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**Title:** Medium, knowledge, structure: capacities for choice and the contradiction of medium-specificity in games and comics.

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## ABSTRACT

Chris Ware's *Building Stories* (2012) is a box containing fourteen items that can be read in any order, and for this reason it appears to offer its readers a great deal of choice over the narrative structure of the work. This paper contrasts *Building Stories* with the video games *Fallout: New Vegas* and *The Elder Scrolls V: Skyrim* to demonstrate that although *Building Stories* does offer choices, these choices are not ultimately meaningful because while the reader can decide the order of presentation, they cannot decide the order of events as they can in the games, and in other examples such as Marc Saporta's novel *Composition No. 1*. The article draws upon the work of Seymour Chatman, Gonzalo Fresca and Espen Aarseth in analysing narratives in games and texts, and concludes by considering the implications of choice in narrative.

**Keywords:** *Building Stories*, choice, Chris Ware, comics, games, narrative, plot

**Medium, knowledge, structure: capacities for choice and the contradiction of medium-specificity in games and comics.<sup>1</sup>**

In 2012, Pantheon Books published an unusual work by Chris Ware. Entitled *Building Stories*, the work comprised “14 distinctively discrete Books, Booklets, Magazines, Newspapers and Pamphlets” all enclosed within a large cardboard box.<sup>2</sup> The various components of *Building Stories* can be read in any order, and combine to tell the life story of an unnamed female protagonist as she grows from youth to old age, getting married and having a child in between (among many other events). In reviews of *Building Stories*, critics regularly draw attention to the board-game like design of the comic’s box and elements of the text within.<sup>3</sup> Yet while many have noted the similarities between *Building Stories* and the visual/physical design of board games such as *Monopoly*, and Ware himself has cited “French *Jeux Reunis* compendium game sets from the late 19th and the early 20th century” as one of the inspirations for the work’s design concept, few go as far as to suggest that *Building Stories* actually is a game.<sup>4</sup>

The work does, however, have qualities that suggest a structural (rather than just visual) connection to games: the fourteen items can be read in any order, implying a level of freedom far greater than most books’ suggestions of a straightforward front to back approach, and perhaps indicating that this is a work to be ‘played’ as much as to be ‘read,’ the possibility of choice here arguably casting the reader as a player. That the ‘shape’ of the whole and the experiences of the narrative can be changed by different readings is another indication that there may be an element of game-like structures within the work, since games are by their very nature profoundly affected by the ways in which they are played.

In this article, we will explore some of these connections and consider whether the narrative structures that can be found in *Building Stories* bear anything more than a passing resemblance to the narrative structures found in games. We will consciously

avoid the bifurcation that has occurred in debates on the status of games and stories in recent games theory, outlined in Brand and Knight, for example, and approach our discussion in the spirit of Aarseth's 2012 structural analysis of game functions, according to narrative theory.<sup>5</sup> In particular, we coincide, to some extent, with his theorisation of game 'kernels' (or required pre-existing scenarios), relative to 'satellites' (or changes occurring as events in a plot, that are inhibited or permitted by these scenarios), although we approach these descriptions of possible types of fictional event from the point of view of revealed and un-revealed structures of discursive knowledge, which inhibit both reading and play in particular ways. We will employ and build upon Seymour Chatman's notion of narrative as a "double time" as a starting point to explore how plots are structured in *Building Stories* and a selection of other works including video games from Bethesda Softworks and Marc Saporta's prose novel *Composition No. 1*.<sup>6</sup>

In his article "What Novels Can Do That Films Can't (and Vice Versa)," Chatman argues that:

A salient property of narrative is double time structuring. That is, all narratives, in whatever medium, combine the time sequence of plot events, the time of the *histoire* ("story-time") with the time of the presentation of those events in the text, which we call "discourse-time". What is fundamental to narrative, regardless of medium, is that these two time orders are independent.<sup>7</sup>

He goes on to demonstrate this independence in writing on Jean Renoir's short film *Une Partie de campagne* (*A Day in the Country*; 1936) and the short story by Maupassant that underlies it, noting of the short story that there is a "disparity between the story order and discourse order: story order is A, B, C, D; discourse

order is A, C, B, D.”<sup>8</sup> The order of events can be quite different from the order of telling. We should note here that Chatman’s use of the term ‘discourse’ differs considerably from other narrative theorists, even that used by his major influence, Benveniste, since Chatman does not use the term expansively to include the relationship between text and reader, but only to describe the way in which the text is structured by the narrator.<sup>9</sup>

