Visualizing Your Story: Seeing Content using Interactive Digital Narrative Authoring Tools

John T. Murray[0000-0003-2579-6802] and Anastasia Salter[0000-0002-1468-1308]

University of Central Florida, Orlando, FL 32816, USA
jtm@ucf.edu, anastasia@ucf.edu

Abstract. As user-friendly tools have become more prevalent in interactive digital narrative (IDN) development, design structuring has frequently moved from procedural to visual representations. However, these visual models have significant challenges, and frequently seek to map the unmappable by representing narrative structures that do not easily correspond to locative and visual metaphors. In this examination of existing visual IDN approaches, we analyze a subset of the challenges that can visualize meaningful interactive narrative representations, and propose future models for IDN development in this area.

Keywords: interactive digital narratives, interactive storytelling, visualization, authoring tools, classification systems.

1 Authoring Challenges IDN

There are diverse challenges associated with authoring interactive digital narratives (IDN), and historically many of these procedural, with tools demanding significant procedural literacy on the part of designers and developers. Defining the subset of challenges we address require revisiting concepts from the past few decades, such as "authoring tools[6]", the need for them, or the "authoring problem[11]," the desire to maximize the creator's "authorial leverage[2]" and the insights provided by the adjacent fields of user experience [9] and narratology [5]. It also necessarily involves the tools that have been used successfully to create artifacts, or aspects that are apparent about the tools from the artifacts that are not available. Previous work has comprehensively catalogued authoring tools, but we focus on existing tools that use visual aids and opportunities for using visual aid that have not. For example, Netflix's Bandersnatch script was written using the affordances of Twine [10] to manage the overall branching structure, while Telltale Games evolved the "Telltale Tool" [3] to meet the challenges of combining interactive storytelling with the realities of producing more traditional game assets, such as models, dialogue, and game mechanics: heirs of classic systems such as Eastgate's Storyspace [12] and Infocom's Zork Implementation Language (ZIL)[1], today's tools often incorporate substantial visual metaphors to address these authoring constraints. This chapter will investigate and explore the visual metaphors at the heart of comprehending the evolving structures that is critical to controlling complexity and anticipating the reception for IDNs.

1.1 IDN Tool Approaches

There exist many successful approaches to creating compelling interactive stories, suggesting numerous effective combinations of the elements of story, puzzles, and exploration [7]. Specific technologies have emerged that address particular challenges within subgenres of IDN, which offer conceptual renovation to core concepts rather than fundamental novelty. Most of the popular tools support editing interfaces that connect structure and logic around content lexia, including Twine[1] and Ink[2] and Choice of Games[3]. Other tools, such as Inform 7[4], provide in the engine a model of the underlying world in addition to allowing an author (or authors) to write text. Some stand-alone works combine an authoring tool and an engine in a way that makes them inseparable, such as the Reed and Garbe's Ice-Bound Concordance [4], and Reed's Subcutanean[8]. Regardless, existing visualizations are limited to a pre-defined content type and limited to an existing schema within the engine's model of content.

1.2 Existing Visual Metaphors

Given these discrepancies, it can be difficult to meaningfully compare structures across works: important distinctions exist in content modeling, organization, production, editing, and presentation, all or some of which might incorporate visual metaphors for authorial or user manipulation. However, previous work suggests these prevalent metaphors, each with their own reductive consequences:

Spatial mapping. Familiar to users of Inform 7, spatial mapping presumes an environmental design metaphor (though one is not required, and "rooms" in Inform 7 can contain multitudes.) Perhaps the most game-like, spatial mapping frequently visually breaks when the "rules" of physical space are violated by authorial possibility spaces.

Scene-driven structure. Common to visual novel tools such as Ren'Py[5], scene driven structures often flatten their contents, suggesting a fundamental linearity to the actions within a "scene" and placing the emphasis on the paths possible between scenes.

Nodal mapping. Prevalent in Twine, nodal mapping structures flatten the content of passages, emphasizing the links between them. However, such maps only track simple linking mechanisms: more generative, scripted movement is erased from the visual structure, and conditionals cannot be charted.

1.3 Impact of Visual Metaphor on Design

Visual metaphors offer a starting point for investigating other opportunities for spatial reasoning in tools. Content types that can be manipulated equally by human and system is necessary for both generation and evaluation. By expanding our visual metaphors and revisiting what they could represent, we might in turn reimagine authoring for IDN.

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[1] https://twinery.org/
[2] https://www.inklestudios.com/ink/
[3] https://www.choiceofgames.com/
[4] http://inform7.com/
[5] https://www.renpy.org/

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