

Nonlinear Narrative in Games: Theory and Practice

By Ben McIntosh, Randi Cohn and Lindsay Grace [08.17.10]

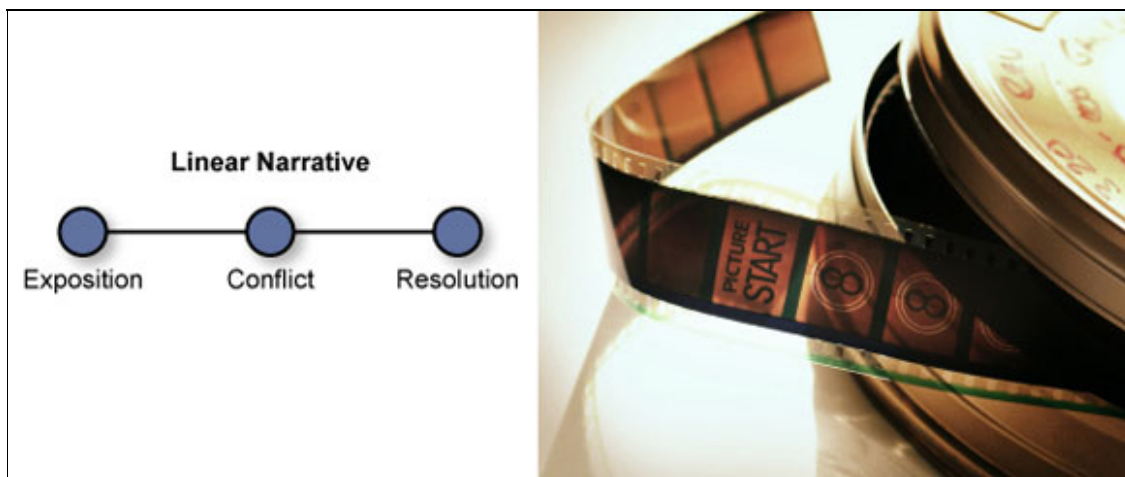
When it comes to writing for video games, there are a few decisions that need to be made before you even begin brainstorming about plot points, characters, or dialogue. Even if the genre and style has been determined, there is a bigger question about the story that must be answered: Will this be a linear or nonlinear narrative?

If you are a game enthusiast, you are probably already aware of the exciting complexities, depth, and robustness of nonlinear stories. However, if you have ever attempted to write a nonlinear story, you may have encountered several infuriating problems that are typical when trying to present the player with multiple options. This article will take a look at some of these issues as well as offer some thoughts on how to work through them. Why is nonlinear writing important to know? Because as more schools offer degrees in game design, the competition is greater than ever. In a world where some video games are outselling big budget movies, you have to put as many stunning bullet points on your *curriculum vitae* as you can to stand out from the crowd.



What is Nonlinear Narrative?

Before we address the issues that arise in writing nonlinear narratives, we must first define the differences between linear and nonlinear. Linear stories are written in such a way that the player progresses by reaching predetermined sequential plot points. A successful completion of the game would mean that the player has arrived at the end point of the game via the single path that was laid out by the designer. Think of a novel or a movie.



Plot points in a linear narrative are usually in a fixed chronological order.

The linear storytelling tradition is well established. Most follow what we call the "three-act structure" or "Aristotelian approach", where the story can be broken down into a clear beginning middle and end. In the beginning, there is an exposition of a problem, that problem comes to a climax in the middle, and that problem is resolved at the end. This structure works well in games because it gives the player a goal or set of goals as they work toward solving the problem.

Nonlinear narratives extend the benefits of linear narratives. The player is given options as to what he or she chooses to do. Historically, these options were presented as predetermined choices, as in choosing to go to one town or another. Yet, nonlinear narrative is much more than merely offering choices. It also includes games that dynamically generate plot elements and alter potential endings based not only on the choices a player makes, but also on other factors such as their performance, timing, or other circumstances tied to the narrative.

The key to nonlinear narrative is variability. The player's experience is enhanced by variety and a sense of efficacy. What the player does has real consequences on the world in which they interact. They are at least provided the

impression of influence. These narratives may offer multiple endings, or perhaps converge fatefully to an inevitable outcome. When you give a player the ability to affect the narrative, it gives them an opportunity to identify with their player, creating more of an emotional investment.