Chatman’s account of narrative is useful. However, in *Building Stories*, we can see at least three different temporal categories, rather than the two categories that Chatman describes. The first, which Chatman would call “story-time” can be seen in the narrative about the unnamed female protagonist’s life, and the order in which the events in this life take place as they are ordered chronologically. The second strand of “time” in *Building Stories* constitutes Chatman’s “discourse-time”. This is the narrator’s order of telling.<sup>10</sup> The story-time described above is not expressed linearly or completely in *Building Stories*. In one of the book’s large, newspaper format sections, for example, panels alternate between sequences showing the protagonist out running and various sequences dealing with her and her partners’ purchase and renovation of her house, events that take place before the run. The order of presentation of the events is not the same as the order of occurrence of those same events. This is Chatman’s ‘discourse time’ in action. Although Chatman defines discourse as only the manner and order of telling, the experience of reading *Building Stories* broadens discourse to include another temporal category, ‘user-time,’ a conception of which is central to our discussion of games. Although user-time is present in all narratives, in *Building Stories* it is very *explicitly* built into the structure and shape of the text, and comprises the order of events as the user experiences them. Since the reader has a choice regarding the order in which the fourteen

components of *Building Stories* are read, they can again reorder the text in a way over which Ware has no control.

This principle implies ways in which the present situation of reading and viewing bears directly upon the structure and meaning of a plot, although the general principle cannot account for the variety of types of this relationship. The plots of conventionally constructed novels require an agreed way of reading (front to back). Reading them in another way renders their plots incoherent. Most graphic novels also follow this prescription. What is unusual about *Building Stories* is the way in which user-time and user-determined orders of reading are actively and explicitly incorporated into the work itself. This perhaps indicates that *Building Stories* is in fact a game, but before we come down on one side or the other of this idea, it is important to think a little about plot and games.

In games, user-time plays a major role. Our own discussions about plot began with an examination of games published by Bethesda Softworks using Chatman's two categories, and led to some illuminating engagements with plots in games and literature, which we believe can help us to understand comics such as *Building Stories*. In this research we have limited our discussion to two games: *The Elder Scrolls V: Skyrim* (2011) and *Fallout: New Vegas* (2010). In the former, which was both developed and published by Bethesda, players are placed in a fantasy setting featuring elves and dragons among many other species. There they have the opportunity to pursue what might be described as a core quest, though this is not a requirement, and following an introductory sequence that serves to orient players to the controls and conditions in the game world, they are free to ignore it altogether should they so choose. Rather than being forced to follow a single plot, players are free (within certain 'physical' limits) to move around Skyrim and develop a life within

the game that can include a career (or several careers), combat, travel, and the development of relationships (including marriage and the adoption of children). Previous games in *The Elder Scrolls* series have employed similar play styles but are set in different regions of the same continent (Tamriel, on the planet Nirn). In *Fallout: New Vegas*, which was also published by Bethesda Softworks but was developed by Obsidian Entertainment, the gameplay principles are largely similar but the setting is different. Instead of a fantasy-style world, the location here is Earth, specifically North America, following a nuclear war that has left the vast majority of the landscape in ruins. The Wasteland, as the setting is known, is home to various gangs and organisations that attempt, often violently, to assert dominance over the territories and scant resources that remain. Players are again offered a high level of freedom of action, and can ally themselves with one of these groups or act as an independent agent as they journey around the game world at will (though like *Skyrim* the game does include some “physical” limits – the game world is not infinite in size). In both games we see the use of similar play mechanics; specifically, they take place in vast “open worlds” that allow players to walk freely around and encounter challenges, obstacles and tasks in any order they choose. With a few exceptions, such as the opening orientation sequences, players are not required to complete tasks they do not wish to. As this description indicates, player choice has a major role in the Bethesda games; user-time and user determined orders are foregrounded. But what of story-time and discourse-time?

