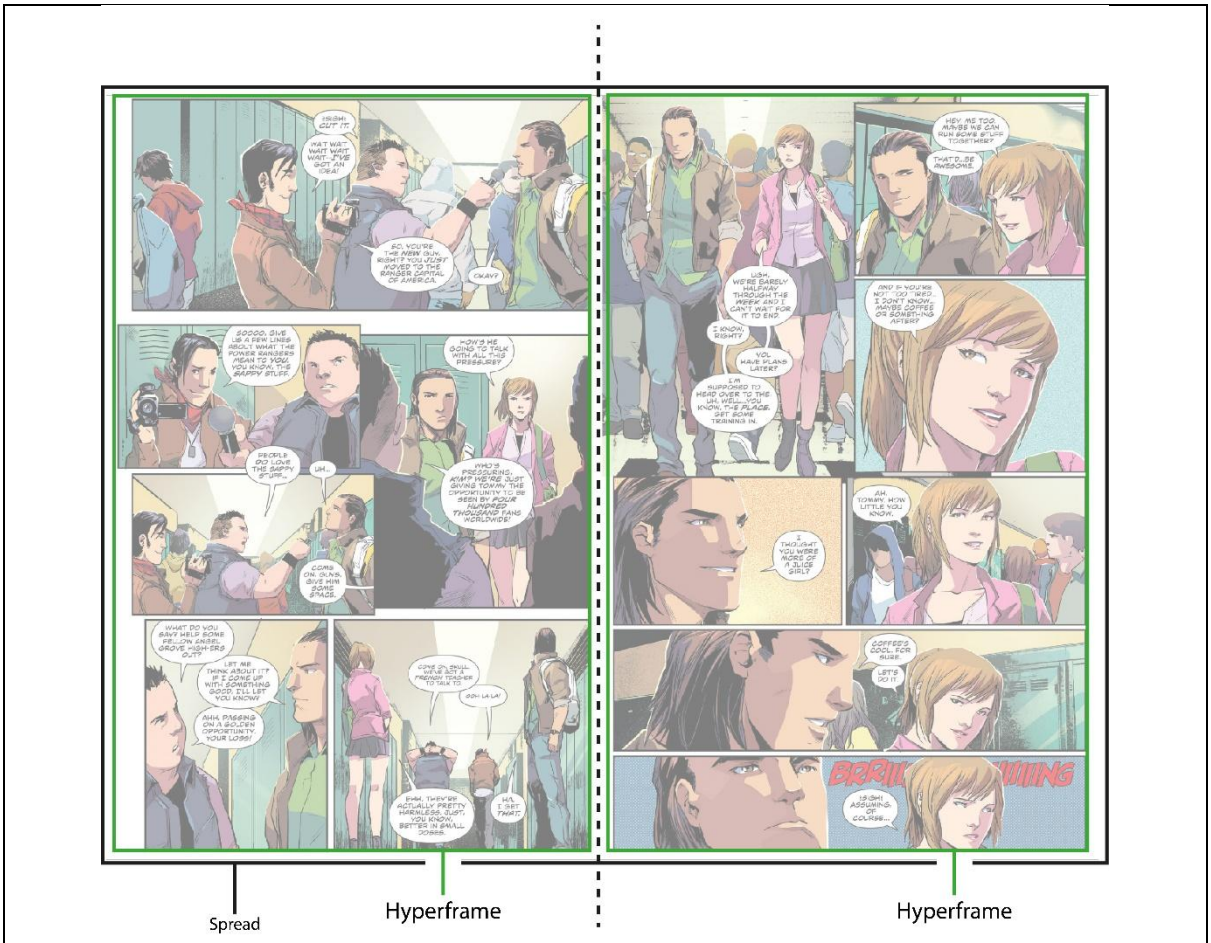


Fig. 9.4a – Double-Page-Sized Spread 4 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

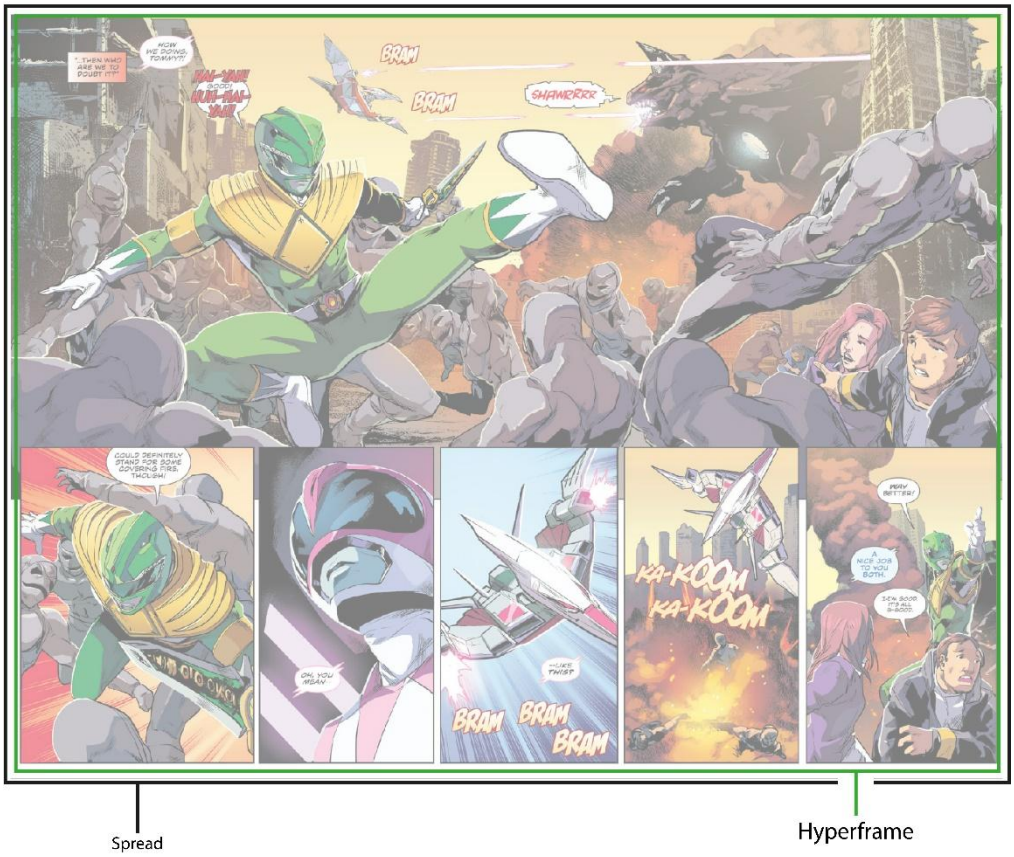


Fig. 9.4b – Double-Page-Sized Spread 8 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.4 – Double-Page-Sized Spread Delivery of Three Hyperframes from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

The reading paths of each of the panel layouts that we have already seen is roughly the same and therefore engages the reading toolkit in the same ways already discussed (Fig. 9.2 and Fig. 9.3). However, it is worth noting the additional reading activities required by the expanded simultaneous visibility presented in Fig. 9.4a. In this spread there are two hyperframes and so a reader must engage with preference rules, assemblage and meta-rastic indices to identify each hyperframe within the double-page-sized spread. Engagement with these aspects of the reading toolkit allows a reader to identify what I referred to as the central-page-gutter earlier, although it would perhaps be better to call this the central-*hyperframe*-gutter in this case since we are not discussing the paged form here specifically. Regardless, this central gutter signals to the reader that they are being presented with two different hyperframes that each have a separate macro-reading path through them. These are grouped through activities of assemblage and therefore read by following the pathfinding rules down the left-hand hyperframe first, then the right-hand hyperframe (Fig 9.5). In contrast, the single hyperframe is read across the entire spread as we saw in Fig 9.3e because there is no central gutter to indicate that a reader should move down the spread, rather than across it. This is a

straightforward reading activity but is important to note as it represents the main difference between the two types of spread-based delivery we are discussing. Whilst central gutter identification may be exclusive to the double-page-sized spread form of delivery it is important to note that it does not require any unique reading activities beyond those outlined within the toolkit so far. Rather, it engages with general reading activities, coupled with preference rules and meta-rastic indices, to identify the central gutter, group panels through assemble and connect the hyperframes through application of synchronic connections. As such, this form relies on the same reading activities we have already seen without modification to the toolkit.

