

TIM SUMMERS

THE LEGEND OF
ZELDA
OCARINA OF TIME



A GAME MUSIC COMPANION

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The Music of *Ocarina of Time* in Context

Nintendo's Game Franchises

Before examining the music of *Ocarina of Time*, it is helpful to set the game within its corporate, historical and technological context. Throughout this book, we will see how the music of *Ocarina of Time* shapes, and is shaped by, the rest of the *Zelda* game franchise and Nintendo's creative/commercial activity. *The Legend of Zelda: Ocarina of Time* was developed for the Nintendo 64 (N64) by the in-house staff in Japan at Nintendo. *The Legend of Zelda* franchise is one of the game company's most prized assets and sits at the heart of Nintendo's corporate strategy.

Nintendo started life as a company producing Hanafuda playing cards in the late-nineteenth century and began manufacturing toys and games in the 1960s.¹ In 1977, Nintendo (in collaboration with Mitsubishi) produced a set of home video game consoles, the Color TV-Game series, and invested in coin-operated arcade gaming, with hits including *Radar Scope* (1979) and *Donkey Kong* (1981). *Donkey Kong* introduced millions of players to the character who would go on to serve as Nintendo's mascot: Mario. *Donkey Kong* became one of the best-selling coin-operated arcade games, shipping around 60,000 machines by mid-1982.²

With the development and release of the home console, the Famicom (1985), presented outside Japan as the Nintendo Entertainment System (1986), Nintendo came to dominate the so-called second generation of video gaming.³ Fuelled by the appeal of games like *Super Mario Bros.* (1985), *Tetris* (1988) and the first two *Legend of Zelda* games (1986, 1987), the Nintendo Entertainment System found its way into 62 million homes.⁴ The company became so indelibly associated with video games in the public imagination that in the United States, 'playing Nintendo' became a generic name for any kind of home video gaming.

Nintendo's fortunes have since waxed and waned, but it has continued to be one of the most important game companies in the world. Central to Nintendo's success has been the long-term investment in well-defined intellectual properties and characters, like Mario, Donkey Kong, Metroid and Zelda. By carefully

producing games of high quality with these characters, players are encouraged to return to new games time after time. Nintendo has also emphasized rigorous quality control over these games, and the company is often able to design hardware and software in tandem with each other.

Nintendo's success was the result of the hard labour of many individuals and a sometimes ruthless approach to business. Nevertheless, a number of long-serving Nintendo staff have been credited with significant contributions to Nintendo's prosperity. Two such characters are designer Shigeru Miyamoto and composer Koji Kondo.

Game designer Shigeru Miyamoto is a charismatic figure in the game industry and has often acted as the public face of Nintendo's creative ambitions. He joined the company in 1977 and served as a leading force in designing *Donkey Kong* and *Super Mario Bros.* Along with Takashi Tezuka, Miyamoto was one of the two main creators of the original *Legend of Zelda* game and he would serve as producer and supervisor for *Ocarina of Time*. Given Nintendo's emphasis on recurring characters, it is no coincidence that the designer of some of the company's most precious game franchises should also be its most famous representative. Miyamoto has been influential in developing and articulating Nintendo's philosophy of game development and design.⁵

Miyamoto's work is generally light-hearted and family-friendly in tone. His working process typically involves building a game around a particular set of gameplay mechanics, rather than starting from a story concept. Narrative and progression occur through spatial exploration and evolving gameplay mechanics. The result is the sense of an adventure that is primarily enacted by the player rather than narrated to them in text or long non-interactive cutscenes (though these elements certainly feature to some degree in Miyamoto's games). Miyamoto's approach is emblematic of what James Newman describes as Nintendo's 'core design principles of player advocacy, inclusivity and accessibility', where the experience of the player is engineered 'by gradually introducing and ramping up challenges' and the levels try not to 'deliberately antagonize the player or punish them repeatedly'.⁶ Miyamoto has a long-standing interest in music, often speaking passionately about the topic. Himself a guitarist and banjo player, Miyamoto's musical tastes are eclectic, from The Beatles to marches and country music.⁷ Even though he does not claim to have a high level of skill or knowledge about music, it is clear that he is deeply invested in music and excited by the possibilities of music and play.⁸

Beyond Miyamoto's perfectionism, Nintendo uses game franchises to refine, expand, adapt and reimagine successful aspects of games. Most Nintendo franchises are not just sequels or linear evolutions but instead form a messy cluster of games with recurring features and characters. Games within the same Nintendo franchise can have significant differences and lack overall consistency. Marilyn

Sugiarto suggests that a Nintendo franchise, like *The Legend of Zelda*, should be understood as an ‘interconnected network of shared ideas, concepts, and designs’,⁹ which allows Nintendo great freedom to innovate, while capitalizing on players’ positive attitudes to earlier games in the series. Music, as we shall see, plays a part in creating the web of the franchise.

