Reflective Rereading and the SimCity Effect in Interactive Stories

Alex Mitchell(✉)

Department of Communications and New Media,
National University of Singapore, Singapore, Singapore
alexm@nus.edu.sg

Abstract. Reflective rereading in print literature involves a critical or meditative re-examination of a work for deeper meanings. In this paper I argue that, in interactive stories, reflective rereading can involve examining the surface of an interactive work with the aim of gaining a deeper understanding of and appreciation for how the underlying computational system functions, and how this internal structure relates to the surface experience of the work as a story. I explore this through close readings of four interactive stories: *The Walking Dead (Season 1)*, *Façade*, *Prom Week*, and *Blood and Laurels*. Through this analysis, I make connections between this form of reflective rereading and Wardrip-Fruin's "SimCity Effect", suggesting a correspondence between works that afford reflective rereading and those that exhibit the SimCity effect. Further, I suggest that the abstractions used to represent the underlying system will impact whether or not an interactive story affords reflective rereading.

Keywords: Interactive storytelling · Reflective rereading · SimCity effect · Close readings

1 Introduction

One measure of the quality of a story is whether or not people want to go back and reread the story. With interactive stories, the process of rereading is complicated by the procedural, generative nature of the story - it is likely that on rereading, the reader will encounter a story that is subtly, or possibly drastically, different from what she encountered on previous readings. This raises the question of what form rereading takes in interactive stories.

In this paper, I focus on the problem of *reflective* rereading in interactive stories. Through a close reading of four interactive stories, I examine the relationship between reflective rereading and Wardrip-Fruin's "SimCity Effect" [2], which is manifest in systems where the audience's experience of the surface of the work enables the development of an understanding of the work's complex internal structure. I argue that reflective rereading depends on both the presence of the SimCity effect, and the use of appropriate narrative abstractions to foreground the underlying computational structure in the surface features of an

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interactive story in a way that encourages the player to pay attention to both the story and the underlying system.

Note that in this paper I am using the term "reading" to refer to the process of making choices and perceiving the outcome of those choices in an interactive story, and from those choices and outcomes constructing an understanding of the story, regardless of the medium used to convey the story. I use this term rather than "playing" or "interacting" to emphasize the importance of the experience of the story as part of the process of interacting with an interactive story.

The rest of this paper is structured as follows. I begin by briefly surveying previous work that has looked at rereading in interactive stories. I then propose the specific research problem I am investigating, and describe the close reading methodology used for my analysis. This is followed by a close reading of four interactive stories: *The Walking Dead (Season 1)* (TellTale Games, 2012), *Façade* (Mateas and Stern, 2005), *Prom Week* (Expressive Intelligence Studio, 2012), and *Blood and Laurels* (Emily Short, 2014). The paper ends with a discussion of the implications of my analysis, and some suggestions for future work.

2 Related Work

There has been some previous work to explore the repeat experience of interactive stories. Focusing on hypertext fiction, Bernstein et al. [3] describe rereading as opening up the possibility for multiple meanings to emerge as fragments of text are encountered in different contexts on subsequent readings, with readers motivated to reread to experience these variations. In contrast, researchers such as Harpold [4] and Douglas [5] argue that readers return to hypertext fiction, not to experience variation for its own sake, but rather to seek closure.

Bridging these two perspectives, Murray [6,7] has suggested that readers will want to repeatedly experience interactive stories to see different perspectives, and eventually achieve a form of second-order closure when they are able to perceive the larger system underlying the variations. Mitchell and McGee [8] expand upon this, suggesting that only after closure has been reached does a reader actually consider what she is doing to be rereading. After this, she will shift to something similar to Calinescu's [1] notion of simple or reflective rereading.

3 Research Problem

Previous work has suggested that readers of interactive stories initially reread for closure. There has not, however, been any work to explore what readers are doing when rereading after reaching closure.

Mitchell and McGee [8] suggest that rereading for closure is similar to Calinescu's [1] notion of *partial* rereading. Calinescu describes two other types of rereading: *simple* rereading, which involves an attempt to recapture the experience of the first reading, and *reflective* rereading, which involves stepping back and examining the text in a more analytical manner. Although Mitchell and McGee claim that after reaching closure, readers of interactive stories will engage

in either simple or reflective rereading, they do not explore in any detail what form these types of rereading may take in an interactive story.