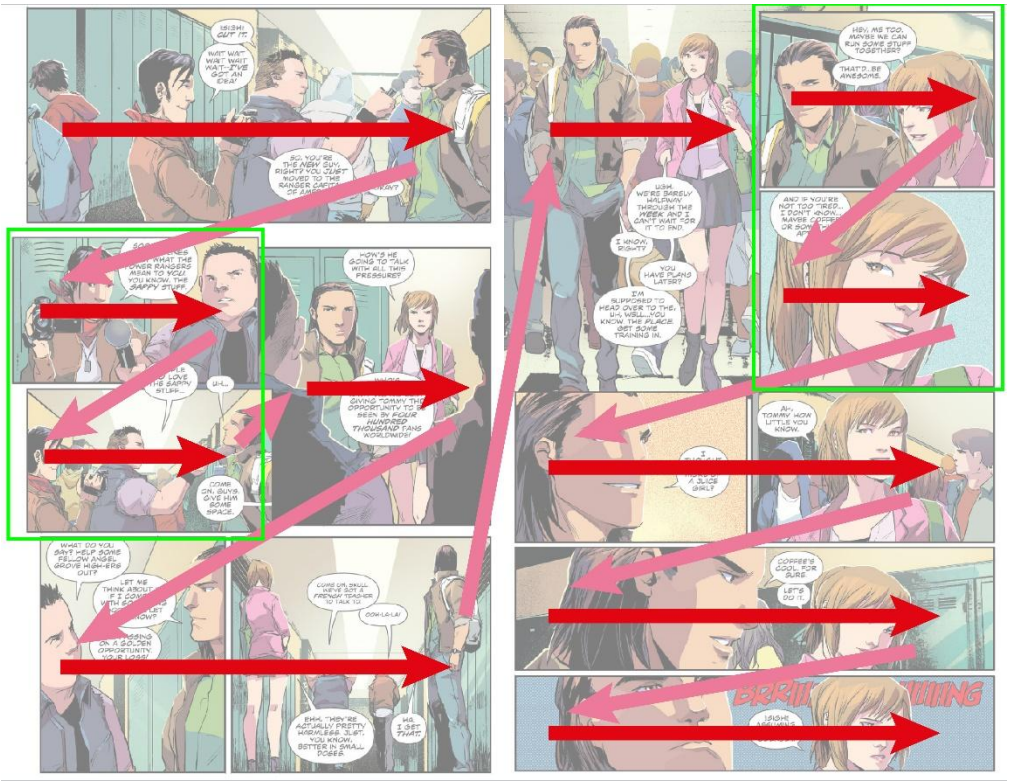


Fig. 9.5 – Macro-Reading Path of Two Hyperframes in Double-Page-Sized Spread-Delivery from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Reading Activities at the End of a Spread

When a reader has completed their reading of the simultaneously visible panels of the spread and there are no more panels to read or connect in sequence, they need to perform a reading action to reveal the next spread of panel. To do so they must perform either a page-turn in the printed codex or a naviscroll on the touch screen. We saw earlier that this moment is important in both the delivery of narrative effects and in the narrative pacing (Eisner, 1985; Atkinson, 2012; Groensteen, 2013). American periodical comics authors commonly use this moment of interaction to create suspense in the narrative by hiding part of an arc behind the reader action of revealing the next spread. This enforces a pause in anticipation of what happens next. As we saw, if the reader is left in a state of

aporia as they complete the reading of a spread, the pull of narrative will likely drive them to move to the next spread more quickly (Aarseth, 1999). If the final panel in the spread does not represent narrative conclusion the reader is encouraged, by the narrative, to move on quickly as they seek the resolution to the narrative moment of the sequence. This can be seen in Fig. 9.6 which presents the final two spreads in our sample issue. Here, the spread in Fig. 9.6a. ends in a moment of suspense as our protagonist (Tommy) is depicted with a knife at his throat. The reader must pause in a state of aporia as they perform a reading action to find out where the knife came from, and ultimately what narrative impact that has on the character. It is the lack of resolution in the final panel of the spread that pulls the reader to reveal the next spread rather than to contemplate what has just occurred.

However, if the narrative moment is resolved at the completion of the currently visible spread, through the completion of an arc or narrative moment, the reader is not pulled by a need for completion. Instead, they are left in a state of understanding, or epiphany as Aarseth (1997) refers to it, and so are less likely to be drawn to solve a narrative moment (Aarseth, 1997). Instead, when readers are left with a feeling that a narrative event or moment is completed at the end of the spread, they are likely to pause in contemplation of what they have just read rather than feel pulled by the narrative to immediately access the next spread. In cases like these where the reader is left in a state of epiphany at the end of the spread, they are more likely to re-scan the spread in the pause moment as they consider the narrative and visual elements they have just seen (Atkinson, 2012). As we saw earlier, this spread-based pause is therefore an important part of the reading pace and an opportunity for narrative effects to be delivered by the authors.

Fig. 9.6a – Moment of Apporia from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.6b – Moment of Epiphany from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.6 – The Enforced Pause in *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

From this investigation it is clear that when reading single spread-based American periodical comics, my reading toolkit applies as outlined in Section 9.1 of this chapter. The key feature of single spread-based delivery is the isolation of each spread from those following or preceding it, and the delivery of each in a way which creates a large hyperframe of simultaneously visible panels. We have seen that this simultaneous visibility is a key component of the reading and relies on specific reading acts to form meaningful narrative comprehension (McCloud, 1993; Groensteen, 2007; Cohn, 2013b; Miodrag, 2013). In general, reading simultaneous visibility relies heavily on synchronic connections between panels as the reader decodes the narrative (Groensteen, 2007). As readers engage with Cohn's Hierarchy, they can use this simultaneous visibility to help them connect the panels narratively through application of identification, grouping and closure activities. In doing so the spread can offer spatial relationships which communicate meaningful narrative understood through simultaneous visibility. The simultaneous visibility of all panels in a single spread also impacts the path-finding activities of the reading which rely on the combined reading rules of the culturally defined reading raster, preference rules, assemblage and meta-rastic indices (Cohn, 2013b; Nichols, 2015). It is the simultaneous visibility of panels which makes these macro pathfinding activities necessary in discovering the reading sequence of panels. With fewer panels there are fewer options for the order in which panels can be read and therefore the expected reading sequence is usually

easier to discover without engagement in complex path-finding activities. Equally, the simultaneous visibility of panels in spread-delivery is useful for authors and allows them to hide and reveal information at points of page turn or naviscroll (Eisner, 1985). This enforces specific moments of pause in the reading activity and can help in the creation of meaningful narrative effects.

In applying my reading toolkit to spread-based delivery American periodical comics, it is clear that simultaneous visibility relies heavily on reading activities associated with macro-pathfinding through a spread of panels, particularly assemblage and the meta-rastic indices which help a reader understand complex sequences of panels and determine where they enter or exit them. In panel-based delivery, the simultaneously visible display of the spread is lost and each of the reading acts associated with the simultaneous visibility and enforced pause is shifted by the change in how panels are displayed. Now that we have identified how spread-based delivery engages my proposed reading toolkit, it is important to discuss how the reading changes when panels are presented in smaller groups or in isolation through panel-based delivery methods like the previously discussed guided-view.