The Legend of Zelda

The Legend of Zelda games take place in a fantastic world. It is a universe of magical spells, mystical powers and outlandish creatures. The game’s generic setting is similar to ‘sword and sorcery’ high fantasy which takes its cue from novels like *The Lord of the Rings*. Most of the games of *The Legend of Zelda* series are set on the continent of Hyrule. In keeping with much popular fantasy literature, this world is pre-industrial and has the trappings of a vaguely medieval time period, with castles, simple mechanical technology and an all-powerful monarchy to which regional races and fiefdoms pledge allegiance (or plot rebellion). Within this world lurk monstrous forces and enemies.

The Legend of Zelda games are part of a significant tradition of medievalism and fantasy in popular culture. Fantasy settings became quickly established in early video gaming through the legacy of tabletop or ‘pen and paper’ role-playing games (RPGs) like *Dungeons and Dragons*. These games inspired many early computer RPGs including *Ultima* (1981), *Wizardry* (1981) and *The Black Onyx* (1984). *The Legend of Zelda* games lack the statistical levelling system typical of RPGs; nevertheless, the fantasy setting and maze-like, enemy-filled dangerous dungeons of the *Zelda* games clearly have their ancestry in the RPG tradition. Tison Pugh and Angela Jane Weisl suggest a connection between the structure of ‘medieval fantasy’ quest-based video games and the plots of the sources from which they draw inspiration. They write, ‘On a narratological level, many “medieval” videogames descend directly from the romance tradition in which knightly protagonists dispatch various monsters and villains before triumphing over a final enemy.’¹⁰ Despite this similarity of approach to plot, ‘the *Zelda* games rely more on the [linear challenge-focused] narrative structures of medieval romance than on allusions to specific texts’.¹¹

In most of the games of the *Zelda* series, the player can choose the name of their avatar. Conventionally, however, he is known as Link, which is the name we will use to refer to the character throughout this book. Link traditionally wears a green tunic with brown boots and wields swords, slingshots, boomerangs, bows and arrows. In both attire and equipment, Link resembles popular depictions of Robin Hood, another cultural icon which can be traced to the Middle Ages. This similarity to Robin Hood, as we shall see, is not without significance for the music of the game.

The Zelda of the game's title is the Princess of Hyrule, who serves as a (usually non-playable) protagonist of the game plots. As royalty, she wields magical power and is the custodian of precious magical artefacts. In the earliest *Zelda* games, the Princess is depicted as a passive 'damsel in distress' for the player's character to rescue from her captor, Ganon, the perennial antagonist of the series. Recent games have attempted to reframe Zelda's character a little by emphasizing her independence and power. Ganon is the personification of evil in the franchise; Ganon (in beast form) or Ganondorf (in humanoid form) seeks world domination through a combination of ruthless force and stealing objects of power. Link, Zelda and Ganon(dorf) are the main characters of the franchise, but each instalment tells a discrete and separate story. *The Legend of Zelda* series does not form a strict chronology, and the games avoid specific, explicit references to each other. The overall mythology of the series suggests that the characters of Link, Zelda and Ganon(dorf) are reincarnated across time and space, which allows the series great flexibility in storyline and setting.¹²

Games of the *Zelda* series are emblematic of Nintendo's corporate strategy. Each *Legend of Zelda* game is a mix of previously introduced characters, locations, creatures and items with new elements and gameplay possibilities. This approach rewards players who are familiar with the series by referring to earlier games, but the independence of each game eliminates any barriers to new players, since previous knowledge of the series is not required. New gamers do not need to know the series history before jumping directly into the latest *Zelda* game. The music of *The Legend of Zelda* series is a microcosm of Nintendo's attitude to franchises. Music unique to each *Zelda* game is balanced by musical material that is reprised from earlier games (reworked to greater or lesser extents). In the process, music becomes part of the fabric of the franchise, linking together games across the series, some of which may be visually very different.

The Story of *Ocarina of Time*

Ocarina of Time begins in Koriki Forest, a sleepy corner of Hyrule, where we meet Link as a young boy. The forest guardian, the Great Deku Tree, has been attacked by evil forces. With his fairy companion, Navi, Link breaks the curse on the Tree, but the mystery of the attacker remains. To investigate, Link leaves Kokiri Forest to seek out the Royal Family. Before Link departs, his friend Saria gives him a parting gift: an ocarina.

Link finds Princess Zelda, who fears that Ganondorf, a man from the West, is trying to conquer Hyrule. Zelda decides to unlock an ancient artefact, the

Triforce, to prevent him from doing so. To access this power, Link must visit the volcanic Goron lands and the water-themed Zora territory and gain tokens of trust from the local people. Link completes labyrinthine, enemy-filled dungeons as acts of chivalry in each region: he rids the Gorons of a monster and he rescues the Zora Princess from inside a giant fish. In the course of solving these problems, he hears stories of the same evil man who cursed the Deku Tree – and who we quickly guess is Ganondorf. After completing the dungeons, Link heads back to Zelda.

