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Summary of Background Reading

This is the summary of my background reading.

Project: **Hypertext Game Project**

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Degree Course: **Computer Games BSc**

# The strategy I used for my background reading

This project (To create a hypertext game creation tool, and then to use this tool to create a hypertext game), being a more software-based project, appeared to facilitate an approach focused on researching existing hypertext game creation tools, and then using this insight to guide the design of my hypertext game tool. I spent the first half of August looking at tools, before spending the latter half of August creating a prototype of my tool. Then, during September, I looked at some academic literature on the topic of hypertext games, as well as some examples of hypertext games, to guide the creation of the game, and to guide the refinement of the tool.

# Researching existing hypertext game creation tools

I shall first explain my methodology, before going into the specifics about what I found out about each tool. I decided that I would attempt to answer the questions of ‘How does it work?’, ’How do I use it?’, ‘What options does it give me?’, ‘What features does it have?’, ‘What features is it missing?’, and ‘How does it work?’. I initially found five hypertext game/interactive fiction creation tools to look at: two of which I was aware of already (Twine[1] and Ren’Py[2]), two of which I’ve forgotten how I found out about (Storyspace[3] and TADS [4]), and one which only existed in specification form, which Dr. Bartle sent me a copy of, along with a link to a demo of what it might have produced (eHyperTool [5] [6]). Whilst researching Twine, I also found out about Twee2 [7] and the ‘Treaty of Babel’ standard for archiving works of Interactive Fiction [8]. Once I had finished researching the first five tools, Dr. Bartle also told me that it would be worth investigating Inform [9], Inklewriter [10], ChoiceScript [11], Quest [12], Squiffy [13], and Undum [14].

## Researching Storyspace

I started off by looking at Storyspace [3], mainly because I was not sure if I would be able to get much information about it anyway, as I knew I would not be able to use it myself, considering that it costs $149, and only works on Mac computers (I do not own a Mac). Storyspace appears to have been one of the first hypertext game creation tool to have been made, and is a somewhat complex tool, supporting text, graphics, audio, and video [15], a user interface based on ‘topographic writing’ (presenting the story as a network of linked ‘writing spaces’ to the writer), implementing features such as ‘guard fields’ to impose some limitations on how the reader can traverse the output hypertext, [16] and it has an architecture where the ‘links’ between ‘writing spaces’ are distinct objects themselves instead of being part of the ‘writing spaces’ they are linked to. Storyspace 3 was written in C++, making heavy use of pointers, and the tool has a rather complex syntax for guard conditions for links [17]. However, it does have some significant drawbacks: the complex architecture of the system means that there’s no way for the games it produces to be playable on the web, and the barriers to entry from it being proprietary/unusable on anything but a Mac, has significantly diminished its appeal, especially compared to modern tools which do not have these limitations [16].

I was able to find a guide to using Storyspace, which did allow me to gain some insight about how to use it. In short, you can double-click the ‘map’ view to create ‘writing spaces’, click on those to open the dialog to edit them, and drag your cursor from one ‘writing space’ to another to create a link between them (which can be edited by clicking on the link). Your work-in-progress hypertexts are saved in an XML-based format (.tbx) [18], and it appears that, to play them, you need to open the .tbx file with the Storyspace Reader application (which, unfortunately, also appears to be Mac-only) [3].

## Researching TADS

TADS (Text Adventure Development System), upon closer inspection, appeared to be a system for developing text adventure games (a la *Zork*) instead of hypertext fiction games [4], so I chose to keep my research on this tool rather brief. In short, it’s an object-oriented code-based tool for producing text adventures, where you write .t source code to define the objects for the game (‘rooms’, ’things’, ’NPCs’, etc.), optionally utilizing certain premade libraries to simplify the process of setting everything up for the game, and then outputting the playable game as a .t3 file [19]. The system itself is written in C++, and the .t3 games are played on the ‘T3 Virtual Machine’ (also written in C++), which is similar in concept to Java’s JVM, but with a completely different object model, uses runtime typing, and has options for the user such as undo/save/load. It is possible for a .t3 game to be played on a web browser, but doing so requires a server-side instance of the T3VM to be running on the website hosting the web-playable .t3 game [20]. However, due to TADS not entirely being relevant to the task at hand, I decided to not spend too long looking into it.