9.4 Reading American Periodical Comics in Panel-based Delivery

i. Display 1

ii. Display 2

iii. Display 3

iv. Display 4

			
v. Display 5	vi. Display 6	vii. Display 7	

Fig. 9.7a - Panel-based Delivery of Hyperframe 6 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

			
i. Display 1	ii. Display 2	iii. Display 3	iv. Display 4

[redacted]  [redacted]	[redacted]  [redacted]	[redacted]  [redacted]	
v. Display 5	vi. Display 6	vii. Display 7	

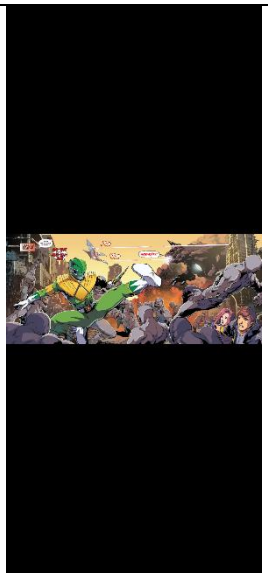
Fig. 9.7b - Panel-based Delivery of Hyperframe 8 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

			
i. Display 1	ii. Display 2	iii. Display 3	iv. Display 4

Fig. 9.7c - Panel-based Delivery of Hyperframe 12 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

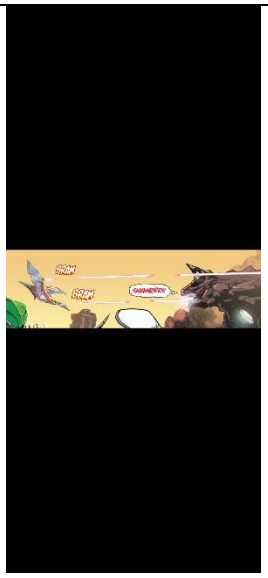
			
i. Display 1	ii. Display 2	iii. Display 3	iv. Display 4
			
v. Display 5	vi. Display 6		

Fig. 9.7d - Panel-based Delivery of Hyperframe 13 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).



i. Display 1

ii. Display 2



iii. Display 3

iv. Display 4

v. Display 5

vi. Display 6

vii. Display 7

viii. Display 8

Fig. 9.7e - Panel-based Delivery of Hyperframe 14 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.7 Example Spreads Presented through Panel-Based Delivery from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016)

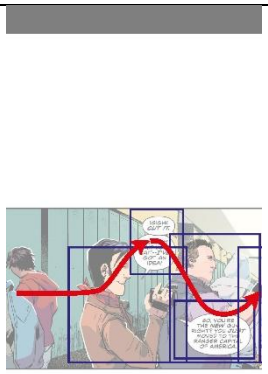
The Reading Toolkit in Panel-Based Delivery

In panel-based delivery, panels are viewed one at a time or in small groups. This requires the simultaneous visibility of larger spread to be broken down into smaller components viewed in isolation from others. Some panels are viewed in isolation whilst others may be presented in small groups. However, in most cases the original spread in not presented in its entirety as it would be in a spread-based delivery. Whilst the delivery of the spread is altered in panel-based delivery, the panels

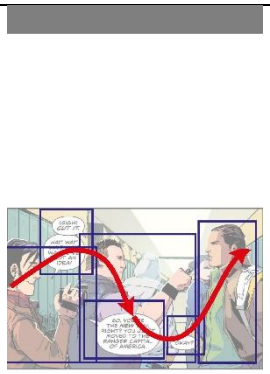
themselves are not, and they present the same panel-images. So, each panel is still read with the same combination of general reading activities we saw in the examples presented earlier.

The application of the general reading activities of identification, grouping and closure within the panel allows for the reading at this micro-reading level to apply as we have seen before and no significant change to the reading activities is required in panel-based delivery at this level. (Fig. 9.8) There is one key part of the reading processes at this micro-reading level which shows some alteration, however. Because many panels are not juxtaposed in simultaneous view of those preceding or following them in sequence, the exit point does not always lead the reader to the entry point of the next panel. As a result, the micro-reading path does not always start in the same position it would if the panels were delivered as part of the simultaneous spread of spread-based delivery. In Fig. 9.8c we can see that the micro-reading paths are slightly different to those shown in the Fig. 9.2c, which presents the same panels delivered through spread-based delivery. In Fig. 9.8c, display three begins the micro-reading path from an entry point on the left of the panel, rather than from the top, as is shown in Fig. 9.2c. In panel-based delivery, the preceding panel is no longer visible. As a result, the continuous sweep of eye movement is interrupted and reset between each panel as one disappears from view and the next appears in its place. This breaks the movement of the eye from one panel to the next and so the reader restarts their path at the left of the new panel each time the display changes, as is expected in the reading of the culturally defined reading raster. As a result, most panels presented in isolation are entered from the left by application of the culturally defined reading raster preference rules rather than through a position relative to the exit point of the previous panel indicated by meta-rastic indices (Cohn, 2013b; Nichols, 2015). This demonstrates a shift in how the reading activities of the toolkit are applied based on the number of simultaneously visible panels. It is also important to reiterate at this point that there may be multiple paths through a panel and the indicated movements suggested in figures are simply examples of one likely path a reader might take. However, even with this potential variation, it is probable that readers will enter isolated panels on the left-hand side in accordance with the culturally defined reading raster of the Z-path and the reading contract, rather than by following the exit point of the micro-reading path as seen in spread-based delivery. As such, the entry point may not be altered by the removal of simultaneous visibility of panels if they rely on a standard left-to-right reading in both spread and panel-based delivery. We can see this in Fig. 9.8d, which has the same entry points as Fig. 9.2d. The change in entry point does not generally alter the micro-reading path through the panels and so this change in where the reader enters a panel does not require a shift in the application of the reading toolkit at a micro-reading level. It does, however, demonstrate a change to the reading of sequence at a macro-reading level, where the simultaneous visibility of the micro-reading paths

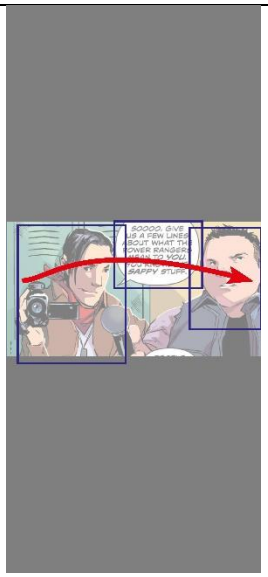
influences the macro-reading path through the larger sequence. As with spread-based delivery, it is only when we look at reading associated with the simultaneous visibility at the macro-reading level that we see significant shifts in how my reading toolkit needs to be applied.



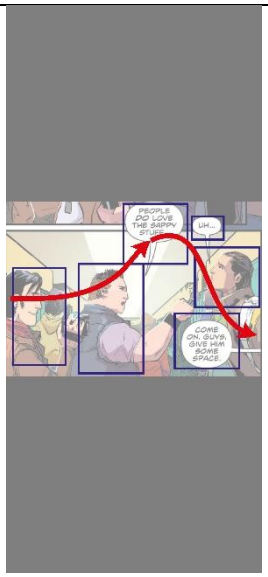
i. Display 1



ii. Display 2

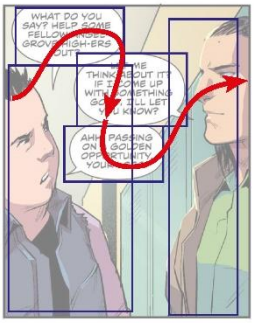


iii. Display 3

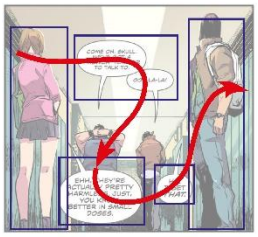


iv. Display 4

v. Display 5



vi. Display 6



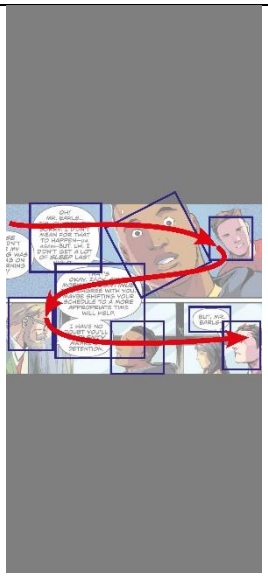
vii. Display 7

Fig. 9.8a – Reading Paths in Panel-Based Delivery of Hyperframe 6 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