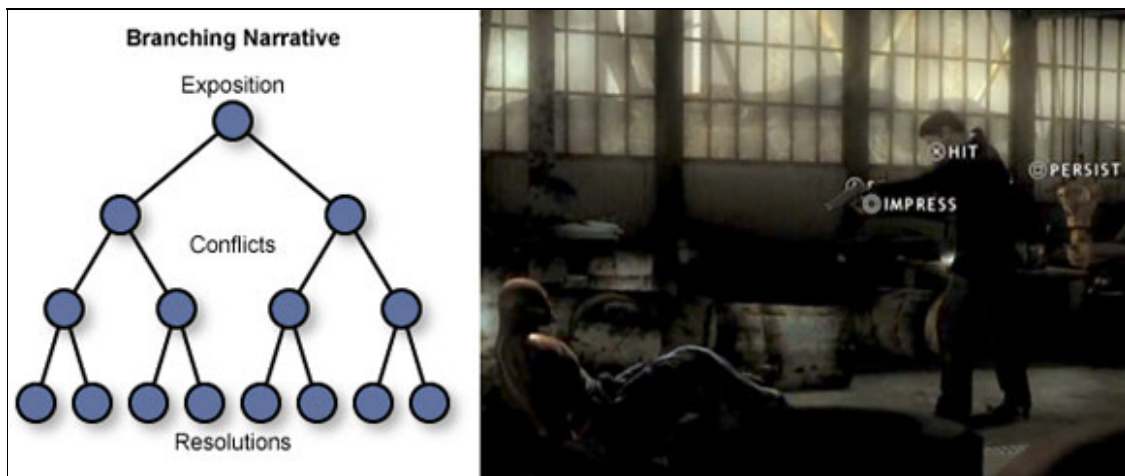
Types of Nonlinear Storytelling

There are two main categories of nonlinear games and sometimes a combination of both: open world and branching. Open world often means the player is able to encounter different parts of the overall story in whatever order they choose, or, the player is able to access smaller, more isolated side stories in whatever order they choose. Think of quests in *World of Warcraft* or missions in *Grand Theft Auto 3*.



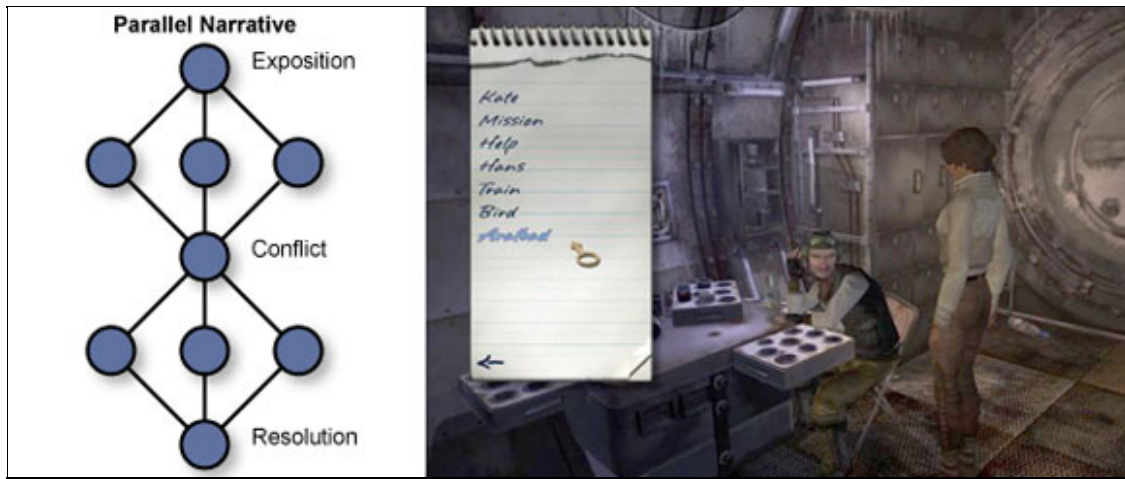
Open world quests in *World of Warcraft* can usually be completed in any order for a given level.

Branching nonlinear stories are generally thought of as one of two styles: 1) a tree that branches out with different end points; or 2) plot lines that converge or diverge like parallel roads to the same destination. The first option is much more difficult to implement due to programming and asset management challenges. Branching types of stories give the player options that often lead to more options which may affect the overall direction of the narrative. A good example of this would be *Heavy Rain* with its multiple endings.



Certain decisions made in *Heavy Rain* actually change the outcome of the story

Even games not thought of as linear often have nonlinear elements to add depth. For example, fighting games are not usually known for their complex story lines. However, in games like *UFC Undisputed 2010*, you can make decisions about how you will respond in your interviews that may lead to rivalries within your ranks. Or, in many adventure games that have only one ending like *Siberia*, options are given as to which sub-locations and NPC's the player would like to interact with first, even though each chapter begins and ends the same way. It's all about the illusion of control.



