THE CURIOUS WORLD OF THE HOBBIT

an early example of a dynamic gameworld

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Figure 1: The Hobbit ZX Spectrum loading screen.

Congratulations! You are about to play the most sophisticated game program yet devised for any microcomputer.

Instructions for *The Hobbit*, Melbourne House 1982

Released in December 1982, only eight months after the ZX

Spectrum went on sale in the United Kingdom, *The Hobbit* was a very ambitious game for the 48k machine, and a very strange one. Unlike other adventure games of its era, *The Hobbit* has a dynamic gameworld. Despite being text based, everything within its world operates with a set of internal physics. Time is persistent and all the game's non-player characters are also 'playing' the game. Each character is governed by a set of potential 'actions' that define their interactions with the world, each other, and the player. Its co-designer, Veronika Megler, explains that she thought of the player as just another character, but with a wider range of possible actions than non-player characters (Veronika Megler personal interview, 1 July 2015). In *The Hobbit* time passes and, if the player is inactive at the keyboard, all the characters have their turn regardless. As the world plays itself, the player has no knowledge of the other characters' adventures off-screen, unless their fates collide. This can be catastrophic to the player's chance of success such as arriving at Rivendell to discover Elrond dead and unable to assist you; or just very strange, like Gandalf appearing, congratulating you on your success so far, and giving you a present of a dead warg! The gameworld's design famously enabled all sort of curious emergent events that helped, hindered, frustrated and bemused the player.

There was a further novel feature that defined the game. This was the second level language system in the game's parser that allowed the player to ask the game characters to perform tasks. As the titular hobbit, the player needs the assistance of bigger and more powerful allies to complete their quest. Whilst the game allows the player to ask for help, the characters in the game don't have to obey these requests. They may say NO or simply ignore them. This mechanic makes it hard to determine if a strategy is unsuitable or the character is randomly refusing or ignoring it. It is possible to give the non-player characters quite complex lists of actions. For example, to SAY TO GANDALF "OPEN

WINDOW, GO WEST, GO SOUTHWEST, OPEN DOOR" and hope that he climbs out of the goblin dungeon window and opens the cell door for you to escape. The ability to request characters to perform actions is used to solve many of the game's puzzles. The combination of *The Hobbit's* dynamic gameworld and the possibilities of interactions with the game characters meant players encountered situations and created solutions that the designers had never considered.

This paper explores *The Hobbit*'s dynamic gameworld. Reflecting on the game's design and its relation to Tolkien's novel, the discussion draws on the voices of players and their diverse experiences to help explain how its database driven systems and randomised routines made its simple world alive with possibility. I also consider the importance of the analogue tasks of map mapping and note making for the micro-adventurer.

This paper reflects on qualitative research into the design and reception of *The Hobbit*. It draws on contemporary and historical interviews with the developers of the game and on player experiences shared online in retro gamer sites and personal blogs. Email interviews with Veronika Megler were conducted in 2006 and 2013, and audio interviews in 2015. Personal correspondence and the generous sharing of email conversations between Megler and historian, Jim Maher, further supported these. Video and audio interviews with Alfred Milgrom were conducted in 2006 and 2012. Accounts by players of *The Hobbit* have been sourced from letters in period magazines and memories of play from online archives of retro gamers and personal blogs. Some of these have been supplemented by direct correspondence with their authors, as in the case of CH. In addition, I have studied hints, maps and tips from 1980s magazines and fan generated game walkthroughs including those of Dorothy Millard. I have embarked on multiple adventures as Bilbo, utilizing emulators, predominantly for the ZX Spectrum tape version and the later Commodore 64 disc

version. Published originally for the ZX Spectrum (see Figure 1) *The Hobbit* does not play identically on each of the differing micro-computers it was ported to. The later disc version created by Melbourne House in 1985 included additional content and features. In my research, I have been able to reproduce some of the events described by players, but due to the dynamic nature of the gameworld and the game's randomizing routines, this is not always possible – for, as Melbourne House promised in 1982, "No two games are alike".

WELL PLAYED

The past is a foreign country: they do things differently there (Hartley, 1953)

What cannot be recaptured in playing the game today was how significant it was as many people's first encounter with a virtual place. One of the first adventures to feature graphics, its simple line illustrations, that now look so humble, were discussed in superlative terms by reviewers in the early home-computing magazines. The game was praised for its sophisticated parser that could 'understand' full sentences. In contrast, its dynamic gameworld, received less critical attention – perhaps because there was nothing with which to compare it (Beesley, 1983; Gerrard, 1989; Heath, 1983a; Melbourne House, 1983). Even today the unique nature of *The Hobbit* continues to be misunderstood (Juul, 2005).

In discussing this game, I have to confess, I have no personal historical relationship to *The Hobbit*. No nostalgic, authentic, 1980s encounter to draw on for my revelations. Rather, in my research, I have been involved in collecting player memories of 1980s micro-computing games. I argue that these memories provide a valuable record of historic games as they were played: that player memories offer documentation of individual experiences of gameplay and the broader environments of play;

where they were played, who played them and the cultures that surrounded games and micro-computing. Whilst individual recollections of playing *The Hobbit* may appear slight and trivial, collectively these recollections present a richer understanding of how the game was experienced.

To understand games as played, James Newman has argued that player-produced walkthroughs gives rise to some of the most insightful documentation and investigative analysis available (Newman, 2011, 2012). In the early 1980s, before the internet made the sharing of walkthroughs a commonplace activity, *Hobbit* player David Elkan wrote a comprehensive gameplay guide for the game. Elkan sent his personal guide to solving *The Hobbit* to the game's publishers and developers, Melbourne House. Melbourne House published Elkan's guide as the book, *A Guide to Playing The Hobbit* (1984) (Figure 2). In their introduction to the book Melbourne House write, "In many cases the solutions offered are not those which we would have chosen, but then everyone will eventually have his own preferred 'solution', the point is though that they work". They conclude: "To any reader of this book we would say don't ever underestimate the Hobbit. Keep trying variations on the methods shown here and you will discover just how versatile the Hobbit really is" (Elkan, 1984).