Link's return to Zelda marks the end of the first section of the game. As he approaches the castle, Link witnesses Zelda and Impa (her guard) fleeing on horseback, pursued by Ganondorf. As Zelda rides past Link, she tosses an ocarina towards him, which is revealed to be the titular Ocarina of Time. Zelda telepathically teaches Link the Song of Time and instructs him to play it at the Temple of Time. Link obeys and gains access to a secret room that houses a pedestal with a sword in it. When Link draws the sword, he is transported seven years into the future and has been transformed into an adult.

In this future, under the rule of Ganondorf, despair and destruction have come to dominate Hyrule. It falls to Link to mount a rebellion. His challenge is to awaken the Seven Sages, a group of mystical elemental beings who will help Link defeat Ganondorf. Link recruits the Sages by journeying through temples (more dungeons), which each culminate in a battle with a challenging foe and the freeing of one of the trapped Sages. The temples are thematically distinct, matched to the element represented by the spirit within. The Fire Temple, for instance, emphasizes enemies that attack with flames and traps which threaten to combust our intrepid hero, while the Water Temple features aquatic enemies and puzzles involving changing water levels. To aid him in his efforts to release the Sages, Link is guided by Sheik, a mysterious but friendly character who gives Link advice and teaches him important ocarina songs using Sheik's own musical instrument, a lyre.

Link is able to travel between the 'child' and 'adult' time zones, and actions in the past affect the future. Certain locations are accessible either only as an adult or child, which necessitates a hopping back and forth through time. Link completes major dungeon challenges and additional sidequests, which typically result in a reward (currency, additional health or useful objects). Most sidequests do not have to be completed at a particular point in the overall storyline. It is through these secondary missions that Link encounters much of the supporting cast of the game; minor characters set challenges for him, enriching the world and culture of Hyrule.

Once Link completes the Forest Temple, Fire Temple, Ice Cavern, Water Temple, Shadow Temple and Spirit Temple dungeons, he has freed all of the Sages and prepares to face Ganondorf. Sheik reveals that he is actually Zelda in

disguise, only to be captured by Ganondorf. Link faces his final challenge. Link climbs the tower of Ganondorf's castle to face the villain, who he finds playing his pipe organ. Link defeats Ganondorf, releases Zelda, and quickly escapes the castle while it crumbles around them. Outside, Link is challenged to one more final challenge: Ganondorf transforms into the evil demon Ganon. After slaying the demon, Zelda and the Sages are able to imprison Ganon in another dimension. The people of Hyrule celebrate the end of Ganondorf's reign of terror. Link returns to his original time and age, where he meets Princess Zelda. The game ends with a freeze-frame that recaptures an earlier moment near the start of the game. It implies that Link warns Zelda of the impending danger of Ganondorf, thereby averting the chain of events that would lead to his dominance. Peace has been ensured in both timelines, thanks to the intrepid efforts of Link (with a little help from the player).

Kondo's Approach to Music in The Legend of Zelda

Just as Nintendo has invested in long-standing franchises, so it often invests in long-serving staff. Out of the seven credited 'directors' of *Ocarina of Time*, with one exception, all have worked for Nintendo across a period of more than 25 years. The composer for *Ocarina of Time*, Koji Kondo, has also spent his working life at the company.

Koji Kondo joined Nintendo slightly later than Miyamoto and was recruited from university in 1984.¹³ Kondo is an accomplished keyboard player (which he distinguishes from piano) with an interest in a wide variety of genres but with a particular passion for jazz and prog rock.¹⁴ It is clear from his compositions that he is something of a stylistic omnivore, with his work taking influences from a diverse range of sources. After starting work at Nintendo, Kondo's first projects included *Super Mario Bros.* and the original *Legend of Zelda*. Though he has by no means scored all of the *Mario* or *Zelda* games, he has been continually involved in these franchises and often worked closely with Miyamoto. In *The Legend of Zelda: Ocarina of Time*, the fifth *Zelda* game to be produced, Kondo is credited as the sole composer.

When Kondo wrote the music for the first *Legend of Zelda*, he created musical materials that have been indelibly associated with the series ever since. While his music has echoed throughout the franchise, Kondo's personal involvement in the *Zelda* series has varied. Sometimes, in the case of games like *A Link to the Past* (1991), *Ocarina of Time* and *Majora's Mask* (2002), all of the music is credited to Kondo. In contrast, for some games, Kondo is not listed

as a composer at all: he is not credited for composition in games including *A Link Between Worlds* (2013) and *Breath of the Wild* (2017), even though these games include adaptations of his music. Even when Kondo's name is included among the list of composers, his role is ambiguous. For *Skyward Sword* (2011), Kondo is named as one of the composers, but he only composed one cue for the game,¹⁵ with another composer, Hajime Wakai, acting as the music supervisor and lead composer.¹⁶ Kondo's music has been adapted extensively in spin-offs from the *Zelda* franchise, like *Hyrule Warriors* (2014) and *Cadence of Hyrule* (2019), and his music was retained in the remake of *Ocarina of Time* for the handheld Nintendo 3DS console (2011). Even though Kondo has not been actively involved as a composer for every *Zelda* game, he is nevertheless central to the series' sonic identity.

