Well Played

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EUROPEAN VIDEOGAMES OF THE 1980S

From *Space Invaders* to *Defender*, The United States and Japan rapidly emerged in the 1980s as the economic titans of a fledgling industry, dominating both the arcades and the living room. Meanwhile, economic and linguistic boundaries forced the European branch of videogame history to follow a different path, both in terms of technology and creativity. European games of that period have a distinctive flavor which reflects the socioeconomic situation of European countries at that time, as well as the distinctive cultural history of those countries.

Teaching at a North American university, we found that students and professional designers alike were largely ignorant of the European history of games, beyond a small handful of global hits, which they had not realized were made in Europe either. To a certain extent, European history has been erased in the discussion around games in the American academy and industry. We sought to address this erasure by developing a class teaching the history and cultural context of videogames in Europe as part of the curriculum of our Game Design degrees at the NYU Game Center. One of the challenges in developing our curriculum is that there is a marked absence of academic research on this topic, and this lack of writing is something we hoped we could begin to address with this special issue of *Well Played*.

In the field of digital game history, there is a growing number

of academics working on the field of local histories all over the world, as a counter current to the current hegemonic historical discourse. These local histories not only tell the history of different games, but different game makers, players, and means of production and distribution. Rather than focusing on successful or mainstream games on console and arcade platforms, these scholars also use a variety of methods to tell stories about work at the margins of the industry, from ethnography to platform studies. This is the community of scholars that we appealed to in order to find the best contributions for the present volume—we hope that the articles here demonstrate both the specificity of these studies as well as the variety of topics and methodologies. We heard from authors with a number of different theoretical approaches—for example, Suominen and Ruomanen's "A Finnish Pac-Man Clone for the VIC-20 from 1984: Program Listings as a Means of Sharing Games Through Magazines" uses platform studies as a lens through which to understand two technologies that were essential to the development of European games: the VIC-20 and the BASIC programming language.

One of the major technical divergences between European games and the games of the United States and Japan came from the difference in the available platforms. For example, constraints on international trade made videogame consoles unavailable or prohibitively expensive in many European countries, which left home computers as the dominant platform of game development. The predominance of home computers resulted in games that were very different because of the variety in computer platforms of the period; compared to arcade machines or consoles, computers had much more memory but much less advanced display capabilities. They emphasized keyboard and (eventually) mouse interfaces rather than joysticks and gamepad controllers. The limitations of the platform often spurred virtuoso programmers to find ways to make the best

of computers where 64K RAM was a luxury—a regular text document on your phone right now probably takes up more memory. As an example of this type of achievement, Jaume Esteve investigates *La Abadía del Crimen* in his article for this volume. *La Abadía* is a Spanish game originally for the Amstrad CPC 6128, and then ported to other 8-bit computers of the time; its achievement is that it simulated a medieval abbey, with numerous AI-driven agents and a complicated, real-time mystery plot — a perfect example of a game that could not have been developed for the console market at the time.

One of the reasons *La Abadía del Crimen* is so little known outside of Europe is that it was not translated to English, like many European titles of the time. With so many different languages in Europe, and an absence of an infrastructure for localization, any games that had a substantial amount of text could hardly attract many players outside its country of origin if it was not written in English. These linguistic barriers nevertheless presented opportunities in the form of unlicensed localized ports and clones, an effect which is explored Ricardo Fassone's "Cammelli and Attack of the Mutant Camels: A Variantology of Italian Video Games of the 1980s", which examines the ways in which clones have the effect of 'de-canonizing' influential work in games, by examining the peculiar case of an Italian clone of Minter's *Attack of the Mutant Camels*, published as a code listing in an Italian magazine.

One of the aspects that we aimed at highlighting in this issue was the socio-economic context that these games were developed in. Localization – or rather, its absence – is but one aspect of what made European games different. One of the main economic factors was the limitations on the trade to the Soviet Bloc countries, which could not import the home computers or arcade cabinets that were available commercially in the rest of Europe. While Western and Japanese computer equipment was available to Soviet gamers on the black market, official trade was

restricted in order to spur the production of Soviet computers and software. Instead of creating their own models from scratch, the Soviet countries developed their clones of foreign computers, such as the Sinclair ZX Spectrum and the PDP-11. Smith and Fanfarelli's paper on the Russian Game 'n Watch clone *Nu, Pogodi!* is a case study that examines hardware cloning, in this case by looking into an important clone of Nintendo's Game & Watch portable consoles.

Although it may seem a mysterious inclusion in this issue on European games, Helen Stuckey's article on the seminal Australian adventure game adaptation of *The Hobbit* shows how similar the Australian context was to Europe's in terms of the games that could be made and played in the 1980s. Australia shared with Europe a protectionist trade policy that made console games prohibitively expensive, and the games that were produced there were also often products of the affordances of the home computer platform. Stuckey positions *The Hobbit* as a pioneer of simulation in narrative game design, alongside other European classics like *Lords of Midnight* and *La Abadía del Crimen*. *The Hobbit* was also influential on European games because it provided the model for interactive fiction, which is often referred to as *graphical text adventure*, where the text interactive was accompanied of illustrations. This is different from the model that Infocom and Scott Adams set up in North America throughout the 80s, which mostly consisted of text-only adventure games and only started incorporating images at the end of the decade.

We are pleased to present this collection of games on the early European (and Australian) history of videogames, but we would be remiss if we did not take the chance to call for more research in this area, particularly on the forgotten local histories of games. In our research, we were able to find fascinating and unique games made in East Germany and in the USSR, and in Scandinavia outside the well-documented demoscene, yet there

is very little recorded history or contemporary cultural writing about these games in any language. It is important that we capture the histories and impacts of these games while they are still in living memory, so that the cultural history of the medium is not ceded entirely to its economic conquerors.

PAC-MAN FOR THE VIC-20

Game Clones and Program Listings in the Emerging Finnish Home Computer Market

PETRI SAARIKOSKI, JAAKKO SUOMINEN, & MARKKU REUNANEN

INTRODUCTION

Games can become notable and recognized in many diverse ways. It is possible that a game is already appreciated among its contemporaries, for example, if it is considered to be of exceptional quality, represents a turning point from a genre perspective, gains significant success in the market, or receives some sort of cult status among subcultural circles. It is equally possible that a game acquires its noteworthy status only afterwards, thanks to amateur or professional historians who discover its importance for one reason or another. Contemporary recognition is often amplified afterward through the work of historians and in various historical presentations (Suominen, 2016; Suominen & Sivula, 2016).

In this paper, we analyze a game that is not interesting due to its high quality, exceptionality, or contemporary recognition – quite the contrary. We analyze a *Pac-Man* clone created by Finnish gamer programmer Stavros Fasoulas (b.1968) for the VIC-20 computer (see Figure 1). In the larger picture, the game exhibits very typical characteristics of the computer hobbyist and game cultures of its time's and does not exactly stand out from the

rest of its contemporaries. The game is relevant and important exactly because of its typicality, and its connections to wider contemporary phenomena. However, it also has certain special features – its programmer, publication forum, and name – that explain why we have selected it as a case example.

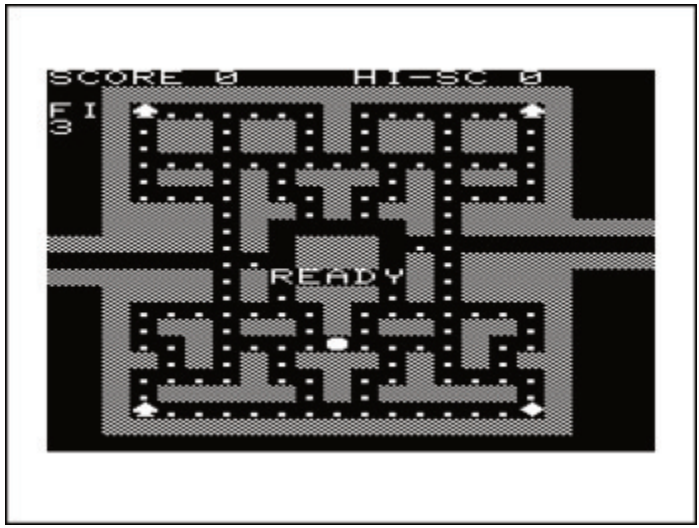

Figure 1. Pac-Man for the VIC-20 running on the VICE emulator.

In the published program listing of the game, there is a mention that the game was programmed in September 1982, but the code was actually only published in May 1984. In 1986, Fasoulas gained international recognition with his *Sanxion* game, published by the British company Thalamus for the Commodore 64, and he was the first Finnish game programmer to have an international hit. Therefore, Fasoulas and his games – although usually not the *Pac-Man* clone – have been referenced in a number of popular and academic game history books and articles since then (e.g. Reunanen, Heinonen & Pärssinen, 2013; Kuorikoski, 2014, 27). The *Pac-Man* clone is most likely Fasoulas' first released game and its publication context is also special.

The code appeared in the first issue of the home computer

hobbyist magazine *MikroBitti*, which rapidly became one of the key players in early Finnish computer hobbyist and game cultures. *MikroBitti's* circulation was already 44,780 copies in 1985 and stayed at close to 40,000 copies throughout the 1980s (Finland's population was then about 5 million); it was the most popular Finnish computer magazine of the time. The importance of the publication can be understood by comparing the figures to, for example, the UK (population 56.5 million at that time), where the most popular computer game magazine was *Computer and Video Games,* selling around 80–100,000 copies each month at the height of its popularity in the middle of the decade (Kirkpatrick, 2016, 6; Kirkpatrick, 2012). *MikroBitti* and its spin-off publications also followed Fasoulas' successful career, building both his and his games' national pioneer status (*MikroBitti* 12/1986, 5; *C-lehti* 3/1987, 5).

The third trait of the particular *Pac-Man* variant is that it was called "Pac-Man for the VIC-20," which differed from the typical naming of game clones. Most often, they had names that bore a major resemblance to the original titles but that were still different, or could be recognized as clones while reading the descriptions of the games (mazes, gathering treasures, main character chased by enemies, etc.). This direct connection to one of the best-known video game icons in the world makes the game a bit of a curiosity among its contemporaries. Plenty of discussion on *Pac-Man*'s influence on game design exists (see Newman, 2016, 4) in contrast to the research on *Pac-Man*'s influence on programming, which is our key issue here.

In this article, we study how one can explain Fasoulas' *Pac-Man* clone in the context of the Finnish computer hobbyist and game cultures of the early 1980s. Why was it programmed and published as it was? Which larger cultural and technical factors was it affected by? In addition to the contextualization and analysis on the role of computer and game journalism in the formation of cultural phenomena, we also conduct a close

reading of the game's program code. The source material of the study consists of the source code, interviews, archival material, and widely circulated computer magazines and smaller club magazines in particular (on club magazines, see Nylund, 2016). Unfortunately, we have not been able to interview Fasoulas himself, as he has retired from the computer industry and, as far as is known, lives abroad. Some of his personal views can be found, however, in interviews that were published in the 1980s (*MikroBitti* 12/1986, 5; *C-lehti* 3/1987, 5; *Zzap! 64* October 1986, 83).

Theoretically, the article is connected to the rising research interest in local game histories as well as to the emerging software and platform studies paradigms (Fuller, 2008; Bogost & Montfort, 2009; Montfort & Bogost, 2009, 147–150). Melanie Swalwell (2009, 266) has emphasized the study of local game and software cultures, not only because they provide a more diverse perspective on the digitalization of culture "beyond a US and Japan centric" view, but also because of the substantial importance that local "author involvement" had in writing or typing game code for early home computers (see also Swalwell 2008). We follow the Montfort et al. (2013) style of deep analyzing and close reading of code in such a way that "computer code is approached as a cultural text reflecting the history and social context of its creation." (p. 3). Our paper also offers an example of how to study those games that initially appear uninteresting and mundane – almost anti-monumental – compared to highly regarded and known classics (on game historical monumentalization, see Suominen & Sivula, 2016). Swalwell (2008, 193) has indeed noted that "home coding" may have been overlooked in research because of its everydayness.

The rest of the article consists of four sections. First, we describe *Pac-Man's* little-known arrival and diffusion in Finland. Next, we deal with the questions of program listing publishing and the creation of a public sphere within magazines (Kirkpatrick,

2012; 2016). The last section before the conclusion focuses on the source code and characteristics of *Pac-Man for the VIC-20* at a low level, along the lines of the platform studies approach (see Montfort & Bogost, 2009, 147–150).

HOW PAC-MAN CAME TO FINLAND

Pac-Man has been a central icon of international game culture since the early 1980s. Its importance has gone far beyond the game itself. James Newman (2016, 4) notes that "Pac-Man's most important contribution, however, is found not in its influence on other games but rather in the way it affected popular perceptions of video gaming within popular culture."

There is no exact evidence on how and when *Pac-Man* came to Finland. Most likely, arcade versions of *Pac-Man* were installed in Finland in 1981–1982, as the game was introduced in Japan in May 1980 and in North America in October 1980, where it became a great success. Even though Finland followed international trends in video gaming, the situation with arcade games was special due to the fact that the 1976 Finnish *Law on Leisure Automata* gave a monopoly of video game automata, pinball machines, and billiard machines to the Finnish Slot Machines Association (Raha-automaattiyhdistys, RAY). The association had 2,500 automata (the figure includes video games, pinball machines, and some games targeted at children) in 1981, and its competitors owned about 1,800 devices, which they had to either sell to RAY or close operations by the end of the year (Suominen 2016; Numbers taken from RAY annual reports published in the *Potti* magazine.)

In 1982, RAY began to produce their own three video game cabinets, which were based on imported components. We assume that one of these three, which was called *Mörkö* (Boogeyman), was actually *Pac-Man* because the other two, *Gorilla* (*Donkey Kong*) and *Galaksi* (probably *Galaxian*), were also

based on popular arcade hits. RAY later produced some other games as well (Kortelainen 1988, 240). In addition to this, there were other, original *Pac-Man*-related arcade cabinets in operation at Finnish arcades, such as *Baby Pac-Man* (released by Bally-Midway in October 1982, but not authorized by Namco), a hybrid between a video game and pinball machine, and likely also *Ms. Pac-Man*. (Picture of *Baby Pac-Man*, *Potti* 3/1983, 3.) A very typical place for Finns to first start playing video games, was on the tourist ferries between Finland and Sweden, where one was able to play various arcade and slot games in the early 1980s.

Only a minority of Finns had played (arcade) video games in the early 1980s. According to RAY's own survey in Autumn 1983, 16% of 15–74 year old Finns had tried arcade or video games (or "TV games" as they called them). The players were mostly young men who did not play games often and spent only a little money on them. (*Potti* 2/1984, 3–5.) Even though the amount of players was smaller than with other RAY games, such as slot machines and *Payazzo*, the Finnish Slot Machines Association paid attention to the increasing global popularity of arcade games and, for example, covered the new market trends in its publications, also referring to the popularity of *Pac-Man* (all translations from Finnish by the authors):

> The Japanese answered this [American competition] with a simple maze game, called *Pac-Man*. Its inventor is the 25 year old game designer from Namco, Toru Iwatani. For the producers of home video games alone, *Pac-Man* made a profit of about 800 million Finnish Marks, which is more than the entire Volkswagen corporation did. (*Potti* 3/1983, 4, "Video conquers but where did it come from?")

RAY observed the overheating of the video game market in 1983, when the popularity of arcade games also decreased in Finland, after which their decline can most likely be attributed to the rise of home computers. (*Potti* 4/1984, 6–7; Kortelainen, 1988, 239–240.)