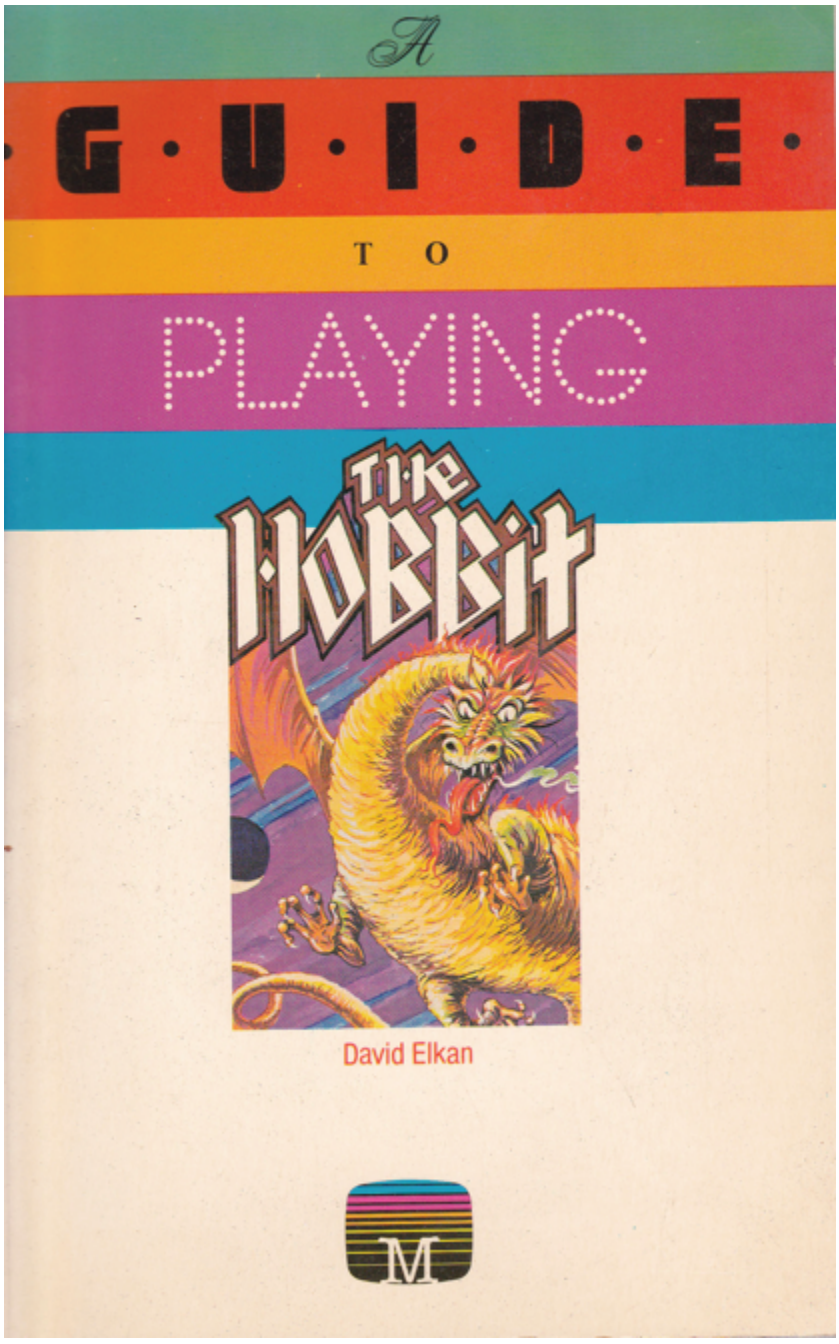

Figure 2: A guide to playing the Hobbit was written by game fan David Elkan and

published by Melbourne House in 1984. It is an early example of a player generated walkthrough published to assist other players.

Elkan's guide is not a straightforward linear walkthrough of the kind familiar to stuck and desperate gamers since the arrival of the internet. The book offers a three-tiered level of help, each providing slightly more detail. In part one it offers a general introduction to playing the game. Part two is a help section with hints for the major puzzles, part of which is written in code, so as to not accidently reveal any spoilers. The third section of the book 'A Tourist Guide to Wilderland' is the 'walkthrough' but there is nothing linear about it. It presents a catalogue of the game's locations, with each location entry featuring puzzle solutions and navigation instructions for routes from its possible exits. Players can use it to travel and cross-reference between locations but it does not present, or recommend, a path through the game. A comprehensive document of the game, *A Guide to Playing the Hobbit* offers a semantic map of the game, an explanation to the principles of the parser, and even includes black and white images of the original game graphics. Elkan provides a selection of hints that could only have been figured out by meticulous replaying of the game and testing multiple possibilities. Published in 1984, the book is an early example of a player-generated artefact designed for sharing with other players. It is a remarkable record of the game as well played, but also a singular record, devoid of the pleasures and frustrations of the crazy dynamic world. This discussion of playing *The Hobbit* is informed by the diligence of Elkan's research and the lively memories of other players. Beware, it is full of spoilers.

BOTH EUROPEAN AND ANTIPODEAN

The Hobbit was published by Melbourne House, a registered UK company, and is popularly remembered as a local hit on Britain's signature micro. But it was developed 17,000 kilometres away in Melbourne, Australia, where Melbourne House had its

management offices and game development studio, Beam Software. Melbourne House was originally a book publisher. Co-Founder Alfred (Fred) Milgrom was formerly part of Outback Press, a radical and independent publishing house established in Melbourne in 1973 to support the publication of Australian authors and artists. In Australia it was difficult for Australian voices to be heard as British publishing houses controlled the local market. It was a situation created by the Traditional Market Agreement that divided up the post-war English speaking -publishing market between the US and the UK. Australian book publishing rights were bundled with UK rights, a legacy of Australia's colonial history. This meant UK publishers governed what was available in Australia for it was near impossible for Australian publishers to purchase separate rights just for the small Australian market. (Munro & Sheahan-Bright, 2006). An antitrust case taken by American publishers against the Traditional Market Agreement forced it be officially abandoned in 1976 but its entrenched practices continue to govern the industry. Milgrom's lack of success on a 1978 trip to the US to acquire book rights for Australia alone inspired the creation of Melbourne House by Milgrom his partner Naomi Besen. To overcome the restrictions they established Melbourne House (1978) as a UK registered company enabling them to readily acquire rights for Australia and the UK for the one price.