Many of Kondo's public statements about his music for *Zelda* draw contrasts with his work for the *Mario* games. In particular, he talks about the differences of musical style and his approach to composition. In the *Mario* games, which have relatively little plot and are focused on jumping and fast movement, Kondo suggests that the music's role is to enhance the interactive connection between the player and the kinetic movement of Mario.¹⁷ For *Mario*, Kondo noticed that the rhythm of the soundtrack and rhythm of the gameplay could be precisely synchronized. As Roger Moseley notes, 'Kondo's music for *Super Mario Bros.* was composed after he had played the game intensively to gauge how Mario ran and jumped, entraining the character's rhythmic motions in order to create a satisfying counterpoint between music and gameplay.'¹⁸

In his work for *Zelda*, however, Kondo's priorities lie elsewhere, as he has repeatedly explained:

With *Mario*, the music is inspired by the game controls, and its purpose is to heighten the feeling of how the game controls. With *Zelda*, I was trying to enhance the atmosphere of the environments and locations.¹⁹

Mario's an action game, so it's vital that the music sync up directly with game control. In *Zelda*, however, it's more important that music match up with each environment and create the atmosphere of each location.²⁰

What's most important to me when making music for *The Legend of Zelda* is generating an ambience expressing the situation and scene [...] Link is your other self in the *Legend of Zelda* games, but in a *Super Mario Bros.* game, you control Mario, a character on the screen. [...] Link is you. So it feels like you are in him when you play.²¹

Kondo is less concerned with the physical movement of Link, or the interactive mechanics of the game, and, instead, his focus is on player identification with the character of Link and the depiction of compelling environments.

This goal is directly connected to the musical styles of the *Zelda* games. While, as we shall see, even a single game encompasses a wide variety of musical influences, at the stylistic heart of the games is an orchestral soundworld, which is supplemented, contrasted with, and varied by, instruments and styles adapted from other musical traditions.

Kondo says that orchestral music is well suited to *Zelda* games, though most of the games use synthesized approximations of orchestral sounds rather than recordings of actual orchestral performance.²² I have elsewhere suggested that Kondo's main 'Zelda theme', originally composed as music for the first game, is stylistically similar to orchestral Hollywood film music.²³ The rhythmic gallop and shape of the melody are akin to the horn-led fanfares that were characteristic of adventure film music of the 1940s. These scores established the heroic topic of film music, which has since been repeated and solidified in cinema. Perhaps the archetypal example of this style is the score for *The Adventures of Robin Hood* (1938) by Erich Wolfgang Korngold.²⁴ The green-clad, arrow-wielding, brown-booted swashbuckling heroes of *Zelda* and *Robin Hood*, for all of their chronological distance, are accompanied by similar music. This 'classic Hollywood' style was later revived by John Williams in the 1970s and 1980s for modern Hollywood blockbusters. The march-like elements of Kondo's original 'Zelda theme' also resonate with John Williams's frequent use of a symphonic march style in association with heroes (such those for the main themes for *Indiana Jones* and *Superman*).²⁵ These musical styles help to imply the heroic status of Link, the epic quest that he undertakes and, by extension, the player's involvement in the 'legendary' adventure.

In the games, the orchestral styles are most often associated with neutral locations or parts of the game that deal with the main plot. Elsewhere, however, Kondo uses very different musical materials to give the game settings their distinctive qualities. Just like each game presents a new variation on the familiar fictional universe, each game comes with a varied musical soundworld. Kondo says,

You may have noticed that the music for each game in the *Zelda* series has a slightly different vibe. *Majora's Mask* had an exotic Chinese-opera sound; and *Wind Waker* had sort of an Irish influence on its music. [...] Creating *Zelda* music always involves learning for me, since I can't create all of the music for the wide variety of environments based simply on what's already inside my head. I always do extensive research and soak up as much music as I can to expand

my vision. Then, after all of that, I always find it much easier to create music that I couldn't before.²⁶

Kondo again contrasts this approach with *Mario*:

The sound of *Mario* is kind of like popular music, and *Zelda* is like... a kind of music you've never heard before. So I try to incorporate many different types of music to create an otherworldly feel.²⁷

Kondo is open to sonically challenging his audience, especially through incorporating instruments (or approximations of instruments) very different from the symphonic orchestral style. Given this musical diversity, beyond specific recurring pieces of music, it is difficult to definitively pinpoint a *Zelda* musical style that operates consistently across the series. Even if the approach to composition is broadly the same in all of the *Zelda* games, the games encompass great musical variety. Though the musical *processes* are similar, the games may sound very different. As this book progresses, we will come to understand the strategies Kondo uses to build the player's connection with Link and how his music gives life to the world of Hyrule.