Finns also got to know *Pac-Man* via video game consoles and home computers, even though the penetration of consoles was very low in Finland because of the high prices of the devices and game modules, and because of consoles' limited usability compared to home computers (Suominen 2015). Home computers quickly became the main platform for playing digital games. However, in early 1983, Atari organized a marketing tour around Finnish cities, where it held national *Pac-Man* championships semi-finals as well as introduced the Finnish cover version of the *Pac-Man Fever* song (1982), translated as *Pac-Man kuume* (*Micropost* 2/1983, 40–41; *Katso* 25.4.1983, no. 17). Even though the cover version didn't achieve any particular popularity, it shows how *Pac-Man* started becoming a popular cultural icon beyond just being a game in Finland as well.

Although *Pac-Man*'s position as a primary icon of video game culture was strengthened later, the game was generally already familiar to Finnish gamers in 1983, and the *Pac-Man* character could be recognized even by those who did not actively play video games. For a rookie programmer, *Pac-Man* was a more easily approachable target compared to, for instance, driving simulators or space shooters, because it lent itself well to the character graphics typical of the early home computers of the 1980s. *Pac-Man*-like games and similar experiments were published and circulated by, among others, hobbyist magazines and computer clubs.

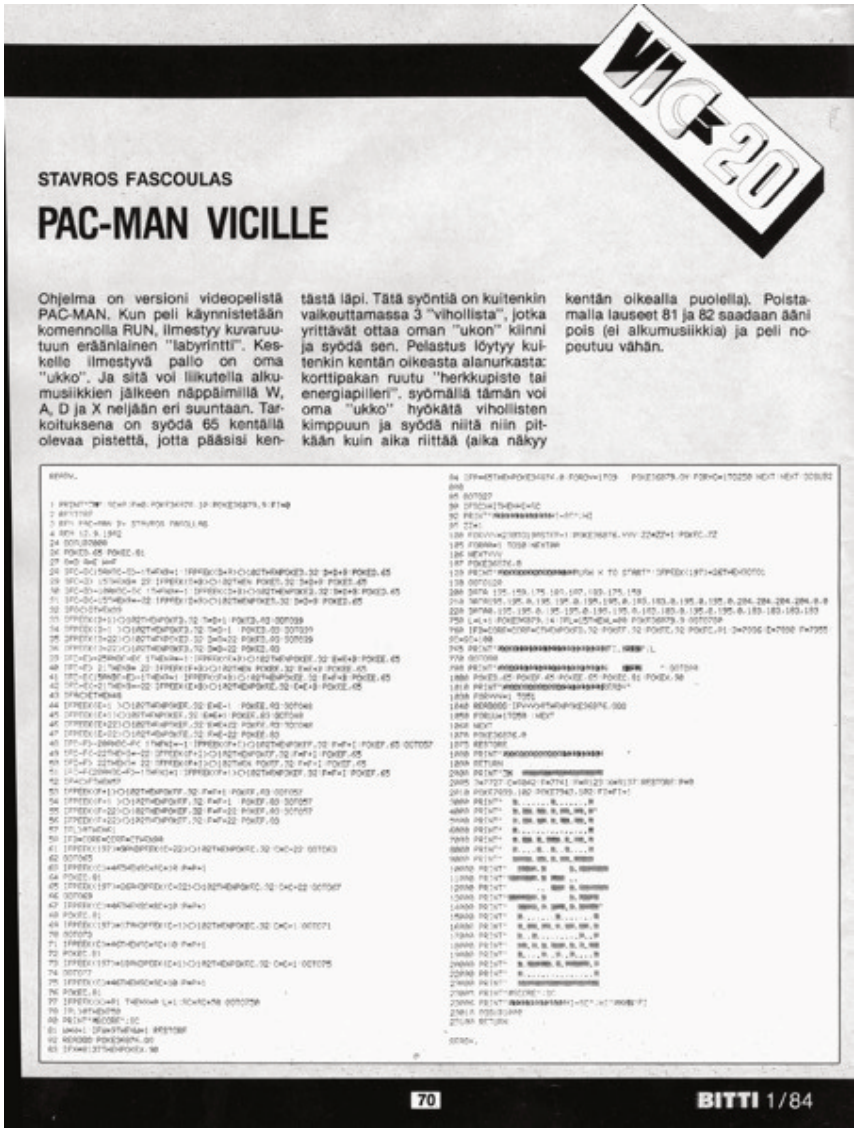

Figure 2. Program code published in MikroBitti 1/1984, 70.

Melanie Swalwell (2008, 193), who has studied computer hobbyist and video game cultures in New Zealand and Australia in the early 1980s, argues that writing program code "was a

key part of the reception and culture of early home computers." Graeme Kirkpatrick (2012) also points out, based on his studies on game magazines and game cultures in the UK in the 1980s, that "people who played games on home computers at the start of the decade, the game object was apprehended as a piece of code." In Finland, as in many other countries, the practice of publishing game source code was initially started by university students and early computer clubs. Program listings were an important part of the club magazines that emerged in the late 1970s and early 1980s (e.g. *Tieturi*, the club magazine of Telmac microcomputer users). Games obviously provided their own entertainment value, and clubs started to organize game evenings and competitions (Saarikoski & Suominen, 2009, 4–5). These activities became more popular in the early 1980s when new, young enthusiasts joined the clubs and new clubs were founded. For example, *Helsingin seudun Vic-kerho* (Helsinki Region VIC-20 Club) had 100 members in early 1983, and before it changed its name to *Commodore-Mikroharrastajat* (Commodore User Club) in February 1985, the number had already grown to 605, of which 20% of its members were children under fifteen years of age. (*Vikki* 2/1983, 3–4; *Printti* 7/1985, 3.)

The publication of program listings in professional computer magazines and specialized electronics magazines became a common practice in the early 1980s. The most popular magazines of the time were *Prosessori* (Processor, 1979–2011), *Tietokone* (Computer, 1982–2014), and *Elektroniikkauutiset* (Electronics News, 1972–1984). While the first listings were just short snippets of code, after 1982, their proportion of the total page count began to grow. (Interviews with Eskoensio Pipatti June 17, 1998; Lauri Kotilainen June 3, 1998.) This took place at the same time as the first mass-produced microcomputers, often simply classified as *home computers,* entered the Finnish consumer market in 1982 and 1983 (Saarikoski, 2004, 81–82; Saarikoski & Suominen, 2009, 5).

Although the Sinclair ZX-81 gained some popularity, the Commodore VIC-20 clearly dominated the early "micro boom" for two years. The VIC-20 was first introduced in April 1982 as "the first true home computer" (*Prosessori* 4/1982, 71–73). According to some estimates, over 20,000 units were sold in 1982–1983 (*Vikki* 1/1984, 5). After 1984, the Commodore 64 began to gain popularity and became the dominant home computer in Finland for the remainder of the 1980s. Even so, the VIC-20 was remembered as the first home computer, which many future programmer talents like the developer of Linux, Linus Torvalds, used for their programming practice. Considering the market situation in 1982, it was only natural that Stavros Fasoulas also used a VIC-20 when he created his own version of Pac-Man. (Saarikoski, 2004, 101–102.)

In the Finnish consumer market, commercial computer games were almost nonexistent until the early 1980s. Technically speaking, the sales of Finnish home computer games started in 1979, but activity remained very low over the following five years (Reunanen & Pärssinen, 2013; Reunanen, Heinonen & Pärssinen, 2014). The importation of games – mostly from the UK – started slowly in 1982, led by small-scale mail-order firms. The May 1984 market reports indicate that there were some 30 commercial games available for the VIC-20 at that time. Judging by the sales figures, importers usually focused on the most popular titles available (for example, *Jupiter Lander*, *Choplifter*, *Frogger*, *Omega Race*, *Radar Rat Race*, *Gorf*, *Avenger* and *Pac-Man* clones). The same games can also be seen in the magazine readers' sales classifieds sections. (*MikroBitti* 1/1984, 13; *Vikki* 5/1983, 8; *Vikki* 6/1983, 1.)

Until the mid-1980s, there was a constant shortage of commercial game titles and thus a clear demand for game program listings remained. A similar problem existed in other countries as well until commercial game programming started meeting consumer needs. For example, in the UK, a wide variety

of games was already available in 1982 (Kirkpatrick, 2012; Kirkpatrick, 2016). Typically, most of the games programmed by hobbyists and published by club and computer magazines were variants of popular card and board games (hangman, battleship, chess, tic-tac-toe, poker, *Mastermind,* and *Yatzy*). It is evident that hobbyists continued the old tradition established in the 1970s, where program listings were copied and modified from other magazines (domestic and international), handbooks, and software libraries.

On commercial computer magazines, the original source (typically a well-known international publication) was usually mentioned, and program listings included basic documentation about the major changes that had been made to the newly published listing. This kind of activity was, however, rare in non-commercial club publications, as they were less concerned about such attribution. In some cases, only the original idea had been used, and the programmer had come up with the implementation independently. In addition, there were games that can be considered truly original and innovative. (*Tieturi* 6/1982, 8–9; *Prosessori* 11/1982, 82, 102; *Prosessori* 9/1983, 83; *Tieturi* 2/1983, 15–16; *Vikki* 4/1983, 18–19.)

Software copyright issues were sometimes discussed in club meetings, and some organizers also paid attention to Finnish copyright laws. For example, Lauri Hirvonen from the *VIC-20 User Club* stated in early 1984 that the law protected program code and that stealing was, therefore, illegal. Ideas and the basic structure could be copied if the programmer did considerable changes to the original code. (*Vikki* 1/1984, 3–4.) These kinds of discussions mainly focused on cases where hobbyists "stole" code from other hobbyists. The copying of commercial software was not mentioned in the article, but it was already a well-known practice among the hobbyists in the 1970s. Software piracy (the cracking and distribution of commercial games) had already sparked some heated media debate in the mid-1980s. Copying

games became extremely easy when new hardware, such as disk drives, became popular. (Saarikoski, 2004, 320–324; Saarikoski & Suominen, 2009.) There were similar discussions in commercial computer magazines, and editors conducted some background checks to make sure that programs had not been published somewhere else. There were cases where hobbyists offered programs where they had just added their own name without making any changes to the original code, but magazines had zero tolerance for these attempts. (Interview with Eskoensio Pipatti June 17, 1998.)

The cloning of commercial games was an internationally well-known side-effect of the developing industry in the 1980s. Game companies – especially small ones – were keen to copy basic concepts from the most popular titles and make their own versions of them. Classic arcade and video games (for example *Pong*, *Breakout*, *Frogger*, and *Pac-Man*) were quickly cloned for the home computer markets. Therefore, it is natural that similar cloning was also practiced by computer hobbyists (Saarikoski & Suominen, 2009). Cloning was also a way of practicing programming, much like how art students create copies of famous paintings and other works (Suominen, Reunanen & Remes, 2015).

Published program listings offer a view of how the original *Pac-Man* was appropriated and modified by the hobbyist community. Early clones made by enthusiasts were simple maze games with some recognizable *Pac-Man*-like features. One of them was *Zac-Man*, coded by Antti Hakkarainen for the VIC-20 (*Tietokone* 1/1984, 58–59). The author modestly referred to *Pac-Man* as a "big brother" of this maze game "even though it may not have all the characteristics of the original." Even simpler variants were available for the ZX-81. In Mika Helsingius' *Sokkelopeli*, published in *Tietokone* 3/1984, the purpose was "to eat all the stars [in the labyrinth] and at the same time watch out for a monster who tries to swallow you." Another example was

Mörköpeli by Alpo Hassinen (*Tietokone* 8/1984, 68–69), although the author explained that it was "not a Pac-Man clone because the idea of the game was totally different." One more interesting example is *ZX Man* from the *Micropost* magazine, which included a short article about *Pac-Man* clones, and some details about the history of the game and its father Toru Iwatani (*Micropost* 3/1983, 6–7).

There are no listings for *Pac-Man* clones in the *Vikki* club publication. The reason for this absence is perhaps very simple: club members lamented that game programming was surprisingly difficult and, therefore, they had not been able to publish "good enough games." Furthermore, the poor print quality of the magazine did not provide for lengthy program listings. In spite of the problems, there are a couple of examples of simple maze action games, called *Virgo* and *Sarvipäät* [Horn heads], both the creations of Juha Ojaniemi. (*Vikki* 5/1983, 11; *Vikki* 6/1983, 31.)

Commercial clones were available and already known about early on. The most popular *Pac-Man* clones were *Jelly Monsters* (Commodore, 1981) and *Snackman* (Tom Mix Software ltd., 1983). *Pac-Man* was introduced in the *Vikki* magazine as the "the world's most popular micro computer game," and *Snackman* was reviewed as an example of a low-quality *Pac-Man* clone. (*Vikki* 6/1983, 16; *Vikki* 7/1983, 7.) In contrast, *Jelly Monsters* received more positive feedback and was also played at game competitions (known as the "Finnish VIC Game Championships") arranged by the club. The obvious purpose of the competitions was to attract more young members to the club. (*Vikki* 4/1983,1, 6; *Vikki* 1/1984, 16; *Vikki* 2/1984, 20.)

After 1983, the Finnish home computer market was clearly booming. Two home computer magazines, *MikroBitti* and *Printti*, were founded in 1984. Of these two, *MikroBitti* was the more popular publication and for many years remained the only

Finnish magazine that wrote extensively about computer games. (Saarikoski, 2004; Saarikoski & Suominen, 2009; Reunanen, Heinonen & Pärssinen, 2013.) Editor-in-chief Lauri Kotilainen has stated that founding the magazine took place on a tight schedule, and that the editorial staff desperately sought articles and writers. Some of the content was taken from articles originally offered to *Prosessori* and *Tietokone* (both of which were, like *MikroBitti*, published by Tecnopress, which was then sold to Sanoma Oy in January 1984, before Kotilainen left the company after May 1984). In particular, there was a need for game journalism and program listings, which were known to attract young potential readers. The editors noticed the popularity of *Pac-Man* clones, and the game itself was already labelled "a classic." (Interview with Lauri Kotilainen, June 3, 1998.) In the light of this, it is understandable that *Pac-Man for the VIC-20* was given a visible place in the listings section of the first issue.

More information about the history of the game is very scant, partly because Fasoulas has never mentioned it in his scarce interviews, or published any memoirs or articles on his career. The details of his personal history are equally obscure. What is so far known is based on a few newspaper and game magazine articles (*MikroBitti* 12/1986, 5; *C-lehti* 3/1987, 5). Fasoulas became interested in home computers in 1982, when he learned the essentials of the BASIC programming language at school. The year 1982 is also important because it is when IT classes were first introduced in the Finnish high school curriculum. In addition to the formal program, many activities revolving around computers and programming took place in after school computer clubs (Saarikoski, 2011).

BASIC programming exercises had some early impact on how Fasoulas, at the age of 14, become familiar with game design. From 1982 to 1984, he mainly used his friend's VIC-20 to learn machine language, however, during 1984 he started to exclusively use the Commodore 64 purchased by his father.

(*MikroBitti* 12/1986, 5; *C-lehti* 3/1987, 5.) Therefore, it is highly possible that the *Pac-Man* clone was a result of his schoolwork – the date mentioned on the listing is September 12, 1982. The game was introduced as "my version of Pac-Man" and, rather curiously, the title of the original game was not hidden despite potential copyright issues. To our knowledge, no complaints were filed by anyone afterwards. It is not known how well the game was received by the readers, although there is some criticism of the low print quality in letters to the editor (*MikroBitti* 2/1984, 25).

Fasoulas' game can be seen as an interesting example of the early stages of game culture in Finland. It remains the first and last *Pac-Man* clone published by *MikroBitti*. The Commodore 64 was gaining more popularity, and hundreds of new commercial games became available during 1984. *Pac-Man* clones began to lose popularity, and just before Christmas 1984, Petri Helenius wrote in *MikroBitti* 4/1984: "Pac-Man copying should stop for good, or otherwise the whole home computer world will drown in the flood of these clones." The same kind of "clone problem" was noted in *Printti* (3/1985, 10). Critical reviews like this and the disappearance of clones from printed BASIC listings indicate that the magic of *Pac-Man* as the "world's best computer game" was already starting to fade.