In the Bethesda games, we would suggest, Chatman’s story-time and discourse-time exist, but they are not separable: what is told and the order in which it is told are identical. Both take place in the present. Although there are pre-existing conditions in the games (for what could potentially happen according to the rules and physical

systems of the game), there is no pre-existing plot. The plot only develops as the game is played.

Objections to claims that the structuring principles of games and stories (those opportunities and inhibitions derived from the afforded form of a story or game) are functionally identical can be made on teleological grounds. A plot in a story represents a series of known causes and consequences, it might be argued, whereas the course of events in a game is variable, within the structure of opportunities that the form of the game affords.

This objection can be questioned on a number of grounds. First, the experience of play and of plot remains un-realised in both games and stories, until an outcome is achieved. A story concludes when it is no longer being told, because there is nothing more to tell. However, a game concludes first in being goal-directed (we begin to play 'in order to'), then in the facilitating of tasks and the fulfilment of that goal. The forms of both stories and games also have their own discursive teleologies: nobody reads or listens to a story 'in order to' complete tasks, whereas playing 'in order to' complete a series of tasks is a discursive trope of games. In contradiction, both stories and games are in fact undertaken 'in order to' read, listen or play, rather than to conclude reading, listening or playing: the goal is achieved in undertaking the activity, not in concluding it by reaching a specific state.

Second, the achievement of this outcome, or goal, might be variable in a course of playing a game, as it might be invariable in the plot of a story. However, the forms of both game and story both inhibit and locate plot, albeit in different ways. With a game, the particular diegesis (whether that is the codified world of the game of chess or the—differently coded—world of an environment depicted on a computer screen),



might appear to allow agency, on the grounds that the numbers of permutations of sequential moves are of such high magnitude. This magnitude is nowhere near as great as the magnitude of numbers of possibilities for action in the phenomenal world, but the two do correlate as a game's verisimilitude, or the set of possible and impossible actions which the structure of the game dictates. However, it is this magnitude of possible permutations of actions that is, itself, a structural characteristic of games, affording players quite differently to the single plot of a story.

Third, in no way is the experience of a plot retrospective, as has been suggested by some theorists, despite the fact that only one type of knowledge of it—as the achieved plot amongst all possible unachieved plots—is allowed by the structure of a story.<sup>11</sup> It is a corollary of this error that might incline a theorist to describe characters appearing in games and stories as having distinct functions relative to the present time of reading, listening or playing: according to this conception of 'retrospective' plot, characters in stories could be described as being known (by a reader or listener) via a characterisation of their accumulated actions, retrospectively, whereas in games, action is dictated according to (the type of) character, in the present.

In games, the elision of 'story time', 'discourse time' and 'user time' has profound implications for the definition of narration and indeed the identification of the whole utterance. As opposed to the linguistic utterance, the game 'utterance' constitutes the entire poesis of the game in which every design and production aspect of the game text can be considered as an event in the plot, including visual appearance, sound and movement, on one hand generalised as a complete diegesis and on the other only ever partially revealed to the player in the course of a singular

development of play: the emergence of a unique combination of situations and actions.

This specifically ludic structure can also be found in written stories, and if we look at a precursor to *Building Stories*' 'book in a box' model, Marc Saporta's 1962 novel *Composition No. 1*, we can see one example of this. *Composition No. 1* is a yellow cardboard box containing one hundred and fifty loose, unnumbered sheets of paper. Each sheet presents a short section of narrative in prose format, and the sheets can be read in any order. Like *Building Stories*, the box here serves to suggest a degree of completeness to the work; the relationships between the one hundred and fifty sheets are crucial, just as the relationships between the fourteen elements of *Building Stories* are.

Early in the history of the theorisation of nonlinear text, Aarseth explained a key distinction between form and content as topics in the study of the visual appearance of text.<sup>12</sup> His distinction remains a relevant theoretical move. Aarseth is interested in the "physio-logical form (or arrangement, appearance) of the texts," rather than the ways in which any type of diegesis is produced or maintained, and alongside the function of lexicogrammar in determining the visual arrangement of text.<sup>13</sup>

This focus achieves two things. On one hand, due to the fact that he is discussing written text, it identifies a level of visual arrangement that encompasses and supersedes the topological correspondence of the structure of the visual arrays of writing to the temporal structure of lexicogrammar—that is, the proximity relationships that make graphemes and groups of graphemes comprehensible as visual realisations of the temporal proximity relationships of a language. On the other hand, it also distinguishes this type of visual arrangement from any type of structure

derived from the content of writing, such as discursive associations derived from habitual expectations of the visual appearances of genres, for example.