Music on the Nintendo 64

Ocarina of Time was designed for the N64, and while there have been remakes and ports (conversions) of the game to other platforms, the N64 version remains the definitive edition. Though there will be some discussions of other versions, especially the 2011 remake for the Nintendo 3DS handheld console, this book is based primarily on the N64 edition of *Ocarina of Time*. Specifically, the analysis is mostly based on the PAL European version.²⁸ Because of the context of its creation, the history and form of *Ocarina of Time* are directly connected to the N64 console.

Ocarina of Time was one of the flagship games for Nintendo's home console, the N64 (Figure 1.1). The N64 launched in 1996 and the last official game was released in 2002. During this time, the N64 competed with the Sony PlayStation and Sega Saturn as part of the so-called fifth generation of video game consoles. As well as increases in processing power from the previous generation of consoles, this was a period in gaming marked by the rapid rise of 3D environments, CD-quality audio and full-motion video.

Though the N64, as a 64-bit console, was more powerful than the 32-bit PlayStation, it did not attain the same popularity and sales as Sony's platform. This is rather ironic, given that the PlayStation originated as a collaboration between



FIGURE 1.1: The author's long-serving Nintendo 64 console with the *Ocarina of Time* cartridge loaded.

the two companies to develop a successor to Nintendo's previous console.²⁹ Despite failing to match the financial success of the Sony console, the N64 was, and remains, an important landmark of video gaming because of the strength of its software library. It was high-quality N64-exclusive games like *Ocarina of Time* (which sold 7.6 million copies)³⁰ that fuelled player attraction and dedication to the console.

The N64 is a cartridge-based system, rather than CD-based, like the PlayStation and Sega Saturn. Compared with CDs, the cartridges facilitated faster access, the ability to store user data and inhibited piracy. Cartridges could also vary from game to game, based on the circuits contained within them. However, cartridges had less storage space and were more costly to produce than CDs. These differences in format had implications for the music.

Composers and programmers for this generation of consoles had three main ways of deploying music in games. The first was to play music directly off the same disc as the game. This is why, for some PlayStation game discs (such as *The Lost World: Jurassic Park*, 1997), the game music can be played in a regular audio CD player, just like an album. Since the N64 did not use CDs, this option was not available for that console. The second approach was to store the audio as waveform data, like an acoustic recording, in a format similar to an MP3 or WAV file. This was available to both CD and cartridge-based systems and was the main way of recording sound effects and character voices. The third approach to music was by using MIDI data. Rather than recording the sonic vibrations of the whole piece of music, the music instead is programmed on a note-by-note level, detailing the instruments in the piece, and the notes each instrument should play

to produce the piece of music. The N64 used both of these latter two methods of storing music.

The N64's native audio system can be understood as having two main parts.³¹ One software element served to play back recorded waveforms (the 'Sound Player') primarily designed for sound effects and voice. A second was dedicated to MIDI sequences (the 'Sequence Player'), primarily designed for music.

The N64's 'Sound Player' software played recorded waveform files. These files, however, took up a large amount of computer space per second of sound, even when the audio was of low quality. The relatively large files represented a significant proportion of the precious limited space available on the cartridge. As such, this approach had to be used judiciously, especially if long pieces of music were planned to be played as wave files through the Sound Player. An instructive example is the N64 game *Star Wars: Shadows of the Empire* (1996). Though the programmers had originally planned to play the music as MIDI sequences, after teething problems with the new system, it was decided to play the music as audio wave files instead. The game uses looped snippets of orchestral recordings to accompany the gameplay, including music taken from the scores of the original *Star Wars* films composed by John Williams.³² These acoustic recordings, however, despite their short length, took up a large amount of space on the cartridge. As the senior programmer for the game recalled,

After a little persuasion, Nintendo generously agreed to increase the amount of cartridge space from 8MB to 12MB. This allowed us to include approximately 15 minutes of 16-bit, 11khz, mono music that sounded surprisingly good. Considering that most users would listen to the music through their televisions (rather than a sophisticated audio system), the results were close to that of an audio CD, thereby justifying the extra cartridge space required.³³

It is worth noting the proportional change that this musical decision prompted – a 50 per cent increase in cartridge size of the *entire* game. N64 games would continue to use recorded music, such as pop music in the *Tony Hawk's Pro Skater* games (2000, 2001, 2002), though it is unsurprising that N64 games tended to emphasize MIDI music, especially when the game demanded a large amount of musical material, as opposed to hearing the same songs or pieces repeatedly.

The programmer's guide for the N64 implies that it is expected that composers use MIDI for creating music. It says, 'The audio system for the N64 is composed of a Sound Player (for playing single samples, such as sound effects) and a Sequence [MIDI] Player (for playing music).'³⁴ Using the Sound Player for long pieces of recorded music clearly was not what the designers had intended. *Ocarina of Time*

follows the designers' expected pattern, storing most of its sound effects and some very short cues using MP3-style waveform recordings, but most music is programmed as MIDI.

MIDI data works like a pianola/player piano or a musician reading sheet music: the notated instructions are interpreted as the piece plays out. Very short audio fragments of individual instrument notes are manipulated according to the MIDI instructions to create the performance. This approach has the advantages of a very small file size and great flexibility to respond to game action, but the triggering and manipulation of instrument samples can lead to unrealistic sounds and inexpressive performance.