READING THE CODE

As the source code of *Pac-Man for the VIC-20* is available in a human-readable form, it is possible to look deeper into how it was implemented. The *MikroBitti* page, of course, contains the full source, but it was more convenient to de-tokenize an already existing BASIC file with *petcat*, a command line tool that is part of the ubiquitous *VICE* (Versatile Commodore Emulator) package that allows users to emulate a number of different 8-bit Commodore computers ranging from the PET to the C-128 (cf. Newman, 2012, 140–145). In the process, we also discovered

another revision of the game, which utilizes the joystick instead of the keyboard in the same way that the published version did. It is currently unknown which of them is older, and whether the joystick version was made by Fasoulas at all, because there are no credits to be found. Apart from the control scheme and credits, the two versions are identical.

First and foremost, the game runs on an unexpanded VIC-20 with a 1.1 MHz 8-bit 6502 processor (in its PAL variant). The standard screen dimensions are 22 by 23 characters of 8 by 8 pixels each – it is possible to extend the screen beyond that, but *Pac-Man for the VIC-20* sticks to the default size and does not modify the character set. It would be possible to set a separate foreground color for each character position, but the game does not utilize that feature either, resulting in monochromatic graphics. Secondly, there is the layer of the *CBM BASIC V2* between the program code and the hardware, which makes certain things easy and accessible, but also slows down the execution speed to a great extent (cf. Montfort & Bogost, 2009, 147–150).

The first impression one gets when trying out the game is that it is rather frustrating to play: Pac-Man moves sluggishly and running away from a trailing "ghost" (the spades in Figure 1) is almost impossible. A closer look at the code reveals that the enemies do not actually move in a uniform way, but that there are minor variations in their logic, as there were in the original game (cf. Newman, 2016). The goal is not to empty the level, unlike in standard versions, but rather to collect 65 dots. The slow speed is easily explained by the fact that there is no machine language involved at all; arcade games could not typically be written in BASIC, as they required faster interaction than was possible with the interpreted language of the time. The endless incomprehensible DATA statements with numbers, as seen in many other game listings, are in fact machine language encoded into BASIC statements.

On the one hand, Fasoulas' *Pac-Man* clone is unavoidably slow because of the underlying software platform, while, on the other hand, it is an example of pushing the boundaries of what is possible in the first place. Multiple details reveal how the programmer has understood and worked around the limits of the BASIC interpreter, choosing the fastest and most convenient way of doing things. First of all, the code is condensed: all of the unnecessary whitespace is removed, variable names are minimally short, and the lines are populated with multiple BASIC statements in order to maximize the speed. There are no multiplications or divisions in the whole program. Dealing with any numbers is inherently slow because the interpreter always uses floating point numbers that are not natively supported by the 6502 processor.

Similar purposefulness is prevalent in all of the code. The playfield, with its walls and food pills, is displayed by a visually recognizable group of simple PRINT statements, whereas moving the enemies or the player is done by POKE statements that directly access the screen memory (memory addresses 7680–8185 correspond to character location on the screen). It should be noted that *CBM BASIC V2* is very limited in many respects: there is no support for reading the joystick, setting the cursor position, or even playing back sound. To achieve any of them, the programmer must resort to using PEEK and POKE statements that manipulate the memory addresses dealing with the hardware state. For example, the music that plays at the beginning of the game consists of a loop that POKEs plain numbers to address 36876, which controls oscillator 1.

When starting up, the VIC-20 informs the user that there are 3,583 bytes of free memory. After loading or typing in the game, there are only around 200 bytes left (depending on the version). In other words, effectively all the available memory is in use. There is no space for storing a copy of the playfield with its walls and corridors, so the game uses the screen memory for its

bookkeeping: we can think of the screen as both game visuals and a representation of the internal logic. The locations of the player and the ghosts are stored as direct screen memory addresses instead of something human-readable, such as screen x/y coordinates. With 22 by 23 characters on the screen, incrementing the address by 22 will move a ghost down by one row.

Figure 3. Part of the listing shown on an emulated VIC-20 screen.

As can be seen in Figure 3, the source code of the *Pac-Man* clone is not easy to read on a real VIC-20 computer. Part of the bad readability follows from the need to optimize the speed, while some of the difficulties with readability can further be attributed to how the listing is fitted into the limited space of the printed magazine. The low resolution of the characters does not help either: lines of BASIC code are spread across multiple screen lines, keywords are broken in the middle and, overall, only a small portion of the code can be viewed at a time. With all this in mind, it is again necessary to ask what real purpose the listing served – the resulting game would not offer long-lasting entertainment, and reading uncommented cryptic statements would hardly improve anybody's programming skills. It is more

likely that the joy of typing on a computer and getting something "real" out of the effort was rewarding enough in itself. From a commercial perspective, program listings were cheap content for magazines, as recalled by *MikroBitti's* editor-in-chief Eskoensio Pipatti (Interview with Eskoensio Pipatti June 17, 1998).

CONCLUSION

Pac-Man for the VIC-20 highlights a number of characteristics and challenges of the booming computer hobbyist culture of the early 1980s. The initially short supply of available software was alleviated by enthusiasts' own efforts in the form of code snippets and simple games – often clones of existing board and arcade games, as shown above. The main motive for creating such low-quality games was, first and foremost, social. For a young computer programmer such as Stavros Fasoulas, the publication of one's own game in a commercial home computer magazine was undoubtedly an important personal achievement. Getting your program into a magazine like *MikroBitti* made it available to thousands of like-minded readers, which was quite a feat before the age of easily accessible communication networks.

Even if the games did not necessarily provide lasting entertainment per se, creating them let aspiring programmers learn the first necessary steps on their way to more complex undertakings and, as in the case of Fasoulas, eventually a career. Other than that, game listings did not play any significant role in the history of the early Finnish game industry. From the publishers' point of view, program listings were mainly just cheap yet surprisingly popular content. In addition, they offered a means of interchange between readers and the magazine. Computer magazines or club publications did not limit the artistic freedom of the programmers: editors usually picked the best and most suitable titles for each issue. The only rule was that programmers were not allowed to offer content that had been published before.

Looking into the *Pac-Man* clone brought up the problematic definition of a "platform." On the one hand, there is the hardware platform, the VIC-20 with its particular characteristics, but, on the other hand, the program in question runs on the built-in BASIC interpreter, which introduces its own peculiarities, such as a selection of useful ready-made functions and the slow execution speed (compared to machine language). In other words, we are clearly dealing with two, not just one single, platforms here. Furthermore, as seen in Fasoulas' game and a number of other similar listings, there was a notable trend of bypassing the BASIC interpreter altogether for the sake of speed and full access to the hardware – working, not *with*, but rather *around* the offerings of the software platform.

From today's perspective, it already looks rather strange and archaic that the main user interface of a computer was a programming language. The ubiquitous BASIC interpreter was available to most home computers, such as the popular 8-bit Commodore machines and thus strongly characterizes one generation of computing. From a software perspective, it can be considered a somewhat uniform layer that hid the underlying colorful and mostly incompatible hardware of the 1980s. Since then, we have gained much more powerful gadgets and friendly user interfaces, yet something has also been lost in the process. Programming, which used to be a natural use for a computer, vanished from the mainstream for almost two decades and is only now gaining back its aura as a skill that is of use to even non-technical people.

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LA ABADÍA DEL CRIMEN

Anatomy of a Cult Video Game in Spain

JAUME ESTEVE

INTRODUCTION

The release of the ZX Spectrum 16K and 48K in late 1983 jumpstarted the Spanish video gaming industry. Suddenly, a group of self-taught teenagers and some programmers, all in their twenties, teamed up to form a coherent scene dominated by four studios (Dinamic, Topo Soft, Made in Spain, Opera Soft), and a publisher, ERBE. Several events explain the popularity of video games in those years —the arrival of a variety of home computer systems like the Amstrad CPC, the MSX or the Commodore 64; the freedom to publish almost anything without a publisher; or the birth of some of the first magazines. *Micro Hobby* was the most influential magazine, a publication that "managed to sell 100,000 copies weekly" according to Paco Pastor, ERBE's CEO (P. Pastor, personal communication, February 23rd, 2011; my translation). The matter of piracy must should not be overlooked. As video games were sold on cassette tapes, it was easy to copy them, a factor that helped to expand the popularity of the 8-bit systems mentioned above.

In section 1, we will have a look at both the game and its creators, as well as the conditions that surrounded them during the creative process including the commercial release and the critical reception. Section 2 takes a look at the game mechanics, where

the game made a leap in quality in comparison to other Spanish titles released during those years. Section 3 focuses on one of the most iconic aspects of *La Abadía del Crimen*, its code and how it let the user believe that the NPC characters were smart enough to take their own decisions. On section 4, we will take a look at the art style and how it was a step beyond from the classic isometric perspective games that were famous back then. Section 5 takes us back to Spain, where we will examone the causes that turned the game into a cult phenomenon. In the conclusion, we establish that due to three key reasons (the game mechanics and AI, the art style and its cult status), *La Abadía del Crimen* has become a cult video game made in Spain in the 1980s.

La Abadía del Crimen: the video game adaptation of The Name of the Rose

La Abadía del Crimen (Opera Soft, 1987) is a single player isometric adventure set during the XIV century in an abbey where a series of mysterious crimes are happening in obscure circumstances. Fray Guillermo and Adso de Melk[1], the main characters, have to solve the case in seven days. It was released for the Amstrad CPC 6128 and 464/664, Spectrum 128K, MSX and PC.

During the week that the game takes place, the player has to follow a strict schedule inside the abbey. The day is split in seven time frames (night, prime, terce, sext, none, vespers and compline, based on the canonical hours) and Guillermo must attend two services (one at prime, the second at vespers) and having lunch at sext with their fellow monks, who have their own everyday routines and seem to be making their own decisions. Guillermo and Adso are supposed to stay in their room at night; failing to do so may end the game if the abbot catches them wandering through the abbey. But it is only at nighttime when

1. We refer to the main characters by their Spanish names due to the game never being released overseas.

the main characters have the time to look for clues and gather certain objects that can be stored in a small inventory, similar to the one used in point-and-click adventure games, which will help them to discover who the murderer is. The user is always in control of Guillermo, though Adso's help is essential to obtain certain objects that allow the player to get to the final stages of the game. The player can control Adso using the down arrow ke, while the other three direction arrows control Guillermo.

One of the traits that define the game is its high difficulty. The controls were clumsy due to the isometric perspective combined with a static camera setup. The absence of clues during a game session and a very small life bar, called *obsequium* (Latin for obedience) which diminished with every little misbehavior in the abbey were, and still are, some of the main complaints the players had about the gamplay.

Paco Menéndez and Juan Delcán: two childhood friends behind *La Abadía del Crimen*

Paco Menéndez had founded Made in Spain by the mid-1980s; it was one of Spain's first development studios and responsible for the games *Fred* (1983) and *Sir Fred* (1985).

When *Fred* was released, Menéndez and his partners – a group of friends from the same neighborhood – were still teenagers. When Sir Fred hit the market, even though they were still at university, part of the group had already decided that they wanted to make a living out of video games. Thus Ziggurat was born, a publishing company which would publish and distribute third-party games as well as those designed by Made in Spain.

Juan Delcán belonged to that group, although he did not code *Fred* or *Sir Fred*—his sole contribution was *Fred*'s loading screen. An architecture student at the time[2], Delcán had some knowledge

2. 1. Ironic as it may seem, Delcán never graduated from college. However, this particular

regarding graphic design and joined Menéndez when he decided to leave Made in Spain to develop his own game. The team formed by these two life-long friends had an enormous challenge ahead—creating the video game adaptation of *The Name of the Rose*, Umberto Eco's novel (Eco, 1982), which had already been adapted for the screen (Annaud, 1986).

The decision to adapt *The Name of the Rose* had come after he read the book. Before starting development, as Delcán recalls, Menéndez was sure his third game would be his last. A few weeks after starting the project, Menéndez told the press that nobody in Spain had ever created a game like the one he was working on (El País, 1987).

Delcán, who had no programming experience at all, only had one task: to create a graphic environment for the abbey and the characters where the monks would seem to behave autonomously even though they always repeated the same patterns from one game session to another.

The duo worked from Menéndez's bedroom for a year, with a couple of Amstrad CPCs borrowed from his father's computing school, Mister Chip; both coded while also attending college. The game was originally coded for Amstrad CPC 6128, and it was released for ZX Spectrum 128K and MSX as well. When it came to the PC port, Menéndez needed help since he was not as familiar with that platform, as he was working with the 8-bit microcomputers. He turned to Opera Soft, a studio he was familiar with thanks to the small video games industry that existed in Spain in the 80s.

Menéndez and Delcán never managed to get Umberto Eco's permission to market the game as The Name of the Rose (*Micro Hobby*, 1988), so instead they made small changes to avoid any

project drew more public attention than any of the projects his fellow students were involved in.

legal trouble with the writer. Upon its release, the game was received with critical acclaim. Menéndez and Delcán's proposal enticed the main outlets in Spain and it looked like the game would be a best-seller during Christmas '87 and the first months of 1988.

The two main magazine publishing outlets in Spain were delighted with the game. Micro Hobby's average score, based on six parameters (originality, art style, movement, sound, difficulty and addiction), was nine out of ten and it outlined how different the game felt compared to the rest of Spanish game productions. The review stated that it was something new and original and totally different from everything they had seen so far (Micro Hobby, 1988).

Micro Manía, a magazine focused on PC gaming, awarded it the same score as Micro Hobby: 9/10. The review appeared a some time later, in August 1988, due to the PC port being released in April of that year. This review stated that few games had been able to earn praise from each and every one of their journalists (Micro Manía, 1988). It is important to say that one of the aspects the review considered was the originality of the game. Both outlets, the two most respected of their time, awarded unusually high scores.

Though the sales numbers were good – around 50,000 copies according to Opera Soft's last CEO, José Antonio Morales (Morales, personal communication, April 21st, 2017) – they did not live up to expectations. As with most Spanish video games during the 80s, the exact sales figures are unknown. *Micro Hobby's* sales chart is helpful in gaining some understanding of how the game was received, though it only measured the Spectrum market sales in Spain.

La Abadía del Crimen was in and out of the charts since its publishing date, but it never made it to the top 8. According to

the sales charts released by the magazine every two weeks, the sales ranks between March 29th 1988 (issue 166) and November 30th 1988 (issue 181) were as follows: 9 (issue 166), 13 (issue 167), 20 (issue 169), 8 (issue 173), 13 (issue 174), 12 (issue 175), 12 (issue 176), 14 (issue 177), 16 (issue 178), 16 (issue 179), 20 (issue 180), 17 (issue 181).

The reason for this gap between the way it was received by the critics and its modest sales figures is not too hard to surmise. *La Abadía del Crimen* is known for its notorious difficulty, something it has in common with a lot of Spanish games at the time, particularly *Game Over* (Dinamic, 1987). The game, however, is not difficult because the player had to complete "pixel perfect" jumps or because there is a massive amount of enemies or bullets to dodge. The complexity of the game is subtler—not only is there no indication – diegetic or extra-diegetic – whatsoever of the steps the player had to take to solve the crimes that had been and were being committed in the abbey, it is possible to reach the seventh day of the game without finding out who the murderer is. When that happenes, Guillermo and Adso simply leave the abbey and the mystery behind the murders remains unsolved.