Identifying this level of textual organisation allows Aarseth to explain the visual appearance of nonlinear texts as types of affordance, in which the arrangement of “physio-logical” phenomena mutually impacts, and is distinct from, the organising structure of both lexicogrammar or discursive habits of use. In this, he follows James Martin and anticipates, to some extent, Thibault’s identification of the importance of the structure of both the tactic and hypotactic relationships between the proximity relationships governing lexicogrammar and the possible, nonlinear, forms of a graphic array.<sup>14</sup>

Beyond language systems, which make structural correspondences between the topography of elements in the system and the proximities of written marks, Aarseth struggles to find any existing theory of literature that describes the ways in which the morphology of writing appears, or the ways in which graphic elements are modified by others from outside a writing system. He finds an imperfectly correlating description in the rhetorical “figure,” or way of constructing an utterance that is neither determined by the meaning of the words nor the exigencies of instantial expression, but rather seeks to manipulate a listener or reader by facilitating and inhibiting specific types of knowledge of the text itself.<sup>15</sup>

Described in this way, Aarseth’s concept—of the structuring function of the afforded form of an utterance, in facilitating and inhibiting specific types of knowledge of the text itself, other than habits of use or language structures—is germane to discussions of both story-telling and game-playing. The affective impact of the tactic relationship between the “physio-logical” form of a story or game and the

visual/linguistic experience or ludic experience, precisely defines a shared topic of study and, possibly, can be productive of a series of definitions of the activities of story and play.

Three years later Aarseth himself addressed this lack of literary theory in developing the notion of the cybertext in his book *Cybertext: Perspectives on Ergodic Literature*<sup>16</sup>:

The tensions at work in a cybertext, while not incompatible with those of narrative desire, are also something more: a struggle not merely for interpretative insight but also for narrative control: “I want this text to tell *my* story; the story that *could not be* without me.” In some cases this is literally true. In other cases, perhaps most, the sense of individual outcome is illusory, but nevertheless the aspect of coercion and manipulation is real.<sup>17</sup>

He later goes on to note, in a remark that is particularly relevant to our discussion here:

In the determinate cybertext [. . .] the functions of plot (*sjuzet*) and story (*fabula*) appear to have traded places, somehow. But this is not exactly the case. The concept of plot is unsettled by the reader (user), who, being strategically within it, is in no position to see through it and glimpse a story behind.<sup>18</sup>

Although Aarseth was discussing written text, he recognises that, if applied to a range of apparently unlike experiences of story and play, his concept of nonlinear text as a principle of afforded knowledge reveals new similarities across registers and activities.<sup>19</sup> This is extremely useful for understanding the implications of choice

in relation to narrative across media and, as we will discuss shortly, it is also one of the benefits of our tripartite model of time in narrative.

*Composition No.1* behaves similarly to the Bethesda games in the ways in which its narrative plays out. Each sheet of paper is written in the present tense, and none of them have a strictly determinable relationship to any of the others, although they are not completely unrelated as characters do recur across sheets. The effect of this can be quite unexpected, and the events that occur are determined by the order in which they are read. For example, several pages feature the character of Marianne, and two among them present an interesting demonstration of the shifting structure of the novel in microcosm. In both pages, Marianne is described getting married. Each begins similarly, one offering as its first sentence: 'Marianne's features are tense under the white veil,' the other: 'Marianne, a young bride tense under her veils, walks away from the altar between the double row of friends and relatives'.<sup>20</sup> The former deals with Marianne's arrival in the church for her wedding, the latter with her leaving the church after the wedding ceremony has taken place. Received thus, with no pages separating them, this order seems straightforward: this is a description of one wedding. Yet other pages feature Marianne as a married character and describe arguments with her husband. If all of these sheets are read after the two cited above this does not present a contradiction to the notion that there is one wedding and a subsequent unhappy marriage. But if the other sheets are read before and/or between the two wedding pages then she is married at least twice, if not three times or possibly even more (since reading an argument page before the two wedding pages suggests she is married once (but we do not read about this ceremony), this marriage breaks down, and then she marries once or twice more as described on the wedding pages. The reading order here does not only determine the order that the

reader encounters a fixed set of events: it actually changes what happens and when. As in the Bethesda games this means that Chatman's story-time and the discourse-time are collapsed into each other, and both are subordinated to user-time. We can therefore argue that the structure of narrative in games is *not* unique to computer games, and that in some cases it is possible to see direct similarities between games and written texts. In fact, we would go as far as to suggest that *Composition No. 1* is a game.