According to Calinescu, reflective rereading in a non-interactive story involves looking analytically at a text in an attempt to find deeper meanings, to understand the process of reading, or to make sense of the way the text functions. In an interactive story, the meaning of a work often comes about, at least in part, through interaction. This suggests that one possible form of reflective rereading in an interactive story involves examining the surface of an interactive work that one has already read, with the aim of gaining a deeper understanding and appreciation of how the underlying system functions and how this internal structure relates to the surface experience of the work *as a story*.

In this paper, I explore the question of what it would take for an interactive story to successfully engage a reader in this type of reflective rereading.

4 Method: Close (Re)Readings

To explore the issue of reflective rereading in interactive stories, I conducted a series of close readings of interactive works that encourage or are positioned by the work's author(s) as intended to support rereading: *The Walking Dead (Season 1)*, *Façade*, *Prom Week*, and *Blood and Laurels*. I adopt Bizzocchi and Tanenbaum's [10] approach to close reading, where the critic explicitly formulates a set of "analytical lenses" through which to interrogate a work. In this case, I am specifically looking for ways that a text can be reread reflectively. This requires multiple readings, first to achieve closure, and then to continue rereading with the intent to look deeper into the work. I also bring to bear Wardrip-Fruin's three effects [2] – the Eliza, Tale-Spin and SimCity effects – as a means of examining the ways in which the surface and deep structure of the work interact, and how the resulting effect relates to the types of rereading afforded by the work.

5 *The Walking Dead* and the Eliza Effect

The Walking Dead (Season 1) is a graphical adventure game set in a post-apocalyptic world. You control the main character, Lee, as he and a young girl named Clementine try to survive the zombie apocalypse. In *The Walking Dead* an explicit attempt is made to show that your actions have an impact on the story. Early in my close readings, this emphasis on the importance of player choice gave me a sense that there is a complex system underlying the game, a belief that initially encouraged rereading to explore different endings. However, it quickly became evident that the game has a simple branching system, and that there is very little underlying complexity to this system. While this didn't reduce the satisfaction of rereading before the point where I achieved a sense of closure, it failed to encourage a more *reflective* rereading. I will now discuss this failure to encourage reflective rereading in more detail.

5.1 Creating the Expectation of a Complex System

From the very start, you are told that the game will be adapting to your choices. After the initial loading screen for each episode, the following text is displayed: "This game series adapts to the choices you make. The story is tailored by how you play." This immediately set up certain expectations, giving me a sense that there is a complex system underlying the game that is tracking my choices, and "tailoring" the story based on these choices.

The suggestion that there is a complex underlying system is repeated throughout the game. For example, after every "important" choice you make, the game indicates that the character you have just interacted with "will remember that." This reminds you that your actions will have consequences, suggesting that other characters will respond to Lee differently as the result of your choices.

The idea that there is a complex underlying system is further reinforced by the summary of the major choices you have made at the end of each episode, choices that presumably had an impact on the direction of the story, and that will be carried over to the next episode. There is even a comparison shown between the choices you made and choices made by other players. Finally, at the end of Season One, a detailed summary is provided of the choices you made and the related actions taken by the other characters.

5.2 Breaking the Illusion of Complexity

All of these examples show ways that the game makes an effort to convince you that there is a complex underlying system tracking the decisions you make, and altering the ways that the characters within the game world respond to you, with a corresponding impact on the direction of the story. And these choices do, on the whole, have an impact. The story goes down different branches and characters will react differently to Lee depending on choices you have made earlier in the story. However, on repeat readings, it quickly became evident that the game is very much like a branching "choose-your-own-adventure" story, with very little underlying complexity, and in fact very little deviation from the main storyline.

