Title
The Music of World of Warcraft - Lore of Epic Music

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The Music of World of Warcraft

Lore of Epic Music

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Music

by

Xavier Derrick Werlé

2014

ABSTRACT OF THE DISSERTATION

The Music of World of Warcraft

Lore of Epic Music

by

Xavier Derrick Werlé

Doctor of Philosophy in Music

University of California, Los Angeles, 2014

Professor Ian Krouse, Chair

Abstract for Analytical Monograph:

Epic role playing games such as the World of Warcraft are accompanied by epic music which intensifies the players' in-game experience and sensations. This raises the question: What makes music epic? No prior research has been done regarding video game music. There is a pressing need to conduct research that concentrates on the musical aspect of video games, because this music represents some of the most significant composition of our time. World of Warcraft is the first successful online epic video game with twelve million subscribers monthly at its peak in 2010. Since the original game was released on November 23rd, 2004, four expansions have been released and the music of World of Warcraft has evolved yet remains epic. This research will examine the particularity of composing music

for the World of Warcraft, trace back the tradition of epic music, analyze the orchestral scores and original soundtracks, and dissect their harmony, counterpoint, instrumentation, orchestration, form and style. Knowing what elements of music make epic will help morphing epic narratives into epic music, thus enhance epic game experience.

Abstract for Music Composition:

The Musical Stories of the Greatest General in History, Hannibal Barca of Carthage in 6 stories (6 files), composed entirely with electronic sound libraries and digital audio workstation without live musicians.

Music files are accessible through the following link:

https://soundcloud.com/ucla-werle/sets/hannibal-barca

Supplementary files description:

- Naissance

The birth of a Great General of Carthage, his destiny, his story!

- Panic at the Roman Forum

Delenda Carthago! It's the speech made by Caton at the Roman Forum to incite the hatred towards Carthaginians while Hannibal is approaching Rome through the Alps with elephants from Africa!

- Expedition to Rome

Hannibal's plan to attack Rome through the Alps forces his army to march through Gaul, the modern day France.

However he encountered two huge obstacles: the Rhône River and the Alps.
This music tells the story of the Gaulish village, the Rhône river, its sources including Lake Léman and the passing of Rhône river by night. It ends with the amazing and unthinkable crossing of the Alps with Elephants from Africa! (Look out you will hear elephants!!) :)

- The last moments (Les derniers moments)

Hannibal was chased by the Romans and in exile. However, Hannibal was determined not to fall into his enemies' hands. At Libyssa on the eastern shore of the Sea of Marmara, he took poison that he carried with him under the gem of his ring. Before dying, he left behind a letter declaring, "Let us relieve the Romans from the anxiety they have so long experienced, since they think it tries their patience too much to wait for an old man's death."
He was having some flash backs of his childhood, his father, his family, and above all life in Carthage back then in his memory...

- Festive Carthage

Life in Carthage as envied by Romans.

- Carthage after the Roman holocaust

The desolation in Carthage after the roman holocaust.

The Dissertation of Xavier Derrick Werlé is approved.

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2014

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2005-2008: Paris University "Pathéon-Assas", Law degree (Licence en Droit)

2000-2005: Normal School of Music of Paris "Alfred Cortot", Piano Teaching Degree

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2011-2014: Teaching Assistant, Music Department, UCLA

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Figure 0-1: Map of Azeroth as of Mists of Pandaria Expansion

"Film music should have the same relationship to the film drama that somebody's piano playing in my living room has to the book I am reading."

- Igor Stravinsky

1. Introduction

1.1. *World of Warcraft*, the Game

1.1.1. A Massively Multiplayer Online Role-Playing Game

World of Warcraft (WoW) is an epic online role playing video game released on November 23rd, 2004. Its setting, the fantasy world of Azeroth, as well as its lore and conflicts, tie it to several other games. The *Warcraft* game series started with the release of a Real Time Strategy game (RTS), *Warcraft: Orcs & Humans*, on November 23rd, 1994. A second RTS, *Warcraft II: Tides of Darkness*, was released on December 9th 1995, with its expansion pack, "Warcraft II: Beyond the Dark Portal," following on April 30th 1996. The final RTS to date

in the series, *Warcraft III: Reign of Chaos*, was released on July 3, 2002, along with an expansion pack, "the Frozen Throne", on July 1st 2003.