When using the N64's Sequence Player, programmers/composers would assign the sounds they wanted to use to play the music (stored as MIDI), thus forming the instruments for the compositions. The programmer's guide explains,

When the game starts up, it creates and initializes [...] a sound player and a sequence player. It then assigns a bank of sound effects to the sound player, and assigns a bank of instruments and a bank of MIDI sequences to the sequence player. To play a sound effect, the game sends a message to the sound player, telling it what sound effect to set [...] and then sends another message to the sound player, telling it to play [...]. To play a MIDI sequence, the game must load the sequence data, then attach the sequence to the sequence player [connecting the sounds to the music], and then send a message to the sequence player to start playing the music.³⁵

The N64 played both traditional MIDI and a format of MIDI specific to the N64 that easily facilitated complicated looping and repetition structures. The 'messages' from the game to start playing MIDI could also include more complicated commands to alter the game music, as we shall see later.

The N64 holds the MIDI music sequences (i.e. the note data) separately from the sounds used to perform that music (i.e. the instrumental samples). It is akin to having the sheet music for a piece and then assigning performers to play each instrument in the composition. This approach of applying sets of sounds to the MIDI sequences was space-efficient, flexible and allowed composers a vast array of sonic possibilities, since they could easily define their own instruments. It also meant that composers could include a huge amount of music in a game without the problems of space encountered by the *Shadows of the Empire* team.

One of the less obvious ways that the N64 departed from previous consoles was by allowing programmers more agency in how they used the power of the console. Rather than using a large number of dedicated chips (e.g. specific chips

for producing sound), the N64 instead provided a significant amount of central processing power, and programmers allocated system resources using software controls. This meant that, on the one hand, a large proportion of the system resources could be allocated to audio. On the other, it meant that audio was always in contention with other elements of the game for those same resources. As Aaron Marks and Jeannie Novak note, ‘with this particular system, the developer had to carefully plan their use [of audio resources] – each audio channel consumed 1 % of the [overall processing] resources. A typical game used 16–24 channels.’³⁶

The N64 console was not an easy console to work with for audio professionals, especially in its default Sound Player/Sequence Player configuration, but the potential of the console was considerable. A consequence of the flexible architecture was that it could be customized (albeit with some difficulty). The situation prompted some companies to produce new drivers to make the most of the console’s capabilities. One such example is the MusyX system by Factor 5, which provided a new software tool to make the most of the shared processor power. MusyX was used in games including *Star Wars Episode I – Battle for Naboo* (2000). Yet the same essential factors remained: the N64 had limited potential for deploying extensive stretches of recorded audio and was far better suited to MIDI creations. It is no surprise, then, that *Ocarina of Time* should play to the console’s strengths.

Music in Ocarina of Time

Most of the music in *Ocarina of Time* is programmed as MIDI music. Following the tradition of media music industry and scholarship, I will refer to individual pieces of music in the game as ‘cues’. There are some very short cues that are programmed as recorded waveforms (of which more later), though these remain in the minority.

Planning the Music for a Game

When a game is being created, the designers, programmers and composers will decide when and how the music should sound in the game. This will include discussing the game conditions that prompt a piece to start and end and how a cue might respond to the game action. Of course, these choices are subject to revision as the project develops, but a general musical strategy will normally be decided upon early in the production process. One of the main factors influencing

this decision will be the precedent set by earlier games in the series, or games of the same interactive genre. In game culture and production, the term ‘genre’ mostly refers not to narrative genres like ‘fantasy’, ‘wild west’ or ‘sci-fi’ but to the mode of interaction with the game – such as a first-person shooter, RPG or puzzle game. Composers and theorists have long recognized that games of the same interactive genre tend to deploy music in similar ways, even if the setting of the action is very different.³⁷

Following the precedent of both other action-adventure games and previous entries in *The Legend of Zelda* series, it is primarily Link’s location that determines which music sounds at any one time. This location cue serves as default music, which is then interrupted by other cues, either through triggering a game event or moving to a new area. *Ocarina of Time*’s score can be categorized into several different types (with some slight overlap). These categories will be used as the basis for the rest of this book.

- Performance cues – musical performances within the world of the game, including the songs Link learns and plays on the ocarina, directed by the player. He may also play the ocarina independently of the set ocarina songs.
- Location cues – which sound depending on Link’s location in the virtual world, with different areas linked to particular looping cues.
- Cutscene cues – which accompany non-gameplay sequences that propel the story forward.
- Ludic event cues – which are triggered by events that are significant in terms of the game’s challenges. These relate to success, defeat or other involvement with the rule-based gameplay: these include, for example, music for combat, cues that indicate solving a puzzle, the ‘game over’ cues and so on.
- Sound effects, earcons and auditory icons – which musicalize engaging with the game interface.