i. Display 1

ii. Display 2

iii. Display 3



iv. Display 4

v. Display 5

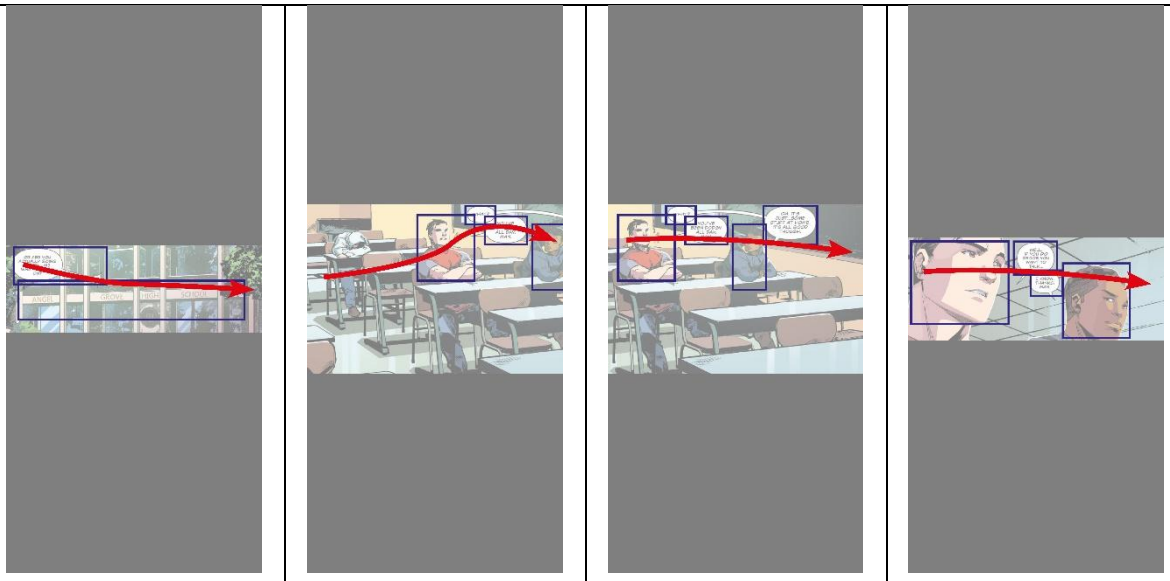
vi. Display 6

vii. Display 7

Fig. 9.8b - Reading Paths in Panel-Based Delivery of Hyperframe 8 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

i. Display 1	ii. Display 2	iii. Display 3	iv. Display 4

Fig. 9.8c - Reading Paths in Panel-Based Delivery of Hyperframe 12 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).



i. Display 1	ii. Display 2	iii. Display 3	iv. Display 4

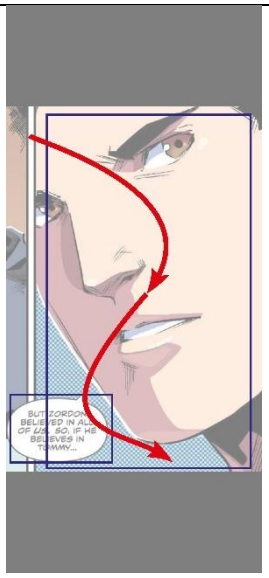
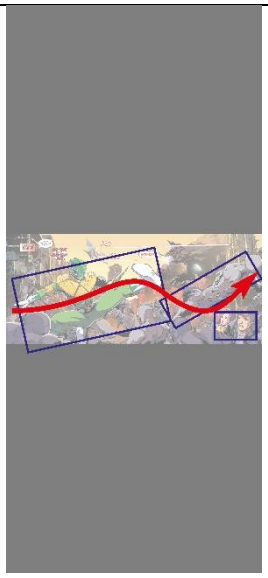
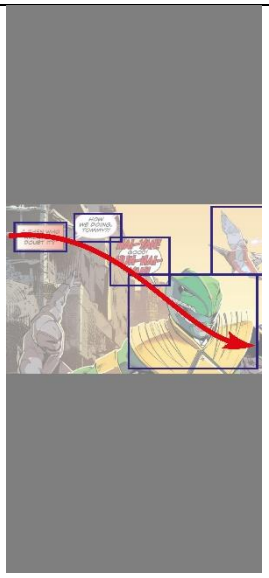
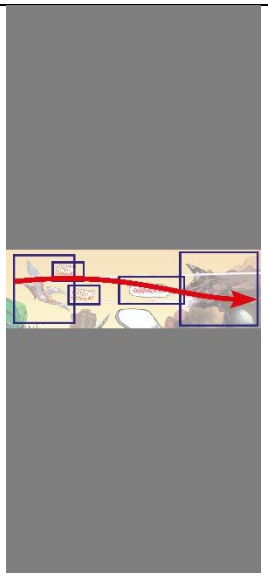
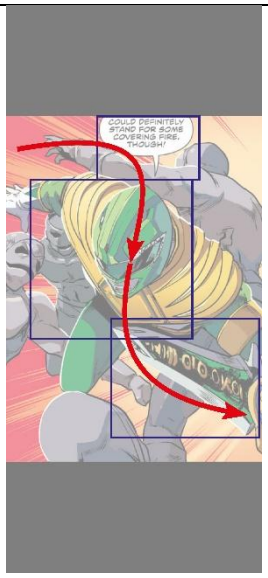
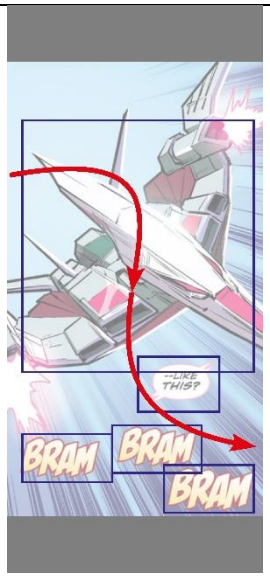
			
v. Display 5	vi. Display 6		

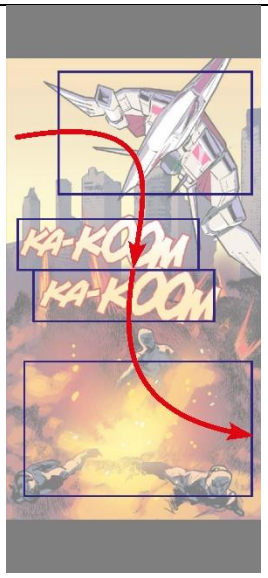
Fig. 9.8d - Reading Paths in Panel-Based Delivery of Hyperframe 13 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

			
i. Display 1	ii. Display 2	iii. Display 3	iv. Display 4

v. Display 5



vi. Display 6



vii. Display 7

viii. Display 8

Fig. 9.8e - Reading Paths in Panel-Based Delivery of Hyperframe 14 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

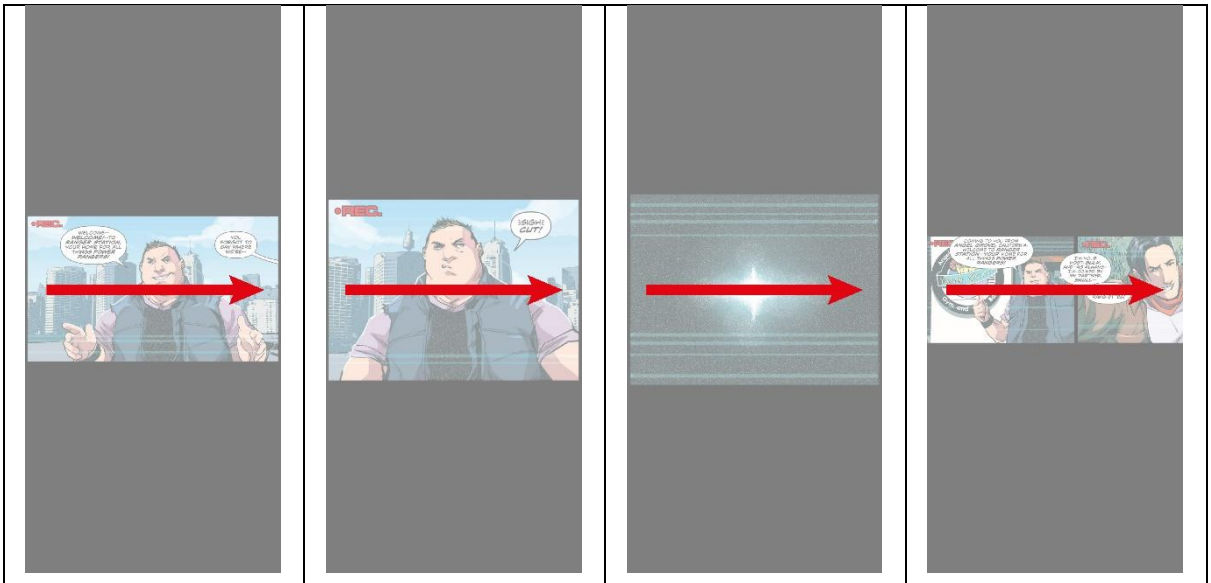
Fig. 9.8 Panel-Based Delivery Micro-reading Paths from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016)