Games also focus attention on the relationship between the time of play and what remains (or will always remain) un-revealed in the plot and hence unknown by the player. Distinct from the habits of reading literary fiction in which, to complete the book, a reader gains a complete knowledge of the text, in *Composition No. 1*, the plot constitutes a selection of known experiences including the knowledge that other, unknown, plot combinations are and have been available. To complete the game does not require complete knowledge of the poesis of the game. As Aarseth, who identifies *Composition No. 1* as an example of a cybertext, puts it<sup>21</sup>:

[. . .] when you read from a cybertext, you are constantly reminded of inaccessible strategies and paths not taken, voices not heard. Each decision will make some parts of the text more, and others less, accessible, and you may never know the exact results of your choices; that is, exactly what you missed.<sup>22</sup>

The narrator is experienced by the player as a burgeoning motive force, for which what remains untold is a prerequisite of telling. 'Discourse time', in the case of games, is characterised by the presence of remaindered, unknown, un-produced but prepared plots constituting a whole poesis.

Whereas in the Bethesda games and *Composition No.1* there are conditions but no pre-existing plot, in *Building Stories* the plot is pre-established. No matter which order the reader takes the fourteen objects in, the story-time is fixed. Although the order in which the *reader* encounters events can and does change depending on how they read the work, the order in which the *protagonist* encounters them does not and cannot change. The number of possible readings of *Building Stories* is significantly fewer than *Composition No.1*, but is still a very high number in real terms (over 87 billion) and it is statistically unlikely that any two readers will read the book in the same order without consciously trying to do so.<sup>23</sup> Nevertheless, *Building Stories* does not work in the same way as *Composition No.1* because no matter how many different ways in which it is possible to read the book, the story time is unchanging. In the Bethesda games and *Composition No.1* the events of the story time change according to the order of playing or reading. The reading or playing order determines *both* what happens *and* the causal relationships between events. It is not simply a matter of retelling the same story in a different order.

Even if we do not class *Building Stories* as a game, its form illuminates the relationship between narrating and use. Indeed, it is inarguable that *Building Stories* allows choice, in that the reader does choose how the plot is presented to them, but what is notable is the lack of impact that the choices the reader makes have upon the plot. In games plots that emerge co-temporally with narration and that are not predetermined are common, and there are numerous examples of this type of narrative structure beyond the Bethesda games. Production-oriented choice-based narratives are less common in other areas, but they are not absolutely unique to things that are conventionally identified as games, as *Composition No.1* demonstrates. B. S. Johnson's *The Unfortunates* is another example, being a box

containing twenty-seven pamphlets ranging in length from a single sheet of paper to a booklet of twelve pages. The first and last booklets are indicated, but the others can be read in any order, a narrative strategy that allows Johnson to effectively represent the jumbled nature of memory and recollection.

The differentiation between games and productions in which plot is pre-determined offers a number of benefits for the study of narratives in general. The identification of these broader narrative structuring systems allows us to compare narratives across media, and in ways that are not limited to models of narrative from particular disciplines. The continued growth of transmedia narratives is one area that would benefit particularly from the possibility of such comparisons, since these comparisons enable us to understand the different constraints and affordances that multimedia and transmedia forms offer. Furthermore, since transmedia narratives frequently transcend the boundaries of academic disciplines it is important to develop models of narrative structures that respond to those narratives rather than relying overly upon existing disciplinary approaches. Similarly, registers such as comics, which often bring a range of disciplines into play in a form that could at the very least be called interdisciplinary, often demand medium agnostic systems for understanding (whether these demands are met is a different matter). We believe that this model has value in assessing these registers. When we presented this research at conferences internationally, the primary resistance we encountered was from scholars who asked us why we hadn't taken a particular existing model from disciplines such as literary studies or media studies and applied that to the texts. Our response to that critique would be that the model was *developed from* the texts, rather than *applied to* them, and for this reason we believe it to cast new light on the texts we have discussed. While it may not apply to all texts, it does offer



opportunities for the development of rich and nuanced understandings of those texts that do display the characteristics discussed here.