It was Milgrom's personal interest in computing the led Melbourne House to publish how-to-books for the burgeoning home computing market and, soon after that, to publish software.[1] Pioneers in game software publishing, Melbourne House went on to become a major UK publisher of the era. According to the *Australian Business Review Weekly*, in 1984 Melbourne House owned 10% of the $30-$35 million British games market (Stirling, 1984). *The Hobbit* was a big part of this

1. Their first publication 30 Programs for the Sinclair ZX80 (1980) was written by Milgrom himself.

figure. Its runaway success on the ZX Spectrum led to it being ported to other micros using tape media. In 1984 Melbourne House released a second version for disk that used the increased memory to add more graphics, sound, expand the parser and tweak the puzzles. The disk version was released for seven different platforms.

The Hobbit, whilst it was never translated, found fans in many countries. CH, who is discussed later in this paper, first encountered it as a boy in Linz, Austria (CH, personal correspondence, 22 September, 2013). It received Spanish distribution and its popularity was celebrated with several articles in *MicroHobby* (Samudio, 1989, 1990). Some players enjoyed the game as a language learning tool. The blogger Winterdrake recalls the importance of *The Hobbit* to him as a nine-year-old boy in Portugal. He explains how playing the game changed his life by encouraging him to read books, learn English and take on difficult challenges (Winterdrake, 2011).

BEST TEXT ADVENTURE EVER

The Hobbit was designed by two young Melbourne University computer science students Veronika Megler and Philip Mitchell. In 1981 Milgrom, director of Melbourne House/Beam Software, gave them the task to "write the best adventure game ever." Megler had only ever played one adventure game, William Crowther and Don Wood's *Colossal Cave Adventure* (1977) on the university mainframes. *Colossal Cave* was a game Megler enjoyed until she solved it, then she was immediately bored. She found its world static, with disappointing mechanical characters, and she was frustrated by the use of puzzles whose pre-scripted actions simply required you to guess the right verbs. She designed *The Hobbit* based on what annoyed her about the game. She wanted to create a world that had depth, where the other inhabitants felt alive with purpose, and players could use the environment to solve puzzles (V. Megler personal interview, 1 July, 2015).

Mitchell and Megler had complementary approaches to design. Megler describes her creative process as working with large conceptual leaps into the unknown, then proving that they worked for "most cases". In contrast, she explains, Mitchell was "more of a logic-driven perfectionist" (personal communication, V. Megler & J. Maher, 17 October, 2013). They worked well together, trusting each other. Together, they developed the inventive systems of *The Hobbit*. Mitchell was responsible for building the game's advanced parser system and Megler for developing the database system for the gameworld, its inhabitants and the game's puzzles. Mitchell created the interfaces between the parser and the world and developed the game's essential randomising routines. He also wrote the drawing algorithm to accommodate the graphics that Milgrom requested at the last minute, squashing them all into a tiny amount of memory (See Figure 3).

Figure 3: The Goblin's Dungeon. The Hobbit original ZX Spectrum release featured bitmapped graphics where the computer drew the lines and filled them in.

No one recalls the inspiration to seek the rights to Tolkien's book. Milgrom, an experienced book publisher, successfully negotiated rights from the Tolkien Estate, which had never heard of videogames. It was they who suggested packaging Tolkien's book with the game, ensuring them some profit and making *The Hobbit* the first example of 'bookware' where a novel or novella was packaged with a game (Kelly, 1982). Packaging the book with the game worked well as knowledge of Tolkien's book not only fleshes out the world and gives purpose to the adventure, but is invaluable for solving many of the puzzles.

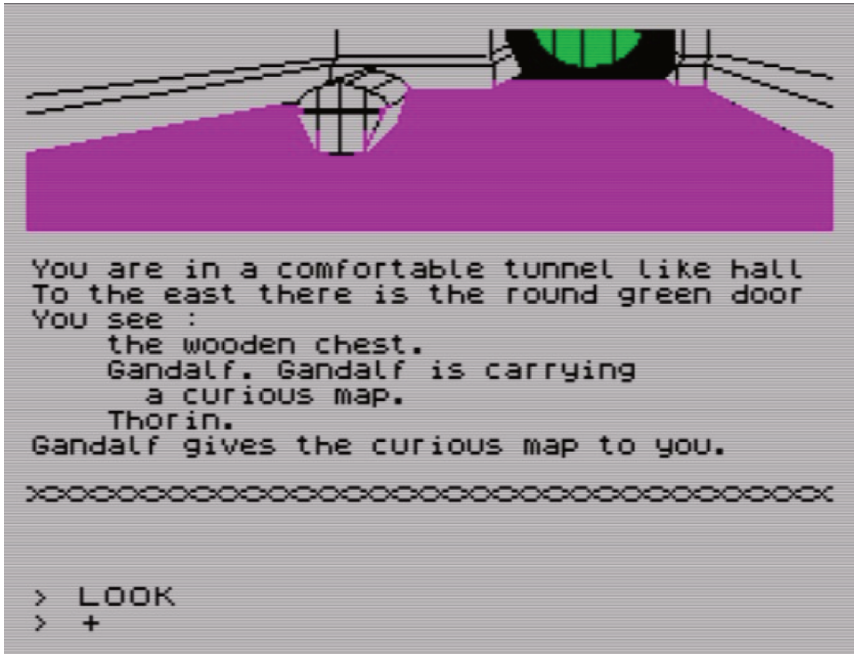

Figure 4: Unexpected guests in Bagend's comfortable tunnel like hall.

As with Tolkien's book, *The Hobbit* begins in a comfortable hobbit hole with a round green door. (See Figure 4). The uninvited guests, the wizard Gandalf and the dwarf Thorin, hurry the player, Bilbo, off on an adventure. (Only one dwarf as a party of thirteen dwarves would have been impossible to accommodate in 48k.) But wait! Text adventures are played with pen and paper.

