Chronologically Nonlinear Techniques in Traditional Media and Games

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ABSTRACT

Although stories in games have become more sophisticated over time, their use of nonlinear techniques has not yet become as prevalent as in traditional media like novels and films. Writers have largely excluded nonlinear techniques from their toolbox, possibly because of fears of introducing inconsistencies when player actions alter past events. However, as we show through a survey of common nonlinear techniques seen in television, novels, and film, games can and have avoided these inconsistencies while maintaining gameplay agency. Many players prefer a high quality static story incorporated into strong gameplay, making the insight from this discussion immediately useful in designing nonlinear game stories. We also discuss some ways in which nonlinear techniques can offer both gameplay and story agency, hopefully bringing the quality of game stories one step closer to their traditional counterparts.

Categories and Subject Descriptors

K.8.0 [**General**]: Games

General Terms

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1. INTRODUCTION

Traditional media such as books, films, and television shows often tell stories nonlinearly. Authors can use techniques such as flashbacks and framing devices to tell interesting stories. Nonlinear devices serve many purposes, from providing context when it is needed to increasing dramatic tension.

Techniques like flashbacks must be used with care so as to avoid potential chronological inconsistencies. How can players meaningfully affect a story whose outcome is already known? Fortunately, being able to control the story is less important to most players than experiencing traditional interactive gameplay. Therefore, as long as compelling gameplay is maintained, chronologically nonlinear techniques can be successfully used in games.

Through observations of how and why flashbacks, rewinds, framing devices, memory issues, and episodic storytelling are used in both traditional media and in modern videogames, we will show that gameplay agency is compatible with chronologically nonlinear storytelling. We conclude by discussing potential uses of nonlinear storytelling in games that incorporate story agency as well as gameplay agency.

1.1 Definitions

In the following, we refer to chronologically nonlinear stories – that is, stories that depict events out of chronological order – simply as *nonlinear*. Note that we use the term "nonlinear" in this sense even when discussing videogames, where "nonlinear" usually refers to branching narratives or stories with multiple endings. In the context of games, we consider a story nonlinear when events are presented out of chronological order with respect to the character's timeline (what Juul [20] calls "event time"), and not necessarily the player's experience of the story (what Juul calls "play time").

We also distinguish between agency related to gameplay versus the player's ability to change the story. We call the former *gameplay agency*: the analytic and performative actions the player takes in order to master the challenges posed by the game. Much of the "immediate, moment-by-moment agency" that Mateas and Stern [26] call "local agency" is gameplay agency, though not all. *Story agency*, on the other hand, occurs when the player is able to affect the story, either through changing the story's outcomes, its interpretation, or its portrayal.

In this paper, we do not aim to discuss games that tell their story primarily through setting. For example, the environmental storytelling game *Gone Home* [41] tells its story nonlinearly: the player character is not experiencing most scenes firsthand, but rather learns about past events through artifacts found in the environment. While games like this may have interesting lessons for nonlinear storytelling, our focus is on games that present event time out of order and include gameplay in anachronistic scenes.

2. CHALLENGES OF AGENCY IN NONLINEAR STORYTELLING

A player experiences game scenes in an order that may be different from the order in which they are lived by the

character. We distinguish between the following three main ways to present a scene to a player:

- **Cut-scene**. The player watches what happens without any opportunity for interaction.
- **Game-playable scene**. The player interacts with the scene via game mechanics, but does not in any way affect the story for scenes not yet experienced.
- **Fully-playable scene**. The player interacts with the scene via game mechanics and is able to affect the story in upcoming scenes, even if only in a small way.

Fully-playable scenes offer the highest potential for player agency given that they are able to support both story and gameplay agency. However, if we wish to aim for this level of agency in a nonlinear setting, there are several issues to contend with.

