

Narrative Guidance

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INTRODUCTION

To date most interactive narratives have put the emphasis on the word "interactive." In other words, asking the question "How can interactivity empower the user to influence his or her experience?" This has meant giving the user control to construct the narrative by providing the freedom to steer and the ability to influence how the narrative space is navigated. However, there is an alternative approach. That is to ask the questions "How can Interactivity be employed by the author to better tell his/her story?" and "How can the narrative be used to guide the interaction of the user?" In this approach the story environment is manipulated to ensure that the user experiences the narrative that the author intends. I call this "Narrative Guidance."

Emergent Narrative

We all construct narratives out of our daily activities to help us remember, understand, categorize and share experiences. It is this skill that many interactive systems exploit. They give us environments to explore. We, by combining the elements of these spaces with our goals (the users goals), allow a narrative to emerge. If any narrative structure (or story) emerges it is a product of our interactions and goals as we navigate the experience. I call this "Emergent Narrative." This approach has provided a number of successful interactive experiences such as flight simulators, games (i.e. DOOM), and narrative puzzles like MIST.

Narrative Guidance

The alternative approach is the process of empowering the author to bring structure to the experience, which makes this medium more appropriate for a wider range of applications. Introducing narrative structure will increase the ability to use this technology for teaching, storytelling, advertising and information presentation. But to incorporate narrative structure into an experience, we will need to balance the interaction (exploration) with an ability to guide the user, while at the same time maintaining a sense of pacing or flow through the experience.

In the narrative guidance model the presentation is manipulated to assure that the user will be told the story regardless of their interaction. In other words, the story at a high level remains the same while the presentation of the story varies. In addition, the

narrative guidance model uses its ability to manipulate the presentation to control the flow or pacing of the story.

Take, for example, the following scenario. You are a character in a story and are standing beside a road. The camera starts in your body functioning as your eyes. As you look around at the setting, you hear a car approaching in the distance and you take the opportunity to stick out your thumb and hitchhike. When you turn to see the oncoming car, the camera cuts to a close up of the person in the car. This gives you more information about the approaching driver. The camera cuts back into your body and the car pulls over. You begin to run toward the car, the camera cuts to a distant shot showing you coming to a stop beside the car (time is foreshortened). Cutting back you look down toward the door handle. The camera cuts to a close up as your hand opens the door. As you get in the car, you pan the inside of the car and a close up of a gun between the seats is inter-cut. This sequence gives an example of how the presentation is manipulated to both emphasize particular elements and to control time and pacing. The viewer is nudged through the narrative while maintaining the perception that anything can happen.

Assume that getting the viewer into the car is necessary for this story. In fact it is a plot goal. The goal was satisfied in the scenario given, but what if the viewer had not chosen to hitchhike? The solution is for the system to adapt the staging of the scene to achieve the goal. For example, the car might pullover directly in front of you and the driver would wave a gun demanding you get in the car. The car might scream to a halt hitting you (knocking you unconscious) and as you wake up, you find yourself in the car. The point being, plot level guidance can manipulate you as a viewer while providing the freedom to let your actions adjust the presentation. By manipulating the story world and how it is revealed to the viewer, the plot can provide the viewer with the illusion of having an infinite number of options even if the system is only prepared with a few. The final result is that the viewer at the presentation level .has created his/her own experience while at the plot level the viewer has experienced the story the author intended.

In this essay I will first, outline some criteria of a narrative guidance system. Then introduce an analogy that has helped to guide my efforts in building narrative guidance systems. Last I look more specifically at the mechanisms by which a narrative structure (plot) can guide the presentation.

QUALITIES OF NARRATIVE GUIDANCE

Here I outline four qualities that I think are important to the development of narrative guidance. These guidelines have and continue to guide my research work.

- **Temporal Structure.** Interactive narrative should have temporal continuity. Traditionally the events presented in a narrative world have a structured relationship to each other. A good storyteller strategically controls the time and space of the presentation to weave a tight and compelling experience. The process of narrative guidance should also do this. By allowing a narrative to guide the interaction it can be ensured that

important plot points are reached while maintaining a sense of flow or pacing in the presentation.