The game includes additional surprises along the way. Several key items are essential to reach the end and solve the crimes, such as the gloves that will keep Guillermo from getting poisoned when reading the cursed book, something which the player does not necessarily know because the game does not offer any clue about their importance to solve the murder mystery. Among those items are Guillermo's spectacles. Even though the player has to get them during one of the nights, nothing in the game suggests that it is a required item to complete the investigation. They can be anywhere in the abbey and the user has to figure that out by him/herself.

There was one last irony related to the game's difficulty. As if it were not difficult enough, the guide published by *Micro Manía*

contains one crucial mistake: the printed map of the labyrinth, the last stage of the game, is misleading, and therefore the players have to find their own way around it.

Despite its relatively low sales, *La Abadía del Crimen* received two awards on *Micro Hobby*'s games awards at 1987: Best Art Style and Best Script (Micro Hobby, 1988). Additionally, Paco Menéndez obtained the Best Programmer Award, an honor nobody else has ever been awarded with.

La Abadía del Crimen's discreet commercial performance did not play a part in both Menéndez and Delcán retiring from video games. The first had already made his decision before starting to develop the gameñ; his premature death in 1999 prevented any chance of him developing again. Delcán eventually abandoned college to start a career in publicity and arts—he has since worked with successful bands such as U2. These two promising game dev careers being cut short helped create a cult around two developers who only created one game and then retired.

THE GAME MECHANICS: A RARE EXAMPLE IN THE SPANISH INDUSTRY

La Abadía del Crimen took slightly over a year to be completed; it was released between November 1987 and April 1988 depending on the platform.

During the 1980s, the Spanish industry developed hundreds of video games. A quick glance at Dinamic's, Opera's, Made in Spain's or Topo's titles reveals that the most popular genres in their catalogues were platformers, sports and beat'em ups. Games such as *Army Moves* (Dinamic, 1986); *Livingstone, Supongo* (Opera, 1986); *Game Over* (Dinamic, 1987); *Fernando Martín Basket Master* (Dinamic, 1987); *Emilio Butragueño ¡Fútbol!* (Topo Soft, 1988) or *After the War* (Dinamic, 1989) prove how prolific the Spanish gaming industry was at the time. The sales numbers explain why the studios pursued those genres. *Emilio Butragueño*,

the most successful Spanish video game of the 1980s, sold more than 100,000 units according to the local press (Micro Hobby, 1989).

La Abadía del Crimen aimed at something very different—it was an adventure game using isometric perspective, similar to Ultimate's classic games; it did not depend on twitch reflexes and did not intend to make to player rush from one end of the screen to the other. Take *Knight Lore* (Ultimate Play the Game, 1984) or Jon Ritman's *Batman* (Ocean, 1986), for example, where almost every room is a puzzle in itself and has enough enemies and obstacles to end the player's life rather quickly. In *La Abadía del Crimen*, it was common to roam the abbey without seeing any other monk unless they crossed the player's path because they were performing their everyday duties in the building.

The slow pace of the game is one of the traits that made a difference when compared to other Spanish productions during those years. It puts *La Abadía del Crimen* at a similar level in terms of game mechanics to other European classics of the 1980s, such as *The Great Escape* (Ocean, 1986), *Skool Daze* (Microsphere, 1984), *Back to Skool* (Microsphere, 1985) or Ultimate's Filmation games, which used an isometric perspective such as *Knight Lore*, *Alien 8* (Ultimate Play the Game, 1985) or *Gunfright* (Ultimate Play the Game, 1985). As Retro Gamer puts it, the game succeeded thanks to two factors—its artistic style and its gameplay. "For all its gob-smacking beauty, the real pleasure of *La Abadía del Crimen* can be found within its perfectly crafted and tightly honed gameplay" (Retro Gamer, 2010).

In the game, the main character, Fray Guillermo de Occam (William of Baskerville's alter ego, the name change due to the inability to secure a license from Umberto Eco), and his assistant, Adso de Melk, have to solve a series of mysterious crimes in an abbey within a week, which the player can accomplish in a little less than two hours of gameplay. In order to do so, the player

must walk up and down the abbey searching for clues and talking to the monks. At the same time, the player must adhere to the abbey's routines: he must attend religious services twice a day (at dawn and dusk) and have lunch with the rest of the monks. Failing to do so will terminate the game, just as if the player is caught out of the cell by the abbot during the night. Since the player must adhere to strict routines during the day, nights are the only time Fray Guillermo and Adso have to investigate and explore the abbey. The game will end if the player's *obsequium* bar drops to zero. Every time the player disobeys the abbot or is late for a service the bar will decrease.

Few games in the 80s proposed a daily routine as a game mechanic. One of the better-known examples is *The Great Escape*, from Denton Designs, in which the player is a prisoner of war at a nazi camp and has to follow a strict routine every day consisting of waking up, attending roll calls, having his meals and exercising. However, the fact that all the POWs and all the camp guards look exactly the same visually made the game feel artificial in terms of character. One game that succeeded in differentiating its characters was *Skool Daze* and its sequel *Back to Skool*. Through clever art style, the user can distinguish the bully from the bookworm or the teachers, even though there are also many pupils with no particular task other than making the player believe that the action takes place in a school full of students.

The very point where *La Abadía del Crimen* succeeded was in mixing both concepts from *The Great Escape* and *Skool Daze*. The strict timetable the characters must follow during the days they spend in the abbey is one of the weaknesses of *La Abadía del Crimen*. The sequence consists of attending a first service, having lunch, and attending a second service, which leaves barely any time to the investigation. This formula had nothing to do with the fundamentals of an open world—why did they put the player in such a universe, consisting of 93 rooms, if the character has to constantly rush from one room to another? Games such as *Ant*

Attack (Quicksilva, 1983) or *Elite* (Acornsoft, 1984), both designed before *La Abadía del Crimen*, understood the concept of open-world gaming much better.

The game used daily routines and a roster of recognizable characters to help create the illusion of being in an abbey inhabited by monks. This is important to emphasize, since Spanish video games often copied overseas hits. Some infamous cases include Dinamic's *Satan* (Dinamic, 1989), inspired in *Black Tiger* (U. S. Gold, 1987), or Topo's *Desperado* (Topo Soft, 1987), an almost exact copy of *Gun.Smoke* (Capcom, 1985).

Like Batman and Robin or Mario and Luigi, Fray Guillermo had his own sidekick, Adso. The young character's function isn't merely to make the game closer to the book and the film. Adso also takes part in the action, hence he is much more than just Guillermo's pupil, who follows him everywhere. At certain moments, the user has to take control of him in order to get certain objects Guillermo is not able to reach and which are necessary to complete the game. Having two player characters is, again, a rarity in Spanish video gaming back then. As the expert in Spanish video games José Manuel Fernández says: "Only one game did something similar, *Spirits* (Topo Soft, 1987), and it did so by using a split screen" (Esteve, 2012).

Spanish studios did not demonstrate much interest in developing games in isometric perspective. They knew what sort of games their audience favored and were not keen on taking any risks, especially as the competition grew tougher from 1987 onwards. There are some examples of Spanish isometric video games that show how *La Abadía del Crimen* stands out, however. *El Cid* (Dro Soft, 1987), released in the United Kingdom by Mastertronic, is an adventure with some beat 'em up mechanics. *Evaristo el Punky* (System 4, 1988) follows the same pattern as *El Cid*. Neither of those games achieved critical acclaim, and even less commercial success. *El Cid* got a 7,3 out of 10 (Micro Hobby, 1988) whereas

Evaristo el Punky's review was even tougher as it got a 6,5 (Micro Hobby, 1989). If *La Abadía del Crimen* never managed to get past the Top 8 in the sales charts despite being blessed by the press, it is easy to understand why the big Spanish studios were not interested in isometric perspective games, even though *La Abadía*'s visual approach is, paradoxically, one of the features that still stand out today.

THE CODE: FAKE AI TO MAKE THE ABBEY COME TO LIFE

Another feature that makes *La Abadía del Crimen* and its characters stand out was the pseudo artificial intelligence of its inhabitants. The monks were not programmed to make any intelligent decisions. However, Paco Menéndez wrote a script, a set of rules, that made them wander through the abbey as if they were going about their everyday routines.

That believable behavior was implemented in the game's code and had instructions for almost every situation that the player would confront. As Manuel Pazos wrote in *Obsequium* (Morales et al., 2014), a book about Menéndez and Delcán's creation, "[the code] had instructions as to which camera had to follow each monk, where the objects were on the map, the contents of the monks' dialogue, where the monks had to go at any given moment or which doors were locked at what time of the day" (my translation). That script was responsible for making the player wonder what was happening on the screen; the use of brief cutscenes increased this sense. Where is brother Berengario going? What is brother Malaquías doing? Considering that the game had to fit in less than 128Kb, what the script accomplished was due to Menéndez's genius. For example, "reading the position of a character would have taken 3 bytes in machine code whereas the script managed to only use 1 byte" (my translation).

The movements of the two main characters are another source of controversy. Given that the camera point of view changes every

time the player enters a room, the player must identify again how to move a character left or right, since its relative orientation changes in the new point of view, as would later be in games such as *Resident Evil* (Capcom, 1996). The first scene of the game, in which the abbot welcomes Guillermo and Adso, explains what is going on and leads them to their room, is an ordeal to complete. Having just found out how to move the protagonist, the player had to manage to follow the abbot closely; otherwise he would already lose *obsequium* bar at the very beginning of the game, which is a common occurrence during gameplay.

Making the abbey look like a real place was among the greatest accomplishments of Paco Menéndez. A previous Spanish game, *Dustin* (Dinamic, 1986), had already introduced non-playable characters to interact with, though not as rich as the ones in *La Abadía del Crimen*. Aside from their main task, i.e. letting the player interact with certain objects needed to complete the game, the characters were completely static.

THE VISUALS: ONE STEP BEYOND ULTIMATE'S FILMATION

The other half of the equation was equally important for *La Abadía del Crimen* to attain its cult status. Despite not having designed a game before, Menéndez was instrumental in Juan Delcán's unleashing of his creative talent.

When the pair started working on the game sometime during the second half of 1986, both knew perfectly well their respective duties. Menéndez was in charge of the code whereas Delcán was responsible for the art style and visual assets, i.e. he was in charge of designing both the characters and the scenario.

For Delcán, the task was a unique opportunity for an architecture student. He wanted the abbey to be as realistic as possible—using his knowledge of Gothic and Romanesque architecture, he turned to Italian, French, Catalan and German

abbeys for inspiration. The result has a Latin-cross layout, with the apse and the monks' cells facing east, as it was common in the Middle Ages, so they would wake up at dawn.

The game used isometric perspective to create a sense of depth. The room's walls were divided into spaces where the two walls that met at the bottom corner were cut out in order for the player to see what was happening, as described by Jan Van Looy (2003). This perspective, similar to a 3D space even though true 3D rendering was not still possible, had been made popular thanks to games such as *Ant Attack*, or particularly those from Ultimate, for example *Knight Lore*. This Spanish attempt, however, went one step beyond: the rooms were not independent but part of a whole. And even though each camera was linked to a specific room, the game allowed the player to see what was happening outside of it.

> "*Knight Lore*'s screens were independent from each other. When the player exited them, the characters that inhabited them ceased to exist, they were only alive inside that frame. The character behavior in *La Abadía del Crimen* was more complex. Compared to the foes in *Knight Lore* that only moved upwards or downwards or from side to side, the monks in the abbey were able to look for routes and choose the right paths". — (Pazos, creator of *La Abadía del Crimen Extensum*. Personal communication, April 18th, 2017; my translation)

One of the reasons why the game's graphics are better than other games developed at that time is the level of detail that Delcán put into the abbey. The game not only improves on classic filmation games (*Knight Lore* and *Alien 8*) made by Ultimate or those developed by Jon Ritman, such as *Batman* or *Head Over Heels*. The architecture of the buildings in Ultimate's titles is basically a series of black walls and some bricks here and there to help create the illusion of a building. In this respect, not even the buildings in *The Great Escape* are very convincing. Despite the fact that the rooms are furnished, nothing is hanging from the

walls, and thus it is difficult for the player to perceive the rooms as such.

In order to make the abbey a believable space – with a library, a scriptorium, a kitchen, cells or a church – Delcán used a camera setup that allows to show each parts from different angles.

This set of cameras was one of Delcan's trademarks; it would also become one of the most controversial aspects of the game, one that still gives rise to heated discussions amongst its followers. As was the case in the first *Resident Evil* games, best known for their cinematic style, *La Abadía del Crimen* used a set of static cameras. Unlike *Knight Lore* or *Batman*, however, the position of the camera was different in every screen. Delcán has repeatedly explained that his intention was to create a cinematic atmosphere (Esteve, 2012). That is why, for instance, Guillermo crosses one room facing the camera and we see him from behind once the screen switches to the next room. This use of perspective allows the player not only to see the abbey from different points, it also shows that the abbey is not a series of independent rooms, each one containing the characters with whom the player has to interact but a building where everything is interconnected. As in the case once again of *Knight Lore*, it should be noted that, because of the way the game was designed, these characters did not move from one room to another but stayed in the one they originally appeared. Finally, the changing point of view allows the players to see the walls from different perspectives, giving the abbey a more realistic look.

According to Enrique Giner, architect and author of one of the first remakes of the game, the control scheme and the change of perspective were fundamental aspects of the game and they needed each other: "Alternating the cameras allowed creating a non-restricted architecture. Without those cameras, and with a conventional control scheme, *La Abadía del Crimen*'s graphics, as

we know them, would have never existed" (Morales et al., 2014; my translation).

LA ABADÍA DEL CRIMEN IN PRESENT DAY: THE BEST REGARDED SPANISH GAME MADE IN THE 80S?

More than ten years passed from the release of the game until the cult about the game started to grow. The first news of a PC remake, made by Antonio Giner, broke at the end of the 20th century (Giner, 1999). It wasn't the only project that tried to remake the game to make it available for current computers. Manuel Pazos worked on another version for MSX2 as well as one made in Javascript. It is also important to talk about Manuel Abadía and Sebastián Blanes, authors of VIGASOCO, VIdeo GAmes SOurce Code (Abadía and Blanes, 2005), a project that reconstructed the game with C/C and that served as a blueprint to port the game to PS2, PS3, Dreamcast, Mac or Linux.

These three remakes were upgrades for the computers at the time. The game contents remained intact as well as its visual elements. These versions saw the light during the early 2000s but they were not the only games that paid tribute to *La Abadía del Crimen*. *The Abbey* (Alcachofa Soft, 2008), a point-and-click adventure from Alcachofa Soft, was released in 2008; other similar projects such as *Medievo* (García, 2011), *El Enigma de la Abadía* (García, 2006) or *Los Secretos del Claustro* (Narratech, 2017) remained unfinished during the following years. The difference between these titles and the remakes was either the scope, a different visual approach or an entirely different set of mechanics, as was the case with *The Abbey*.

Medievo was a failed project led by Enrique García, which had a team of 20 people working on the game during 1999-2003. The game was never released, and it tried to reimagine *La Abadía del Crimen* with an entirely new visual look and a script that followed more closely the events depicted in the book. *El Enigma*

de la Abadía, a title made with Unreal Engine by Diego Cadenas, tried to go further and deliver a game with an improved graphics. The project was cancelled in 2010 due to the lack of funding. *El Enigma* did not want to be a simple remake—Cadenas planned more than 20 hours of gameplay and puzzles that could be solved in a variety of ways. *Los Secretos del Claustro* is an unfinished project developed by students at the Universidad Complutense de Madrid, where the player controls the villain of *La Abadía del Crimen* instead of Fray Guillermo.

