

Towards a Computational Model of Character Status in Interactive Storytelling

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ABSTRACT

In computer-based interactive narrative, a key challenge is the conflict between user agency and authorial control of the story quality. In this paper, we use the constructs of *character status* and *status shifts* from improvisational and interactive theatre to further engage users in the creative process of co-creating the story. Based on the cognitive semantics theory of force dynamics, we develop a computational model of status shifts.

ACM Classification Keywords

J.5 Arts and Humanities: Performing Arts; I.2.1 Artificial Intelligence: Applications and Expert Systems—*Games*

General Terms

Design

INTRODUCTION

Interactive narrative is a contemporary form of the age-old human creative activity of storytelling. One of its central challenges is what is known as the “narrative paradox” — the conflict between user agency and authorial control to structure the narrative. Generally speaking, the more freedom the user has to influence the story world, the harder it is to maintain the quality of the story, including narrative coherence, dramatic arc, etc. As Marie-Laure Ryan rightfully asks [4], will there ever be any user that, while playing the title character in a game version of Anna Karenina, decides to kill herself in order to make the story more interesting? To many, the answer is no. As a result, research efforts have been put into more sophisticated systems for interactive narrative, such as drama management.

However, algorithmic advancements alone are not the complete answer to Ryan’s question. At the end, a truly inter-

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active narrative piece relies on the user to make significant decisions for her character and hence to impact the story. If it takes professional storytellers years of experience to master their art, why should we expect an untrained user to create a great story without giving her the necessary clues and guidances? To us, the act of guiding and engaging the user without taking away their freedom of input and, ultimately, spurring their creativity in leading the story is as creative as constructing story content itself.

We can borrow useful insights from *interactive theatre* where human actors construct interactive stories with untrained audience participants. Similar to improvisation (improv) theatre, interactive theatre draws on improvisational tools and is spontaneous and unpredictable in nature. Some related study of improv for interactive narrative include [3] and [1]. However, unlike improv theatre performed by trained actors, an interactive theatre is designed specifically to be *experienced* by untrained audience participants (*spect-actors*), working together with the actors (*inter-actor*) to create stories in a loosely pre-defined format.

In this paper, we report our initial study of inter-actors’ use of character status and status shifts to construct stories with untrained spect-actors. We identify the connection between status and force dynamics (FD) and propose a FD-based model of status and status shifts in the context of interactive narrative. We show how force dynamics provides a useful model to understand narrative strategies in interactive theatre and can potentially be used in computer-based interactive narrative.

A MODEL OF STATUS IN INTERACTIVE PERFORMANCE

In improv and interactive theatre, status is one of the core constructs that actors use to convey the social/professional standing of a character as well as her relation to other characters and the environment. Generally speaking, a high-status character dominates the situation whereas a low-status one submits. Seen as a top-down “motivation” to a character’s actions, status determines the range of possible gestures (e.g. taking up a lot of space using one’s body vs. sitting uncomfortably in order to leave space for others) and speech (e.g. “Get out of my way!” vs. “I’m not worth your time.”). Johnstone [2] argues that a large proportion of drama comes from how characters attempt to raise or lower their social status

<i>Status in performance</i>	<i>Force Dynamics</i>
Main character	Agonist
Secondary character	Antagonist
Attempts to change status	Tendency to motion
Attempts to maintain status	Tendency to rest
Successful attempts	Stronger
Failed attempts	Weaker

Table 1. Comparison of Status and Force Dynamics

through different means. In interactive theatre, status also offers a means for the spect-actor to quickly engage in the process of co-creating the story with the inter-actors.

A useful framework to understand the working of status in narrative is the cognitive semantic theory of force dynamics [5] (FD). A basic FD pattern contains two entities, an *Agonist* (the focal entity) and an *Antagonist*, exerting force on each other. An Agonist has a *tendency* towards either motion (action) or rest (inaction), and it manifests its tendency if it is stronger than its Antagonist. To represent “The ball kept rolling because of the wind blowing on it,” for example, the Agonist *ball’s* intrinsic tendency towards rest is overcome by the Antagonist *wind’s* greater force, and hence the result is the motion of the Agonist. Force dynamics can also be used to describe psychological and social interactions by conceiving such interactions as psychological “pressure.” Time in force dynamics is represented by sequences of *phases*.

At the fundamental level, both force dynamics and status describe the power relationship between two or more entities and its changes throughout time. In a scene of two characters, we may select the one of primary interest to us as Agonist and the other as Antagonist. The Agonist’s attempt to change her status is defined as her tendency to motion, whereas her attempt to maintain her current status is defined as her tendency to rest. The character who manages to achieve her intended status is the stronger one in the force dynamics. The changing force dynamics relations across different phases therefore offer a cognitive model for status shifts. Table 1 lists the matching elements between status and force dynamics in our current model.

UNDERSTANDING INTERACTIVE THEATRE

Using the above FD-based model, we can analyze the dramatic structure of interactive theatre in terms of status shifts. Take the example of an interactive scene in which a spect-actor plays the role of a young musician. The first time the musician encounters the parent character, played by an inter-actor, the latter exhibits a controlling and dominating manner regarding various aspects of the musician’s life. In a subsequent scene, other inter-actor characters set up external and internal influences over the musician, leading to her decision of leaving home and pursuing her dreams. In a final confrontation with the parent, the empowered musician overcomes the pressure of the parent and eventually departs.

This interaction can be divided into 2 phases, corresponding to different stages of the status shift. In Phase 1, the

Agonist (spect-actor’s musician character) has the tendency to move but is hindered by a stronger Antagonist (her parent). Phase 2 is composed of the following two scenes, in which the strengthened Agonist is able to overcome the Antagonist and initiate the motion. The change of FD relation (hence status shifts) is closely associated with the adrenaline rush and emotional satisfaction that spect-actors often report to experience in an interactive performance story. Having come up against the parent character in a visceral way and overcoming his/her control, the resulting status shift is essential to both the story development and the transformative feeling experienced by the spect-actor.

Our FD-based model not only identifies status shifts in the story, but also highlights the question of “why” and “how.” From the perspective of the spect-actor, dramatic experiences, i.e. shifting FD relations, occur because of various external and internal pressures exerted on her character. The key question here, as in computer-based interactive narrative, is how to provide the right condition so that the spect-actor will (appear to) initiate the status shift herself. In the above scene, thanks to the clear personalities created in Phase 1, the tendency of the Agonist and her power relationship in relation to the Antagonist is implied. Phase 2 introduces the motivations, which leads to the Agonist’s increased strength. The forward momentum of the narrative inexorably leads to the resolution, in which the intentions of the two characters clash and result in a shift in their FD relations. Our FD-based model calls attention to these creative endeavors and represents our initial attempt to model this process in computer-based interactive narrative.

CONCLUSION

In this paper, we discussed the importance and challenges of engaging the lay user in the creative process of interactive storytelling. We studied human interactive theatre regarding how human inter-actors guide, engage, and spur the creativity of untrained spect-actors on stage, especially in the use of character status. Using the cognitive semantic theory of force dynamics, we proposed a formal model for status and status shifts. As part of our future work, we plan to further explore this model in computer-based interactive narrative.

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