- **Continuous Interaction.** Interactive storytelling should not be interrupt driven. The presentation of the narrative should not stop and wait to be started by the actions of the viewer. The experience should proceed smoothly. Therefore the user's interaction should be a smooth and continuous stream of input that influences the story world, much as a rudder steers a boat. Unlike the start and stop of an interrupt driven interface, this type of input can coexist with the temporal structure mentioned above.
- **Two Levels of Representation.** There should be two layers that make up an interactive narrative: the plot level and the presentation level. The plot level embodies the temporal structure. It manages the plot points or task level story goals that are to be attained. The presentation level is indicative of the viewer's world--the world in which continuous interaction happens. Because of this separation both continuous interaction and plot can be accommodated. It is the coupling between these two levels that allows the plot to orchestrate the events while the user's input continuously influences the presentation.
- **Shifting the Viewer's Story View.** For the plot to be able to attain a goal it must have methods for shifting the viewer's position with respect to the narrative world. In cinema this is traditionally done by transitions (e.g. wide shot to close-up, first person point of view to 3rd person) and staging of the character's actions. These transitions manipulate time and space to provide the link between the plot and presentation. Traditional immersive environments have not used these techniques; they have no methods for shifting the viewer. They should and this is the focus of my current research.

When these principles are achieved, the viewer has the illusion that anything can happen, while the system can constantly manipulate events to tell the story. Smooth and continuous interaction with the story world can be provided while the events in this world are orchestrated to guide and steer the viewer. In other words, the system will bring the story to the viewer.

NAVIGATING THE NARRATIVE SPACE -- THE RIVER ANALOGY

Here I propose an analogy for navigating a narrative space. Instead of linking a sequence of branches and nodes, or giving the user free rein, I suggest that the navigation paths be more like a river flowing through a landscape. The user is a boat floating down this river with some latitude and control while also being pushed and pulled by the pre-defined current of the water. Like the branching structure this approach constrains the audience's

movement through the space to interesting and compelling paths. But there are some unique advantages to this approach: the flow of the experience, the continuous input of the rudder, and multiple levels of structure.

The river analogy assures an uninterrupted flow. When in a boat you float down the river even when you are not steering. The presentation is continuous regardless of whether or not there is input. The amount of control you have over the boat varies with the properties of the river. If the rapids increase, you move faster with less room for maneuvering from side to side. Alternatively, the pace can slow and the river can widen giving room to steer from one bank to the other.

A boat is steered with a rudder. In the river analogy the rudder can be likened to audience input. A rudder takes input continuously. The amount of influence may vary depending on the water conditions but you can always provide the input. It is also the case that the rudder may have both an immediate and a long-term impact on the navigation. How the rudders are used can determine both your local position within the river, but also a more global position, such as which fork in the river your boat might take.

The river provides two levels of guiding structure. First is the local structure of the river including the water flow, rocks in the river, the width between the banks, etc. Second, is the global structure, including both the path the river flows and the forks that separate and/or rejoin. The audience input has influence on how both levels of this representation are navigated. The rudder or input can steer between the banks while the position of the boat when a fork is reached will dictate which part of the fork the audience will travel.

Like a river, a narrative guidance method should guide without interruption of the presentation. This creates a sense of interaction by constantly accepting user input while maintaining a higher level, longer-term structure.

Application of the Analogy

The river analogy was first applied to a virtual reality experience that is highlight of the Chicago Museum of Science and Industry's new exhibit, Imaging the Tools of Science. The primary goal of this exhibit was to expose and educate the visitor to what VR technology is and can do. Any experience that was going to be successful was going to be highly constrained by the issues inherent in bringing an immersive experience to a public place like the museum. In a museum setting it is important to limit the amount of time a person spends, provide an interface that keeps people from getting lost and frustrated, while at the same time making them aware that they have some direct and immediate control over how they move through the environment~ To meet these demands it was decided that the experience would be between 2 and 3 minutes long with a clear beginning, middle, and end. This allowed the user to feel they had a complete experience while allowing the museum to predict how quickly they could move people through the exhibit. These constraints required the user's navigation to be guided through the virtual world, and the river analogy served this purpose well.