The point in all of these remakes and tributes is that no other Spanish game made in the 1980s has gathered a similar amount of projects. There have been remakes of *Sir Fred* (Celemín, 2005) by Daniel Celemín, *Abu Simbel Profanation* (FX Interactive, 2012), which appeared on iOS, or *La Pulga* (Suárez, 2011), made by Paco Suárez, its original creator, for PC. But no game has managed to spur the same amount of varied and ambitious projects.

Perhaps the most important and interesting remake was *La Abadía del Crimen Extensum* (Celemín and Pazos, 2016). Developed by Manuel Pazos and Daniel Celemín, both important names in the Spanish classic gaming scene, the game is an extended version of *La Abadía del Crimen* with upgraded visuals to match the characters with the ones from the film version from Jean-Jacques Annaud, a bigger abbey and an extended story to make the events of the game closer to *The Name of the Rose*. Released for free on Steam in July of 2016, the game managed to get more than 100,000 downloads. According to Pazos, about 50% of those came from outside of Spain (Personal communication, April 18th, 2017).

Remakes are not the only way to measure *La Abadía del Crimen*'s success amongst its Spanish competitors in the 1980s. RetroMadrid, the most important event dedicated to classic video games in Spain, paid a tribute to the game and its creators in its 2013 edition, which received more than 6.000 visitors

(Retro Madrid, 2014). The game was also the subject of a panel at Celsius Festival, a yearly event held in Avilés dedicated to literature – especially fantasy, horror and science fiction – but with a focus on video games and history.

The last point that highlights the importance of the game is rather unusual–on May 8th 2017, a Spanish video game was recognized by local authorities for the first time. The Fábrica Nacional de Moneda y Timbre – the organization in charge of printing official mail stamps – agreed to honor *La Abadía del Crimen* on its 30th anniversary.

Even though the game was never sold outside Spain, it gained critical acceptance over the years. Retro Gamer's praise should be credited as a major factor in the game gaining public approval as one of the great games designed in Europe during the 1980s. The English magazine featured *La Abadía del Crimen* twice: first, in its "Import Only" section, that showcased games never released in the English market and, second, in its "Perfect Ten Games" chart for ZX Spectrum 128 where it stated that "*La Abadía del Crimen* is an 8-bit masterpiece […] that is well worth playing through, even if you don't understand a word of Spanish" (Retro Gamer, 2010).

Being on the same list as games such as *Renegade* (Technos Japan, 1986), *Where Time Stood Still* (Ocean, 1988) or *Tai Pan* (Ocean, 1988) gives the measure of how much critics were aware that the game was important to the Spanish market despite never being sold overseas.

CONCLUSION

There are several factors that demonstrate how important *La Abadía del Crimen* was at the time of publication. The game gained a cult following years after its release, due to the technical aspects that the press outlined in its reviews, its art style, way above what other Spanish studios managed to do and more

detailed than those made by UK studios at the time, the tricks Paco Menéndez used in its code to make the abbey look like a building inhabited by real monks, and the countless remakes, tributes and homages the game has received over the years. The fact that Menéndez died at a young age and that Delcán never worked in the video games industry again are crucial to building an aura of mystique around the game.

The game's mechanics were original in comparison to its contemporaries, including the monks' AI, something never seen in a Spanish game, while its visual style matched the looks of Ultimate's games or other isometric perspective titles, whereas the remakes and tributes it has been subject to over the years have helped to generate its cult status. These three aspects constitute the recipe for the cult of a game that managed to perform as well as some of the great European games of the 1980s. It was able to create an environment as vivid as in *The Great Escape* using a set of independent, recognizable and *intelligent* characters, and it all happened on an isometric scale never seen before on previous games. And it is still has a devoted following, almost 30 years after its commercial release.

Despite its average commercial performance at the time of release, the game has been remade on a variety of platforms and it even has a revamped version available for free on Steam. It was also honored at Retro Madrid, Spain's most important retro event; and Spanish authorities decided to print a postal stamp to celebrate the 30th anniversary of its release. Menéndez and Delcán's creation has achieved what it did not in the late 1980s—to be recognized as a landmark game for the Spanish video game industry.

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1. Ironic as it may seem, Delcán never graduated from college. However, this particular project drew more public attention than any of the projects his fellow students were involved in.

CAMMELLI AND ATTACK OF THE MUTANT CAMELS

A Variantology of Italian Video Games of the 1980s

RICCARDO FASSONE

A MICRO-HISTORY OF CLONING

The period between 1983 and 1985 marked the beginning of a series of processes and dynamics that would inform the nature of video game production, distribution and consumption in Italy throughout the rest of the decade and into the first half of the 1990s. Launched in Italy in March 1983, the Commodore 64 quickly became the preferred microcomputer for Italian players, thanks to an aggressive price policy and an often informal but efficient distribution network (Tarantino & Tosoni, 2017). C64s were sold in home appliances stores, in music stores, in general electronic stores, or bought via mail order from Germany. In the same period, a number of publications designed to capture the interest of microcomputer owners started emerging. Books such as *Il mio primo libro sui computer* [*My First Computer Book*] (Novelli, 1983), *Il mio primo libro di Basic* [*My First Basic Textbook*] (Novelli, 1984) served the didactic purpose of introducing home computing to adolescents and young adults. Magazines such as *Electronic Games*, *HC-Home Computers*, and *Computer Games* offered video game criticism and technical information on the use of home computers in varying proportions. With the translation, released by the prestigious publisher Feltrinelli in 1985, of *Micromania. The Whole Truth About Computers* (Platt,

1984), a semi-serious account of computer culture for the general audience, it might be said that computers had become recognized household objects and gained prominence in social discourses.

This inevitably partial account of the introduction of home- and microcomputers, and, in turn, domestic video games in Italy, characterized by technological advancement, economic success, and a stable rise in visibility and social acceptance, while accounting for an understudied local context, conforms to a much criticized (e.g. in Guins, 2014) tendency of general video game historiography, that often seeks unequivocal causation and teleological drive when retelling the complex vicissitudes of the medium. As noted by Nooney (2013), "videogame history struggles to represent itself as much more than a chronology of consoles, games, and programmers", a precise trajectory, informed for the most part by the commodification of technological advancement, that can be found in many video game history books (e.g. Kent 2001). While possibly relevant in its local focus, a research on Italian video games of the 1980s that retraces such a "tempting, gratifying, and coherent" (Wade, 2016, p. 1) narrative may fail to grasp the often chaotic nature of video game production and culture in 1980s Italy. For this reason, this article proposes a micro-historical[1] exploration of the practice of unauthorized cloning through an analysis of *Cammelli*, a clone of *Attack of The Mutant Camels* sold in newsstands in a bundle-tape for the C64 along with several other cloned games. The reconstruction and discussion of this very common semi-illicit practice and its implications for the production and distribution of video games in Italy will allow me to test a historiographical

1. The term "microhistory" was popularized by historian Carlo Ginzburg (1980), who used it in his account of the life of a miller in Sixteenth Century north-eastern Italy. Ginzburg uses it to describe a historiographical practice that focuses a) on small or even personal stories and b) on stories involving subordinate classes and popular culture. While the political scope of this article is different than Ginzburg's, I certainly advocate for a small-scale, popular history of video games.

method that aims at eschewing the exercise of canonizing power and focuses on smaller-scale phenomena and their relation with wider media contexts.

A METHOD AND A DISPOSITION

This article is part of a larger research on the history of Italian video game production. For this reason, it shares with the whole of the research a series of methodological assumptions and practices. On the other hand, due to the nature of the article – a case study aiming at illuminating a series of complex contingencies – it is also informed by what could be defined as a peculiar disposition or inclination. The methodology employed in the research is based upon three sets of specific tools grouped under a more general assumption. These tools are a) in-depth historiographical interviews with relevant informants. In the case of this article, I conducted a series of nine interviews with developers, crackers and players who were active in the 1980s. b) An analysis of publications – with a specific focus on video game magazines – released in the considered time frame, performed in order to single out relevant discourses and, possibly more importantly, trace the connections between video game development, play, and discursive production. c) What can be described as an encounter with the objects. As noted by Kittler (1999, p. 5) in a plea in favor of the epistemological relevance (and, at times, resistance) of materials that do not imply the written word, "discourse analysis cannot be applied to sound archives or towers of film rolls". In this sense, the analysis of video games as cultural objects is necessarily informed by the encounter with and the manipulation of their materiality. Cassettes, cartridges, manuals, boxes, flyers, and more importantly that peculiar material that is video game code, supplement the historical work by providing information on what Guins (2014, p. 9), via Appadurai, describes as "a thing's 'total trajectory', a composite of phases or situations – shifts in context – that determine a thing's value, function, and possible

meanings". The general assumption under which I am operating is one of ecological or ecosystemic concern. That is, the idea that, especially in the context of 1980s Italy, video game production, distribution, and play, cannot be understood in absence of the wider media ecology. In the instance of this article's case study, as I will claim, one cannot assess the value of *Cammelli* if the analysis of the game is decoupled from its specific reframing as a serialized product, found in newsstands alongside comic books, hobbyist magazines, and other products.

As for the disposition or inclination of this specific article, it might be said that I will adopt an *anarchaeological* outlook on the object of my research. Most of the methodological concerns expressed so far – namely the skepticism of canonizing histories and the interest in materiality – may be ascribed to the general ethos of media archaeology, a theoretically-inclined branch of media history that adopts a decidedly Foucauldian historiographical paradigm (especially Foucault, 2002) in the study of discontinuities rather than unifying narratives, materiality rather than social constructs, dead or discarded media technologies rather than current ones (see e.g. Ernst, 2013; Parikka, 2012). Despite a general adherence to media-archaeological practices, this article will argue for an anarchaeological reading of *Cammelli*. Introduced by Rudi Visker (1991), the term anarchaeology was popularized by the work of media historian Siegfried Zielinski (2006), and refers to an approach to history that refuses to identify a primary, standardized set of objects for analysis […]. By opening the spectrum of potential objects and paths,the historian of media will need to accept the risk of unsuccessful searches, but will be rewarded by unexpected—and thus particularly precious—finds (Natale, 2012, p. 525)

According to Zielinski, the Foucauldian endeavor of media archaeology cannot resist creating alternative, but possibly

equally hegemonic, chronologies, thus engendering a peculiar kind of paradox:

> By seeking, collecting, and sorting, the archaeologist attaches meanings; and these meanings may be entirely different from the ones the objects had originally. The paradox that arises when engaged in this work is that one is dependent upon the instruments of cultural techniques for ordering and classifying, while, at the same time, one's goal is to respect diversity and specialness. The only resolution of this dilemma is to reject the notion that this work is ground-breaking: to renounce power, which one could easily grasp, is much more difficult than to attain a position where it is possible to wield it. (Zielinski, 2006, p. 27)

In this sense, an object such as *Cammelli*, as I will try to demonstrate, invites an anarchaological reading in at least two senses. Its dubious legal status of pirated clone, somehow seems to push this specific game at the edge of video game history: this is not an uncommon, little-known gem, nor a cult favorite, but rather the appropriation and – one could speculate – the effacement of a highly praised game such as *Attack of the Mutant Camels*, an act of dethronement that is in itself anarchaeological. Second, by undergoing the cloning treatment, Jeff Minter's game is not only deprived of its authorial legitimacy, but also serialized and inserted in the veritable *mess* of clones, dupes, broken cracks released every month in Italian newsstands in the second half of the 1980s[2]. In other words, I will claim that by becoming *Cammelli*, *Attack of the Mutant Camels* was extracted from the art history of video games and placed in what could be defined a *variantology* of video game production, a Zielinskian term (Zielinski & Wagnermaier, 2005) that describes the multitude of

2. While it is hard to estimate a precise number of publications distributing pirated video games in the 1980s, it is safe to assume that these were in the dozens. The website *Edicola 8 bit* lists more than fifty publications, released by publishers such as Edizioni Foglia S.R.L., Edizioni Hobby, and Edizione Logica 2000.

media histories, whose "place of abode is the possible, and reality, which has actually happened, becomes a shadow by comparison" (Zielinski, 2006, p. 28).

CAMMELLI AS A SERIAL OBJECT

In May 1984 the first issue of *Special Program* hit the newsstands. Published by SIPE S.r.l., one of the many publishers specializing in video game and computer magazines, *Special Program* n. 1/1984 was composed of a 32-pages booklet and a cassette tape with ten games: five for the C64 (side A), and five for the ZX Spectrum (side B). The booklet featured the descriptions of the games, along with a number of other columns, ranging from modules of code to be typed into the reader's C64s to classified ads. The first game found on side A is *Cammelli*; the description on the booklet reads: "I cammelli robot sono tremendi: meno male che la nostra astronave può metterli in condizione di scoppiare: basta saper sparare" [Robot camels are the worst: luckily our spaceship can blow them up. You only need to learn how to shoot] (Special Program, 1984, p. 8). A screenshot of the game depicts a blueish camel being chased by a small spaceship, while on the top and bottom of the screen a series of gauges read "Punteggio" [Score], "Settore" [Sector], "Navi" [Ships]. *Cammelli* is a clone of *Attack of The Mutant Camels* a game published by Jeff Minter's Llamasoft the previous year to almost unanimous critical acclaim, that iterated the shoot'em up mechanic found in *Star Wars: The Empire Strikes Back* (Atari, 1982). In this context, defining *Cammelli* as a clone essentially means that, barring a series of linguistic adaptations produced ex-post, the game uses the exact same code of *Attack of The Mutant Camels*. While in the case of this specific game it is not known how the code was obtained, it is reasonable to think that – as in the case of several other games of the period – an Italian cracker[3] had obtained

3. I am using the term 'cracker' as an alternative to 'hacker', since most of my informants consistently referred to themselves and their circle as such.

an original copy of the game and cracked it in order to resell it to SIPE S.r.l.. Along with *Attack of The Mutant Camels*, the cassette tape features clones of *Motor Mania* (United Microware Industries, 1982) (titled *Corsa d'auto* [Car race]), *Falcon Patrol* (Virgin Games, 1983) (titled *Attacco F104* [F104 Attack]) and others, all very likely to have been obtained through the same route. It should be noted that this is a substantially different practice than those documented in other European nations such as Germany. While in the case of games such as *Great Giana Sisters* (Time Warp Productions, 1987), the cloning process involved a noticeable reworking of the original games, whose sprites and music were often completely modified, in the case of Italian clones, only splash screens and titles were changed.

Special Program, along with a growing number of other similar publications, kept appearing in newsstands, month after month, for about eight years, publishing hundreds of games in bundles. *Cammelli*, the first game on Side A of the first cassette published with the magazine, is a prototypical example of the framing processes that the cloned games underwent in order to be incorporated into the neo-canon represented by periodic publishing, and for this reason was chosen as a case study. The first form of framing can be described as serialization (Fassone, 2014; 2017), a practice of grouping of heterogeneous materials – in this case games produced by different developers and usually meant for distribution in stores as standalone products – under a common denominator. This is obtained through the use of what Genette (1997, p. 16) describes as "publisher peritext", a series of semiotic markers, produced by the publisher – SIPE S.r.l. in this case – in order to create or reinforce a consistency among otherwise different materials. In the case of *Special Program*, the games are described side by side in a dedicated column of the booklet, thus reinforcing their serialized nature, and, more importantly, the title screen of each game is modified in order to include the captions "Program presenta" [Program presents] and

"Copyright 1984 Program", an ironic form of appropriation for a company that was essentially distributing pirated software.