In *Syberia*, Kate Walker can complete tasks in any order, but they all lead to key plot events.

Last but not least, there is an entirely different flavor of gameplay, emergent gameplay, where the story is the result of how the player controls their character. The story emerges out of the game's constraints and the resulting response from characters, artificial intelligence, or the combination of both. In this type of design, the author does not necessarily prescribe the specific events, but the rules from which the story emerges. The most common example of a game that falls under this category is *The Sims*.

Challenges Inherent with Designing Nonlinear Games

If nonlinear stories are so compelling, why aren't more games written this way? The short answer is that it is expensive and difficult. There are challenges for the writers, producers, and engineers, and in most cases, the costs outweigh the benefits. In fact many critically acclaimed AAA titles have been largely linear, such as *Uncharted 2*.

From the production perspective, the more options you give the player, the more time and resources it takes to design each possibility, as well as to generate the assets associated with each scenario. Thus, the fewer the outcomes, the easier it is to create. There are several examples of games that were designed as extensively nonlinear plots, but ended up quite the opposite due to time and expense constraints.

Consider a game that offers two major choices, just three times during the entire game. As shown in the branching tree diagram above, the game would require eight distinct endings. Not only would that mean that the production team would need to create all the additional assets for those endings, it means that each player would experience only an eighth of the game endings. It's hard to justify creating that much game, if players aren't going to see it. However, this may also increase the replay value.

Secondly, the technical challenges for the engineering team are substantial. With each branch of the game comes additional code to control the flow, and variables to keep track of. While smaller games may be manageable, larger games get out of hand quickly. Due to the exponential growth of the decision tree, there are hundreds if not thousands of variables to manage. The advent of simpler game scripting languages like Lua, eliminate the need for designers to be expert programmers. However, the game engine that interprets the scripting language needs to be sufficiently robust to support complex nonlinear experiences.

Lastly, the actual methodology of writing such a story can prove to be much more difficult than you might imagine. Think about how complex it would be to write a story that could be read in any order. How would you arrange the paragraphs of each plot point? How would you write for dialogue that could end in multiple ways which would lead to another dialogue that would also then lead to a number of new choices?

Good nonlinear narrative authors understand that story has dependencies. A good storyteller reveals enough information to keep their audience engaged. A common technique for doing this is layering, where the audience is provided additional information that builds on the last information they were given. The first layer might be a problem, the second layer might be about an item that helps to solve the problem, the third layer may tell where to get that item, and so on.

The challenge with nonlinear narrative is that you typically don't use *time* to layer. Nonlinear stories are often linked by *conditions*. For example, it may be that certain plot points are revealed after a player completes a required action. Or, a certain action by the player may exclude an entire portion of the story. This is very difficult to express using traditional storytelling tools. For example, when we write stories in English, we write them from the top of the page down, tying events together by time. As such, most word processing or storytelling software is designed the same way. The expectation is very linear; there is a first, second and a third part, all tied together by time.

Nonlinear narrative is very difficult for game writers to express with current writing tools, like Microsoft Word, Final Draft, or even Excel because they link story elements in a linear fashion. Modern games are more than just a chain of

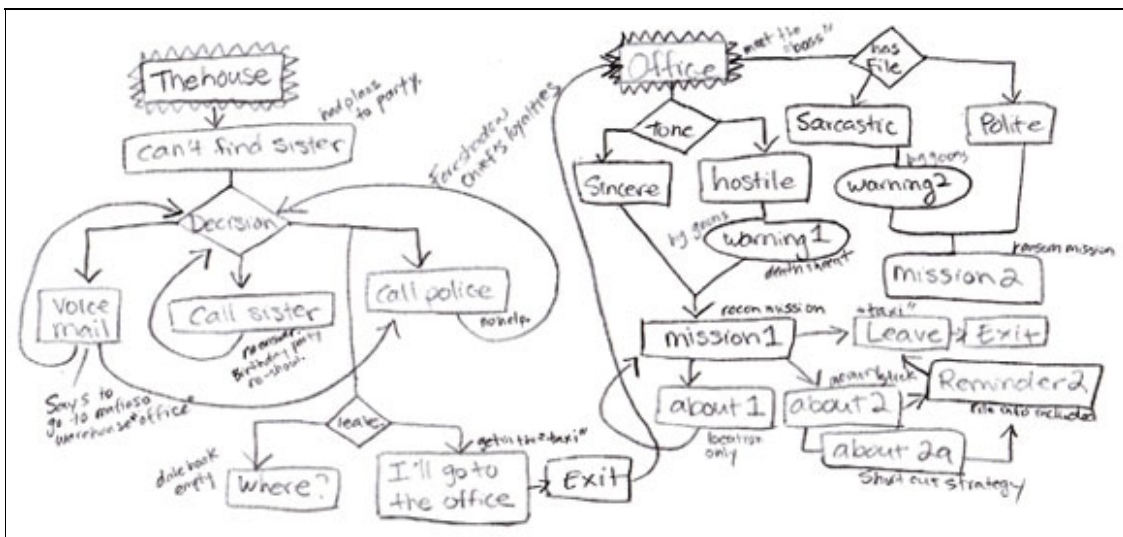
decisions or a series of events, like the branching storyline of a *Choose Your Own Adventure* novel. Nonlinear games also consider conditions such as inventory items, character relationships, and past interactions as part of the equation for conveying their stories. Given these difficulties, designers are still able to successfully create nonlinear games.

