Games/Hypertext

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ABSTRACT

The relationship between hypertext research and games design is not clear, despite the striking similarity between literary hypertexts and narrative games. This matters as different communities are now exploring hypertext, interactive fiction, electronic literature, and narrative games from different perspectives - but lack a common critical vocabulary or shared body of work with which they can communicate. In this paper I attempt to deconstruct the relationship between literary hypertext and narrative games. I do this through two lenses. Firstly, by looking at Hypertext as Games; with a specific set of mechanics based around textual lexia and link-following (but with a tradition of exploring alternative Strange Hypertext approaches) resulting in a dynamic of exploration and puzzle solving depending on whether agency is expressed at the level of Syuzhet or Fabula. Secondly, by looking at Games as Hypertexts; that depend heavily on textual content, use guard fields, patterns, and sculptural hypertext models to manage agency, that experiment with aporia and epiphany, and that take place within a wider interlinked transmedia experience. This analysis reveals that Narrative Games are both more and less than Hypertext, with a wider set of mechanics and interfaces, but possessed of a core hypertextuality and situated within a greater hypertext context. This suggests that there is much value to be gained from interactions between the communities invested in interactive narrative, and significant potential in the cross-pollination of ideas.

CCS CONCEPTS

• **Human-centered computing → Hypertext / hypermedia**; • **Applied computing → Computer games**.

KEYWORDS

digital narrative, hypertext, hypermedia, interactive fiction, transmedia

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1 INTRODUCTION

What is the relationship between Hypertext and Games? Particularly *literary hypertexts* interactive digital texts of artistic merit, and *narrative games* interactive digital entertainment with significant story elements. Those are my own definitions but already they make clear that the boundaries are slippery. Interactive in what ways? How much text is enough to be a text? How significant should the story elements be within the game? Both definitions seem ergodic in the sense that Aarseth uses the term (meaning non-trivial effort to read) [1].

Nelson coined the term Hypertext, defining it as 'a body of written or pictorial material interconnected in such a complex way that it could not conveniently be presented or represented on paper' [28]. This broad definition arguably applies to any digital media with complex interactivity or behaviour, including narrative games. But there are many more specific definitions. For Conklin 'the essence of hypertext is its machine-supported linking' [11], whereas for Schraefel et al. hypertext is about associations in a broader sense [25], and it has been argued that both views (of hypertext as linking, and as knowledge construction) are valid [34].

Bernstein points out that hypertext challenges our existing understanding of narrative because it is 'by definition, non-sequential while narrative is fundamentally about sequence' [8], but goes on to argue that reconciling hypertext and narrative is crucial, as so much hypertext fiction is dependent on plot. Short shares this concern, but expresses it as an unflattering comparison with works of Interactive Fiction (IF), describing 'the bewilderment and disenchantment that IF players sometimes feel when they encounter the storyless meandering and opaque interaction style [of Hypertext]' [31].

We may also think that we recognise Games and Hypertexts when we see them. Joyce's *Afternoon: A Story* is clearly a hypertext, *The Witcher 3* by CD Projekt Red is clearly a game. But the grey zone is significant: *80 days* by Inkle is marketed as a game, but contains over 750k words and is driven by links[1], *Depression Quest* by Zoe Quinn is a Twine hypertext but the links do not behave as we expect and their bad behaviour is part of the story.

The relationship between Games and Hypertext matters. Interactive digital storytelling has its routes in the Hypertext Community, but now finds wide expression online through interactive fiction groups working with common tools such as Twine and Inform7, in the electronic literature community who embrace a wide set of technologies - many of them web-based, and the games industry where companies such as Telltale, Failbetter, and Quantic Dream have used bespoke engines to deliver complex multimedia storytelling experiences. These communities are separate, we do not talk as much as we should, and partly that is because the relationships between the artefacts we create are unclear.

[1] https://www.inklestudios.com/2015/09/17/new_adventures.html

In this paper I want to deconstruct the relationship between Hypertext and Games. Firstly, by presenting how Literary Hypertext can be conceptualised as a Narrative Game, and secondly by exploring the reverse, the extent to which Narrative Games might be conceptualised as Literary Hypertexts.