A second form of framing happens in the wider context of distribution practices adopted by SIPE S.r.l. and its competitors. Stefan Roda, a former cracker, game developer and project manager for Genias, one of the earlier Italian software houses, when discussing the role of newsstands in the distribution of video games claims that: "It was an Italian thing. Every information on games was found in newsstands, so quite naturally it became the main distributive channel for games themselves […] there were no proper computer stores" (interview with the author). Between 1984 and the end of the decade, newsstands gained a dominant position in the distribution of games; games sold as part of a magazine bundle were the norm, and the network of newsstands, reaching less densely populated and rural areas, offered a platform for widespread distribution. According to Tarantino and Tosoni (2017, p. 242), newsstands «historically [played] a central role in the distribution of software». This is also proven by a number of trade catalogs released by publishers such as Jackson, that list numerous software-related publications conceived to be distributed in newsstands all over the country. By virtue of its peculiar positioning within a mixed distribution that featured both periodic publishing and games, *Cammelli* turned from the relatively stable, standalone object that was *Attack of the Mutant Camels*, into a module within an economy of serialized, periodical distribution.

SOFT HACKING AND DE-AUTHORIALIZATION

During an interview I conducted with Federico Croci, a former employee of Simulmondo, a software house founded in Bologna in 1987, now owner of Italy's only pinball museum, he told me a revealing anecdote:

When I was working at Simulmondo [probably around 1988] I got to meet a cracker living in Altedo [near Bologna]. He was a small-time pirate, nothing to do with the professional pirates that were active in Germany. This guy managed to crack our game *Italy 90 Soccer* (Simulmondo, 1988), and Francesco Carlà, the owner of Simulmondo, managed to get in touch with him. We ended up hiring him as a hardware consultant. (Federico Croci, interview with the author)

A number of articles dealing with the early history of home computing paint a picture of the hacker as a politically-conscious actor, deliberately resisting to the commodification and mainstreaming of computing. Alberts & Oldenziel (2014, p. 12), for example, claim that the rebellion of young users toying with personal computers without a prescribed purpose, the sense of personal control, and the celebration of "connectedness" came together in specific European ways and […] engineers, teenagers, media artists, and social activists participated in the process of appropriation, helping to bridge the gap between the globally produced products and their—at times—exaggerated technological expectations.

While it is certainly true – as demonstrated by Švelch (2013) – that in specific contexts, practices of political appropriation of software and hardware were part of the hackers' ethos, it might be said that the Italian context favored practices of what could be defined as *soft hacking*. The anonymous cracker hired by a software house, the many pirates who moved on to make their own games such as Stefan Roda, and even professional pirates – among the most active the 2704 cracking group and Pier – existed in a gray area between hobbyism and professionalization and were in most cases more than willing to sell their work to publishers such as SIPE S.r.l.. In this sense, practices such as cracking and piracy were prevalent both within contexts of vernacular or hyper-local distribution (computer clubs, hacker circles, etc.), and in the relatively more institutionalized

newsstand tape market. In fact, the Italian context seems to conform to a wider trend in southern Europe, most notably in Greece, in which [the cracker] was more like an advanced user who could crack the protection of a program and examine its programming properties, change elements of its code, and copy it before selling on to a third party for a certain price or use it himself according to his needs. Ultimately he was the one who could solve issues such as the adaptation of home computer software to the needs of the Greek user community (Lekkas, 2014, p. 89)

This tendency is reflected in *Cammelli*, in which, besides cracking the protection of the game, the cracker had acted as a linguistic mediator, translating the English text, while a further mediation had been engendered by *Special Program*'s short description of the game in Italian.

While crackers very rarely took an overtly activist position in Italy, the process described thus far cannot be deemed unpolitical, at least in the sense of the adoption of distinct non-authorial politics[4]. The title screen of the C64 version of *Attack of the Mutant Camels* reads "Jeff Minter Presents: *Attack of the Mutant Camels*, from the creator of *Gridrunner*", a precise authorial statement that percolates in some of the game's reviews, and echoes in contemporary video game histories, such as Donovan's Minter built up a cult following with games such as *Attack of the Mutant Camels*, a psychedelic shoot 'em up where players battle against giant camels […]. The taste for strangeness became so widespread that 'British surrealism' became a loose stylistic movement that decorated familiar game concepts in the outlandish imaginations of their creators. (Donovan, 2010, p. 117)

4. A notable exception to this is represented by a few locally produced text adventures, advertised in publisher Jackson's 1984 trade catalog alongside their authors' names.

The inclusion of *Cammelli* in *Special Program*'s own canon implied the removal of every sign of Minter's authorship through the substitution of the opening captions, and, more importantly, a decoupling from its original habitat – that of the British scene of independent developers – thus producing an alternative, possibly more chaotic, history of C64 video games for the Italian audience.

PIRACY AS AN ALTERNATIVE ART HISTORY OF GAMES

In an article on the history of the Italian game industry Tarantino & Tosoni (2017) claim that in the 1980s in Italy software piracy had at least two forms: proper piracy – that is the distribution of cracked software via non-institutional channels – and unauthorized linguistic adaptation, as in the case of *Cammelli* and a multitude of similar games distributed in newsstands. The two scholars claim that the persistence of this semi-illegal market – whose gray-area status was eventually terminated in 1993 when piracy law 547 was approved[5] – had three distinct but interrelated effects on the growth of the sector. As we have seen with the case of Stefan Roda, it allowed for a degree of permeability between hobbyism and professionalism, with pirates becoming developers or programmers; it hampered the development of an high-revenue, structured industry, by multiplying entrepreneurial risk; it favored technological inertia, as older machines such as the C64 continued to be relevant on the market beyond their life cycle due to the massive distribution of cheap, pirated software.

While the industrial and economic implications of the pervasiveness of piracy in Italy are certainly relevant for a history of Italian video games, I will offer a different framing of this phenomenon, and define the peculiar form of piracy represented

5. It should be noted that before law 547 was approved, early Italian video game distributors such as Leader had started a lobbying campaign against piracy that involved advertisements and features in major magazines.

by linguistic adaptation and bundle tapes as an *applied variantology*. In Zielinski's formulation, the history of media is in itself a variantology, a collection of interconnected but recognizable phenomena that should be investigated through an anarchaeological method rather than through the means of canonization via cause-effect relations. While Zielinski does not explicitly acknowledge it, it might be said that variantology, as a historiographical mode, and anarchaeology, as a method, act as meta-historical discourses, that is, not just as ways to investigate objects and phenomena of the past, but also – and maybe more precisely – as theoretical assumptions on the nature of historiography. In this sense, Zielinski's theory, as a historiographical narrative, may be an example of the relevance of Hayden White's (1973, xi) adage according to which "there can be no 'proper history' which is not at the same time 'philosophy of history'". The field of Italian adaptations of foreign video games, of which *Cammelli* is a prototype, may be said to somehow crystallize a precise, identifiable variant within conventional video game history. If, with Foucault (2002, p. 32), in an archaeological exploration "a provisional division must be adopted as an initial approximation: an initial region that analysis will subsequently demolish and, if necessary, reorganize", it might be said that the games released in Italian newsstands between 1984 and 1993 may constitute such a field and, at the same time, represent a form of pragmatic variantology.

One way to analyze the objects and relations found in this field is historiographical research in the proper sense. Endeavors such as this article aim at highlighting the relevance of an object such as *Cammelli* for the pursuit and description of alternative art histories of video games, in which, for example, Jeff Minter is not the *auteur* of *Attack of the Mutant Camels*, but a link in the longer chain of *Special Program*'s *Cammelli*. This is, at least in part, what Jaakko Suominen (2016) describes as a "pathology" of game

history, a deep excavation that seeks to recognize and unearth the symptoms of a more complex history than the canonical or hegemonic ones. This pathological approach, which, as noted by Suominen (2016, p. 12) "seem[s] to be an increasingly popular trend among studies of game history", is not the only possible – or even fruitful – approach to a variantology of game histories. Working on this article, I have collected a number of artifacts – magazines, tapes, photos, interviews etc. – pertaining to the distribution of video games in Italy in the 1980s. What I could not find, I managed to consult via websites such as *Edicola 8 Bit* [8 Bit Newsstand] (specialprogramsipe.altervista.org), a vernacular archival project that aims at collecting and sharing newsstand bundles produced in Italy between 1984 and 1993. *Edicola 8 Bit* is what Suominen would ascribe to the "enthusiast" genre of game historiography, a bottom-up endeavor usually undertaken by non-professionals, that, in the case of the website, has an "antiquarian" goal, that is the production of "a catalogue and not a list of individual, selected monuments and turning point moments. It's a guide that aims to introduce all of the games to one particular sector" (Suominen, 2016, p. 7). In the case of *Edicola 8 Bit*, the antiquarian mode of historiography is supplemented by a comparative drive: every game is presented alongside its *original* version. In the case of *Cammelli*, the game is presented in the context of a comparison with Minter's game, and users can download ROMs of both games. *Edicola 8 Bit*'s antiquarian history presents *Cammelli* as an actual variant, a byproduct of canonical history, but at the same time, by aiming at collecting the entirety of a Foucauldian "region", implicitly advocates for a simultaneous, synoptic variantology, an alternative potential history among the multiple histories of the medium.

CONCLUSIONS

Depending on one's positioning, *Cammelli* can be described as an unauthorized adaptation of a previous game, an act of

appropriation, or a relatively straightforward clone. This article has explored the implications of a game such as *Cammelli* for video game history, claiming that it can be understood as the result of a process of serialization, as an example of soft hacking, and as a prototype of a pragmatic variantology. The article claims that the productivity of the metahistorical stances of media archaeology, and specifically of Zielinski's anarachaeology, can be verified through the analysis of single objects such as *Cammelli*, used as indicators or symptoms of a more general field or region of media history. In the case of 1980s Italy, *Cammelli* demonstrates the existence of alternative local game histories that cannot be retraced only through exceptional cases (the occasional masterpiece, the notable example, etc.), but should be understood through the analysis of lower intensity processes and practices and of non-exceptional, often banal, cases such as adapted clones.

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AN EXPLORATION OF THE HISTORICAL CONTEXTS OF NU, POGODI!, A SOVIET ERA LCD GAME

PETER SMITH & JOSEPH FANFARELLI

PLAYING *NU, POGODI!*

In *Nu, Pogodi!*, the player takes on the role of The Wolf who is attempting to collect eggs from four different hens, each located in a corner of the display. Whenever a hen releases an egg, the egg rolls down a ramp and must be caught by the wolf before it hits the ground. Although the game has no win condition, the player's goal is to catch as many eggs as possible. Eggs that are missed by the wolf will hatch, bringing the player closer to the game's end state, which occurs when the player has missed a total of four eggs.

This section investigates how this play takes form, exploring its hardware and gameplay. It will examine the scoring system and other feedback mechanisms, in relation to player skill and performance, in order to better understand the experience of actually playing the game. Finally, this section delves into the use of modern emulation to play the game–the original console's rarity makes it difficult to obtain, while emulators are plentiful. As such, emulation is likely to be the primary way a modern

player would encounter the game, especially outside of nations in the former USSR.

HARDWARE

Nu, Pogodi! Is played on a handheld console (Figure 1) that features a display and seven buttons. Four buttons are used for actual gameplay and allow the player to move the wolf to one of four different egg ramps. The buttons are aligned to each other in the same manner as the egg ramp (e.g., the top left button corresponds to the top left egg ramp). This not only provides an equal distribution of stress between both hands (two buttons on each side of the console means each thumb is responsible for two buttons), but also facilitates learning the controls for new players; if the buttons were all aligned vertically, the player would likely have a more difficult time identifying and remembering which button corresponds to which position on screen. Instead, the game features a low barrier to entry and is relatively easy to pick up and play.

Figure 1. The Nu, Pogodi! Console

Consistent with other handheld games of its time, *Nu, Pogodi!*

relies on an LCD display to present visual stimuli. As a result, the animations are simply a series of static images with preset locations on the screen that are turned on and off in sequence to produce the appearance of motion. In other words, the possible positions of graphics are fixed and not continuous, providing a somewhat unrefined visual animation experience. The wolf, for example, can only appear in four fixed positions; each egg appears in exactly the same four spots; and each egg can travel in only one fixed path after it is spawned. While this is a hardware limitation that reduced the possible scenarios of play, it was a useful technology at the time which enabled the existence of handheld gaming.

GAMEPLAY

The hardware's ease of use lends itself to *Nu, Pogodi's* gameplay. During a gaming session, eggs are sporadically released from each of the four hens. As a result of the LCD display, each egg will progress through 5 different positions before falling to the ground and hatching into a chick, providing a consistent number of representations each time an egg is released, aiding the player's ability to predict the amount of time remaining until the egg reaches the end of the ramp; Nu, Pogodi! is, foremost, a game of speed and timing. Importantly, two eggs will never simultaneously release from two different hen houses–simultaneously releasing eggs from two different hens would mean the player must choose between the eggs, leaving one to inevitably drop. Such a situation would undermine player skill by incorporating a persistent chance of inevitable failure (i.e., if the situation arises, an egg *will* drop to the ground). Furthermore, this scenario would disregard player agency and would likely be demotivational to the player, reducing the game's appeal (Klimmpt, 2005).

The allowance for skill to affect gameplay is an important provision of any game (Adams, 2014). In *Nu, Pogodi!* skill does

not manifest as much as manual agility or mental strategy as it does as judgment, timing, and decision-making. This allocation of skill is driven by the game's difficulty mechanism–randomization of location and speed of eggs. When an egg is released into its first animation position, the player must mentally classify that egg's ramp as active and deserving of attention. Then, she must prioritize the catching of all eggs currently on screen by forecasting when each egg should reach the end of its corresponding ramp. Eggs that will reach the end of the ramp first will need to be caught first.

However, the player cannot simply make note of which eggs were released first in order to tell which eggs need to be caught first. Instead, the player's judgment may need to be adjusted as she observes the speed of the eggs. It is true that each egg will animate through the same number of positions, but it may animate faster or slower than other eggs. Therefore, if one egg is only one animation position behind another, but is moving much faster, it is possible that egg will fall first, even though the other egg was released at an earlier time. The player must notice this in the span of just a few animation positions in order to make an appropriate judgment and prioritize which egg should be caught first, else she will miss the egg and will come one step closer to ending the game.

The narrative that underlies failure (i.e., egg drops and chick hatches) in *Nu, Pogodi!'s* gameplay is interesting. In many ways it runs counter to the premise that the narrative should support the player in accepting the fantasy world of a game (Murray, 1999). It seems the wolf only wants to collect eggs, and has no interest in hatched chicks. If the player assumes gameplay is based on the premise that the wolf is hungry and collecting food for a future meal, she might wonder why eating a chick does not also support this goal. Not only does a hatched chick fail to add points, but also an egg that has hatched into a chick is seen as a failure by the wolf and punishes the player. Thus, the

design choice of using chicks can be confusing. Why, instead, didn't the designers decide to use yolks that may have been seen as unsavory or uncollectable once they had fallen and split into the grassy ground? The answer is unclear. As a result, the player must suspend her disbelief, spawned by the game's narrative, and enjoy the game.

While most of the game is intuitive, there are a few features that aren't quite apparent without prior instruction or extensive thought. At the top left of the screen, The Hare seems to randomly appear and disappear out of a house's window and ring a bell. It can be difficult to understand the purpose of The Hare, at first, and is never indicated within the game. If an egg falls while The Hare is present, The Wolf only loses half of a life, instead of a full life (indicated by a blinking hatched chick image as opposed to a solid one). Additionally, *Nu, Pogodi!* allows players to choose between two different game modes, mode A or mode B. The use of letters to distinguish between the two modes provides little description to the player, again forcing them to have prior knowledge or tease out the differences over time.