This can be seen by examining one of the choices that occurs early in the game. Soon after Lee met Clementine, I was faced with a seemingly important decision. Lee had just told Clementine that he will help look after her until her parents return, and she asked, "What should we do now?" I was given two choices: "Look for help, before it gets dark" or "Get out of here once the sun goes down". Choosing the first option led to an encounter with two men, Shawn Greene and Chet. Following an initial confrontation, they agreed to take Lee and Clementine to Shawn's father's farm. After escaping from a zombie attack, the group proceeded to the farm, and Chet headed home. When, on a subsequent reading, I instead chose to wait until nightfall, Lee and Clementine encountered Shawn and a policeman, and the group were attacked by a group of zombies that included Shawn's friend Chet (now a zombie). Again, after surviving the attack, the group proceeded to the farm, and the policeman drove off.

These two paths through the story provided a different experience, but quickly converged. The only long-term consequence was on Chet, who was safely at home in one branch, and became a zombie in the other branch. As Chet is a minor character who is never mentioned again, there was clearly no impact on the overall story. While this didn't detract from my immediate experience of the story, it did reduce rereading to a process of revealing the limitations of the system. As I explored alternative paths I came to see that, in the end, my choices had very little impact on what actually happened in the main story. This in turn suggested that, despite the repeated suggestions by the in-game text and my experience during an initial reading, there was no complex underlying computational system. Although I could enjoy re-experiencing the game, either as partial rereading or simple rereading, there was little opportunity for me to engage in reflective rereading.

5.3 The Eliza Effect: No Motivation for Reflective Rereading

What is happening here is an example of the "Eliza" effect. Named after Weizenbaum's [11] early chatbot, the Eliza effect describes how people's expectations of a system can (initially at least) make the system appear much more complex than it actually is. As Wardrip-Fruin [2] discusses, this illusion tends to break down during interaction, revealing the actual simplicity of the underlying system. In *The Walking Dead*, both the surface behaviour and the messages shown in the user interface suggest a complex underlying system. However, on repeated readings, it becomes clear that there is no such complexity - while there are a number of branches, and there is some intermixing of content based on player choice, the overall story is fixed. Branches eventually converge, and the differences in the story do not have a major impact on the player's experience. It is a testament to the craftsmanship put into *The Walking Dead* that the story remains engaging and enjoyable on repeated readings, despite the lack of complexity to the underlying system. However, once I had "got it", after 2 or 3 sessions, there was little reason to reread.

In *The Walking Dead*, an attempt is made to foreground the complexity of the system, a complexity that does not actually exist. This is something Wardrip-Fruin cautions against [12,13], suggesting that if the goal is to provide the interactor with a sense of dramatic agency within a coherent storyworld, it is more appropriate to create an actual complex computational system, and then enable players to develop an understanding of that system. The question then is how the presence of such a complex underlying system relates to the player's ability to engage in reflective rereading. To explore this, I will now examine a work that clearly does have a complex underlying system: *Façade*.

6 *Façade* and the Tale-Spin Effect

Façade is an interactive drama in which you take on the role of an old friend of a married couple, Trip and Grace, who becomes embroiled in a marital dispute

that you can nudge towards a number of possible resolutions. You interact with *Façade* by typing unstructured text, which is then translated into discourse acts [14]. These discourse acts trigger reactions from the system. The reactions consist of local responses from the characters and the initiation of new "beats" within the system's story model. The system also tracks the characters' perception of your affinity towards one or the other of the two main characters, and, in the second half of the experience, the degree to which the main characters have achieved some level of self-realization.

6.1 Lack of Surface Visibility of the System

Despite the presence of this underlying system, it is not directly visible to the player. Several layers of abstraction separate the surface layer and the underlying state, making it difficult to determine the impact of player actions on the system. In addition, as the authors explain, "the score is not directly communicated to the player via numbers or sliders, but rather via enriched, theatrically dramatic performance" [14, p. 5]. What is most visible is the triggering of story fragments (beats), and the changes of expression on the characters' faces. The multiple layers of abstraction between player action and change in underlying state, the lack of any direct feedback, and the wide range of possible player inputs can make it challenging for the player to develop an awareness of the system.