The second core benefit of this differentiation between story, discourse and user times is that it allows for a more precise understanding of the nature of choice in narrative, and the possibilities for choices to have impacts. It also lets us better comprehend the power relations at work between the various “choosers” involved in narratives: our understandings of the relationships between authors and readers, for example, are nuanced by this approach. This has clear implications in discussions of topics such as authorship, but there are also wider-reaching opportunities to consider themes such as economics, gender, multiculturalism and sexuality in terms of the relative power to choose. Who holds these capacities, and the extent to which they are (or can be) relinquished or renegotiated are brought into new focus by the implication of the user and user time in the narrative structure. *Building Stories* presents a type of choice that turns out not to be as meaningful as it initially appears. It is wise to be cautious when presented with choices and consider how significant these choices actually are: are we able to have a real impact upon the narratives with which we are engaged or are we being offered Hobson’s choice? A tripartite model allows for a real consideration of this question because it affords a clear consideration of the level of agency the user has, and the significance of this agency (or lack thereof).

Finally, and more specifically in relation to comics, this approach offers a means for dealing with those comics where user choice and the possibility for a reorganisation of elements of the plot is brought into play in an explicit fashion. *Building Stories* is one high profile example of this type of work, but there are numerous others. In 1986, British series *2000AD* launched a spin-off called *Dice Man*, which required

players to use dice to navigate an adventure that involved both luck and decision making:

Using the format popularised by the massively successful Fighting Fantasy gamebook series, [Pat] Mills developed a version of 2000AD where the reader could become Judge Dredd, Nemesis or Slaine. Each decision you made changed the story, with no guarantee of even completing it, depending on choices made and your luck in dice-rolling.<sup>24</sup>

More recently, in 2010, Jason Shiga's *Meanwhile* offered readers the opportunity to use tabs on the side of the book's pages to "Pick any path. 3856 story possibilities."<sup>25</sup> Finally, Daniel Merlin Goodbrey's "game comics", which include *A Duck Has an Adventure* (2012), *Icarus Needs* (2013) and *Dice With the Universe* (2014-16) also bring questions around narrative and decisions to the fore. In *A Duck Has an Adventure*, which was distributed online and as an Android app, the player/reader is challenged to navigate branching paths of panels "to discover all the different possibilities one duck could live' in what Goodbrey describes as a 'unique hypercomic adventure game'.<sup>26</sup> *Icarus Needs* asked players to complete a series of objectives and collect items to help the titular character to escape a dream, all within the panels of a comic, while *Dice With The Universe* saw Goodbrey asking readers to roll a die and then send him the results of the roll via Twitter or in the comments thread on the comics' webpage.<sup>27</sup> The aggregated results were then used to determine what happened in the following week's strip.<sup>28</sup> While we do not mean to imply that these texts work identically to *Building Stories* or the other examples we have looked at in this article, we would suggest that our proposed model offers a means for considering them that better takes account of their operational systems than do existing models of comics narratives since it incorporates the possibility for

readers' choices to actually determine the narrative (and helps us to identify situations where they do not).

What is of interest here is the impact that “user-time” choices have upon narrative structure. *Building Stories* suggests that the reader is an active participant in the production of the story but, as we have demonstrated, this is not the case.

Conversely, *Skyrim* and *Composition No.1* afford plots that users produce through partially-known narrated worlds that have so much diegetic variety that to speak of any one plot is impossible. However, in both games and other productions that creatively utilise the formal and discursive characteristics of games, to ascribe the function of narrator to player requires a theoretical reconfiguring of the function of the narrator in the game poesis, relative to a revised conception of utterance rather than the status of a plot. To use a vocal analogy, games players meaningfully speak new sentences using a language of the narrator's devising whereas readers of a novel repeat them or, to return to Chatman, players conflate ‘user time’ with a ‘story time’ that they can never fully know.

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<sup>1</sup> We are grateful to Nina Mickwitz and David Bentley for their helpful input and comments during the preparation of this manuscript.