This organization of music follows the broad pattern of earlier *Zelda* games, which also primarily used Link’s location as the main factor for triggering the music. The approach also connects *Zelda* with RPGs with similar musical strategies. Games like *Ultima*, *Dragon Quest* and *Final Fantasy*, for all of their difference from *Zelda*, also cue music primarily based on the avatar’s location and the danger of battle.³⁸

This book considers each type of cue in turn, before examining the life of the music beyond the game. We begin with what is perhaps the most obvious musical element of the game – the ocarina of the game’s title, and the musical performances that the instrument facilitates.

NOTES

1. Jeff Ryan, *Super Mario: How Nintendo Conquered America* (New York: Portfolio, 2012), pp. 10, 12.
2. Steven L. Kent, *The Ultimate History of Video Games* (New York: Three Rivers, 2001), p. 215.
3. For a comprehensive discussion of the Famicom and the Nintendo Entertainment System, see Nathan Altice, *I Am Error: The Nintendo Family Computer/Entertainment System Platform* (Cambridge, MA: MIT Press, 2015).
4. Nintendo, 'Consolidated Sales by Region', *Nintendo.co.jp* (2010), http://www.nintendo.co.jp/ir/library/historical_data/pdf/consolidated_sales_e0912.pdf, retrieved from <https://www.webcitation.org/5nXieXX2B> [accessed 2 January 2019]. The first *Legend of Zelda* was produced for the Famicom with the Disk System add-on, but the version for the Nintendo Entertainment System did not require the add-on.
5. Jennifer deWinter, *Shigeru Miyamoto: Super Mario Bros., Donkey Kong, The Legend of Zelda* (New York: Bloomsbury, 2015).
6. James Newman, 'Kaizo Mario Maker: ROM Hacking, Abusive Game Design and Nintendo's Super Mario Maker', *Convergence*, 24 (2018), 339–56 (p. 340, pp. 345–47).
7. Chris Kohler, *Power-Up: How Japanese Video Games Gave the World an Extra Life* (Indianapolis, IN: BradyGames, 2005), p. 27.
8. See, e.g., his conversations with Satoru Iwata about *Wii Music* (2008): 'Iwata Asks: Wii Music', *Nintendo*, 16 December, <https://www.nintendo.co.uk/Iwata-Asks/Iwata-Asks-Wii-Music/Volume-1-The-Joy-Of-Playing-Music-For-All/1-Shigeru-Miyamoto-s-Early-Encounters-with-Music/1-Shigeru-Miyamoto-s-Early-Encounters-with-Music-236997.html> [accessed 2 January 2019], and following web pages.
9. Marilyn Sugiarto, 'A Rhizomatic Reimagining of Nintendo's Hardware and Software History' (MA dissertation, Concordia University Montreal, 2017), p. 73.
10. Tison Pugh and Angela Jane Weisl, *Medievalisms: Making the Past in the Present* (London: Routledge, 2013), p. 123. Notable studies on medievalism in game music include Karen Cook, 'Beyond (the) Halo: Plainchant in Video Games', in *Studies in Medievalism XXVII: Authenticity, Medievalism, Music*, ed. by Karl Fugelso (Cambridge: D.S. Brewer, 2018), pp. 183–200; James Cook, 'Playing with the Past in the Imagined Middle Ages: Music and Soundscape in Video Game', *Sounding Out!*, 3 (2016), <https://soundstudiesblog.com/2016/10/03/playing-with-the-past-in-the-imagined-middle-ages-music-and-soundscape-in-video-game/> [accessed 11 March 2020]; and Brendan Lamb and Barnabas Smith, 'From Skyrim to Skellige: Fantasy Video Game Music within a Neo-Mediaevalist Paradigm', *Musicology Australia*, 40/2 (2019), 79–100.
11. Pugh and Weisl, *Medievalisms*, p. 125.
12. Much of this mythology is presented in books and other paratexts beyond the games themselves. See, e.g., Akinori Sao, Ginko Tatsumi, Chisato Mikame and Ben Gelinas, *The Legend of Zelda Encyclopedia* (Milwaukie, OR: Dark Horse, 2018).