Reading Activities in Panel-Based Delivery

As we have seen, my reading toolkit applies well to the micro-reading of individual panels in each delivery method. However, macro-reading relies more heavily on the simultaneous visibility which allows for synchronic connections and grouping activities to be performed (McCloud, 1993; Groensteen, 2007; Cohn, 2013b). Generally, this simultaneous visibility, where multiple panels are viewable at the same time, is significantly reduced in the delivery of American periodical comics through panel-based delivery as panels are presented in much smaller groups, if not individually. When panels are delivered individually, in isolation from all other panels in the sequence, there is no simultaneous visibility of panels and so many of the associated reading acts are not required, particularly those involving the discovery of sequence and the macro-reading. For example, there is no need for the application of assemblage or meta-rastic indices in the understanding of sequence in panels two, three and four of Fig. 9.3a that we looked at earlier. In a spread-based delivery these reading activities were required to navigate the non-standard layout of the three panels because they broke from the normal z-path of western reading. In panel-delivery these panels are each shown isolated from one another, one at a time, and so sequence is controlled by the naviscroll action, rather than by application of preference rules. (Fig. 9.8a)

Whilst lost when single panels are presented alone, simultaneous visibility can be retained for small panel groups in panel-based delivery and so the associated reading activities may still need to be engaged with as part of the reading in some places within the narrative. However, these are often

altered by the smaller number of simultaneously visible panels. In Fig. 9.9b iv, a straightforward macro-reading path between two panels can be seen. This requires the reader to engage with identification and grouping at the macro-reading level as they identify each panel and its content, and then to apply closure between the panels to read their narrative associations (McCloud, 1993; Cohn, 2013b). This also requires engagement with the preference rules in the understanding of sequence, and synchronic connecting of that sequence, just as it does in spread-based delivery (Groensteen, 2007; Cohn, 2013b). We can also see the same meta-rastic indices of the word-balloon which bridges the gutter between the panels, as we saw in the spread-based reading of Fig. 9.3a earlier (Nichols, 2015). As such, there is clearly a need for readers to engage with some synchronic connecting and preference rules at a macro level when viewing small panel groups like this. However, in most cases the pathfinding of the sequence is straightforward and so does not engage the more complex reading skills of assemblage (Cohn, 2013b). This results in less complicated application of synchronic connections in panel-based delivery but makes diachronic connections more important to the reading process.

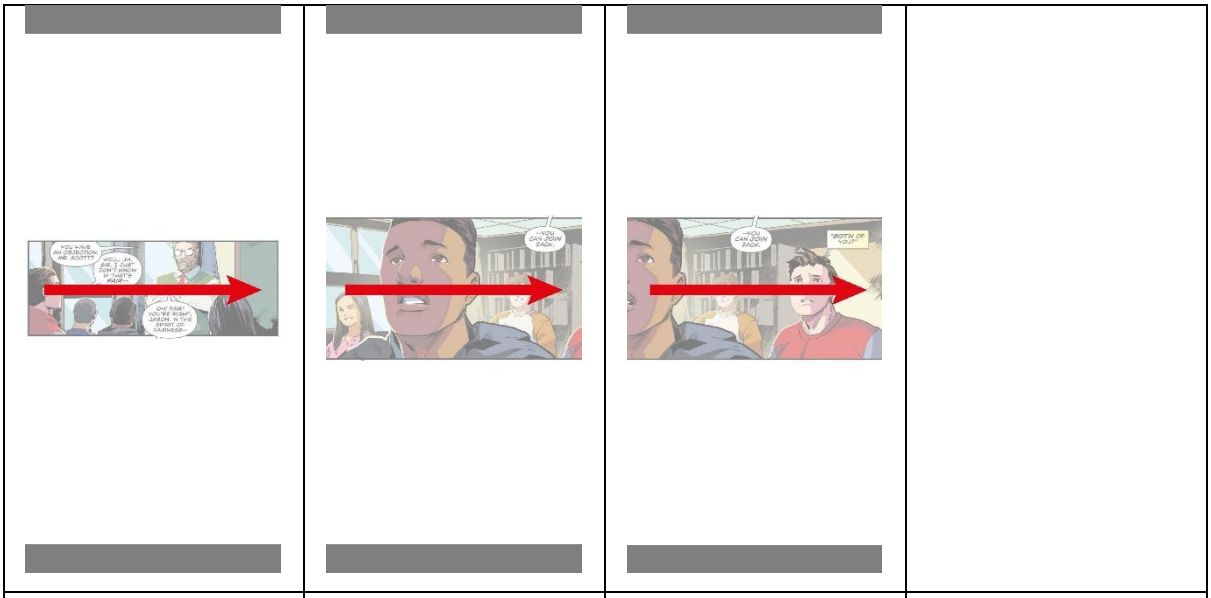


i. Display 1	ii. Display 2	iii. Display 3	iv. Display 4

			
v. Display 5	vi. Display 6		

Fig. 9.9a - Reading Paths in Panel-Based Delivery of Hyperframe 1 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016)

			
i. Display 1	ii. Display 2	iii. Display 3	iv. Display 4



v. Display 5	vi. Display 6	vii. Display 7	

Fig. 9.9b - Reading Paths in Panel-Based Delivery of Hyperframe 8 from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016).

Fig. 9.9 Panel-Based Delivery Macro-Reading Paths from *Mighty Morphin Power Rangers #1* (Higgins, Prasetya, et. al., 2016)

Most arcs presented in American periodical comics are likely to be made up of more than two or three panels. As such, a whole arc is rarely viewed simultaneously in panel-based delivery (Cohn, 2013b). Thus, the application of Cohn's hierarchy to the reading relies more on diachronic connections than synchronic ones. Diachronic connections rely on readers recalling information and connecting it in their reading mind through memory activities. This makes the understanding of an arc, through the application of closure in connecting narrative moments, more heavily reliant on reading memory than simultaneous visibility (Groensteen, 2007; Miodrag, 2013). By applying the identification activities of the proposed toolkit to the identification of panel types, a reader will likely be able to understand that a panel represents the initial, peak, prolongation or release of an arc based on the panel-image content (McCloud, 1993; Cohn, 2013b). But for them to determine how the phases of this arc fit together, the reader will need to remember each phase which has been seen so far and connect them together, not through synchronic connections of the simultaneously visible but through diachronic connections between unseen panels held in reading memory. This demonstrates a marked difference in the application of my reading toolkit applied to panel-based delivery as there is a clear shift in the requirement to engage with simultaneous visibility and reading memory activities.

Due to the delivery of panels in small groups or in isolation, panel-based delivery also requires the reader to more regularly engage with the naviscroll action to progress the narrative. This does not alter the intrusiveness of the action, but it does increase the number of points at which the reader is

required to pause before revealing more panels and continuing their path through the sequence. As we saw before, the pause can heighten the sense of pull through the narrative depending on whether the reader is left in a state of aporia or epiphany when they complete a spread (Aarseth, 1999; Atkinson, 2012). In panel-based delivery this effect is less pronounced at a macro-reading level because the naviscroll action is not reserved for key moments in the narrative but is instead required regularly throughout every arc. This makes the naviscroll and its associated pause along the macro-reading path more habitual and less meaningful as the reader is more regularly left in this state of aporia (Brasel, 2011). Coupled with the smaller numbers of simultaneously visible panels to reflect on when left in a state of epiphany, this means a reader is likely to be pulled by the narrative more evenly throughout the reading process and so the pause is also more even. Making it less effective as a method for authors to generate suspense.