In addition to being the first Massively Multiplayer Online Role-Playing Game (MMORPG) in the *Warcraft* series, *World of Warcraft* is notable for being one of the most successful MMORPGs to date.[1] At its peak, *World of Warcraft* had around 12 million monthly subscribers, earning it the Guinness World Record for the most popular MMORPG by subscriber count; today, around 8 million people have an online life in Azeroth.[2]
An MMORPG has three essential components: first, it is "*massively* multiplayer," meaning thousands of people play at the same time in its virtual world.[3] The second element of an MMORPG is that it is an *online* game: even players who prefer to play alone must accomplish their tasks online. There can be no offline mode in an MMORPG. The final component is *role-playing*. The *World of Warcraft* beginner's guide describes the game as: "an online game where players from around the world assume the roles of heroic fantasy characters and explore a virtual world full of mystery, magic, and endless adventure." [4]

The heroic element, present in most MMORPGs, makes their narratives epic. These epic narratives are depicted by epic music, which derive from each individual game's specific narrative and lore. In part because of the popularity of MMORPGs and similarly heroic

[1] Even though "Meridian 59" is credited as the first MMORPG as early as 1995, neither it nor its follower "EverQuest," released in 1999, were as successful as *World of Warcraft*.

[2] Figures from IGN. Accessed February 9th, 2014. http://www.ign.com/articles/2013/07/26/world-of-warcraft-down-to-77-million-subscribers

[3] Although players can choose to ignore the presence of other players, most MMORPGs require at least some tasks to be completed in groups. Two examples of this in *World of Warcraft* are the "Raid" and "Dungeon" tasks.

[4] Accessed December 4th, 2014 http://us.battle.net/wow/en/game/guide/

narratives in other forms of media, Epic music has become an independent genre that can exist in its own right.[5]

1.1.2. The Lore

A detailed description of *World of Warcraft*'s underlying narrative is beyond the scope of this dissertation. In summary, the lore of the game presents an ongoing battle between the "Alliance" and "Horde" factions. This lore, similarly to the game's setting of Azeroth, is based on the conflict between orcs and humans in the first Warcraft game. Each *World of Warcraft* expansion, as well as important patches,[6] adds more elements and more depth onto this narrative. Additionally, each player-created character has its own background, history, and internal conflicts, all of which confer upon the lore of the *World of Warcraft* an everlasting creativity.

1.1.3. The Game play

1.1.3.1. Choosing a character

A player starts *World of Warcraft* by choosing a character that represents the hero he wants to develop. These characters are chosen from among 13 available races,[7] each of which has a

[5] see 3.2.2 Epic Music Today, page 50 of this dissertation.

[6] A patch is a small add-on to a game or an expansion pack.

[7] The 13 available races (sorted by faction) are as follows:
The Horde faction: Goblin, Blood Elf, Orc, Tauren, Troll, Undead
The Alliance faction: Worgen, Draenei, Dwarf, Gnome, Human, Night Elf.
The Neutral race: Pandaren. Accessed February 1st, 2014. http://us.battle.net/wow/en/game/race/

different combination of classes.[8] For example, Pandaren players can never choose the Death Knight class, and the Druid class is only available to four races: Night Elf, Worgen, Tauren and Troll. Some classes, like Warrior, are available to all races.

In addition to limiting available classes, the race of the player's hero determines whether he belongs to either the Alliance or the Horde faction, based on the history of the *Warcraft* games and its fantasy world of Azeroth. There is also one neutral race, introduced in the the "Mists of Pandaria,"called the Pandaren. Pandaren characters start in a neutral area, the Wandering Isle, without a predetermined faction. However, even Pandaren characters must choose to support either the Horde or Alliance after completing the quest "A New Fate".[9] After completing his quest the player may then chose a faction, and he is then taken away by hot air balloon to Stormwind, the capital city of the Human race, making him an Alliance character, or to Orgrimmar, the capital city of the Orc, making him a Horde character. Pandaren who have selected a faction may never return to the neutral Wandering Isle.