This challenge can be seen in an example from early in the story. Soon after my character arrived at the apartment, Trip mentioned a photo he took on a recent holiday in Italy. When I complimented Trip on the photo, Trip smiled and said, "Oh, ha ha, ha ha, yeah" somewhat nervously, while Grace frowned, and said, "Careful, too many compliments can go to Trip's head." There was clearly something happening here at the story level: Trip is proud of the photo but knows that Grace doesn't like it, whereas for Grace the photo is connected to deeper resentment on her part regarding issues within their marriage. This resentment is hinted at in the subsequent dialogue between Grace and Trip:

> Grace: [name], this is making you uncomfortable. See Trip, was it really worth flying all the way to Italy so you could take that inane picture?
> Trip: Grace!
> Grace: I'll take the picture down before I go to bed.
> Trip: [name], that trip was supposed to be our second honeymoon!
> Grace: Oh, is that what it was? Why am I always the last to know?

Although my actions were having an impact on the system's affinity model, an impact that becomes visible later in the story, there was no immediate feedback as to the relationship between my actions and the change in the underlying system state. This makes it unlikely that the average player will become aware of the underlying complexity of the system.

6.2 The Tale-Spin Effect: Lack of Visibility Impedes Rereading

Unlike *The Walking Dead*, in *Façade* there *is* indeed a well-documented, complex underlying system [14]. However, this complexity is not particularly evident on

the surface to the naive player. This lack of visibility of the underlying system can have a impact on how players read, and reread, the story.

On my first reading, I tended to focus on moving the story towards a satisfying conclusion, using the characters' reactions as a way to determine, to some extent, how my actions impact the story. On repeated readings, as an informed player who was already aware of the existence of the underlying system, I was able to engage in reflective rereading, exploring the relationship between discourse acts and the long-term behaviour of the characters. However, as observed by Knickmeyer et al. [9] and Milam et al. [15], naive players instead tend to switch to "playing with the system". This switch from engaging with the story to pushing the boundaries of the system is a result of the player's frustrated attempts to understand the system. It is easier, and more immediately gratifying, to see how fast you can be kicked out of the apartment for bad behaviour, rather than trying to make sense of the subtle relationships between your actions and the underlying social simulation. This behaviour is not something that can be equated with reflective rereading.

This failure to appreciate, or even notice, the presence of the complex underlying story system is similar to Wardrip-Fruin's [2] "Tale-Spin" effect. Named after Meehan's [16] story generation system, the Tale-Spin effect describes the situation where the interactor fails to see the underlying complexity of a system in the surface representation. In *Façade*, the presence of the Tale-Spin effect makes it unlikely that naive players will engage in reflective rereading.

I will now compare the lack of visibility of the underlying system in *Façade* with the ways that the system is exposed to the player in *Prom Week*, and consider how the resulting visibility of the system impacts reflective rereading.

7 *Prom Week*: Focusing on the System, Not the Story

Prom Week is a social simulation/puzzle game in which you manipulate the relationships between a group of high school students in the week leading up to the prom. In *Prom Week*, as with *Façade*, there is a well-documented, complex underlying system, in this case a form of "social physics" [17] simulating the web of relationships between the students. This system is meant to enable the player to experience "numerous playable stories" [18, p. 102]. Unlike *Façade*, in *Prom Week* the details of the system are explicitly brought to the surface in the user interface. However, as I discuss below, there are still some issues that made it difficult for me to engage in something that can truly be regarded as reflective rereading. In particular, my focus was very much on solving puzzles within the social simulation, with little attention given to the *story*, particularly when rereading.

7.1 Playing Social Games

In *Prom Week* you are controlling a group of characters, and can take action to determine how the characters interact with each other so as to achieve certain goals. For example, in the story "Zack: Your Next Prom King", you are

given three goals to complete: "Sweet Talk the Judge", "Sabotage the Competition", and "Smokin Date". Each of these goals requires specific manipulations of the relationships between the characters. The goal "Sweet Talk the Judge", for instance, requires that you "Make Zack and Naomi friends".

The first scene in the story is set in the school carpark, where Naomi (the judge), Zack, and Monica are hanging out. You can select any of the three characters and see the relationship between the selected character and the other characters in the scene. Each character has a rating showing how that character views the other characters in terms of "friendship", "romantic feeling", and "coolness". You can initiate social actions for the selected character to take towards another character, each of which will have consequences in terms of the relationships. For example, Zack can "confide" in Naomi, which will make Zack and Naomi friends. In this case, the action will also, by creating a friendship between the characters, satisfy Zack's goal of sweet-talking the judge.