<sup>2</sup> Chris Ware, *Building Stories*. (London: Jonathan Cape, 2012). Back cover/box.

<sup>3</sup> See, for example:

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<sup>5</sup> Brand, Jeffrey and Scott Knight. "The narrative and ludic nexus in computer games:  
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- <sup>6</sup> Chatman, Seymour. "What Novels Can Do That Films Can't (and Vice Versa)." *Critical Enquiry* 7:1 (1980). 123.
- <sup>7</sup> Chatman, "What Novels Can Do". 118.
- <sup>8</sup> Chatman, "What Novels Can Do". 124.
- <sup>9</sup> Benveniste, Émile. *Problems in general linguistics*. (Miami: University of Miami Press, 1971).
- <sup>10</sup> Chatman, "What Novels Can Do". 122.
- <sup>11</sup> Osborne, Martin. *An introduction to game theory*. (Oxford: Oxford University Press, 2004).
- <sup>12</sup> Aarseth. "Nonlinearity and Literary Theory." 51–2.
- <sup>13</sup> Aarseth. "Nonlinearity and Literary Theory." 51–2.
- <sup>14</sup> See Martin, John. *English Text: System and Structure* (Philadelphia: John Benjamins, 1992), and Thibault, Paul. *Brain, Mind and the signifying body: an ecosocial semiotic theory* (London: Continuum, 2004).
- <sup>15</sup> Aarseth. "Nonlinearity and Literary Theory." 82.
- <sup>16</sup> Aarseth writes:
- The concept of cybertext focuses on the mechanical organisation of the text, by positing the intricacies of the medium as an integral part of the literary exchange. However, it also centres attention on the consumer, or user, of the text, as a more integrated figure than even reader-responses theorists would claim. The performance of their reader takes place all in his [sic] head, while the user of the cybertext also performs in an extranoematic sense. During the cybertextual process the user will have effected a semiotic sequence, and this selective movement is a work of physical construction that the various concepts of "reading" do not account for. This phenomenon I call *ergodic* [. . .]. In ergodic literature, nontrivial effort is required to allow the reader to traverse the text. (Aarseth, Espen. *Cybertext: Perspectives on Ergodic Literature*. Baltimore: Johns Hopkins University Press, 1997. 1)
- <sup>17</sup> Aarseth, *Cybertext*, 4.
- <sup>18</sup> *Ibid.* 112.
- <sup>19</sup> "Neither is the similarity between *I Ching*, Queneau's *Poèmes*, and *Adventure* too striking at first sight." Aarseth. "Nonlinearity and Literary Theory." 83.
- <sup>20</sup> Saporta, Marc. *Composition No. 1*. London: Visual Editions, 2011, n.p.
- <sup>21</sup> For Aarseth's discussion of *Composition No. 1* see Aarseth, *Cybertext*, 53.
- <sup>22</sup> Aarseth, *Cybertext*, 3.

<sup>23</sup> The total number of possible reading orders of *Building Stories* is 87,178,291,200. This figure is given by the mathematical function 14! (i.e. the factorial of 14, or,  $14 \times 13 \times 12 \times 10 \times 11 \times 10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$ ). The factorial yields the total number of permutations possible within a given set of objects. The total number of possible reading orders of *Composition No. 1* is  $5.713384e+262$  (given by 150!).

<sup>24</sup> Boyle, Jules. “Unknown Pleasures – Pat Mills discusses 2000AD’s Dice Man”. 2014. Accessed 17 November 2016. <https://bigcomicpage.com/2014/08/18/unknown-pleasures-2000ad-presents-dice-man/>

<sup>25</sup> Shiga, Jason. *Meanwhile*. (New York: Abrams, 2010). Front cover.

<sup>26</sup> Goodbrey, Daniel Merlin. “A Duck has an Adventure”. 2012. Accessed 20 November 2016. <http://e-merl.com/stuff/duckadv.html>

<sup>27</sup> Goodbrey, Daniel Merlin. “Icarus Needs”. 2013. Accessed 04 December 2016. <http://www.kongregate.com/games/Stillmerlin/icarus-needs>

<sup>28</sup> Goodbrey, Daniel Merlin. “Dice With The Universe #1”. 2014. Accessed 20 November 2016. <http://e-merl.com/2014-02-18-1-hullo>