PERFORMANCE AND SCORING

As the player proceeds through a session of gameplay, *Nu, Pogodi!* maintains two statistics to help her understand her performance–eggs caught and eggs dropped. These are simple calculations – whenever an egg is caught, an unlabeled numerical indicator of score in the top right of the screen is increased by one. When an egg is dropped, a pictorial representation of a hatching chick is added to the screen, just below the score. Every time an egg is dropped, another one of these pictures is added to the screen, until the player reaches the maximum of three eggs dropped. If another egg is dropped after three hatching chicks appear on screen, a fourth image will not be added; instead, the game will end.

These statistics serve two primary purposes. First, they both serve as indicators of progress within a single play session. By observing the eggs dropped indicators, the player can see how close they are to losing the game, which may affect the player's mental state (Juul, 2009). A player who has not dropped any eggs is more likely to be in a calm state, while a player that has three eggs dropped indicators is likely to feel more anxious in fear of dropping one more egg and losing the game. Or, depending on the individual, the player who is near the point of losing the game may feel more focused as she realizes the importance of her actions and the heightened stakes of dropping one more egg.

Second, scoring systems are useful for improving motivation (Mekler, Tuch, Bruhlmann, & Opwis, 2013), and also serve as a method for comparing performance within the current play session to performance within previous sessions. A player can self-set goals to either improve upon their previous best score, or to improve upon the score of a peer. This is not a novel instance of design. The use of points-based scores to compare current performance to previous performances is consistent with other games of the 80s, where high score tables could be found in nearly all arcade games. *Nu, Pogodi!* thus leveraged pre-existing gaming norms in their assessment of player performance. This practice likely bolstered longevity of play, as players continued to play in an attempt to get ever higher scores, or to outscore their friends.

The score was displayed in the same element that the clock was displayed on. This is notable, because the clock provides a three-digit seven-segment display allowing for numbers 0-9 and a single two-segment digit allowing for the number one or nothing (i.e., turn these segments off). While this theoretically allows for scores between 0 and 999, the system resets the score on the 1,000th point. Resetting the scoring system probably became a skill-based goal for players who learned of this mechanic. Interestingly, there was a rumor among Soviet children that the

game would show the cartoon at 1000 points (ArtOn, 2014). However, sources suggest that the score would simply reset and play faster when a player reached that score (Komyagin, 2016).

EMULATION

In modern times, experiencing *Nu, Pogodi!'s* gameplay on an original handheld console, may be challenging, especially outside of the nations from the former USSR, where the console is fairly rare. Instead, modern players are likely to experience *Nu, Pogodi!* via emulation. It has been recreated numerous times, with different versions available for PC, Android, and iOS. Though, these emulations are mostly true to the game's original form (depending upon the specific emulation), emulators change the feel dramatically. Gone are the physical buttons, replaced with images of the original case. The weight of a smart phone, mouse, or keyboard is surely different from the weight of an LCD console from the 1980s, and the player has a greater number of available games to play on their phone. Why play *Nu, Pogodi!,* when *Clash of Clans* is available?

While *Nu, Pogodi!* may have difficulty measuring up to modern games, it can still be an enjoyable experience for a time, even in emulation. There is something nostalgic that maintains player interest, even if the player did not experience this particular game as a child the whole genre brings back thoughts of the old games that came before. Modern game designers borrow the aesthetics of Game & Watch today, including Team Meat's Super Meat Boy Handheld. A throwback version of the Super Meat Boy designed for iPhone (Rose, 2010).

This is a game designed before game designers thought about player progression, downloadable content, or monetization. The player cannot buy hats for the wolf, or pay to win. Yet, there is a respectable core game loop that produces satisfying interaction and is likely to bring the player back for more, even if the modern

player may be initially dismissive of the outdated technology and simple mechanics (Swink, 2008). Of course, it is likely that the historical and cultural context of the time period in which the game was released had a strong influence on the game's success and enjoyability. Now that *Nu, Pogodi!'s* gameplay has been examined, this article will now progress to identify how it fits within its historical and cultural contexts.

HISTORICAL AND CULTURAL CONTEXT

Nu, Pogodi!'s premise and proliferation is perhaps best understood in relation to its historical and cultural context. It was, at once, a knockoff of the popular Game & Watch games, *Egg* and *Mickey Mouse*, and the translation of a popular Soviet cartoon into an interactive format – an international copycat that remains reflective of Soviet culture. This section will discuss its ties to the USSR, The Game & Watch games from which it drew its inspiration, and the Soviet cartoon, *Nu, Pogodi!,* that both provided the subject matter for the game and likely created large scale interest amongst Soviet youths.

TECHNOLOGY

Before examining the games themselves, it is important to understand the technology that was supporting these games. Nu, Pogodi!, which sold for 25 rubles (iPress, 2014), ran on its own hardware, which was very similar to Nintendo's Game & Watch games, with some minor, yet significant differences.

Game & Watch

Legendary toy and game designer, Gunpei Yokoi, is responsible for many of Nintendo's successes over the years including the Game Boy, and Virtual Boy (Voskuil & Okada, 2014). As a toy designer he had the idea for the Game & Watch series of games while observing a man who was passing the time by using an electronic calculator on a commuter train on his way home from

work (Brown, 2016). All Game & Watch games at that time used a segmented LCD that allowed for various segments to be activated to simulate animations and gameplay, on an otherwise simple piece of hardware. This screen design has been largely replaced by matrix LCD screens, but can still be found in calculators, thermostats and even some car display panels. The use of this technology exemplifies Gunpei Yokoi's general philosophy of incorporating lateral thinking in game design, which involves leveraging existing (and even worn out) technologies and using them in creative new ways to create surprising results (Yokoi, 1997). While segmented LCD technology has largely been replaced in handheld electronic games, it paved the way for handheld electronic games to exist and remains useful in other applications today.

Game & Watch games were incredibly popular with nearly 60 titles over a 10 year span, and their impact can still be felt in nearly every popular game console today. The iconic directional pad shaped like a plus sign found on every Nintendo game controller, the A and B buttons, and even the iconic dual screen design of the Nintendo 3DS was first attempted in a game and watch game. What seemed like simple design choices would lend themselves to games for decades to game. The games themselves have also stood the test of time, with rereleases happening on future Nintendo handhelds, and a VR version of the popular game *Fire*, which asked players to bounce a baby falling from a burning building to safety in a fire truck. Although he never had a name on Game & Watch, Mr. Game & Watch is a popular character in the Super Smash Bros. series that pits characters across Nintendo's library against each other. These *Game & Watch* consoles paved the way for the *Elektronika* brand of handheld games.

Elektronika

Nintendo did not sell games in the USSR in the 1980s due to

the difficulty of importing Japanese products as a result of the hostile relations between the USSR and Japan during the USSR's communist rule (Hara, 1998). Yet, there was a full line of Game & Watch style games sold in the USSR at this time, but under the brand name of *Elektronika*, which was also used for a number of other electronic devices, including calculators and computers. While the games were all sold under this moniker, they were produced by a number of different manufactures around the USSR (Shayevich, 2010), and were labeled with model numbers in the form of "IM-##", or in Russian, "ИМ", the Russian acronym for Игра Микропроцессорная, or Microprocessor game.

It is important to note that the *Elektronika* versions of the *Game & Watch* games were not pure imitations, but were strongly influenced by the *Game & Watch* brand and were modified, where necessary. They were manufactured for the Soviet market with their own branding, logos, hardware, and original box art. These *Elektronika* units were slightly heavier than their Japanese counterparts, and had air vents on the back of their cases, with slightly modified art to better cater to the Soviet market. In the case of *Nu, Pogodi!*, the first *Elektronika* game, they were modified to take advantage of a successful pre-existing media phenomenon, the *Nu, Pogodi!* cartoon, probably to bring existing fans to the handheld gaming realm.

MEDIA INFLUENCE

It is important to understand the influence the *Nu, Pogodi!* brand had on the new game of the same name to better understand how players at the time would have understood and received the game. Additionally, another precursor game, *Mickey Mouse*, served as something of a missing link between *Egg* and *Nu, Pogodi!*, easing the transition from Nintendo's original product to the final game that would feel more familiar to Soviet citizens. This section examines the cartoon and *Game & Watch's Mickey*

Mouse, to better understand how the *Nu, Pogodi!* game came to exist as it did.

Nu, Pogodi!, the Soviet Cartoon

The *Nu, Pogodi!* cartoon (1969-1986) was a favorite of Soviet children (Vigule, 2013). It follows the comedic rivalry between The Wolf and The Hare, a rivalry that is continuously represented across Russian folklore and literature (Beumers, 2010). The cartoon's plot is similar in many ways to the U.S. cartoon *Tom & Jerry*, where similarities can be drawn between The Wolf and The Hare and the characters Tom and Jerry, respectively, where The Wolf is constantly trying to catch The Hare (Blackledge, 2010). Very little dialogue is present in the cartoon, save for a few interjections and The Wolf's most common line which he frequently says when his plan fails, "Nu, pogodi!" or, "Well, just you wait!" in English.

The show was developed in the USSR with The Hare representing the ideal Soviet citizen and The Wolf representing a less refined enemy. Try as he might, The Wolf's attempt to catch the hare would never succeed; this is thought to represent how communism would always triumph (Kapkov, 2007). While the show is similar to the western hit Tom & Jerry, the show may not have influenced the creation of the *Nu, Pogodi!* cartoon. In an interview, the creator's son stated that his father was unaware of Tom & Jerry until 1987, when he first got a VCR (Kapkov, 2007). Regardless, a viewing of both shows provides many similarities, just like those between *Egg* and the *Nu, Pogodi!* game.

Mickey Mouse the American Icon

Like *Nu, Pogodi, Mickey Mouse* (1981) played very similarly to *Egg*. It featured the popular Disney character, Mickey Mouse, in a hen house catching eggs before they fell to the ground. In contrast to *Nu, Pogodi!, Mickey Mouse* was an international phenomenon, not

limited to one country, and was well-known around most of the world. In 1981 Nintendo licensed Mickey Mouse from Disney for a *Game & Watch* game. It was Mickey Mouse's first electronic game, sold over 1,200,000 copies and is considered one of the bestselling *Game & Watch* games ever made. However, due to licensing restrictions, the game could not be sold in Australia and some Asian countries (Gschmeidler, 2014). In these regions Mickey Mouse was replaced by an unnamed wolf, and this game was released under the name *Egg*. This unnamed wolf would become the perfect vehicle for *Elektronika* to inject the Soviet wolf from the *Nu, Pogodi!* cartoon.

Egg vs. *Nu, Pogodi!*

The contrast between *Nu, Pogodi!* and *Egg* are quite extreme, especially considering they are essentially clones of one another. *Egg* remains one of the rarest *Game & Watch* games ever made (Gschmeidler & Meyer, 2014) and sold for $20 USD, while *Nu, Pogodi!* sold for 25 rubles, which was substantially less, but not insignificant for the average Soviet citizen. To place this in context, in 1985, just over 50% of the population had a per capita income of less than 200 rubles per month, with nearly 20% of the population at less than 100 rubles per month (Alexeev & Gaddy, 1993). It is important to note that while the Elektronika devices could be afforded by a large portion of the population, many Soviet citizens would have found the cost to be substantial.

Egg was essentially a clone in and of itself to sell the Mickey Mouse game in other regions. Nintendo made a number of branded *Game & Watch* games, and finding a way to sell those games in regions where they did not have the rights made good business sense. They replace Mickey with a generic unnamed wolf character, and replaced Minnie Mouse with a rooster. The consumers in Australia would never know the difference, and gameplay would not be affected. Of course, The Wolf happened to look almost identical to The Wolf in the *Nu, Pogodi!* cartoon.

Changing the rooster to a hare would not take much additional effort. So, somewhat ironically, *Egg* was created to get around the restrictions created by branding (i.e., Disney's Mickey Mouse), but in doing so, they created a wolf that would lend itself perfectly to the use of the *Nu, Pogodi!* brand in *Elektronika's* knockoff.

The first *Elektronika* game the USSR made was I*M-02 Nu, Pogodi!* a clone of Nintendo's *EG-26 Egg*. The games even cloned the naming convention. The Wolf from *Egg* is wearing different clothes in *Nu, Pogodi!*, the cock that replaced Minnie Mouse in *Egg* was replaced with The Hare from *Nu, Pogodi!* and even the green grass that was painted behind the LCD was present, although it did have a slightly different pattern.

While *Nu, Pogodi!* was still an obvious clone by anyone's measure, it and the other *Elekronika* games were not impacting the market in which the other Game & Watch games were created for, and for all intents and purposes were original games for their market. Restrictions on communication and trade beyond the USSR (Broadman, 2006) would have meant Soviet citizens would likely have had no knowledge of the *Game & Watch* brand, making all of the *Elektronika* games appear to be original concepts. Thus, Soviet citizens likely viewed *Nu, Pogodi!* as a simple extension of the cartoon.

The *Nu, Pogodi!* game was released late in the life of the cartoon, which ended its run in 1986. Similar to the game, the cartoon was no stranger to copyright violation. It explicitly used popular international music as its soundtrack seemingly without permission (STRAS, 2014). With this in mind, it is not difficult to believe they would use other copyrighted work (i.e., Game & Watch games) as the foundation for the video game. Regardless of its ethical implications, *Nu, Pogodi!* became one the first successful TV-based computer merchandising efforts in the USSR (CHM, 2016).

CONCLUSION

Nu, Pogodi! is an interesting case in the history of games. As is the case with history in general, the perspective on *Nu, Pogodi!* will likely depend on the role played by the perspective taker. For some, it is evidence of the failures of the USSR to assimilate into the free market economy of the new world order after World War II, an example of blatant cloning of original works of art at the expense of their creators, and an example of how cheaper knockoffs provide a less than ideal experience compared to the original game. Although the game was developed as a way to unbrand the the Mickey Mouse game, and was in and of itself a reskinned game, the fact that the Nu Pogodi! handheld exists as a blatant clone is an affront to the hard-working developers at Nintendo. That, or the fact that Egg happened to feature a similar protagonist to the Nu, Pogodi Wolf, does not give the USSR permission to rebrand or knockoff the game. The effort to remove this branding did, ironically, create the first branded game in the USSR.

However, to a former Soviet child, *Nu, Pogodi* is likely an example of extending a brand through transmedia storytelling, a fond first memory of handheld gaming, and a great way to have fun on a long road trip with family. The perspective of the player is unique as a game that is, at best, a derivative product of a popular American branded game with a nameless wolf and is possibly the only recognizably wholly Russian gaming experience available in the USSR at the time, beside the more internationally famous *Tetris*, which was developed in the same year (Brown, 2016).

A modern player, if not wholly concerned with international copyright law, is likely to yield yet another perspective. *Nu, Pogodi!'s* gameplay was not revolutionary. However, it was, and remains, a quite playable, if unrefined, piece of video game history. Nintendo's international prominence in the 1980's is likely to have given many the opportunity to play games that

had similar mechanics and gameplay requirements to *Nu, Pogodi!*, whether or not they were direct siblings, like *Egg* or *Mickey Mouse*. For this reason, any player who was a child during this time will likely find the familiar gameplay to be nostalgic, even if they never before encountered this particular game. With the use of modern emulation, the game is perhaps more accessible than ever; while it may be more difficult for players to acquire an original LCD console, *Nu, Pogodi!* is available for free through numerous sources, so long as the player has an internet connection.

Nu, Pogodi!'s roles as transmedia phenomenon and international copycat during the time of the rise of Nintendo makes *Nu, Pogodi!* a fascinating case study. Unfortunately, the literature shows that the game has not been well-documented. While it is easy to experience the gameplay through modern emulation, scholarly research surrounding the game is somewhat rare, especially in the English language, and outside of informal personal websites. Thus, this article examines and documents the gameplay and historical and cultural contexts surrounding *Nu, Pogodi!* in order to better document its place in international video game history.