7.2 SimCity Effect, but No Reflective Rereading

On my first reading, I focused on solving the puzzle of how to achieve the desired outcomes for the various characters. This involved exploring the relationships between the characters and figuring out which statistics need to be manipulated to achieve the best results. On repeat readings, the surface behaviour I observed began to reveal the underlying system, and I began to develop an understanding of this system through interaction. This is what Wardrip-Fruin refers to as the "SimCity" effect. This effect describes "systems that shape their surface experience to enable the audience to build up an understanding of a relatively complex internal structure" [2, p. 13].

Despite this, there was little focus on the *story* as part of this process. What I was beginning to understand was the correspondence between character actions and changes in character relationships within the social simulation, changes that lead towards achievement of the goals set by the system. There is, however, no modelling or representation here of any *story* structure. It is not clear, therefore, whether the type of repeat experience that I engaged in with *Prom Week* can be considered the type of reflective rereading I am examining, where the player is exploring the underlying computational system in the context of its relationship to the story, as opposed to focusing exclusively on the system.

To investigate this problem, I will now examine the experience of rereading *Blood and Laurels*, an interactive story that *does* afford reflective rereading.

8 *Blood and Laurels*: Visibility of the Story As System

Blood and Laurels is a choice-based interactive story set in Roman times. Built with the *Versu* storytelling system, it has a rich underlying model of character motivations and relationships that drives the narrative [19]. You control the main character, Marcus, by making choices from a list of options. The results are displayed as text and the occasional illustration.

As with *Prom Week*, the underlying system state in *Blood and Laurels* is explicitly represented to the player. In this case, the other characters present in the current scene are represented by a series of "portraits" at the bottom of the screen. These character portraits change subtly based on the current attitude of the characters, with facial expressions reflecting the character's mood. Selecting a portrait provides status information, often consisting of either details of the character's relationship with other characters in the story, or a comment on the current scene and the character's feelings as to how the scene may progress.

For example, in the first scene in the story Artus, a powerful politician and patron to the main character, is throwing a party. When a bad omen appears, Artus's status displays the following: "Artus looks annoyed. 'I don't want strange things happening at my dinner party.'" This status information represents both the current state of the character (annoyed), and a potential trajectory for the story (Artus's fears for what may transpire at his party). I will argue that this representation of both the current state of the character and the character's feelings about possible future events has an impact how players read, and reread, the work.

8.1 Understanding the System's Relationship to the Story

As I read and reread *Blood and Laurels* it gradually became clear how the system underlying the story works, as I observed the reactions of the various characters to my actions and compared those reactions to the same characters' reactions on previous readings. How this happens can be seen in a scene near the mid-point of the first part of the story.

Marcus has been ordered by Artus to visit the temple to ask the priestesses for a divination regarding Artus's desire to become Emperor. One of the priestesses is Gila, a woman Marcus knows from his time before coming to Rome. During this scene, in addition to negotiating with the priestesses to arrange for the divination, Marcus is given a number of opportunities to interact with Gila. Options range from the deliberately cold "Make some ritually appropriate response", to the carefully neutral "Comment on finally seeing the place where she was so determined to serve", and finally the more clearly suggestive "Compliment her on retaining her beauty".

My choices had an immediate impact on both Marcus's and Gila's attitudes, as reflected in the portraits at the bottom of the screen. For example, choosing the more flirtatious option led to Marcus's status displaying: "Marcus looks amused. 'I missed Gila.'" At the same time, Gila's status displayed: "Gila looks pleased. 'I've found a new flirt.'" These indicators, together with the pleased expressions on the faces in the portraits, provided immediate feedback as to the impact of my choices.