Map-making is an essential part of game play. To successfully complete a game like *The Hobbit* requires a good map, much more than just some scrawled arrows and rudimentary notes. Each location has to be mapped with a description and all possible exits noted. Anything of interest – or anything that could be interacted with pending the acquisition of a suitable object – needs to be documented, as does anything collected or dropped in case it is required later. But beware, if something is dropped in *The Hobbit* it might not be there later, as one of Gandalf's 'actions' is to randomly pick up things that he later drops elsewhere or gives to the player.

There are more challenges to mapping *The Hobbit*. Elkan warns that standard adventure mapping will not aid the player with sections of the game, as the paths within areas of Wilderland "twist and turn". For solving mazes he recommends a matrix where the player can map where they came from and what direction they travelled to get there, noting that it is not always possible to return the way you came. Megler's mazes are more complex than most adventure games. Conventional adventure mazes use sequences of identically named locations to confuse the player as to their relationships. A common approach to solving these mazes is to drop objects in the locations, creating for each a unique identity, and thus making them more readily mappable. However, as already stated, this is not an ideal approach with a kleptomaniac wizard on the loose. Perhaps, this strategy was the inspiration for Gandalf's acquisitive ways. Megler further stymied the possibility of simply mapping *The Hobbit's* mazes by randomising some of the relationships between locations. She explains:

> There's a location (the Goblin's Dungeon) that uses this mechanism to create a dynamic map, rather than having fixed connections to other locations: for each direction, an override routine is called that randomly picks a "next location" for the character to arrive in from a given list of possible locations. (Megler, 2016)

To add to this challenge, the mapping of the Goblin's Dungeon area is made extra harrowing by the rapacious goblins whose attacks constantly interrupt the player and return them to the dungeon cell. The inclusion of UP and DOWN mean that any location in this maze can potentially have ten exits. The mapping of the Goblin Dungeons seems a Sisyphean task. No wonder so many players in the 1980s struggled to go on, abandoning the game at this point. Home computing magazines of the era published a continuous array of hints and solutions for solving the Goblin's Dungeon maze[2].

In-game death results in the player being delivered a bewildering statistic of the percent of the game they had completed. The player could return to Bagend victorious with the dragon's treasure but be informed they had still only finished 70% of the game! As the game operates in real time, it can be paused by typing the command PAUSE. The game can be saved and the save reloaded. This was a critical feature enabling the kind of experimentation required for problem solving in the game. Reloading a save on the Spectrum was, however, a lengthy process.

LEARNING INGLISH

The game's parser[3] 'Inglish', created by Philip Mitchell, extended the conventional two word noun-verb input popularised in the Scott Adams Adventure International games (1978-1985), to allow sentences combining verbs and prepositions.[4] Players were

2. The World of Spectrum entry for The Hobbit lists 105 Tips for the game, 6 maps and there are a number of dedicated articles addressing the goblin dungeon including Sinclair Users "Goblin's Dungeon has claimed its last victim". (Heath, 1983b)

3. A text adventure's parser is the program that receives typed input from the player in the form of word commands. Usually, words with the same meaning are turned into the same word e.g. verbs such as "look" & "get" nouns such as "map' & "sword". The parser breaks them up into parts (for example, the nouns (objects), verbs (methods), and their attributes or options that can then be managed by the other programming. Parsers are limited, however, and the larger the vocabulary the more possibilities for the player and the less frustration with guess the "verb" and "noun" issues.

not informed of the extent of the game's word recognition, so determining the game's vocabulary was part of its challenge. Like mapping, building a vocab list was a pen and paper adjunct to gameplay. *The Hobbit* parser is alleged to recognise five hundred words, a significant achievement within the ZX Spectrum's limited memory capacity. Despite the parser's possibilities, Mitchell complained to 1980s game journalists that most players tended to resort to the conventional two word text adventure commands (Kelly, 1983). This seems unwise. In the game ATTACK GOBLIN is not identical to ATTACK GOBLIN WITH SWORD. If the weapon is not stated, the game assumes the combat is with bare hands which has a lower attack combat score within the game's system. Adverbs also are important with VICIOUSLY ATTACK GOBLIN WITH SWORD being recognised as a stronger action. The game manual offers a short list of adverbs CAREFULLY, GENTLY, QUICKLY, SOFTLY & VICIOUSLY which all seem to be deployed for effect. To throw the rope CAREFULLY does seem to improve the success rate. The potential of prepositions is also worth examining. LOOK THROUGH enables the player to peer through windows and doorways, aiding in the mapping of the game, and avoiding attack.

Mastery of a game's parser, or 'learning to operate the text', is described by games scholar, Nick Montfort (2005), as one of the particular pleasures of playing text adventures. Beyond the convention of learning the game vocab, *The Hobbit* enabled players to develop ingenious ways to further "operate the text". Players recount stories of successfully instructing characters to complete tasks in novel ways. Grandmaster (2007) recalls on the Eurogamer web site how "amazing it was how you could stack up

4. Alfred Milgrom hired a Linguistic student, Stuart Richie, who was also studying programming at Melbourne University to contribute to the parser design. Despite Richie's involvement, Megler recalls that Mitchell was very much the sole author of the parser. The newsworthy quality of a linguist meant that Ritchie's contribution is, however, featured in a number of press interviews from the 1980s.

commands to the other characters. For example that, you could send Thorin into the goblins domain, get him to find Gollum's ring, wear it, then come back to you and give it to you". On GameFAQS Frodorox (2013) explains how after encountering the troll, Gandalf could be sent back to get the troll cave key, without the player having to wait for dawn.

There is no evidence that how the player speaks to the characters affects their interactions – that Elrond is more generous with his map reading and free lunches if greeted with a polite HELLO. Characters' actions toward the player are, however, altered by interaction. The game manual warns to "Try not to say too much to one person at a time because if you are too long winded they will think you are a bore and will tend not to agree to help you". In addition to 'boring' the characters, any player who has had their head cleaved by Thorin recognises that attack on a character unlocks a different set of actions.

