

Writing for Replay: Supporting the Authoring of Kaleidoscopic Interactive Stories

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1 Introduction

One of the fundamental properties of interactive stories is the ability for players to go back and try out variations, either to see how their choices impact the outcome, or to see the story from a different perspective, something Murray [1, 2] refers to as *kaleidoscopic form*. While this notion of interactive stories as *replay* stories has long been acknowledged as important from the perspective of the player’s experience [3–5], and as part of the underlying structural patterns of forms such as hypertext fiction [6], little attention has been paid to how an author can attend to and consciously and deliberately design for this during the writing process. In the proposed chapter, I aim to reconsider the authoring problem through the lens of repeat experience and suggest what it means to design tools to support authoring *kaleidoscopic* interactive stories.

2 Challenges for writing replayable interactive stories

Authoring any type interactive story is inherently challenging, as it potentially requires a wide range of skills, including both algorithmic design, programming, artistic design, and making [7]. A key issue is that authors of interactive stories are not able to directly design an experience. Authoring an interactive story is akin to what Salen and Zimmerman call “second-order design” [8, 9] – the author creates the computational systems that a player eventually encounters, and through that encounter an experience emerges [10]. In addition to designing the computational system, the author also needs to consider how the player will interact with this system. When the player encounters both the playable system and the units of narrative [11], the resulting experience emerges through the process of interpretation of both the instantiated narrative being encountered, and the player’s interaction with and process of making sense of the underlying system [12, 13]. The author’s intention is to influence the player’s experience, but the author can only do this one step removed.

Much of the work done to develop authoring tools for interactive stories has focused on the problem of supporting this complex range of skillsets, as can be seen in recent surveys of authoring tools [14] and discussions of the ways that the authoring problem have been addressed [15]. If, in addition to trying to help authors address the problem of creating an interactive story we also want to specifically help authors create *kaleidoscopic* interactive stories, we need to consider how this changes the authoring problem.

To create a replay story, the author has to consider not just how the player will experience the story on a single playthrough, but on multiple playthroughs. This involves understanding how to motivate the player to replay, and how to reward that replay [5, 16]. It also requires an understanding of how the player's motivations to replay may change over the course of a number of playthroughs [17], how the player's perception of the underlying system may impact replay [18], and whether this creates additional constraints on how much each playthrough can be procedurally varied [19]. The author may want to encourage what Mitchell [5] sees as equivalent to Calinescu's simple or reflective rereading [20], or perhaps something closer to what Mitchell et al. call kaleidoscopic play [21]. If the author intends to use a "rewind" mechanic to encourage replay [22, 23], the author additionally needs to consider how the use of techniques such as cross-session memory [24, 25] can impact the experience.

All of these issues are not explicitly addressed in current approaches to designing authoring tools. While current tools tend to focus on the problem of supporting the range of demands creating an interactive story places on authors from a conceptual and skill perspective, as summarized by Szilas [7], the issues mentioned above arguably require additional support.

3 How can tools help with this?

If replay stories and kaleidoscopic play present particular challenges to authors, what are the ways that an author can be supported to tackle these challenges? Is there something that an authoring tool can do to help an author of a replay story, beyond what is required for general interactive story authoring tools?

From the above discussion, it can be seen that there are a number of issues, including:

- Considering how players' focus on system and/or story changes across play sessions
- Providing abstractions that appropriately surface the relevant details of the underlying computational system without distracting from a focus on the story
- Incorporating support for cross-session memory and rewind mechanics
- Providing visualizations and abstractions for authors to support these concepts
- Supporting testing and revising of a story that is meant to be played many times

Exploring solutions to these issues can potentially also help designers of authoring tools to better support all authors, not just those who are interested in creating highly replayable, kaleidoscopic interactive stories.

4 What do we know so far?

The main focus of the chapter will be to extend and elaborate upon the above discussion, grounded in examples both of works that are designed for replay, and tools that (begin to) support the issues particular to replay stories. The chapter will end with an assessment of what we know so far in terms of supporting the authoring of replay stories, and what the main challenges are going forward.

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