[8] A class is essentially a skill-based role which unlocks a unique combination of spells, powers, and equipment for each character. In *World of Warcraft*, there are currently 11 classes, including death knight, druid, hunter, mage, rogue, and warrior.

[9] See 1.1.3.3 Quests, page 7 for an explanation of quests.

Figure 1-1: A Pandaren who has chosen his faction leaves the Wandering Isle.

Figure 1-2: Pandaren are never able to return to the neutral "Isle".

After choosing a character, the player needs to "level up" in order for more zones and adventures to be accessible for his hero, as well as enabling him to gain more class-specific powers like spells and attacks. To level up, players must gain "experience" by defeating enemies and completing quests. The level cap as of the Mists of Pandaria expansion is level

90.

1.1.3.2. Professions

In *World of Warcraft*, in addition to class, a player can choose two primary professions from amongst 11 primary professions, as well as however many of the 4 secondary professions he wishes.[10] Practicing each profession can help the character level up, as well as increase his proficiency of that profession, with the exception of the "skinning" profession. When a profession reaches a certain proficiency level, the player can create objects to use or sell at the Auction House.

1.1.3.3. Quests

The most common way to level up a character is through completing quests, Tasks or chains of tasks that form a story-line. For quests where multiple tasks exist, players must usually complete the tasks in order, moving from the first to second to third, and so on, until all tasks have been completed. Sometimes a quest can only be completed by slaying a specific boss[11] in a dungeon or looting certain items. Quests may be repeatable, in which case they are marked with a blue exclamation mark, or non-repeatable, and marked in yellow, instead. Some repeatable quests, called "daily quests," can only be completed once every 24 hours.

[10] Primary professions are: Herbalism, Mining, Skinning, Alchemy, Blacksmithing, Enchanting, Engineering, Inscription, Jewelcrafting, Leatherworking, Tailoring. Secondary professions are: Archaeology, Cooking, First Aid, and Fishing.

[11] A boss in a dungeon or a raid is a non-player character that is more powerful, and skillful than most enemies. The end boss is a boss whom players must defeat in order to finish the dungeon/raid.

The player generally receives quests froma Non-Player Character (NPC), although they may also appear when defeated enemies drop certain items, as well as randomly in the game environment. Additionally, some quests are only available to characters from a certain faction, while other quests require the collaboration of a group of characters from the same faction or even both factions. Such collaboration becomes more and more prevalent as the player gains in level, and the quests get more difficult. Quests are level-dependent, so that a character cannot take a quest more than one or two levels above his current level.
Upon completing a quest, a player usually receives experience, gold items, another quest, or a combination of the above. Some quests also result in a reputation gain or loss with one of the two factions.

1.1.3.4. Instances

Instances are discrete areas of the game which may be accessed from the main map of Azeroth when certain conditions are met. When these conditions are met, players are teleported to the instance using a technique called "Phasing".[12] The types of instance are scenario, dungeon, raid, battleground, arena, and war game, as described below.

1.1.3.4.1. Scenario, Dungeon, and Raid

Scenarios, Dungeons, and Raids, are all types of instance which involve groups of players working towards a common goal. While scenarios are heavily story-driven, and dungeons

[12] "Phasing" involves the creation of an instance which only the player and those with him can interact with. Although phased areas often look and act similar to the main game areas, they are not usually accessible from the outside by other players. Accessed February 1st, 2014. http://www.wowwiki.com/Phasing

and raids are more combat-based, all three pit the players against non-player enemies. This type of instance is called "player VS environment," or PVE.

In a scenario, a small group of fewer than five players must complete a series of pre-determined objectives. Dungeons require five players exactly, whereas Raids require between five and forty players.

Dungeons, and Raids do not require all characters to be from the same faction. Scenarios, however, are heavily story-driven, so because of the constant conflicts between the Alliance and Horde factions, any players of the opposite faction are "shape-shifted" into the "correct" faction for each Scenario. For example, an Orc player would be shape-shifted into a Human player in order to player an Alliance Scenario.

Raids are more difficult than Dungeons, but yield better items when mobs are killed.