In a nonlinear story, a scene can depict events that have occurred in the past relative to the current scene. In a playable story, events that have occurred in the past should have some effect on what happens later on. However, it does not seem possible to affect the story in a scene the player has already experienced. As Juul [20] points out, "doing an interactive flashback leads to the classical time machine problem: the player's actions in the past may suddenly render the present impossible, and what then?" It is possible to suggest in the current scene that the player is changing the future (say, to avoid the bad things that they now know are supposed to happen), but this technique is not applicable unless time travel, prophecy, or the like are present within the depicted setting.

In addition to this practical problem, there is the artistic question of whether a player *should* be able to affect the story. There are nonlinear storytelling techniques that may require taking at least some story-related control away from players for the technique to be effective. The story's progression may need to remain in the hands of its writer in order to ensure it is not boring and that the player encounters events in an order that both makes sense and serves a purpose. As Greg Costikyan writes [10]:

> A story is a controlled experience; the author consciously crafts it, choosing precisely these events, in this order, to create a story with maximum impact. If the events occurred in some other fashion, the impact of the story would be diminished – or if that isn't true, the author isn't doing a good job.

Unlike fully-playable scenes, both game-playable scenes and cut-scenes allow authors to control nonlinear stories. While cut-scenes have been quite popular for their ability to present highly aesthetic depictions of story events, they offer players no agency at all. However, game-playable scenes do offer agency through gameplay. As will be argued next, this is sufficient for most types of modern players, despite the lack of story agency.

3. THE IMPORTANCE OF GAMEPLAY AGENCY

Fully-playable game scenes in nonlinear stories are difficult to design. Game-playable scenes give authors and designers control of the story while still offering gameplay agency to players. While this approach removes story agency, many players do not mind.

At least two surveys of modern game players have been conducted in the last decade to determine their attitudes towards stories. Mallon and Webb [25] discovered that players actually prefer episodic and directed story experiences over unrestricted freedom. More recently, Lebowitz and Klug [22] conducted a survey to learn what types of stories players prefer. They found that while the majority of players place great importance on a game's story, they do not require full control over it. In fact, the favorite type of story was what the authors called traditional interactive storytelling: stories players could interact with but whose plot they could not significantly affect. Players' second favorite story structure was a branching story with multiple endings. Neither of these require strong story agency.

According to Lindley [24], there are three types of players with respect to enjoyment of a game's story. The first prefers to feel part of a passive *audience*; such a player wants to be told a great story more than they want to affect it. The second, the *performer*, wants to essentially become an actor that plays the role of a character. The third type, the *immersionist*, wants to become completely immersed and blur the line between him or herself and the characters in the game.

If the aforementioned surveys are to be believed, then we can say that most players fall into the audience and performer categories, since neither requires full story freedom. A passive audience only wants to experience (not change) the story, while a performer is likely to be satisfied with game mechanics and quest options that fit well with the role they are playing [24]. In both cases, most of the player's sense of agency will come from gameplay rather than interaction with the story.

Despite the importance of gameplay agency, story agency is still desirable for some players. In these cases, authors do not need to give full control to players; instead, stories can be crafted to give an illusion of control [25, 35]. This can be accomplished, for example, by ensuring that a good number of dialog choices are offered to a player [26], or by offering events that are adaptively selected based on the preferred style of the current player [42]. We also note that players do not always consider story consistency important, as discussed by Pirtola et al. [31]. We offer additional suggestions in Section 5.

Because many players do not require a high level of story agency in games, game-playable scenes are often sufficient. Therefore, for nonlinear stories, game-playable scenes are a good option that allows authors to avoid potential issues of consistency and need for authorial control.

4. NONLINEAR TECHNIQUES IN TRADITIONAL MEDIA AND GAMES

Though fully-playable scenes are not required when presenting a nonlinear game story, designers must still find ways to create interesting game-playable scenes that work well with nonlinear storytelling techniques. Traditional media such as books, films, and television series make use of nonlinear techniques that are compatible with the creation of game-playable scenes even when fully-playable scenes are not possible. Indeed, there are many examples of games that successfully maintain gameplay agency using the same

techniques.