Hypertext has been presented as a Method of Inquiry before [2], a lens through which to look at other domains, but here I am more interested in its characteristics as a medium. The intention is not to classify or pigeonhole, but rather to understand the spectrum of interactive narrative experiences, reveal commonalities, and show why game design, interactive fiction, and hypertext theory should be linked.

2 HYPERTEXT AS GAMES

Literary Hypertext emerged in the 1980s, it took Nelson's rejection of hierarchy and order and applied it to fiction [10], rejecting the author as the authority in a story and instead turning to the reader as the locus of interpretation - the ultimate expression of Barthes' Death of the Author [3].

Hypertext achieves this through the link, clickable hotspots that appear either within a textual lexia or at the end of it [11]. Links can be simple (as in HTML) or complex structures in themselves with sophisticated anchors, direction, semantics, and multiple components (as in the Open Hypermedia Protocol) [13].

In Game Design terms following a link is therefore the primary mechanic of interaction within a Hypertext. When link following the lexia being read is replaced with a new lexia according to the link selected. Thus following a link is making a choice, rejecting the other links that are available, and pushing the narrative in a particular direction. Sometimes at the level of the Fabula, giving the reader agency over the events that occur within the storyworld, and sometimes at the level of the Syuzhet, limiting their agency to the way in which they experience an immutable storyworld [36].

From the perspective of the MDA framework [20], we could argue that the link following (M)echanic, leads to a (D)ynamic of exploration or puzzle solving (depending on the reader's agency) in the context of dramatic tension, thus creating a narrative (A)esthetic in the player that is akin to reading (and emphasised by the textual framing of the experience).

This description of link following is a simplification. Mason and Bernstein point out the poetic impact of where we choose to split our lexia, and the different narrative functions of links (to timeshift, recurse, renew, or annotate) [24], all of which could be counted as mechanical variations. It also represents a view of links as a disjunction, choices between alternative lexia, whereas they have also been conceptualised as a conjunction where following a link elaborates the narrative but does not cut off other choices [30]. An example would be fluid links [37] where the destination text is expanded in place, shifting aside the current lexia rather than replacing it.

While we might therefore characterise Hypertext as having a core mechanic of link following, it is clear that many variations are possible. This has resulted in the identification of alternative *domains* of Hypertext, for example Taxonomic Hypertext [33] (where information is presented in a contextualised hierarchy) or Spatial Hypertext [23] (where lexia are arranged spatially, and a spatial parser makes sense of the emerging structure - for example, identifying lists or sets by layout, colour or shape). In this view, Hypertext as defined by link following becomes *Navigational Hypertext* [26], and even in this core domain other structures are common - such as trails [29], or virtual documents [35].

This potential for new hypertext structures and behaviours led to the idea of 'Strange Hypertexts' [7], where hypertext developers and authors were encouraged to become more playful and adventurous with the medium itself. From a games perspective this is the equivalent of experimenting with new mechanics. Examples include locative hypertext [17] (where readers navigate by moving through space), sculptural hypertext [9] (where links are replaced by rules and constraints - what Short terms 'qualities' [32]), and fractal hypertext [16] (where stories limitlessly unfold, in the ultimate realisation of fluid links).

Strange Hypertexts then, are really part of the grey zone between Hypertexts and Games. Examples (although not described by their creators as strange hypertexts) include Google's Editions at Play, with titles such as *All This Rotting* by Alan Trotter where the text disintegrates as you progress through the story to reflect the main character's memory loss, or *Breathe* by Kate Pullinger, a ghost story that picks up on the reader's geographical context to insert real places into the text - increasing immersion.

Hypertext becomes more game-like as the mechanics move further from lexia and text: in the non-digital *Fighting Fantasy* books you must win dice battles to survive certain lexia, in *80 Days* you keep an inventory that opens new travel routes, and in *Sunless Skies* by Failbetter you cruise the desolate reaches, upgrading your steam locomotive and hunting sky beasts between encounters. These mechanics create additional experiences alongside the narrative, but integrated with it, extending and supporting the story.

Strange hypertext is thus not merely done for its own sake, but because these new mechanics add new ways of creating meaning and communicating story through interaction and play. In game design this is called ludo-narrative harmony, the alignment of mechanics with the themes and messages of the story [19]. Getting it right is seen as the high road of narrative design, manifest in games such as *Spec Ops: The Line* by Yager Development where the protagonist's PTSD leads to his unreliable narration, or *Brothers: A Tale of Two Sons* by Starbreeze Studios, where the use of dual stick control leads to an emotionally powerful phantom limb experience following the death of one of the brothers.