Whilst the pause between panels and small panel-groups holds less meaning in the reading in panel-based delivery, the pause in combination with automated zoom and focus of guided view can create moments of suspense *within* panels as a reader moves along the micro-reading path. Panel-based delivery has the flexibility to not only deliver complete panels and small panel-groups but also to deliver incomplete panels which hide information behind the naviscroll action. We can see this type of hide-and-reveal in displays six and seven of Fig. 9.7b which show the same panel-image in two different states of crop. The first crop shows the reader the face of one of the characters (Zack) who has just been given detention along with a speech balloon telling another character (Jason) they will also be joining Zack in said detention (Fig. 9.7b vi). This crop leaves out the reaction of the other character, waiting to reveal it after the naviscroll is performed. Once performed, Jason's reaction is revealed through a change in the cropping to focus on his face, rather than Zack's (Fig. 9.7b vii). By controlling the order and pace at which the content of this panel is revealed, authors can create suspense *within* the panel by enforcing the pause. Here the pause maintains its importance to the reading as a moment of reflection by leaving the reader in a sense of aporia within the panel. By engaging with this zoom-and-focus functionality of guided-view in panel-based delivery, reader action is rendered meaningful within the micro-reading of the panel, rather than the macro-reading of the spread.

We can also see this zoom-and-focus cropping used to guide readers in following the micro-path through the first panel of Fig. 9.7e, which we performed a close reading of earlier. There we identified the order in which a reader might observe the various elements of the panel-image as they followed the micro-reading path. The reading of the panel-elements was said to be "The Green Ranger fights a group of putties and talks to someone over the radio whilst a robotic pterosaur shoots a monster behind them." This combined reading of three key active entries; the Green Ranger

meaningful-unit, the word-balloons, and the robotic pterosaur. Through panel-deliver we see the panel-image in three different crops, each focussing reader attention on one of these active entries. The first shows the panel in full, allowing a reader to see the entire composition of the panel-image (Fig. 9.7e i.). At this smaller size the word balloons and pterosaur meaningful units are hard to make out and so the focus is on the Green Ranger fighting the putties. The second display zooms and crops into the top leftmost corner of the panel, displaying the text on the word balloons at a more readable size. (Fig. 9.7e ii.) It also allows for the Green Ranger meaningful unit to be viewed in greater detail. A third crop zooms in on the visual components related to the robotic pterosaur firing upon a giant monster. This leads the reader to the secondary level of the hierarchy of the panel image. As such, the panel-delivery has used the zoom-and-focus afforded to this form of presentation to ensure the viewing of each narratively relevant detail. This is important to note as it controls the delivery of content and informs the reader, by way of focus, that these details are important in a way not seen in spread-based delivery. This leads to a much more guided reading than when a panel is displayed all at once.

At this stage, it is clear that panel-based delivery and spread-based delivery American periodical comics require a different balance of comics reading processes and activities. Panel-based delivery isolates individual panels or small panel groups from the other panels of the larger spread and can automatically zoom and focus on these panels, and elements within them, through guided-view. This allows the form to retain surprise, readability and flow in the narrative without relying on simultaneous visibility. With this change in the simultaneous visibility come changes in the associated reading activities. As a result, readers are required to re-balance the activities of comics reading and must engage in greater amounts of diachronic connection activities and reading memory in panel-based delivery. Conversely, synchronic connections activities are reduced and much of the pathfinding of panel-based delivery is focused on the micro-reading rather than the macro-reading. Due to the reduced complexities of pathfinding presented by individual panels and small panel groups, much of the complicated macro-level pathfinding is no longer required and so paths though the narrative present less complexity from the perspective of a reader applying the proposed toolkit.

9.5 The Shifted Balance of Reading Activities Between Spread-based and Panel-Based Delivery

Having applied my proposed reading toolkit to an example comic presented through both spread-based delivery and panel-based delivery, I have been able to identify how the reading activities, pathfinding and pace of reading American periodicals differs in the two forms of delivery. Notably it is clear that my reading toolkit applies to each form without a need to change the activities of the

toolkit itself. Instead, there is a shift in the balance of the reading activities required for understanding comics narratives presented in these two different forms of delivery.

Through close readings of the example presented though spread-based and panel-based delivery, I have established that the identification, grouping, closure and micro-pathfinding activities are performed throughout the reading process, with similar levels of engagement in each required. The most significant shifts in the balance of the reading activities are seen when comparing the synchronic and diachronic connection activities of spread-based delivery with those of panel-based delivery. It is evident that there is a shift in how sequence is understood and how a macro-reading path though the narrative is comprehended by readers. Unlike the ambiguous reading order of general reading activities, reading sequence is not ambiguous in most cases and the sequence of the narrative has an expected order. This relies on readers following a path through the narrative, and finding this path is understood to be an important part of the reading process of comics (Groensteen, 2007; Cohn, 2010b; Cohn, 2013b). I have identified two types of pathfinding within comics; the micro-reading path and the macro-reading path. The micro-reading path is the path through the panel-image, and we have seen that this remains relatively unchanged between the spread-based and panel-based presentation of American periodical comics regardless of the form of delivery. The macro-reading path is more complex however, and is more heavily impacted by panel-based delivery of American periodical e-comics.

By shifting the mode of delivery from larger, spread-based delivery to panel-based delivery, the presentation of comics forgoes the need for complex sequence-finding of macro-reading paths in most cases. Instead, panel-based delivery gives the creator or publisher of the comic greater control of the narrative sequence. Removing the need for readers to engage with as many instances of preference rules, assemblage or meta-rastic indices in finding the macro-reading sequence (Cohn, 2013b; Nichols, 2015; Nichols, 2016). This, as with the shift in general reading activities, does not eliminate the need for the reader to engage with macro-reading of sequence. Rather, it shifts the balance of the associated reading processes and requires a reader to apply these reading processes less often than in the spread-based delivery of American periodicals. As a result, complex layouts presented in spread-based delivery require a reader to engage with complex pathfinding activities for reading sequence as their eyes move along a continuous path of simultaneous visibility, grouping panels with assemblage rules and entering and exiting panels in sequence as they follow the lines of meta-rastic indices (McCloud, 1993; Groensteen, 2007; Cohn, 2013b; Nichols, 2015). In panel-based delivery these complex activities are largely unnecessary as the smaller groups and isolated panels make the expected sequence much easier to determine without the need for assemblage by the reader. Similarly, the isolation and small groups of panels separated by the naviscroll action breaks

the continuous reading path up into smaller units of eye movement. This means that the starting point of the reading path is reset more often, making the discovery of the entry points of panels more heavily reliant on the preference rules of attention related to the culturally defined reading raster rather than the exit point of the previously read panel.

It seems clear, then, that the shift in the balance of the macro-reading activities between spread-based and panel-based delivery is the most significant difference between the reading of American periodical comics presented in different ways. The change in the form of delivery changes how a reader can engage with the reading activities set out earlier and so alters the reading process. However, both deliveries of the American periodical comic still require the same literacies and demonstrate a need for readers to engage with the processes outlined in the proposed reading toolkit. There is a clear difference between the balance of the activities associated with the simultaneous visibility and pathfinding within a comics narrative. However, the proposed reading toolkit applies in all tested cases without need for alteration.