Below we discuss strategies for incorporating flashbacks, rewinding, framing devices, memory issues, and episodic storytelling into both traditional media and games. We implicitly consider only the chronologically nonlinear usage of these techniques. We also focus on techniques that are used as a way to tell a story rather than techniques that are part of the story itself. Hence, we do not include time travel, since it has a nonlinear timeline only as story content, and is independent from the presentation of the story.

4.1 Flashbacks

A flashback occurs when the advancement of a story pauses to portray a relevant event that happened in the past relative to the character's linear story. Flash-fowards function similarly, but with events in the future. The information revealed in a flashback might heighten the tension or sense of conflict felt by the audience, provide relevant backstory, or explain the motive behind a particular event. Flashbacks can also be used to develop character and to clarify or give context to events in the present. To ensure consistency, the outcome of events in a flashback cannot diverge from what the audience already knows to be true before the flashback is presented.

Firefly's 'Out of Gas' episode [27] provides a good example: it includes multiple flashbacks intended to develop character. These flashbacks depict the captain acquiring the show's focal spaceship Serenity and assembling the crew of the ship. The nature of each character before they started their life on Serenity is quite different than in the present day. There is no dramatic action in these flashbacks; their purpose is only to give the audience a more complete picture of each main character's personality.

Similarly, many of the flashbacks used in the film *Kill Bill* [38] serve to motivate the main character's actions. An ex-assassin was shot during her wedding and wakes up some time later, hungry for revenge. The audience learns about her attackers through flashbacks, increasing the tension felt during the present-day violence that follows.

Atwood's novel *Oryx and Crake* [1] also uses flashbacks to reveal background information about the protagonist, Jimmy. These scenes change the interpretation of events already known to have happened while not affecting the outcomes of present-day events. The flashbacks additionally illustrate what the world was like before civilization collapsed, adding to the story's gloomy present-day atmosphere.

Games also use flashbacks to build character and atmosphere. The issue of consistency is even more prominent in games due to their interactivity: a scene in the present cannot be affected by choices made in the past if these choices are made after the scene has already been played. This is one reason that non-interactive strategies are often employed for flashbacks in games.

For example, while games with post-apocalyptic themes usually focus on life after a cataclysmic event, they also sometimes include clues for what life was like previously. *Bioshock* [19] achieves this by scattering audio diaries across the fallen city of Rapture. Some diaries contain recordings of everyday events involving average citizens. Portraying the past non-interactively prevents potential inconsistencies.

Games also commonly use flashbacks in the form of cut-scenes for character development to ensure they have the desired rhetorical effect while avoiding inconsistencies. For example, flashbacks in *L.A. Noire* [39] depict the main character's involvement in the Second World War. These cut-scenes allow players to gain insight into some of the unexpected attitudes and values of the main character, who constantly struggles with his past.

Despite the potential problems, there are also examples of interactive flashbacks in games. *Heavy Rain* [32], for instance, features a playable flashback that eliminates the player's story agency thus preventing potential inconsistency. In this flashback, a non-player character gets trapped in rising waters while his player-controlled brother leaves to get help. Playing through the flashback does not alter the final outcome of the event, nor does it change the character's present-day personality or actions. It simply gives the player deeper insight into the motivations of the game's antagonist. By controlling the character rather than just watching the events unfold, the player is better able to empathize with the situation.

Final Fantasy VII [36] also has a playable flashback that reveals some of the history between the protagonist Cloud and his nemesis, giving the audience a better understanding of their current conflict. The player has an opportunity to control both characters in a battle, and later controls Cloud when visiting his home town. The player is allowed to explore the town freely, interacting with various objects that give insight into the overall story. Story agency is again removed so as to avoid dramatic change, but the player is able to participate in much of the same gameplay available in the present day.

Both of these examples demonstrate that interactive flashbacks are possible without introducing inconsistencies. Players enjoy freedom in gameplay even if their story agency is non-existent to prevent changing events that were already played or histories that are already known.