Raids can also happen outside of an instance, in the main Azeroth map without phasing. A great example is the "Sha of Anger", an NPC so powerful that Alliance and Horde players can join together in a Raid and try to defeat him. This kind of open air Raid causes problems for the players taking part in the raid because players of the opposite faction who are not taking part in the raid can attack them while they try to complete their objective.

Figure 1-3: Players of both factions join forces together in an open air raid trying to defeat the Sha of Anger.

1.1.3.4.2. Battleground, Arena, War Game

While Scenarios, Dungeons, and Raids pit players against their environment, Battlegrounds, Arenas, and War Games are types of instance where players fight each other. These instances are called Player VS Player, or PVP.

Battlegrounds are objective-based, and players of the same faction play together against the opposite faction. For example, players may be required to seize more towers on the map than their opposing faction, or to seize a flag bring it back to their base. Arenas are similar to Battlegrounds in that they requirea group of players fight against another group of players, but they are not objective-based, and do not require players to form groups based on their faction. Instead, players from one group must simply defeat all players from the other group. The War Game instance was introduced by a patch in 2010. It is similar to the Arena, in that it allows two organized groups of players to play against each other and does not divide players by factions. The number of players who take part in a War Game is capped only by

the capacity of the map chosen by the leader of one of the groups Additionally, War Games are purely for fun, and do not provide any gold, experience, items, honor points, win/loss tracking or achievements to the winning players.

1.1.3.4.3. Battleground Scenario

Battlegrounds, as defined above, are generally player VS player. However, there is also a type of player VS environment Battleground called a Battleground Scenario. This special type of Battleground instance keeps the grand scale of the Battleground, but is story-driven like a Scenario, and has a series of objectives which players must complete instead of fighting each other.

1.1.3.5. Leveling and Gear Grinding

With leveling, a player's character gains more in-game experience, and new powers become available. Each character can develop a specialized role of healing, tanking (i.e. defending large amounts of damage), or dealing damage to the enemy. Several other benefits are available to higher-level characters, including special forms of transportation, better gear, and new areas of the game.

Up to level 20, a player can only move around the different areas of Azeroth by walking. Between level 20 and 60, a player can obtain the ability to ride a mount, increasing the speed with which he may travel. Players of level 60 and higher can obtain a "Flying Master's License" and learn the flying skill in order to purchase a flying mount. He is then allowed to fly over the continents of Eastern Kingdoms and Kalimdor. Continents such as Northrend and

Pandaria require specific flying skills. For example, a player is unable to fly over the Continent of Northrend unless he acquires the flying skill of "Cold Weather Flying" at level 67. In order to fly to Pandaria, players must reach level 90 and learn the skill of "Wisdom of the Four Winds".

Once a player has reached the current level cap of level 90[13], he can continue finishing all the quests available to him. Certain quests are only available to level 90 players. Besides questing, players can still take part in Battlegrounds/Arenas, some of which require very high-level gear, or revisit Dungeons/Raids. In addition to these options for continued gameplay, players can try to find or buy new gear in the form of armor and weaponry. The higher level a piece of gear is, the more powerful it makes the character. Throughout the game, even after reaching the level cap, players are constantly looking for higher-level gear, to improve their characters' powers and skills. This is called "gear grinding". Gear can be dropped by killing enemies as well as created using a profession. Players can also purchase them from the Auction House. Some avid players even spend real dollars to purchase "epic" gear in order for his character to shine. Even a level 90 player with the best possible gear can still get a lot of enjoyment out of *World of Warcraft*. Because *World of Warcraft* is a Role-playing game, its fun is not diminished by "beating" the game. Instead, it is an immersive game which allow friends and family to play together and create new stories and adventures for their characters endlessly.

1.2. *World of Warcraft*, the Music

1.2.1. Musical Diversity, the Composers

[13] The expansion Warlords of Draenor was released on November 13th, 2014 and increased the level cap to 100.