## Researching eHyperTool

Unlike all the other tools mentioned here, this one wasn’t so much a ‘tool’, more a specification [5] and a demonstration [6]. The specification states that this would have been a cloud-based (in the sense of ‘hosted on a private server, accessed via browser, and you need to log in to use it’) GUI for creating hypertext games, displaying games as a network of nodes (supporting text, images, and audio), linked by ‘options’ at the end of the node text (with each option having its own text, timer, guard conditions etc), allowing writers to move between nodes either by clicking them on the overview network, or by navigating to them via a tab, also allowing writers to mark the status of nodes (how complete they are), add notes to nodes, and keeping a record of when a node was last edited (and by whom). It even supports some meta content, such as a title/author name/cover art etc. The specification also states that it would support several output formats: plain text/book, raw HTML, HTML with extra functionality provided by JavaScript, and a format that could make it playable on Kindle. However, it does appear to be rather inflexible in terms of formatting, requiring all options to explicitly be after all the node contents [5]. The output demo is implemented in a way which uses a separate .html page for each node, and takes advantage of HTTP GET requests to keep track of what choices the user has made, but obfuscated/decoded in a way which keeps the length of the URL rather short. However, this approach does have the disadvantage of requiring a lot of .html files to be made/stored/downloaded for the game to work [6].

## Researching Twine

Twine is a GUI for creating hypertext games, which can be used either in browser on the Twine website (running client-side), or downloaded as a standalone executable, either option still working the same way as each other. Basically, it shows the story as a network of linked ‘passages’ (where links are defined in the passage content, via a certain syntax), more ‘passages’ can be added either by pressing an ‘add’ button or by creating a new link within the contents of a passage, and the game can be tested at any point in time. This is because a twine game is stored in a single .html file (with no distinction between a work-in-progress twine game and a complete twine game), containing all the HTML, JavaScript, and CSS needed to run the game, along with the contents of the game itself [1] [21]. The system offers a choice of ‘story formats’, each with their own particular syntaxes and functionality, such as Harlowe (the default format, which the Twine GUI supports syntax highlighting for) [22], SugarCube [23], Snowman [24], Chapbook [25], and PaperThin (a plaintext format intended for proofreading purposes) [26]. However, some common pieces of functionality for each of these formats include variables, some method of saving progress, and conditional statements. Additionally, as a twine game is stored in a single .html file, if you want to host a twine game on a web server, all you need to worry about is the single .html file. It does still have a couple of drawbacks, however. Twine has no native support for images and audio; however, you can still reference external resources like you would in any normal website. Additionally, the game is effectively interpreted instead of compiled, meaning that, if there are any syntax errors within the game, the writer will need to look through the game themselves in order to ensure that it works correctly [26].

## Researching Ren’Py

Ren’Py is a python-based visual novel engine. Whilst hypertext games and visual novels aren’t exactly the same thing, seeing as visual novels still tend to have a similar basic choice-based branching narrative structure to hypertext games. Ren’Py games are written as directories of .rpy files (An object-oriented python-based language), containing declarations both for the text content, and also for manipulating the sprites/background images/GUI/etc that constitute the ‘visual’ part of the ‘visual novel’ (along with the audio as well). It builds and output games in executable format for a range of platforms (including HTML5 format). It also has some support for variables etc. However, one limitation of this is that it’s entirely code/IDE; there’s no visual editor of any variety, which might be off-putting to any potential casual users [2].

## Researching the Treaty of Babel

## Researching Inform

## Researching Inklewriter

## Researching ChoiceScript

## Researching Quest

## Researching Squiffy

## Researching Undum

## Researching Twee2

# Creating a prototype version of my tool (HECC-IT)

# Researching literature on the topic of hypertext games

Eventually, I realized that I needed to actually research some academic literature, so I proceeded to start looking at that.

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