Chapter 10: Conclusion

10.1 Research Scope

Thus far, as we have seen, comics as a discipline has been fragmented as an object of academic study. Evidence of this fragmentation can be seen within a number of studies of comics reading. For example, Khordoc's analysis of text and word balloons addresses the relationships between text and image but largely ignores the relationships between image and image (Khordoc, 2001). In turn, Potsch and Williams focus on the visual properties of conceptual metaphor without considering the speech balloon or text (Potsch and Williams, 2012). Furthermore, Cohn separates the examination of visual components and the study of pathfinding, whilst McCloud identifies pathfinding in visual components but leaves ideas of sequence under-developed (McCloud, 1993; Cohn, 2013b). These partial studies and their omissions drive the argument of this thesis and the proposal of a more developed reading toolkit. We may not be able to argue a case for a holistic reading of comics on the basis that such a view would close down further alternative analysis. However, we can point to an expanded view based on an amalgam of research into partial models and components, and what is at stake when we bring them together.

A central reason that an expanded reading toolkit is needed is the recent shift in the number of common deliveries through which American periodical comics are presented. In the modern day, American periodical comics are distributed through both spread and panel-based delivery on screens, in addition to the traditional printed form. As such this research aimed to investigate how the processes and the acts of reading comics might differ between American periodical comics presented through different deliveries. To adequately address this aim, a reading model which explained the various reading activities of comics was sought. However, given that many partial models were available, but none appeared to address all the observable reading processes, it became evident that there was a need to propose an expanded toolkit for reading instead. In so doing I have been able to propose how the processes of reading comics as combinations of text, image and panel sequence come together and present an expanded toolkit that can be applied to various forms of comics delivery. This allowed for the investigation of how a shift in presentation might also shift associated activities of reading.

10.2 Contributions to Knowledge

An Expanded Reading Toolkit Based on Existing Partial Models

Central to the key findings of this thesis, a contribution to knowledge in the field might be summarised thus: fundamentally the thesis is built on the generation of an expanded reading toolkit, that integrates a range of partial models primarily based on printed texts.

It is important to recognise that the narrative operation of comics arguably functions not just in an understanding of individual visual narrative components but in their combination and sequence. My proposed toolkit is based around the understanding that readers engage with what might be thought of as the normal rules of reading by way of a reading contract, and that multiple visual-based literacies are used on top of this foundation (McCloud, 1993; Cohn, 2013b; Miodrag, 2013; Saraceni, 2001). In applying these multiple literacies, there is an engagement with the formal structure, and the likely expectations placed on a putative reader. In considering the partial reading models of others, I propose that some general reading activities can be unpicked. These are identification, grouping and closure, and each applies at several levels within a comics structure. All reading activities discussed within the partial models presented by others fit within these categories. For example, at a panel-level, readers engage with recognition and encyclopaedic memory in the identification of meaningful units (McCloud, 1993; Miodrag, 2013; Medley, 2010; Cohn and Murthy, 2015; Potsch and Williams, 2012). These components are then grouped to build larger visual units that are connected through their simultaneous depiction within the panel. This connection of identified and grouped elements relies on closure activities of comparison, categorisation, association, and reading memory to build understanding of the relationships between them (McCloud, 1993; Potsch and Williams, 2012; Miodrag, 2013; Cohn, 2013b; Cohn and Murthy, 2015). The early chapters of this dissertation examine reader engagement with these reading activities at a panel-level and consider the visual languages of comics as a foundation for building the reading toolkit. We also found that the general reading activities apply at levels above the panel-image. As McCloud, Cohn and Groensteen point out, readers identify panels and panel types, group panels into arcs, and perform closure between various units and groups from across the narrative sequence (McCloud, 1993; Groensteen, 2007; Miodrag, 2013; Cohn, 2013b). As such, this dissertation examined some of the dominant models for the connecting of panels in sequence at a higher level of the structure. In this examination we saw the importance of identifying panel types for the construction of arcs through non-linear application of closure (McCloud, 1993; Groensteen, 2007; Cohn, 2013b).

After investigating the understanding of sequence as presented by McCloud, Cohn and Groensteen it became clear that aspects of these three partial models can be applied in relation to one another to help build an expanded toolkit of reading. The models of both Cohn and McCloud suggest that, through the identification of panel-types, panels can be categorised into phases based on the content they hold in the panel-image, and through comparison with other panel-images in the recent sequence (McCloud, 1993; Cohn, 2013b). These comparisons rely on closure, identification, and memory of previously seen panel-images to connect them into grouped narrative sequences, or what Cohn refers to as arcs (Cohn, 2013b). These groups can be held in what might be termed reading memory – an amalgam of the short and long-term memory activities identified within the various partial models – as reading is undertaken (Groensteen, 2007; Baddeley, 2010; Potsch and Williams, 2012; Miodrag, 2013; Cohn, 2013b). My toolkit also considers how narrative connections are understood over larger reading distances, or longer reading times, based on the models presented by Groensteen, Miodrag and Cohn (Groensteen, 2007; Cohn, 2013b; Miodrag, 2013). Through identification and reading memory of grouped narrative moments and arcs, my toolkit proposes that readers connect narratively relevant sequences together as larger groups to form narrative understanding through closure and diachronic connection activities (McCloud, 1993; Groensteen, 2007; Miodrag, 2013; Gavaler and Beavers, 2020). The combination of each of the general reading activities forms a significant part of my proposed reading toolkit and develops the previously established partial models in relation to one another.

Broadly, the general reading activities form a base upon which the reading toolkit is built. However, for the general reading activities to be successful it became clear that the order in which identification, grouping and closure are performed must be variable. This was evident in how the orders of application differed in each comic used to test the partial models which were brought together. As such I propose that the order in which general reading activities are applied is ambiguous and dependent on both comic content and reader experience.

An Expanded Understanding of Sequence Finding

Given that comics have intended narrative orders, it became evident that to effectively apply this complex set of general reading activities, readers must be able to navigate the structural elements of a comic layout. As others suggest, readers must engage with pathfinding activities to determine and guide the viewing sequence of panels (McCloud, 1993; Groensteen, 2007; Miodrag, 2013; Cohn, 2013). This allows for the successful application of closure, grouping and identification in ways which create narrative sense. As part of my proposed reading toolkit, I identify two types of path through panel-sequences. These are the micro-reading path, which runs through each panel-image, and the

macro-reading path, which runs from one panel to the next in the visible sequence of a hyperframe. These types of paths can be seen in discussions of reading sequence from other researchers such as McCloud and Cohn (McCloud, 1993; Cohn, 2013b). The path is based on what I refer to as "the culturally defined reading raster", which is the standard direction of reading in the culture a comic was written in (Nichols, 2013). As such, this sets out the initial rules for eye movement. In western comics this is the Z-path that Cohn identifies (Cohn, 2013b). This culturally defined reading raster is then modified through application of the more complex pathfinding activities of differential zones of attention, panel entry and exit points, meta-rastic indices, preference rules, and assemblage (McCloud, 1993; Khordoc, 2001; Cohn, 2013b; Nichols, 2015). By following the culturally defined reading raster of western reading, Cohn notes that a reader should, where possible, follow either a left-to-right or top-to-bottom reading direction (Cohn, 2013b). If following either of these standard rules is not possible, Cohn proposes that a reader can apply preference rules to help in the discovery of reading sequence. However, because of their complexity, I propose that preference rules alone are not enough to allow for the determining of sequence. Instead, I suggest that meta-rastic indices also assist readers in following the reading path (Nichols, 2015). These meta-rastic indices were identified as visual cues which guide a reader from panel to panel and assist in the ordering of structural and narrative sequence when applying my reading toolkit (Nichols, 2015). I noted that meta-rastic indices tend to act as indicators of where to exit one panel and enter the next in the larger sequence, and they are a central plank to my contribution to knowledge.

My proposed reading toolkit combines the general reading activities with each of the guiding meta-rastic indices, preference rules and cultural norms of reading to account for each of the observable reading activities outlined in this study. It considers how the partial models proposed by others overlap and support one another whilst filling gaps which became evident through their application in close readings of published comics. In short, my proposed reading toolkit combines a set of general reading activities with the pathfinding activities associated with navigating sequences of visual images. This has allowed me to demonstrate an expanded understanding of reading in comics based on partial existing models and a cultural reading contract as a foundation.