SPATIAL NARRATIVE

The game works as a spatial narrative, a structure befitting Tolkien's book which offers a journey of there and back again. The players travel between a series of location-based puzzles and encounters drawn from Tolkien's story. The navigation between these story vignettes, the mapping of the gameworld and the solving of the mazes, are themselves a key gameplay activity. As the gameworld is quite open in parts, the player will not necessarily find themselves on the linear trajectory of the novel.

The openness of *The Hobbit's* world design is reflected in Elkan's walkthrough. "A Tourist's Guide to Wilderland" is an alphabetical list of locations numbered from L1 to L50 with their relationships described through a series of links. The alphabetical order prevents them from being read as a linear walkthrough, rather each individual description details its links to other locations, for example:

L32: Long Lake
EXITS:
NORTH – strong river (L43)
EAST – a wooden town in the middle if Long Lake (L50)
SOUTH – the waterfall (L47) (Elkan, 1984 p55)

There are fifty named locations in the "Tourist's Guide" although there are more locations in the game. In some areas multiple locations bear the same name. This is a particular feature of the mazes such as the 'dark stuffy passages' of the Goblins' Dungeon and the 'narrow paths' of the Misty Mountain. There are ten possible locations described as "dark stuffy passages". Within this maze the player will find the ring and encounter Gollum. Elkan's guide offers seven "possible routes" through the "dark stuffy passages", acknowledging that there are more and that the ones suggested are "not foolproof" (Elkan, 1984 p28).

The Hobbit offers a series of encounters distilled from Tolkien's book. On leaving Bagend the player travels through "a gloomy land with dreary hills ahead" to reach the trolls' clearing. In the clearing are two trolls, one wearing a large key. On the player's arrival they announce their plan to eat the hobbit. An escape to the west to "a hidden path" reveals a locked door in the stone wall. Attempts to steal the key from the troll tends to ends in death and a humiliating statistic. Waiting for dawn is the solution here, as it is in Tolkien's story. The key is easily looted from trolls made of stone. The locked door, however, is no longer included in the location description of the "hidden path" but the players hand drawn map notes its existence. The work of the text adventurer was one of careful record keeping as the text can reveal and conceal the world. The player also needs to be thinking logically as the invisible door will not open unless it is unlocked first. (See Figure 5)

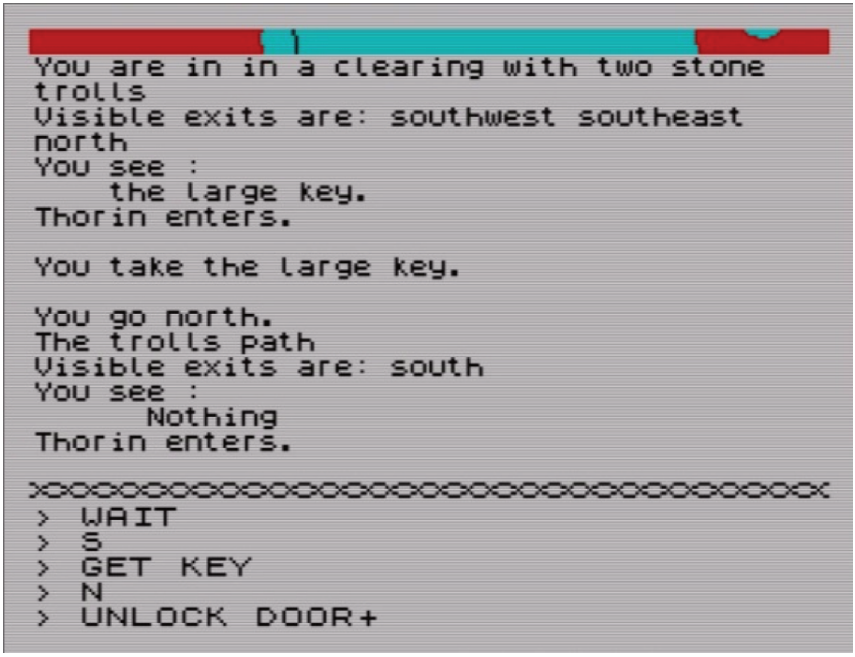

Figure 5: The door to the Goblin's Cave is no longer visible. The player must recall its location. For the player to enter the invisible door must first be unlocked and opened

In the cave the player will find the short sword, just as Tolkien's Bilbo finds his sword "Sting" in the troll lair. From this location the player should safely make their way to Rivendell to meet with Elrond. The player needs to ask Elrond to read the curious map as otherwise links between certain locations will not appear, making the game virtually impossible to complete. Hopefully the player will have the map and will not have let Gandalf wander off with it – as he is inclined to do. There is nothing in the game that informs the player of the importance of Elrond reading the map but in Tolkien's book, at Rivendell, Elrond helps the travellers by reading Thorin's map and interpreting the meaning of the strange runes. This is a good example of how the game's puzzle design drew on the book. The game presupposes the player's knowledge of Tolkien's story. Successfully demonstrating knowledge of Tolkien's narrative is rewarded by the game and could be considered as one of the game's pleasures.

PROBLEMS AND RIDDLES

Knowledge of Tolkien's story will assist the player, but the player still needs to solve each individual puzzle they encounter within the constraints of the game. Megler designed the game's puzzles so there was no single correct action, or set of actions, that was required to solve them. She felt that demanding the player to guess the correct words was restrictive and frustrating. Instead Megler designed the game puzzles so they required a set of conditions to be true for something else to be able to occur. It did not matter how you got the conditions to be true as long as everything was in the correct state for the next action to be possible. This meant that there often were multiple ways of creating those conditions. This gave players the opportunity to solve problems in ways the designer had not envisaged.

Consider the death of Smaug. True to the book, the hobbit cannot kill the dragon with the arrow (but this has not stopped many a player from trying). Bard can shoot the dragon if the player asks him. For this, Bard and the dragon need be at the same location. The player encounters Bard in the "wooden town in the middle of Long Lake". Bard will theoretically move as directed and the player needs to give him the correct directions to travel to the Lonely Mountain to defeat Smaug. Carefully directing Bard is recommended by Elkan (1984 p73). Bard, however, may refuse, or may tire of being directed and abandon the player. Many players came upon the convenient solution of carrying Bard, thus ensuring his presence when the dragon appears or when the player reaches "the halls where the dragon sleeps". Carrying Bard also ensures that the player has not 'bored' Bard with their constant chatter making him more receptive for the command to "SHOOT DRAGON WITH ARROW".