4.2 Rewind / Replay

A story that uses the rewind / replay technique begins with a certain set of events, then 'rewinds' to continue the story from some point in the relative past. The story could rewind to the same place it started or further in the past. Some portion of events are 'replayed,' possibly from a different perspective. Rewinding allows a story to begin *in media res* to hook audiences and give them clues for what they should be watching for after the rewind. Generally, consistency between past and present events can be achieved by limiting dramatic change, as in flashbacks, or by telling a story that explicitly compares different possible outcomes in the same sequence of events.

In some stories, rewinding is presented as a time loop that at least one character recognizes. For example, Phil Connors of *Groundhog Day* [34], is fully aware of the fact that he is reliving the same day over and over again, though nobody else is. Jeff Winston of the novel *Replay* [17] is also aware of the time loop he finds himself in. He relives his life multiple times, beginning when he dies of a heart attack at 43 only to wake up as his 18-year-old self 25 years earlier. These stories offer different points of view on what could happen in a particular span of time, and inconsistencies between repetitions are not a concern for this technique.

In the German crime film *Run Lola Run* [43], Lola appears to exert control over her story, reminiscent of a player replaying from a saved game. Unlike *Groundhog Day* and *Replay*, it is not clear whether Lola is aware that she is re-

living the same period of time. Nonetheless, the rewinds are meant as distinct depictions of what might happen, and so consistency is not expected.

Stories that begin *in media res* with a short action scene might rewind to the beginning to show what lead up to the climactic moment. Knowing what is going to happen allows the audience to watch more carefully for clues that support the known outcome. For example, '18 Miles Out,' an episode of *The Walking Dead* television series [15], begins *in media res* with an action scene. After the title credits, the timeline rewinds. By showing the action scene first, clues that suggest that the characters' situation is not the typical zombie-fighting action sequence are made more noticeable. By the time the opening scene is shown again, the audience has a new perspective on the action, though the events have not changed.

The rewind technique is used in modern games through the ability to reload from a save point or to restart after dying. The practice is mocked in *Baldur's Gate II* [3], where a group of non-player characters reloads the game to undo an error of judgment.

Some games use rewinding more centrally. *The Legend of Zelda: Majora's Mask* [29], for instance, features a three-day loop that the protagonist Link must repeat until he can return the moon to its proper place in the sky. Like *Groundhog Day* and *Replay*, the rewinding and repeating is an integrated part of the story that at least one character is aware of, and there is no expectation of consistency between the repeated segments.

Many videogames open in media res. *Sly 3: Honor Among Thieves* [37] includes a long action sequence of gameplay before rewinding to the beginning of the story. The game opens with a heist. The player has full control of the title character, Sly, whose companions include characters not present in previous Sly games. When Sly is inescapably captured, a cut-scene portrays Sly's life flashing before his eyes. The story rewinds to the beginning and gameplay continues from that point. The only significant event that occurs in the opening sequence – Sly being captured – is something outside of Sly's control. Because gameplay forces the player to follow a set path, there is no opportunity for inconsistency from playing in the past. Furthermore, players familiar with the series would likely notice the new characters introduced in the heist sequence and thus enjoy watching for clues in the preceding events that explain how they joined Sly.

These examples show that the rewind technique can be used purposefully in a game. Gameplay agency is not forfeited. In some cases, story agency is also not completely removed: when players affect which specific events will happen in a specific time cycle, they are in some small way guiding the overall story.

4.3 Framing Devices

A frame story is a literary device that supports embedding one or more stories within it. The frame story might give context to events in the embedded story, heighten ambiguity, or bias the audience's expectations. These outcomes often result when the frame story is narrated by a character that also appears in the embedded story. Frame stories can also be used to tie together embedded stories that are only loosely related to each other, or to incorporate a form of procatalepsis, which allows authors to raise potential objections through dialog with the frame story's narrator. To avoid inconsistencies between frame and embedded stories, the author might ensure no characters appear in both, or that the timelines of the frame and embedded stories do not overlap.