In this application, the analogy of the river was taken quite literally. We defined a path through the virtual space as the river. The user was then guided through the space much like a water-skier behind an invisible boat. The boat or anchor moves along the path at a rate that varies as specified by the creator of the experience (the author). The user is then tethered to the anchor by a spring that constantly pulls him/her along. Meanwhile the user is free to look in any direction he or she chooses.

The content of the VR experience is designed as a symbolic illustration of the acquire, process, and display stages of the image processing "loop" which is reinforced elsewhere in the exhibit. The journey begins in a model of the Virtual Reality Lab theater itself, and follows the travels of a face as it is acquired into a video camera, processed in a "circuit city" and finally displayed back into the real space. Events in the world are triggered by the participant's location and orientation. And only the simplest of space-time transitions are used to move the user from one space to the next. The museum exhibit has been up and running since September 1993. My work since then has focused on expanding the river analogy to use more sophisticated methods of staging and transition in immersive environments to better guide the user through a story.

PLOT & PRESENTATION

Separating Plot & Presentation

One of the key points outlined here is the need to separate the plot from the presentation. It is this separation that allows the freedom for the user's action to vary the experience while assuring that the author's story is told. The user interacts with the presentation and the plot adjusts the presentation to assure its points are made. But how does the plot make these adjustments? What is the link between plot and presentation?

Linking Plot & Presentation

The primary way in which a storyteller weaves an engaging and compelling narrative is by manipulating space and time. In film, space and time are manipulated through the use of staging and transitions, including dissolves, wipes, fades, and most commonly cuts. Staging is the manipulation of the characters and props with respect to the viewer (or camera). This manipulation helps to control the visual field of the viewer. While it does not have the same ability to manipulate both space and time as transitions do, it is a vital tool for the filmmaker. While both staging and transitions can build clear observations, establish point of view, and strategically hide information from the viewer (to build suspense for example), cuts have the magical ability to transport the viewer in space and time and allow the filmmaker to control the pacing of the presentation to build a tightly woven and compelling narrative. Because it was the introduction of cuts (or montage) that signaled the birth of modern cinema, this would suggest then, that the manipulation of time and space is no less important in an interactive narrative.

During the past few years there have been a number of research efforts to build agents or graphical characters to provide the visual content of virtual environments. Most of this

work has looked at the issues behind building autonomous creatures. These are creatures that are given a certain set of abilities to both act and perceive within their environment and are left to their own devices. In the emergent narrative model this is sufficient, but in the narrative guidance model these creatures need to be directable. It is only once they are directable that the plot can steer the narrative by adjusting the staging.

There has been little or no work looking at the issues of introducing the use of transition into virtual environments. What can we learn from traditional cinema's use of transitions to manipulate time and space and affect the presentation? How does the kinesthetic link (between user and presentation) that interactive systems provide affect how transition and staging can be used?

CONCLUSION

I have put forth my approach to interactive narrative called "Narrative Guidance" and have given some criteria for this approach including presentation level interaction and the ability to manipulate the space and time of the presentation to assure that a given story is told. Immersive environments are a natural way to provide continuous presentation level interaction, and transitions coupled with staging are a proven way of allowing the filmmaker to control space and time. My research continues to investigate how transitions and staging can be used to link the plot level representation of narrative to the presentation level within an interactive environment. The hope is that successful incorporation of these methods for manipulating space and time into an interactive immersive environment will provide new tools with which some of today's problems with interactive narrative can be addressed.

Published in AAAI Spring Symposium Series, Symposium on Interactive Story Systems: Plot and Character, March 27-29, 1995, Stanford University.