Some other reported dragon killing strategies include, SOFTLY sneaking up on the sleeping dragon and killing it VICIOUSLY with the sword; killing Smaug with Gollum's body; and carrying

Gandalf to the front gate of Lonely Mountains and using the command SAY TO GANDALF "GO NORTH, KILL DRAGON, GO SOUTH'. If attempting this, Frodorox (2013) recommends that the player needs to wait till Gandalf comes out again and repeat the instruction. If he does not come back the second time he may have successfully killed the dragon the first time or he may be dead!

The Hobbit encourages players to experiment within the constraints of its gameworld. Writing about new media in 1999, Lev Manovich privileges databases as the key form of expression of the digital age. He argues that databases' ability to organise and reorganise information present new possibilities for narrative (Manovich, 1999). *The Hobbit* presents an early articulation of the database's possibilities. Its world is a possibility space, to use Bogost's term (2007), for exploration and problem solving, generating narrative hybrids. Players of *The Hobbit* recount all kinds of anomalies. Grandmaster (2007) reminisces about gorging on Elrond's free lunches until the game informed him "your own foul gluttony kills you". Ravenger (2005) at Digital Fix Forum recounts how he experienced a surprising bug that caused the dragon to enter through the trapdoor in the Elf King's cellar. He cites a letter in *Popular Computing* in the early 1980s that documents the amazement of another player who also encountered the dragon in this manner.

SINGING ABOUT GOLD

It needs to be emphasised how maddeningly frustrating the game can be. The mazes are punishing, the goblins annoyingly diligent in recapturing you, the spiders assiduous in delivering death from above. Even if you answer his riddles correctly, Gollum may still strangle you. Thorin endlessly chivvies the player to "hurry up" and sits and "sings about gold" whilst the confused and exasperated player despairs about what to do next. The player is constantly dealing with recalcitrant characters whose

refusal to act prevents their progress in the game and leaves them confused. In addition, the operation of the game's persistent world can thwart a player through no fault of their own – such as Elrond's untimely death by warg before having a chance to read the map. The player can also be unwittingly instrumental in rendering the game unwinnable. The death of both Thorin and Gandalf by troll in an effort to take the troll key by force rather than patience will mean there is no one to assist the player's escape from the goblin dungeon.

The game is also very buggy. Written in assembler it was a difficult game to debug. According to Megler (personal correspondence. Megler & J. Maher October 17, 2013), "The bugs were …the fault of the generality (and ambitiousness) of my approach, combined with the language and virtually non-existent debugging tools". Compared to most other games of the era, which hardcoded every single action and verb, *The Hobbit* operated using a generalised and abstracted database system. Megler also cites the success of Mitchell's truly random number generator for creating unforeseen interactions that could not be recreated. It was impossible to see what was happening in other parts of the world, but the actions of a character elsewhere could crash the game for reasons that the designers (or the player) had no knowledge of and no way to check.

To squeeze the game's design into the Spectrum 48k memory, the designers packed every byte tightly. Mitchell, explains Megler (personal interview, 1 July, 2015), used not just every byte but every bit within each byte for multiple purposes when he was writing the parser. This allowed more capabilities in the game but, as everything was so intricately used and reused, it also made it harder to debug. You could not cheat by dumping memory to solve *The Hobbit,* states Megler (personal interview, 1 July, 2015), as "there were pointers to pointers to words rather than just having a message written out".

Bugs were not unusual in early games. Keen adventure gamer, Dorothy Millard considered debugging games as part of the pleasure of gaming on your microcomputer. She taught herself how to code in part through debugging others' games, and went on to write her own text adventure games (personal interview, June 27, 2014). The process of debugging text adventures included dumping code to check for errors. This also offered a fortuitous opportunity to produce accurate solutions to text adventures, but not for *The Hobbit*. Players could not cheat to master the game. It remained mysteriously impenetrable.

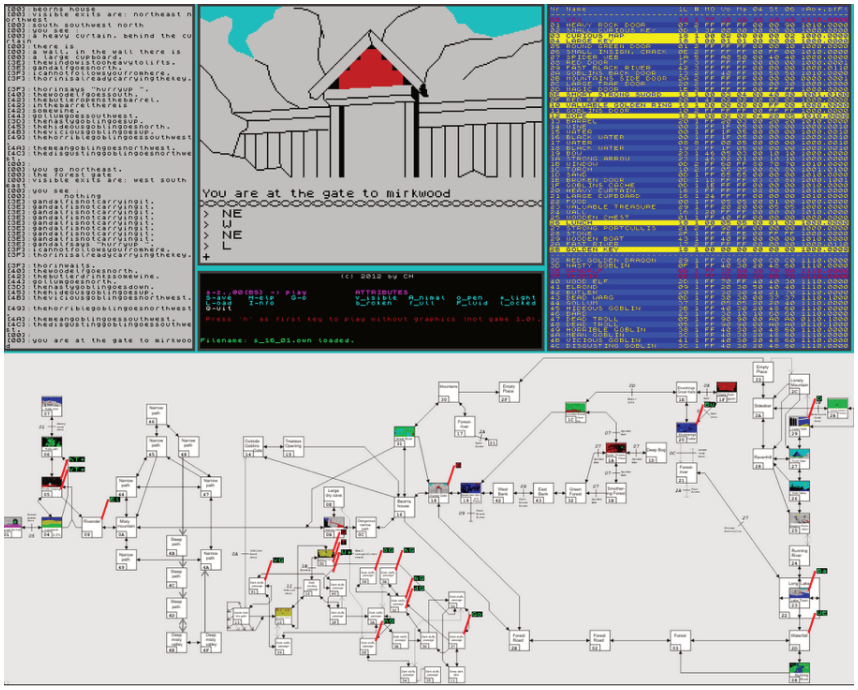

Figure 6: Wilderlands reveals the actual workings of The Hobbit.