From this perspective extending the mechanics of hypertext systems is a necessary part of developing new hypertext stories, suggesting that rather than static domains, hypertext is best seen as a dynamic medium - just like games - that is polymorphic and shaped purposely for its affect on any given work.

In summary then, we can say that from this perspective literary hypertext appears as a subset of games, with a constrained set of mechanics based around textual lexia and link following, albeit with a history of pushing those boundaries with strange structures and alternative behaviours.

3 GAMES AS HYPERTEXT

The alternative perspective is to attempt to view narrative games as advanced hypertexts. Many narrative games are clearly textual,

Divinity: Original Sin 2 by Larian Studios is more than a million words [4] (substantially more than Tolstoy's *War and Peace*), and the tag system used to differentiate dialog choices between characters is akin to guard fields in the StorySpace hypertext system. We have already discussed Inkle's *80 days* and this was partially written in ink, a scripting language for interactive dialog[2] that is presented as a concise hypertext language.

In other games the delivery of content moves away from text. In the *Mass Effect* series by Bioware the story is delivered through a combination of cinematic cut scenes and animated dialogues where, despite a themed UI, the interaction mechanics are fundamentally the same as a classic literary hypertext. Other games incorporate dialogue into the rest of the game world, what Kleinman et al describe as Diegetic Feedback [22], for example *Oxenfree* by Night School Studio allows dialogue to occur as you move and explore - taking a strange hypertext approach of allowing overlapping and interuptable lines of conversation, creating a more realistic environment for multi-character interaction and emphasising the live nature of a game world which does not stop for you to chat.

But narrative games are not limited to hypertext mechanics. In Telltale's *The Walking Dead* narrative decisions are made through quicktime events, and the outcomes scripted in game world or presented via cinematics. Yet the structure of the interactive narrative is clearly that of a hypertext. At the end of the first episode players can choose to save one of two non-player characters, Doug or Carly, and whichever they choose the following episode unfolds in the same way with only that single character differentiating the story. At the end of this episode the surviving character also dies, meaning that the story threads can reunite for episode 3 regardless of the player's choice at the end of episode 1. This corresponds to two of Bernstein's patterns of hypertext [5]. A Mirrorworld, where in each path the structure and content is the same save for one small difference (which character is alive), and a Split/Join, designed to save authors from the exploding complexity of reader decisions (a strategy also known as beads-on-a-string in game design [12]).

So while narrative games can lose the textual content and link mechanics of hypertext, the structure remains, and hypertext theories still apply. For example, Aarseth describes how through iterative rereading of a hypertext the reader becomes aware of its high level purpose and meaning, ultimately allowing aporia to become epiphany [1]. This occurs in games such as *Oxenfree* and *Nier Automata* by PlatinumGames, which both require you to replay the game with the knowledge of your previous play throughs in order to fully understand the story [14]. For *The Stanley Parable* by Galactic Cafe it's only through becoming aware of the hypertext structure itself, and appreciating the narrative machinery, that you begin to understand what the game is about and what your purpose might be[3]. Here finding the story *is* the game [27].

Even games that appear to be linear can contain hypertext elements. *The Last of Us* by Naughty Dog is a road trip across post-apocalyptic North America, the grand narrative, told mainly through cut-scenes, is linear but the developers also include non-linear dialog in the game world in the form of non-player characters that converse with each other and react to the player. These sophisticated 'barks'[4] are controlled by a contextual dialog engine that models the state of the game world, and then applies a series of rules to see which spoken lines are appropriate in the given context [15]. This is effectively a sculptural hypertext engine, where the world state is dictated by the non-narrative mechanics, resulting in diegetic interaction as well as feedback.

Finally, its worth considering where games sit within the greater media landscape. Many games exist within a complex transmedia context [21]. *Life is Strange* by Dontnod is an episodic coming of age tale set in the American North West, players who complete the five core episodes can enjoy a prequel episode, they can play an entirely separate prequel game (*Before the Storm*), read the sequel graphic novels, watch hours of Let's Play and reaction videos online, read analysis and character studies, and enjoy fan art and fan fiction. This all forms an extended Hypertext, utilising the massive scale of the web to enable players to share and celebrate their experience, and vicariously live through the alternative endings of the game without the need to play it themselves. This is more than a paratext, as the aporia is not necessarily resolved within the game itself, and epiphany is only achieved once external video accounts have revealed the alternative outcomes.