Chaucer's *The Canterbury Tales* [8] avoids inconsistencies because the embedded stories are not directly related to the frame story at all. Chaucer use of the technique ties together an eclectic collection of short stories. The frame story is about a group of pilgrims of differing backgrounds who each tell separate stories in the context of an impromptu storytelling contest. The stories' content itself is greatly varied, and none of the storytellers appear as characters in their tales.

Many frame stories feature characters also found in the embedded story, for example when a narrator speaks about his or her past, as in *The Curious Case of Benjamin Button* [33]. The film opens with an elderly woman on her deathbed in a hospital. She asks her daughter to read from a diary belonging to Benjamin. Soon, her younger self is introduced into Benjamin's story, and the narration eventually transitions from the diary's to her own. The film avoids inconsistencies between the frame and embedded stories by limiting dramatic action in the frame story. There is also a clear chronological boundary between the last event of the embedded story and the events taking place in the hospital.

Sometimes, inconsistency is an intentional feature of an embedded story. The protagonist of *Hero* [23] set out to assassinate the king, but to earn the king's trust, he dishonestly recounts slaying three other assassins. However, when the king disbelieves the stories, the protagonist is compelled to give another version, this one purportedly true. Multiple accounts of the events and the motivations of the storyteller make the truth somewhat ambiguous, even when it is finally told. As in some of the rewind examples above, inconsistency is deliberate here.

The narrator in *Hero* is explicitly identified as unreliable. The film *J. Edgar* [6], on the other hand, uses a frame story to introduce an unreliable narrator more subtly. It depicts the title character, John Edgar Hoover, as he recounts the origins of the FBI to a biographer. As he relays his personal version of founding the bureau, the viewer is left to guess how much the stories are biased. The use of an unreliable narrator in this manner makes the historical accuracy of the film less clear. In addition, the banter between Hoover and his biographer serves as procatalepsis: the biographer is able to raise questions about Hoover's past in a way that makes sense within the frame story. When he answers, Hoover's unreliability only adds to the ambiguity. Despite the doubt surrounding the truth of the embedded story, its plot is consistent with what is known about the frame story.

Ambiguity tends not to be favored in games. In traditional media, "it is acceptable and sometimes even preferable that users are misled by being given wrong instructions" [11] while in games "the deliberate frustration of action seems clearly to be an intolerable option" [11]. Nonetheless, several games have successfully made use of an unreliable narrator while not allowing gameplay to suffer. *Bioshock*'s [19] Atlas is a classic example: the player is told what to do by Atlas, who claims he needs help to save his family from Rapture. It turns out Atlas is really a persona fabricated by the person responsible for the city's downfall. While Atlas' narration is not part of a frame story, nor is it chronologically nonlinear, we mention it here as one of the few examples of a game

making an unreliable narrator a core element of its plot.

Dragon Age II [4] makes minor use of an unreliable narrator in a frame story. The dwarf Varric tells the game's story as a series of long flashbacks where all the gameplay takes place. The player quickly learns that Varric has given an incorrect version of an important battle. However, this ambiguity is quickly reconciled, and the player is left to believe that everything else told (and played) is ultimately the truth aside from some small embellishments. Consistency is maintained by the fact that players are unable to interact with the frame story, and that no dramatic action occurs there. The game also illustrates how a frame story can be used as one way to skip less interesting periods of gameplay: the narration seamlessly skips a one year period in the story during which the player's character must work in servitude.

The frame story of *The Canterbury Tales* does not produce ambiguity, but unifies the collection of stories. Similarly, games can use a frame story to tie together a variety of mini-games. For example, *Rayman Raving Rabbids* [28] presents a simple story about Rayman being captured by Rabbids, the alien enemies of the game. Rayman must complete challenges to earn plungers; once he collects enough, he can use them as a ladder to escape. While some mini-games loosely follow a theme, they are for the most part unrelated. The game feels more cohesive because the frame story connects the mini-games together.