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THE CURIOUS WORLD OF THE HOBBIT

an early example of a dynamic gameworld

HELEN STUCKEY

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).

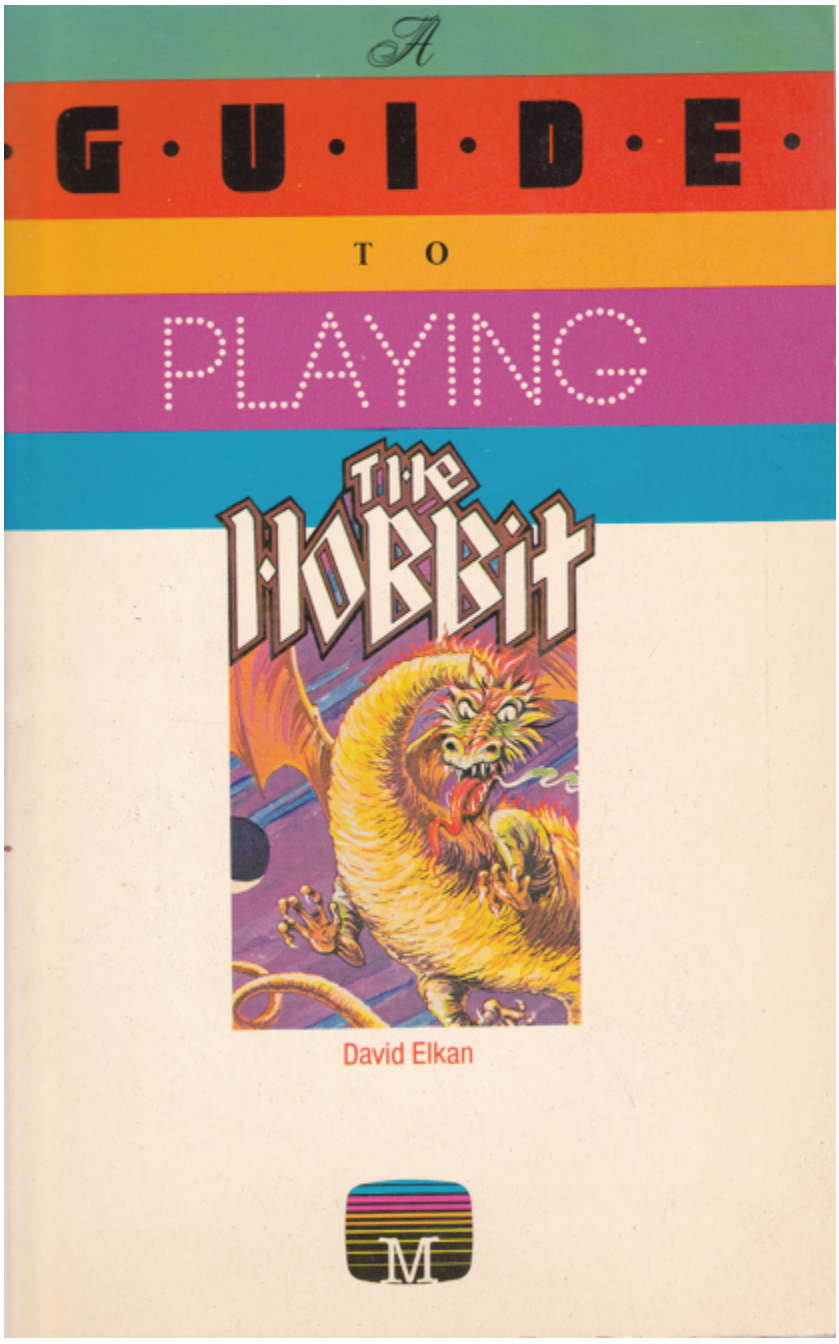

Figure 2: A guide to playing the Hobbit was written by game fan David Elkan and

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.

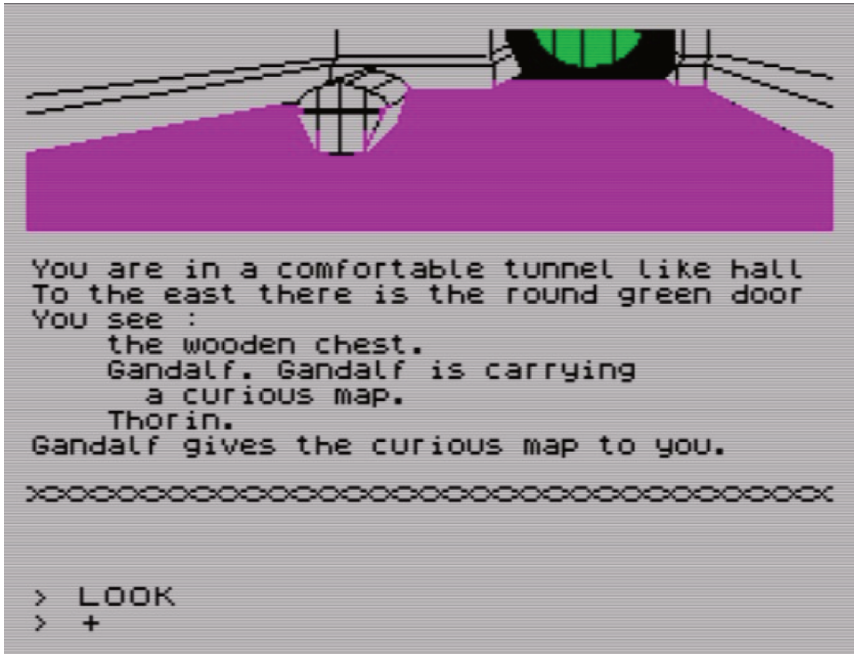

Figure 4: Unexpected guests in Bagend's comfortable tunnel like hall.

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)

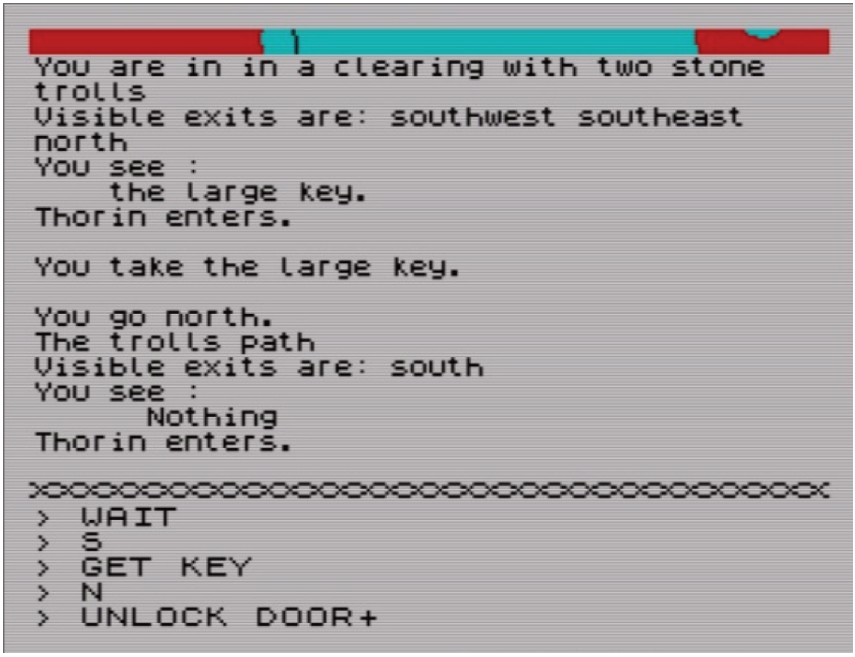

Figure 5: The door to the Goblin's Cave is no longer visible. The player must recall its location. For the player to enter the invisible door must first be unlocked and opened

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.

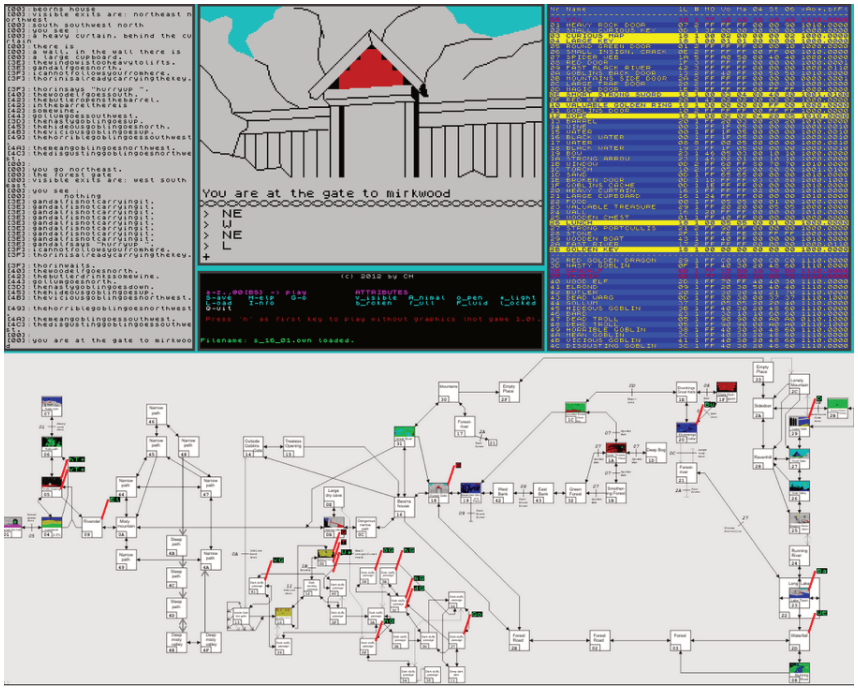

Figure 6: Wilderlands reveals the actual workings of The Hobbit.

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.

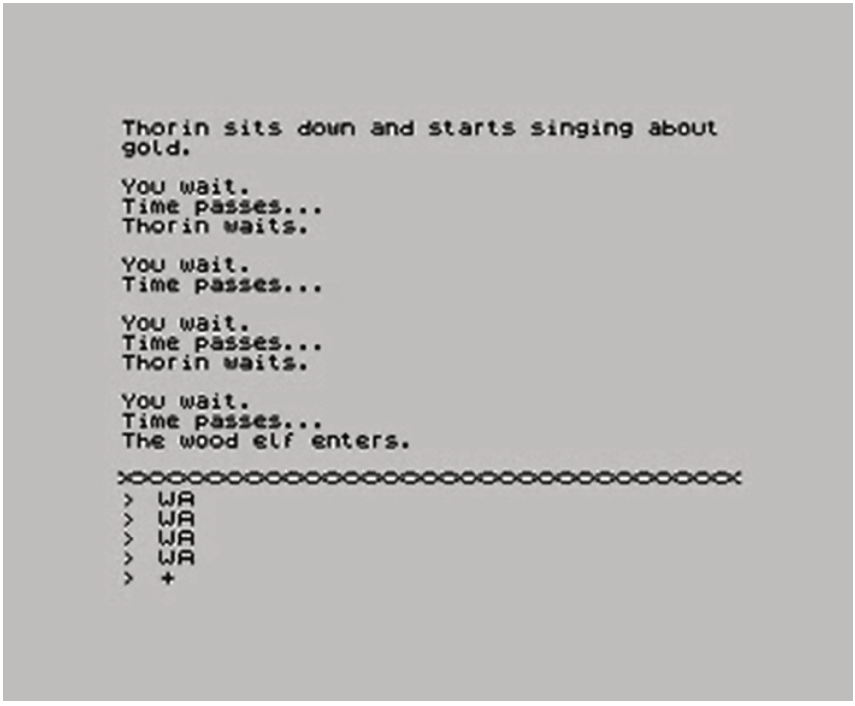

Figure 7: jammajup lingers at the forest gate to be captured by the wood elf. From the speedrun "The Hobbit completed in 7 minutes" by jammajup.

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.

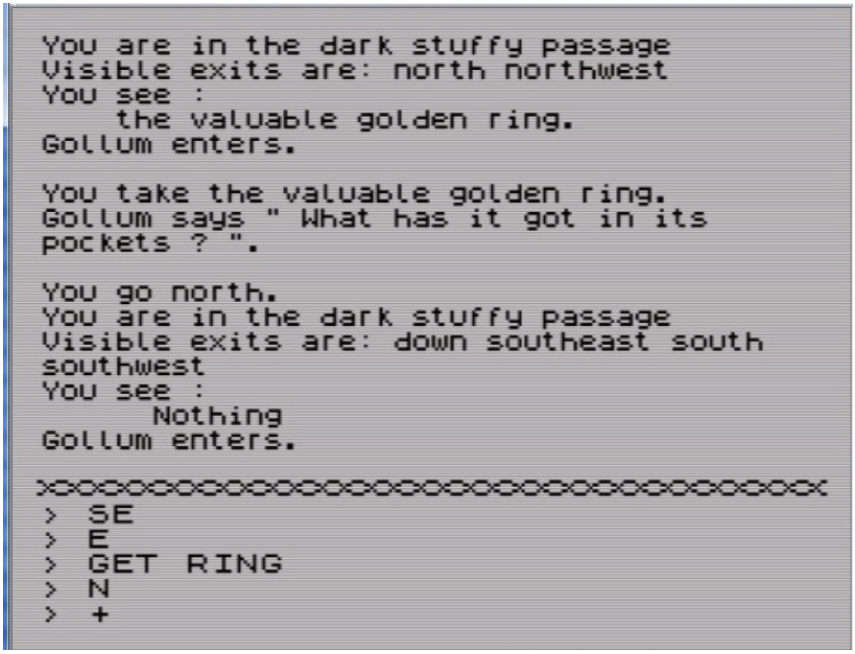

Figure 8: Chesire's walkthrough requires the player to ignore interacting with Gollum. Gollum can be defeated in a number of ways; answering his riddles, combat and simply running away. The game allows players differing gameplay choices.

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.

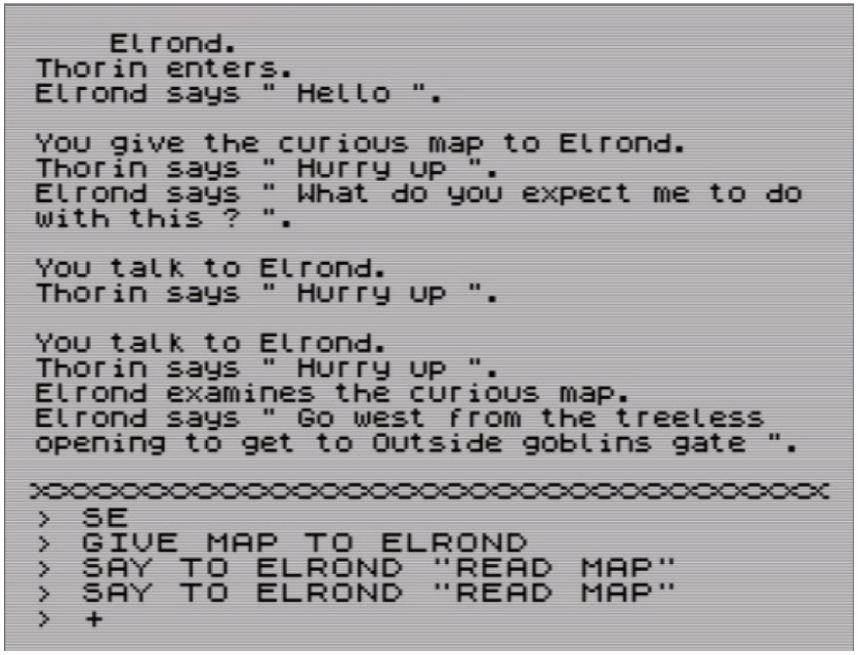

Figure 9: Illustrates that Elrond does not always read the map when asked. In this example he reads it the second time he is asked.

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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