Applying a Reading Toolkit to Differing Modes of Delivery

Whilst much has been written about reading based around the integration of comics' various visual components, little attention has been given to the varying presentations that deliver these elements. This is another area of research where I offer a key contribution to knowledge. Before the expanded toolkit could be effectively examined it was necessary to identify how and where it would be applied, both in print and screen presentations of American periodical comics. In order to maintain a

manageable scope, the toolkit was applied to three common modes of deliver in the modern day. These focussed on the typical sizes of spreads delivered in the printed codex and e-comic forms of American periodical in order to most thoroughly test the toolkit's effectiveness.

I identified that the defining feature of the typical printed comic is the page and that comics are often written to the turn of the page (Eisner, 1985). As such it was important to investigate what impact the page turn had on the reading activities and pathfinding of the proposed toolkit. I discovered that whilst the page often had an impact on pace and narrative reveal, the action itself was redundant and did not interfere with the activities of reading (Peacock, 1997; Peacock, 2000). I proposed that a similar action, with the same function of allowing readers to move from one spread to the next, was also observable in the same comics presented on the touch screen display. I refer to this action as the naviscroll (Nichols, 2015). As such, the crucial actions for progression through the American periodical in each form are redundant and therefore remain unintrusive throughout the application of the reading toolkit (Bolter and Grusin, 2000; Aarseth, 1999). Both actions allow readers to navigate from one spread of simultaneous panels to the next without interruption of the activities of reading. Whilst this dissertation aimed to take a reader focussed approach to comics, I identified that these redundant actions were often important from the perspective of the author as it allows them to encourage readers either to pause and reflect or to progress quickly though the narrative to find narrative satisfaction (Eisner, 1985; Atkinson, 2012).

My investigation of the American periodical revealed that the key impact to the application of the reading toolkit came from the delivery of comics either through spread-based delivery, or panel-based delivery. Spread-based delivery presents large spreads of panels as spatial maps, whilst panel-based delivery breaks the panels into small groups or isolates them from one another, removing or limiting the simultaneous visibility of the spatial map (McCloud, 1993; Groensteen, 2007). This represented a marked shift in the structure and presentation of the example comic which was used to test the toolkit. Through close readings I discovered that my proposed toolkit is suitable for reading comics presented through either method of delivery, and that each of the outlined activities still need to be applied. However, there is a noticeable shift in the balance of application of the reading activities, particularly those related to the macro-reading and pathfinding of simultaneously visible panels (Groensteen, 2007; Cohn, 2013b; Nichols, 2015). As outlined, in spread-based delivery readers need to engage with macro-pathfinding activities of assemblage and meta-rastic indices regularly throughout their application of the reading toolkit. This requires much greater engagement with reading activities associated with the synchronic connecting of panels (Groensteen, 2007; Miodrag, 2013). It also takes advantage of the number of panels visible at one time to allow readers to make visual comparisons as they perform closure activities (McCloud, 1993; Groensteen, 2007;

Cohn, 2013b). In panel-based delivery, spreads are smaller, with fewer panels, so synchronic connecting is required less often. Diachronic connections are therefore used much more frequently in the application of the reading toolkit in panel-based delivery due to the lack of simultaneous visibility (McCloud, 1993; Groensteen, 2007). As such, activities which rely on the comparison of simultaneous visible panels are reduced whilst those that rely on reading memory of currently unseen panels are increased. The lower complexity of layouts also makes the pathfinding activities more straightforward here. In the close readings of the comic in panel-based delivery there was little need to engage with the more complex activities of the preference rules or meta-rastic indices, although there was some reliance on these in small panel groups. This still demonstrates a requirement for readers to engage with reading activities of the macro-reading path but with lower frequency and complexity.

Evaluation

In summary, there were three key contributions to knowledge made throughout this research. These were:

– The proposal of an expanded reading toolkit which brought together existing models and filled gaps through the consideration of meta-rastic indices.

– Application of the proposed reading toolkit to American periodical comics presenting in spread-based and panel-based delivery, and the observation that the redundancy of reader actions is important.

– Identification that the reading activities of the toolkit remain the same in the transition of American periodicals from the codex to the screen, however the balance of their application is shifted in panel-based delivery.

10.3 What Comes Next

Expanding on the research conducted throughout this thesis, there are several avenues which might be explored to further test and examine my proposed toolkit. Primarily these are an expansion of the range of close readings, eye-tracking studies, expanding the research beyond the American periodical, and considering how the toolkit might be altered by the additional actions required of other forms of comic. These areas of study were not within the scope of this research but would likely be of significant benefit to the academic discussion of comics reading in future.

Eye tracking

My reading toolkit suggests that reading order and sequence are based on eye movements along a culturally defined reading path. This grounding is based on existing partial models and therefore

represents qualitative research which considers the findings of others, as well as my own close readings of example comics. Conducting some quantitative research using eye-tracking technology could help to determine the accuracy of these findings by creating statistical results regarding how a variety of readers navigate the complex structures of comics, and at what points they pause. Some studies of this type have already been completed but the results are generally based on very small sample sizes or do not consider each of the partial models outlined in this research (Omori, Ishii and Kurata, 2004; Martín Arnal, León, Broek and Olmos, 2019). Using my reading toolkit as a base it would be useful to see if the pathfinding that is suggested is as diverse as it might first appear. This would also allow for the further testing of the partial models used in the creation of the toolkit and could be used to examine assemblage and the meta-rastic indices to see what impact on reading each of these activities might have.

Expanding the Range of Close Readings and Going Beyond the American Periodical

Perhaps the most obvious next step for this research is the continued testing of the toolkit in a wider range of close readings. It has been necessary to limit the scope of this thesis to include only a single example comic in Chapter 9. During this research, a wider range of American periodical comics were tested but these were omitted from the final writing to ensure clarity and depth in the testing. It would be beneficial to this research to continue this testing beyond the confines of this document to further demonstrate the usefulness of the proposed reading toolkit. This would also allow for an expansion of the range of styles, publishers, artists and writers whose work could be used to establish the robustness and flexibility of the toolkit.

Similarly, it has been necessary to limit the scope of the study to the American periodical comic in print and on screen. However, the findings of this study can be applied beyond this scope to investigate forms of comics from different backgrounds and in different environments. Whilst the American periodical is the most common in western culture, it is not the only dominant comic form. Investigating how the proposed reading toolkit applies outside of this western context should serve as a useful comparison and may reinforce its effectiveness. By applying the toolkit to comics based on a different culturally defined reading raster, such as Japanese Manga, one could examine the effectiveness and adaptability of the toolkit in other cultures and to other comics forms. Similarly, other forms of e-comics might be tested. I have already begun some discussions in this area in conference presentations considering comics presented through infinite and expanded canvases on screen. The naviscroll, simultaneous visibility, and the balance of reading activities would likely be impacted here, so further investigations would allow more focussed studies to be undertaken beyond panel-based and traditional spread-based e-comic delivery.

Reader Actions in Digital Comics

Similarly, other forms of digital comics might be considered which engage with a variety of additional literacies available only on the screen. These literacies likely require altered or additional reader/user actions not discussed in the scope of this research. As part of my investigations, it became clear that the incunabular state of digital comics would have required a significant amount more research and testing than was possible within this thesis. It would therefore be useful to consider the impact of additional literacies required of moving image, sound, interactivity, and game elements which can be added to comics in the digital environment. The diverse range of digital comics available would surely challenge the toolkit proposed here, as additional reading activities beyond those of static narrative image would need to be considered. These might also interfere with redundancy and narrative effects associated with actions beyond those of the naviscroll. These forms of comics are relatively new but are receiving significant interest from academics such as Campbell, Goodbrey, Sabin, Smith, et al. (Sabin, 2000; Campbell, 2006; Smith, 2012; Goodbrey, 2013a; Goodbrey, 2013b; Goodbrey, 2015; Nichols, 2016). Similarly, Groensteen has begun a discussion of how these forms alter reading models by considering multimedia and interactive comics in relation to his own spatio-topic system (Groensteen, 2013). My proposed reading toolkit would likely be useful for comparing these forms of comic and it would be interesting to examine how the changes to the literacies and actions required by these different forms may impact reading.

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