A frame story can also be used to introduce opportunities to control story experiences, even if only to a small extent. In *The Witcher 2: Assassins of Kings* [7], a frame story appears in the introductory sequence. An interrogation frames four flashback memory sequences that can be played in any order, followed by a fifth that must be played last. As in *J. Edgar*, the interrogation offers opportunities for the characters to discuss and ask questions about the events that happened in the past. To ensure there are no inconsistencies between the past and the present, players have gameplay but not story agency in the flashback sequences.

These examples show that framing devices as used in traditional media are compatible with gameplay agency. They can tie together a collection of mini-games, or they can be used to skip less interesting story sequences. Even if full story agency is not possible, frame stories can offer players some story-related control by choosing the order in which they experience the story.

4.4 Memory Problems

Memory or health issues are the subject of some stories, but they can also be used as a reason to present scenes out of order as a reflection of how a character perceives reality. Attributing characters' actions to memory problems allows writers to explain away or deliberately introduce inconsistencies, ambiguity, or irrational behavior. Alternatively, selected memories might be depicted in a dramatically compelling order in the context of another character (or the audience itself) revisiting these memories. In this case, consistency is likely desirable, and can be achieved in similar ways as for standard flashbacks.

In some stories, the audience is enticed to solve a mystery or puzzle, possibly at the same time as the story's characters. For example, the format of *Memento* [30] initially encourages viewers to solve the mystery of why the main character, Leonard Shelby, kills a man in the film's opening scene. Leonard suffers from an inability to store new memories, so most scenes in the film are depicted in reverse order. This means the audience is always gaining new information about the events leading up to the murder, often completely changing their understanding of what is known so far. As a result, new puzzles are introduced each new scene. The reverse format also gives the audience insight into what is might be like to experience memory problems like Leonard's in that no background information or context is available for each scene's events. The novel *Soldier of the Mist* [45] also introduces puzzles through the diary of a soldier suffering from amnesia. The soldier begins each day with no recollection of his past, relying on only his diary to provide clues.

The film *Shutter Island* [21] uses memory loss and confusion to introduce ambiguity into its story. The main character, Teddy Daniels, arrives as an inspector on an island where the criminally insane are hospitalized. He is officially investigating a disappearance. He is also hoping to find the arsonist that murdered his own wife. It is later revealed that Teddy is in fact a resident of the island, having killed his wife; the investigation is an elaborate role play designed to help him come to terms with his crime. Although this seems to be a plausible explanation, the audience is left to wonder whether it is the truth, or whether the doctors on the island are attempting to cover up a larger conspiracy. This question provides further context for the ambiguity of the flashbacks.

Memory can also be used as an in-story reason to present events out of chronological order. For example, Joel and Clementine, characters in the film *Eternal Sunshine of the Spotless Mind* [16], purposely erase memories of their rocky relationship. Joel's memories are portrayed in reverse order to reflect his experience of having them disappear. Using deliberate memory loss as context gives a logical reason to show events in a different order from reality.

Many games incorporate memory problems (particularly amnesia) to avoid briefing players on their characters' back stories through non-interactive methods like long cut-scenes or user manuals. If the character has amnesia, then both the character and the player must figure out what is happening at the same time. This additionally provides an in-game reason for exposition. One of many examples that use this technique is *Amnesia: The Dark Descent* [12]. The protagonist, Daniel, awakens at the beginning of the game with no memory beyond his name, where he lives, and that someone or something wants him dead. A note he wrote to himself indicates that he deliberately erased his own memory. Players learn about Daniel's past as they progress in the game. *Planescape: Torment* [5] also features an amnesiac protagonist whose past the player discovers in the course of play, and whose past actions drive the present-day story.

In these games, memory issues give logical, in-story reasons to change memories of the past, incorporate exposition, and present events out of order, all without sacrificing gameplay. Memory issues can also be used as an excuse for inconsistencies in nonlinear timelines.