13. Andrew Schartmann, *Koji Kondo's Super Mario Bros. Soundtrack* (New York: Bloomsbury, 2015), p. 28.
14. Koji Kondo [and anon. interviewer], 'Natural Rhythms of Hyrule', *Nintendo Power*, 195 (2005), 56–58.
15. Richard George, 'Behind the Scenes of Zelda: Skyward Sword', *IGN*, 10 November 2011, <https://uk.ign.com/articles/2011/11/11/behind-the-scenes-of-zelda-skyward-sword> [accessed 19 August 2019].
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17. Schartmann, *Super Mario Bros.*, p. 33.
18. Roger Moseley, *Keys to Play: Music as a Ludic Medium from Apollo to Nintendo* (Berkeley: University of California Press, 2016), p. 249. For more on the connection between Mario's movement and the score, see Neil Lerner, 'Mario's Dynamic Leaps: Musical Innovations (and the Specter of Early Cinema) in *Donkey Kong* and *Super Mario Bros.*', in *Music in Video Games*, ed. by K. J. Donnelly, William Gibbons and Neil Lerner (New York: Routledge, 2014), pp. 1–29; and Schartmann, *Super Mario Bros.*
19. Chris Kohler, 'VGL: Koji Kondo Interview', *Wired.com* (2007), <https://www.wired.com/2007/03/vgl-koji-kondo/> [accessed 5 January 2019].
20. Kondo, 'Rhythms of Hyrule', p. 57.
21. Satoru Iwata, 'Iwata Asks: The Legend of Zelda: Ocarina of Time 3D – 5. "I'm Envious of First-Time Players!"', *Nintendo*, 27 July 2011, <https://www.nintendo.co.uk/Iwata-Asks/Iwata-Asks-The-Legend-of-Zelda-Ocarina-of-Time-3D/Vol-1-Sound/5-I-m-Envious-of-First-Time-Players-/5-I-m-Envious-of-First-Time-Players--231463.html> [accessed 14 April 2019].
22. Satoru Iwata, 'Iwata Asks: The Legend of Zelda: Ocarina of Time 3D – Bonus: Zelda 25th Anniversary Concert', *Nintendo*, 27 July 2011, <https://www.nintendo.co.uk/Iwata-Asks/Iwata-Asks-The-Legend-of-Zelda-Ocarina-of-Time-3D/Vol-5-Mr-Shigeru-Miyamoto/Bonus-Zelda-25th-Anniversary-Symphony-Concert/Bonus-Zelda-25th-Anniversary-Symphony-Concert-224892.html> [accessed 14 April 2019].
23. Tim Summers, *Understanding Video Game Music* (Cambridge: Cambridge University Press, 2016), pp. 148–49.
24. Ben Winters, *Erich Wolfgang Korngold's The Adventures of Robin Hood* (Lanham, MD: Scarecrow, 2007).
25. Emilio Audissino, *John Williams's Film Music* (Madison: University of Wisconsin Press, 2014), p. 157. I am grateful to Michiel Kamp for his suggestion for developing this line of thought in terms of the march topic. So appropriate is this Hollywood-heroic topic that music for commercials for *Ocarina of Time* (and reprised for its 3D remake) was written by Basil Pouledouris, based on material from his score to *Conan the Barbarian* (1982). Anon, 'Upcoming Assignments', *Film Score Monthly*, 3 (1998), 9–10.

26. Kondo, 'Rhythms of Hyrule', p. 58.
27. Kohler, 'Koji Kondo Interview'. Ellipsis original.
28. This is the edition of the game known as PAL 1.1, roughly equivalent to the NTSC 1.2 version. The specific copy used as the primary reference for the majority of this project was purchased in May 1999 from an Electronics Boutique shop in South Wales, United Kingdom.
29. The story of this corporate partnership is entertainingly told in Ryan, *Super Mario*.
30. Mathieu Manent, *Nintendo 64 Anthology*, trans. by Cain Garnham and Jade Roxanne Garnham (Paris: Geeks Line, 2016), p. 42.
31. This description has been simplified to avoid unnecessary detail. Interested readers are encouraged to read the *Nintendo 64 Programming Manual* (np: Nintendo, 1996 [1995]).
32. The game also includes music by Joel McNeely, from his orchestral CD *Star Wars: Shadows of the Empire*, written as a soundtrack to the *Shadows of the Empire* novel.
33. Mark Haigh-Hutchinson, 'Classic Postmortem: Star Wars: Shadows of the Empire', *Gamasutra.com* (April 2009 [1997]), http://www.gamasutra.com/view/news/114010/Classic_Postmortem_Star_Wars_Shadows_Of_The_Empire.php [accessed 4 January 2018].
34. Nintendo, *Nintendo 64 Programming Manual*, p. 450.
35. Ibid.
36. Aaron Marks and Jeannie Novak, *Game Audio Development* (Clifton Park, NY: Delmar, 2009), p. 10. The *Programming Manual* provides more detail:

Obviously, the more voices, the more processing time needed, and the higher the audio playback rate, the more time needed. As a rough guideline, it is estimated that 1% of [processor] time is needed for each voice, when playing at 44.1k. So, if the audio is given 20% [of] processing time, then fifteen to twenty voices will be possible. However, if the audio is given 40% of processing time, then 30 to 40 voices will be possible. Remember that a lower output playback rate reduces processing time, thus increasing the number of voices available for playback. (p. 454)

37. Paul Hoffert, *Music for New Media* (Boston, MA: Berklee Press, 2007), p. 16; Richard Stevens and Dave Raybould, *The Game Audio Tutorial* (Burlington, MA: Focal, 2011), pp. 162–63.
38. See, for more on musical traditions in the RPGs, William Gibbons, 'Music, Genre and Nationality in the Postmillennial Fantasy Role-Playing Game', in *The Routledge Companion to Screen Music and Sound*, ed. by Miguel Mera, Ronald Sadoff and Ben Winters (New York: Routledge, 2017), pp. 412–27.