There is a curious bug that sprung from one of Megler's routines for setting special conditions linking locations. It is a message informing players trying to go east from "the mountains" location that "The place is too full for you to enter".[5] One 1980s Spectrum player, CH, was so intrigued by this message that

armed only with a rudimentary printer and, according to him, not much programming knowledge, he attempted to determine how the gameworld of *The Hobbit* 'worked'. He tried again with an emulator and a PC in the 1990s, this time revealing the database-like game structure with its tables of objects, words and rooms. But it was not until recently that he found tools to expose the inner workings of the game, an almost thirty year journey (CH, 2012). CH developed a simulation called *Wilderlands (2012)* to reveal what the game was concealing from him. In *Wilderlands* (see Figure 6), the original game code for the ZX Spectrum runs in an emulator and, as the game is played, *Wilderlands'* 'user-friendly' interface shows the internal state of the machine.

CH's ongoing fascination is a testament to how the game intrigued players: its complexity within the constraints of the microcomputer was itself a puzzle. The rules governing the world were not transparent to players, nor were its limits, and much of the pleasure of playing *The Hobbit* was in discovering what could be achieved within its world. On the World of Spectrum forum, jammajup (2012) posted his guide for playing *The Hobbit.* His version presents a radical way to play the game that only requires the sword. The player does not need the ring or Thrain's key.[6] Nor do they need to solve the puzzle of Elrond unlocking parts of the map, nor traverse the maze of the Goblins' Dungeon. Jammajup demonstrates that by heading straight to Milkwood after getting the sword from the Trolls Cave, you can lurk at the Milkwood gate, avoiding the spiders, until the wood elf captures you (See figure 7). The wood elf then transports you to the "dark dungeon in the eleven kings halls". From there the player can travel by barrel to Lake Town, to meet up with Bard, the dragon's death and rich rewards. Jammajump's guide

5. Ironically if you have entered from the east you have come from a location called "the empty place".

6. Thrain's key is found in the Goblin Dungeon Cell and is used to open the moon door in the Misty Mountains. One possible entry to the Dragon's lair.

is clearly about playing the game's systems, exploring how the game operates not as interactive fiction but as dynamic simulation.

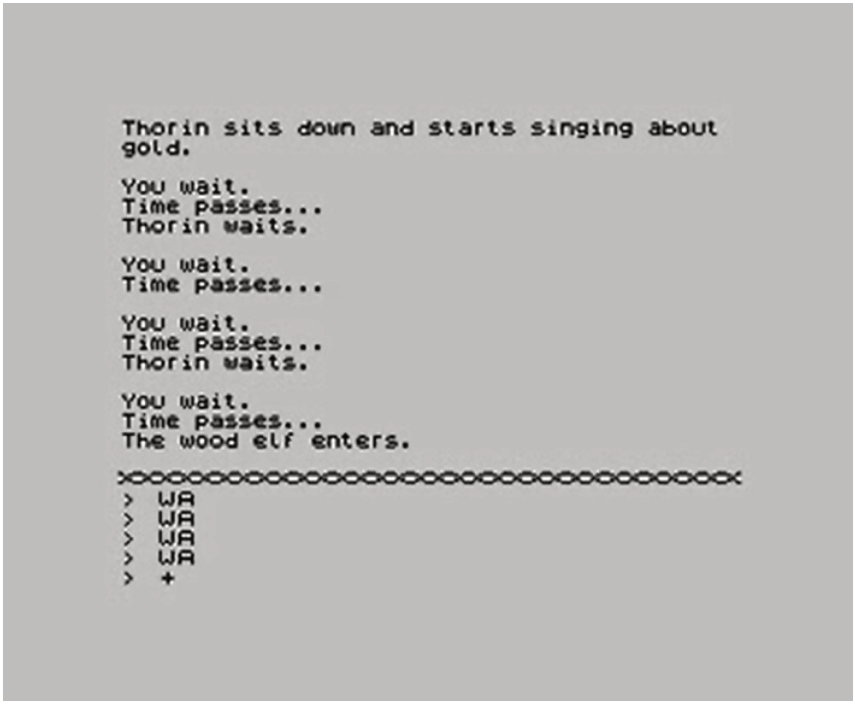

Figure 7: jammajup lingers at the forest gate to be captured by the wood elf. From the speedrun "The Hobbit completed in 7 minutes" by jammajup.

The Hobbit was a singular experiment in text adventure design. On graduation from her university studies, Megler left Melbourne House to get a "real job" (Veronika Megler personal interview, 1 July 2015). Melbourne House utilized Mitchell's sophisticated parser for a number of other 1980s adventures but Megler's gameworld system was never redeployed. *The Hobbit* was Melbourne House's only text adventure offering a dynamic world supporting emergence. My research suggests that it was the only text adventure of the era to feature such novel gameplay. It is ironic, therefore, that it is the text adventure that Jesper Juul (2005) chose to illustrate distinctions between his categories of

"games of progression" and "games of emergence". He contrasts the replayability of the arcade classic *Pong* (1972) to the alleged limitations of *The Hobbit* whose challenges, he proposes, are mastered in a single play. Juul identifies *The Hobbit* as game of progression where the player preforms predefined actions to complete the game. He claims that, despite *The Hobbit's* more complex rule systems and wider possible actions, it lacks the emergent possibilities of *Pong*'s simple rule system where every game is unique.

To make this point he reproduces a walkthough of *The Hobbit* by Chesire (2001), claiming "a complete solution to *The Hobbit* fits on a sheet of paper" (Juul, 2005, 69). Let me quickly summarize my attempts to 'master' *The Hobbit* using Chesire's walkthrough.[7] In my first playthrough, other than not needing get the map back as Gandalf never took it, things proceeded in a linear manner but don't really reflect choices I would have made as a player. (See figure 8) However, after escaping the goblin dungeon cell using the instructions, I am recaptured by the goblin. I wait, Gandalf turns up and helps me escape but I am quickly recaptured again. Having now deviated twice from the linear walkthrough I restart.