4.5 Episodes

Some stories are explicitly organized into individual episodes that can be experienced in any order without confusion. To achieve this, episodes are sufficiently self-contained to maintain the status quo: a problem is introduced and solved in a single episode while no progress is made on any larger issues.

Characters do not die or change in any significant way; at best, the audience may get new insight into the background or inner lives of the characters.

Television series in particular make extensive use of this technique, as they are divided into a number of episodes aired on a recurring schedule. While some shows, such as *Breaking Bad* [13], are best viewed in their intended order because of the progression that occurs in each episode, others like *The Simpsons* [18] have mostly independent episodes. Outside of television, the chapters in Cortazar's novel *Hopscotch* [9] are also meant to be readable in any order, though the author suggests two specific orders. Each chapter is a small vignette that stands alone, often depicting a particular event or providing background information.

Viewing or reading episodes out of order often leads to chronological nonlinearity. While this is usually in the hands of the audience as they decide which episode to consume next (as in *Hopscotch*), some episodes are purposely presented non-chronologically. The television series *Dollhouse* [44] used a flash-forward episode to illustrate the repercussions of what was happening in the present day. The show centers on the concept of erasing memories. Both the series finale and the finale of the first season depict events in the far future when the technology has been used by too many people, bringing an end to civilization. The large difference in time means that anything could have happened in between, allowing there to be possible explanations for larger dramatic changes in the flash-forward episode.

Flashback episodes can also be used to build character and give context to the main storyline. The *X-Files* episode 'Unusual Suspects' [14] provides the back story of how recurring characters known as the Lone Gunmen got involved with the FBI. The episode, set fully in the past, gives insight into the characters but does not change anything about them in the present day.

Some games are designed to be episodic; series released by Telltale Games are a specific example. The episode *400 Days* [40] from *The Walking Dead* series is particularly interesting in that it is itself presented as a series of episodes. Players view the stories of five survivors in an order of their choosing. Each story takes place at a different time in the first 400 days of the zombie apocalypse, making a nonlinear viewing order likely. Though the timelines do not cross, there are often small elements in each story that are affected by choices the player has made earlier. This allows each internal episode to remain consistent while offering some story agency to players by making them feel that their choices indeed matter.

Games commonly make use of episodic storytelling by offering side quests. A player that is presented a side quest generally has the option to play that quest or not. Side quests do not, by definition, affect the main plot; a problem is introduced and resolved within a single quest. Recurring characters should not change, which can be enforced by marking these characters as invincible and introducing new characters that can be killed. One of many examples from *Fallout 3* [2] has the player rescue the hapless citizens of Big Town from the Super Mutants; Red and Shorty are new characters introduced in the quest, and may or may not survive it, depending on the player's actions. Conversely, characters vital to the plot, such as the main character's father, cannot be killed during gameplay.

The character's story does not change in a side quest; instead, side quests serve other purposes. Like many chapters in *Hopscotch*, they might offer a new insight into the overarching story that is interesting but not critical. They may offer a separate and self-contained story as a break from an otherwise intense experience. Most importantly, side quests offer players gameplay agency, giving them something to do. Players are offered a choice of which quests to play and when, and often finishing a quest has mechanical outcomes such as leveling up or obtaining equipment. Thus, episodic storytelling in the form of quests allows games to offer gameplay agency without a requirement for story agency.

5. FUTURE DIRECTIONS

Incorporating story agency when telling game stories out of chronological order can be challenging. However, our survey of nonlinear techniques illustrates that many games have used nonlinear strategies similar to traditional media while maintaining gameplay agency. In the future, we hope to see more games do the same.

While a good story with strong gameplay agency is satisfactory for many players, it is still worth pushing further and aiming for some level of story agency in addition to gameplay agency. If nothing else, doing so would appeal to the *immersionist* [24] portion of game story audiences. In this section, we share some possible future directions in nonlinear storytelling that could offer a larger degree of story agency to the player.