Solutions for Nonlinear Narrative Design

There have been many ways to address these challenges. Programmers and engineers have pursued procedurally generated levels and artificial intelligence solutions to entwine the logic of storytelling with the logic of the game. This approach has worked beautifully but not without its disadvantages. The most common setback is that there is a schism between the vision of the authors and designers, and the practicalities of procedural generation.

The idea behind procedural generation is to change the level design or spoken narrative in a quasi-random way while still conveying the ideas set forth by the designer. One successful example of this is *Left 4 Dead* where the layout of the levels is slightly different each time you play the game. This gives the feel of the story being played out slightly differently each time you play. Another example could be a dialogue system where certain verbs or adjectives in a conversation are chosen based on game events somewhat like a "Mad Lib", but still convey similar meaning. These methods have still not seen widespread use and more commonly the designer chooses to have more explicit control over the narrative options.

There are a few commonly used tools for people who design nonlinear narratives and dialogues routinely. For quick prototyping or brainstorming, designers may employ hand-drawn graphs and flow charts to diagram the relationship of specific events or moments in dialogue. These diagrams may be effective for small projects, but they do not scale for large, complicated narrative structures. Designers also combine traditional diagramming tools like Microsoft Visio with the word processors or spreadsheets. These often take the form of cross-referenced documents; where by an item in the diagram refers to a line of dialogue or a plot event in the word-processed document or the spreadsheet. However, as projects grow, the graphs become unwieldy.



Example of a student's high-level nonlinear narrative hand-drawn graph

For open world games, mind mapping tools like Mindjet or Freemind, or database tools like Microsoft Access may be useful in organizing quests, missions, or side-stories. While all of the solutions mentioned so far are common and relatively low-cost, they also suffer, to some degree, from their simplicity. Namely, they have difficulty allowing the designer to create conditions, which are circumstances that may change the direction of the story. Because the game world is a dynamic one and in most cases quite large, designers often turn to software to keep track of variables in order to prototype the narrative.

Imagine trying to manually diagnose problems with the flow of a 500-line spreadsheet of nonlinear dialogue. To mitigate these problems, some companies create propriety solutions for managing their nonlinear narrative. As with any custom software development, it has advantages and disadvantages. Building software is not cheap and it takes development time away from making games. Time is also need to train people to use and maintain the software. However, when done correctly, it can save time in future game designs, especially if the tool implements a compatible data format that can integrate the dialogue directly into the game engine. An independent developer called Urban Brain Studios has made an attempt to bring such a tool to the commercial market with its nonlinear dialogue-editing tool, "Chat Mapper". Although it's a good start, there are still issues with handling the complexity of very large games. Also, while the built-in scripting system can be powerful, it may still take significant effort to convert the dialogue data to a usable format for the target game engine.

Conclusion

As you can see, writing and implementing truly nonlinear games can be a daunting task. Due to the many challenges to designers, engineers, and producers, many companies opt to simply incorporate small nonlinear elements to make the game "feel" more nonlinear than it actually is. While this can be very successful, a truly nonlinear narrative that allows the player to dictate how the story progresses and ultimately ends, can be very rewarding and allow for a deeper emotional investment by the player. Technology should not hinder creativity. To help game designers, this article has presented ways to use traditional word processing tools as well as some creative solutions to generate nonlinear dialogue and story elements. We hope you have gained some knowledge and insight to the process of writing an innovative and intricate story.

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