7. There is an error in Chesire's walkthrough in Juul's text that renders it useless to the player. In my playthroughs I have made this navigational correction assuming it is a typo or similar transcription problem.

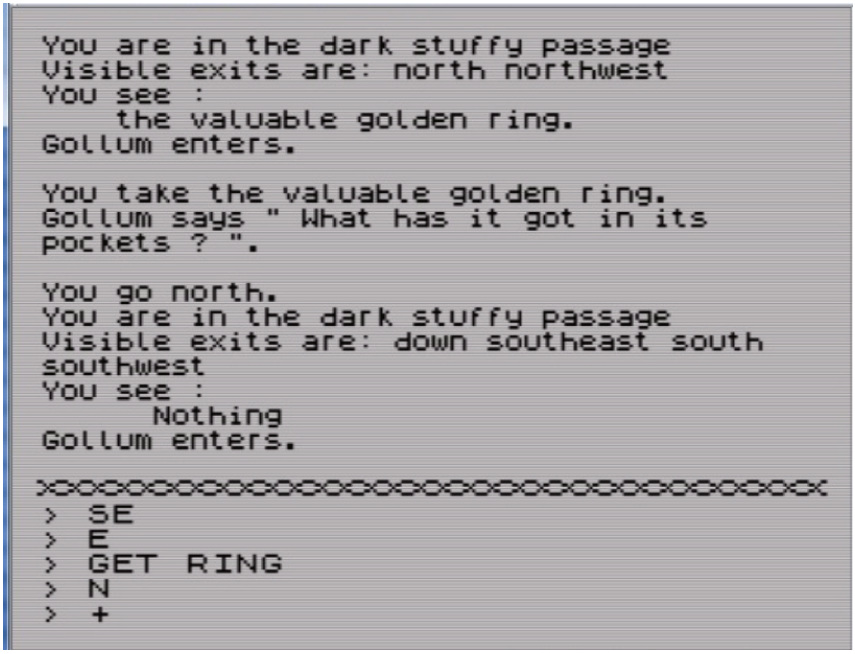

Figure 8: Chesire's walkthrough requires the player to ignore interacting with Gollum. Gollum can be defeated in a number of ways; answering his riddles, combat and simply running away. The game allows players differing gameplay choices.

In the second attempt Elrond refuses to return the map. The trapdoor does not break till the 98th try. At which point most players would have given up or done something foolish like used their sword to break the trapdoor, which has unfortunate consequences for later combat. After escaping the dungeon, staying one step ahead of the goblins, the walkthrough takes me as far as the gate of mirkwood. However, here the walkthrough no longer matches the directions available and east is missing! Did I forget to ask Elrond to read the map or have the links have not been made because Elrond did not return the map? My investigations suggest that you can ask Elrond to "READ MAP" and be given the reply "You talk to Elrond". It is only if you get the response "Elrond examines curious map" and he gives you a clue that the map is actually read and the links created. (See

figure 9). A bug? A randomizing factor? It is a detail certainly not addressed in Chesire's walkthrough.

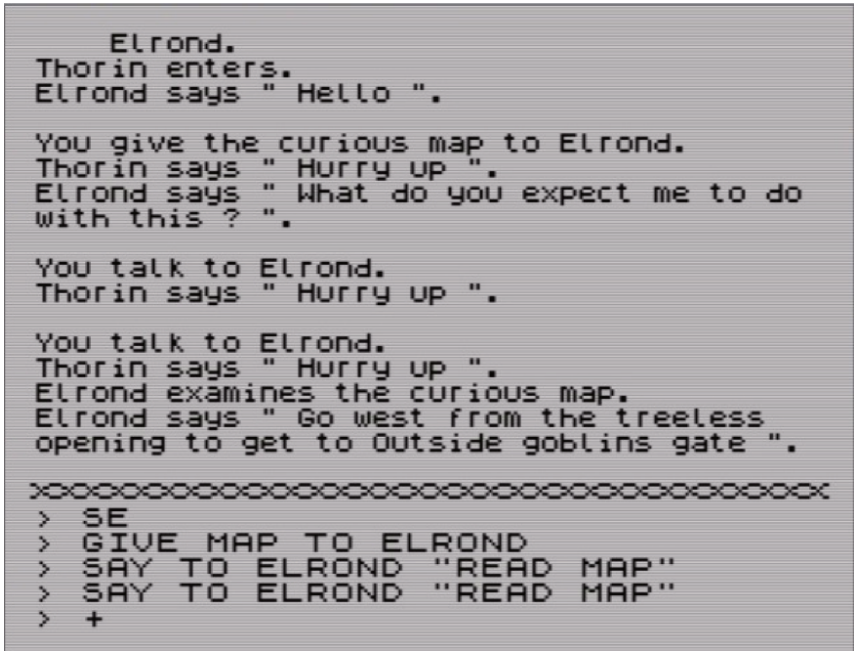

Figure 9: Illustrates that Elrond does not always read the map when asked. In this example he reads it the second time he is asked.

These two attempts are sufficient to reveal that Juul's declaration that a one page walkthrough offers "a complete solution" to the challenges of *The Hobbit* is mistaken. Juul has assumed that *The Hobbit* is hard coded as most text adventures of the era were. Text adventures were generally a long list of if-then-else statements, meaning that the game played the same way every time and that once the player had figured out the map and solved the puzzle the game was exhausted. In contrast, Megler and Mitchells' design strived for non-deterministic gameplay. Rather than hardcoded, the gameplay was created using what Megler describes as a primitive game engine (2016), the games parser interfacing with Megler's novel world simulation database system. In contrast to Juul's summation that the "possibility space" of *The Hobbit* is

"quite small", I have argued that the 48k game offered players intriguing opportunities for experimentation and emergent gameplay. *The Hobbit* is an unusual game. The narrative experience it offers, rather than being a poor shadow of Tolkien's story, is its own thing: a curious little world simulation with internal logic, primitive AI and strange emergent behaviour. In the early 1980s there was nothing quite like it.[8]

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8. Jim Maher has observed that Infocom's Deadline gestured toward some dynamic simulation in its design, but that these moments are small and carefully located within pre-scripted events (2012)

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