However, the impact was not only on the immediate state of the characters. As the story progressed, the actions available and the responses from the other characters clearly corresponded to the attitudes of the characters shown in the portraits and status display. The status displays also changed to reflect characters' thoughts about the events that had transpired in the story, and the

possible future direction of the story. For example, after Marcus hears from the Oracle that he, not Artus, is destined to be Emperor, his portrait changes from his earlier amused expression to a look of fear. Mirroring this, his status display now reads "Marcus looks worried. 'Whatever this means for me, it sounds dangerous.' "

After a second or third reading, I began to understand how the system works. Although I had not encountered all the possible variations of the story, it was possible to develop a sense of how my choices impacted the characters and the direction of the story. It was still difficult to predict the characters' responses at times, but this only made the experience more interesting, and contributed to my desire to continue to reread. What is being created here is a desire to reread to explore the *system*, and to deepen my understanding of the way the system works. At the same time, I was also paying attention to the *story*, and how the system of character relationships and plot points interacted with each other and influenced the progression of the story.

8.2 The SimCity Effect in Support of Reflective Rereading

As with *Prom Week*, the visibility of the underlying system enabled me to begin to grasp the relationship between my actions and the resulting surface details, and, more importantly, the ways that these surface details relate to the underlying system model. Both works seem to be exhibiting the SimCity effect. However, in *Blood and Laurels* I could focus on both the story *and* the underlying system at the same time. Whereas in *Prom Week* it was easy to become fixated on achieving the specified goals by manipulating the relationships between the characters, in *Blood and Laurels* my attention was fixed on the ways that the story could progress as the result of these changes in character relationships. I will explore this subtle difference in the next section.

9 Discussion: The Importance of Narrative Abstractions

The important question here is: *why* did I pay attention to both the story and the system simultaneously in *Blood and Laurels*, whereas in *Prom Week* I was more focused on the system at the expense of the story? One way to think about this is to examine what "system" it is that readers might be looking for as they reread traditional, non-interactive stories, and then consider what the equivalent system would be in an interactive story.

According to Janet Murray, "[o]ur story traditions make up an abstraction system for understanding ourselves and the world around us" [7, p. 19]. With this in mind, notice that a key difference between *Prom Week* and *Blood and Laurels* is the choice of abstraction used to represent the state of the underlying system.

Although the designers of *Prom Week* deliberately chose not to present "social state information in menus or an abstract information bar", instead presenting these details "as if they were the thoughts of the characters" [17, p. 100], the underlying system is a simulation of social interaction, not a story system. The state of the characters' relationships directly reflect the underlying simulation, and the actions available to the player are in the form of social moves. As Murray has observed, this focus on the details of social reality creates "a mismatch between computational abstraction and dramatic abstraction" [20], leading me to focus on the social system, but not the story. It is important to stress that this is despite the intention of the designers that each playthrough of *Prom Week* create "a possible world that is *narratively* significant [my emphasis]" [18, p. 98].

In contrast, although it also deals with social interaction and relationships between characters, *Blood and Laurels* does not present the player with abstractions based on a social simulation, but instead presents a narrative abstraction. The state displayed to the player includes not just the characters' feelings towards other characters, but also the characters' considerations of what may happen next. This provides a glimpse into the state of the story system, providing appropriate detail for the player to form a mental model of the *story* system without fixating on the details of the underlying *computational* system. By foregrounding and surfacing this narrative abstraction system, grounded in the reality of the storyworld, *Blood and Laurels* encouraged me to engage in reflective rereading to better understand the underlying story system.

10 Conclusion and Future Work

In the above discussion of *The Walking Dead*, *Façade*, *Prom Week* and *Blood and Laurels*, I have argued that there is a connection between the presence of the SimCity effect and the desire to engage in reflective rereading. However, I have suggested that it is not enough for a work to exhibit the SimCity effect for the work to afford reflective rereading. For reflective rereading to take place, the work must encourage the player to reread to simultaneously examine both the underlying system and its relationship to the player's experience of the story. For this to occur, the abstractions used to represent the underlying system at the surface of the work should be chosen carefully so as to convey this relationship.

In this paper, I have explored the problem of reflective rereading through close readings of four well-known interactive stories. This will help authors to create interactive stories that encourage players to engage in deeper, more reflective rereading. Future work will involve empirical studies of player response when rereading interactive stories to validate these initial findings, and the development of new interactive stories to explore design requirements for encouraging this type of reflective rereading. Work should also be done to investigate whether and how other forms of rereading found in non-interactive stories, such as simple rereading, manifest in interactive stories, and how rereading relates to other forms of repeat experience, such as replaying non-narrative games.

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