Thirty (and then once again twenty) years ago, in his keynote talks for ACM Hypertext, Mark Bernstein asked 'Where are the Hypertexts'; why, if hypertext literature was so wonderful, have we no massively popular fictional hypertexts? Bernstein considered whether games were the hiding place, but concluded that neither Textuality nor Introspection fit the channel [6]. Textuality because games were overly concerned with graphics and frame rates, Introspection because the audience then was young, and male, and obsessed with heroic adventures (the power fantasy). But games have moved on, and these objections, valid then, are no longer true.

A combination of nostalgia for simpler times (retro gaming [18]), varied devices with different graphics capability, and the rise of personal devices used for gaming, has meant that simple art design and textual content is much more palatable to modern audiences. At the same time that audience has matured, gamers skew older, and are split more evenly between genders. The burgeoning independent games sector has seized this opportunity, and a far wider variety of games and content is now available. It is now a world where Hypertext fits in.

Despite this, its hard to argue that Games are Hypertexts. Rather this analysis supports the view that Narrative Games are a super set of Literary Hypertext.

But this is not the whole picture. It misses the key *hypertextuality* of many narrative games, and the place that games themselves hold in a wider transmedia hypertext ecology. Thus the confusion about the relationship between Hypertext and Games is laid bare: narrative games are simultaneously more and less than hypertext, possessed of a core hypertextuality, and part of a greater hypertextual experience, and yet more expansive in terms of their own interactions and presentation. This is an evolving medium. Hamlet is not yet on the Holodeck, but he's made it to the turbolift.

[2] https://www.inklestudios.com/ink/

[3] To explore a meta-commentary on gaming tropes, and find and enjoy the seemingly endless and humorous ways in which Stanley can die

[4] Barks are simple lines or words of dialog that are triggered by game world actions. For example, exclaiming 'Got it!' when picking up an ammo pack.

4 CONCLUSIONS

We need to better understand the relationship between Hypertext and Games. The communities that study interactive narrative are fractured, and we have the tendency to rediscover our theories, rather than to build on them. Sculptural Hypertext becomes Quality-Driven Narrative becomes Contextual Dialog. Split/Joins become Foldbacks become Beads-On-A-String. Our different vocabulary and reference points makes dialog challenging.

In this paper I have attempted to understand the relationship by first looking at Hypertexts as Games, and then Games as Hypertexts.

From a games perspective literary hypertexts appear to be a sub-type of narrative games, with a constrained set of mechanics based around textual lexia and link navigation - although a deeper consideration reveals a much wider possible set of mechanics, first in alternative hypertext domains (such as Spatial), and secondly in Strange Hypertexts, a broad term for any hypertext system with experimental mechanics such as location-based navigation (real or virtual) or infinitely unfolding structures.

From a hypertext perspective narrative games, despite their wide range of mechanics and media, have a core hypertextuality - especially in the way they manage structure and how that structure impacts the reader/player. In addition they form part of a wider transmedia hypertext ecology that in some cases must be experienced if aporia is to be overcome.

Whilst there are certainly some scholars and practitioners that see the links between hypertext and games already, others are more dismissive, with a tendency on one side to think of hypertext as an historical phenomenon, and on the other to consider games as trivial or populist. In this paper I have tried to deconstruct the relationship between the two, seeing literary hypertext as a subset of games, but narrative games as fundamentally hypertextual.

This suggests that there are many possibilities for communication between the different communities, and for the cross-pollination of ideas. For example, the existence of strange hypertext invites a hypertextual reading of narrative games, even when their mechanics deviate significantly from navigational hypertext. By extension, narrative games offer a rich context in which to further develop media and literary theory, and game design offers a framework for creating and critiquing electronic literature. The role of the extended hypertext in which games are consumed is also not well understood, and could be a context that is critical to understanding the player experience.

There is real value in better linking the worlds of hypertext and games design, my hope is that we can apply known hypertext theory to new and modern contexts, and build a better theoretical understanding of electronic literature and games as they continue to grow into perhaps the defining entertainment and art form of the twenty-first century.

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