We suggest the following three ways that designers can incorporate story agency with nonlinear game stories: by making minor but meaningful connections between scenes; by introducing ambiguity that is resolved according to player choice; and by allowing reinterpretation of a fixed event through gameplay. We will assume in our discussion below that at a minimum, gameplay agency will be incorporated into all scenes.

Games whose scenes can be played in any order allow for opportunities to connect one scene to another. The aforementioned *400 Days* [40] is made up of short stories about different survivors at different time periods of the apocalypse. Players can choose to view these stories in any order. In the earliest story, the player is faced with the choice of killing one of two other characters; if the earliest story is chosen first, the person the player decides to kill appears in a later episode as a zombie. When the same scenes are played out of chronological order, a default zombie appears. In general, designers can mask small inconsistencies when decisions or actions in earlier scenes affect later scenes. Alternatively, they might insert objects or dialog into a past scene played second to connect to actions in a later scene played first, perhaps to suggest why those player-driven events take place. None of these outcomes constitute major dramatic change, but they do show that your choice as a player has had some impact on the world, giving some degree of story agency.

Our second suggestion concerns ambiguity. By presenting ambiguous stimuli to the player, flashbacks or flash-forwards can be made consistent with multiple sequences of events. One example can be found in the teasers at the beginning of most episodes in the second season of *Breaking Bad* [13], where ambiguous flash-forward scenes are used to slowly build up to a culminating event. Initially unintelligible, the teasers gradually show small clues that imply some type of explosion occurred. Throughout the season, many viewers were led to believe that the explosion was the result of a meth lab accident; as the season ends, it is revealed that the

explosion was ultimately caused by a mid-air plane crash. In a game, flashback or flash-forward scenes could be similarly used to suggest that a particular event happens. The precise nature of the final event can be determined based on player actions, giving the player story agency. The event does not become fixed until the final scene is reached. Alternatively, the ambiguity may never be resolved, allowing players to speculate and exchange their interpretations.

Finally, we suggest a strategy that allows for a player-driven interpretation of an unambiguous fixed event. We provide an example relying on the rewind technique. The game would open with its ending. For example: the story begins as the player fights the king, eventually killing him. The story rewinds. Depending on the paths the player takes, whether through side quests or central story branches, the interpretation of that final event will change. The player might become the savior of a kingdom ruled violently by an evil man, or come to learn that the king actually usurped the player's rightful place on the throne. Maybe the player becomes a dear friend to the king, and having to execute him causes deep regret. No matter what happens through gameplay, the end sequence would remain the same; it is only the meaning of the battle that changes. When the meaning depends so much on player activity, the story becomes the player's, increasing story agency.

We do not claim that our discussion here covers all possibilities for expanding story agency in nonlinear game stories. On the contrary, we believe there are innumerable avenues towards improving story agency. We hope that our discussion inspires new and interesting uses of nonlinear techniques that may eventually include an even higher degree of story agency in nonlinear scenes.

6. CONCLUSION

We have shown through several specific nonlinear storytelling techniques that the approach used in traditional media works equally well for videogames. A major concern for all techniques is to avoid dramatic change in non-chronological scenes. While this aligns well with videogames' inability to give players story agency in similar scenes, it does not preclude gameplay agency. This is clear from the interactive gameplay found in the nonlinear portions of the many examples above.

Despite the existence of these examples, we hope to see more widespread and sophisticated use of nonlinear storytelling in the future. To achieve this, designers need to find new ways of using nonlinear techniques that are better suited to interactive gameplay, and perhaps find ways of making their use in games less literal. Our suggestions in Section 5 provide a starting point.

Though there are examples of nonlinear storytelling in games, such as the episodic *400 Days* [40] in Telltale's *The Walking Dead* series, few seem to make the interesting uses of nonlinear techniques that other media do. For example, not many games effectively incorporate an unreliable narrator, nor have many moved beyond amnesia to reflect memory problems through nonlinearity. Continuing to improve nonlinear storytelling in games is one way to get closer to dramatically compelling computer games.

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