World of Warcraft is an incredibly vast game, boasting 333 distinctive zones as of the latest expansion.[14] There are around 45 hours of music, including 12 hours of ambient music.[15] The sheer amount of music, and the demand for each zone to have a distinctive flavor, means that having a single composer for the entire game is neither musically ideal nor practical. Instead, multiple composers work together to create a very different feel for each zone, a tactic made more effective by the variety of aesthetic and musical tastes of each composer. This has been the approach of Music Director Russell Brower since the first expansion, called "Burning Crusade." Consequently a group of composers, rather than a single individual, is responsible for the music of *World of Warcraft*.

This way of composing music is not the norm in classical music, but it is not without historical precedent. The F-A-E Sonata for Violin and Piano was composed by three composers: Robert Schumann, Johannes Brahms, and a pupil of Brahms, Albert Dietrich. In fact, Schumann assigned each of the four movements to a single composer. Each movement is then composed by one composer. Co-composing this Sonata did not mean that one composer wrote the melody, the other one was responsible for harmony, while the third one would be responsible for instrumentation. Instead, the goal was for each composer to write a part of the sonata, keeping some musical continuity throughout the movements. This Sonata was dedicated to their friend, Joseph Joachim, who knew them so well that he easily recognized the composer behind each movement. (The first movement was written by Dietrich, the second and fourth movements by Schumann, and the third movement by Brahms.)

[14] The 333 zones include zones *per se*, dungeons, raids, battlegrounds, scenarios, arenas, and one transit area. http://www.wowhead.com/zones

[15] Blizzard Entertainment. "The Music of Mists: an Interview with Russell Brower." *Battle.Net,* June 4, 2013. Accessed January 29th, 2014. http://us.battle.net/wow/en/blog/9762739

In *World of Warcraft*, the goal is diversity, not uniformity. Nevertheless, if Schumann was working at Blizzard today, he would have been holding the title of the Lead Composer or Music Director. In fact, his function in the F-A-E Sonata was exactly the same as Jason Hayes' at Blizzard. Hayes was the Lead Composer of the original game in 2004. For the other four expansions, Russell Brower took on the role of Music Director, similar in function to a Lead Composer, in that he assigns a project to each composer at Blizzard. Each composer is then responsible for composing that specific project. Most of the time, a composer's music won't be heard by the other composers, or by the Music Director, until the recording session. This requires a trust that the composers of Blizzard have developed after many years as a team. For Cinematic Music, which is featured in short movies within the game, the Lead Composer/ Music Director represents the other composers to the cinematic director.

Blizzard's practice of multiple composers working on multiple, discrete pieces allows more in-depth co-composition even at the level of developing ideas within a single project. Digital Audio Workstations (DAW), internet-based interfaces facilitate this way of co-composing music by allowing a composer to work on a file and save it onto a server, or send it directly to another composer, who can then work on it and send it on in turn. In this way, a single file can easily be shared between multiple composers, so that each may bring his own ideas and work into the finished piece of music.

Newer types of Digital Audio Workstation can make co-composition much faster. "Ohms Studio," for example, allows several composers work on a single project at the same time, with a delay of only a few minutes after the file is changed by each individual composer. This almost "real-time" co-composing tool is extremely efficient for meeting the occasionally

strict deadlines of the gaming industry.

Blizzard's composers occasionally collaborate across game series, as well as on the same title. Jason Hayes has co-composed many times with Glenn Stafford, another Blizzard composer, on several projects for *World of Warcraft*, as well as other Blizzard titles Starcraft II and Diablo II. Hayes' and others' compositions from earlier Warcraft games are also sometimes developed further for use in *World of Warcraft*. This is called "repurposing". For example, "Arthas, My Son,"[16] a piece from the cinematic intro to the *Wrath of the Lich King* expansion was repurposed by Neal Acree from a theme composed by Jason Hayes for the *Warcraft III: Frozen Throne* expansion's ending cinematic sequence.[17] . Russell Brower repurposed the same theme by Hayes for "Invincible," a track included in the *World of Warcraft: Fall of the Lich King* patch 3.3.[18]

[16] Minute 0:42 on Track 3 of the *World of Warcraft: Wrath of the Lich King* soundtrack.

[17] "An Karanir Thanagor" (Minute 2:16, see Figure 1-4 Figure 1-4: Arthas' Theme, Warcraft III: Frozen Throne Ending Cinematic. Minute 2:16)

[18] (Minute 0:15)

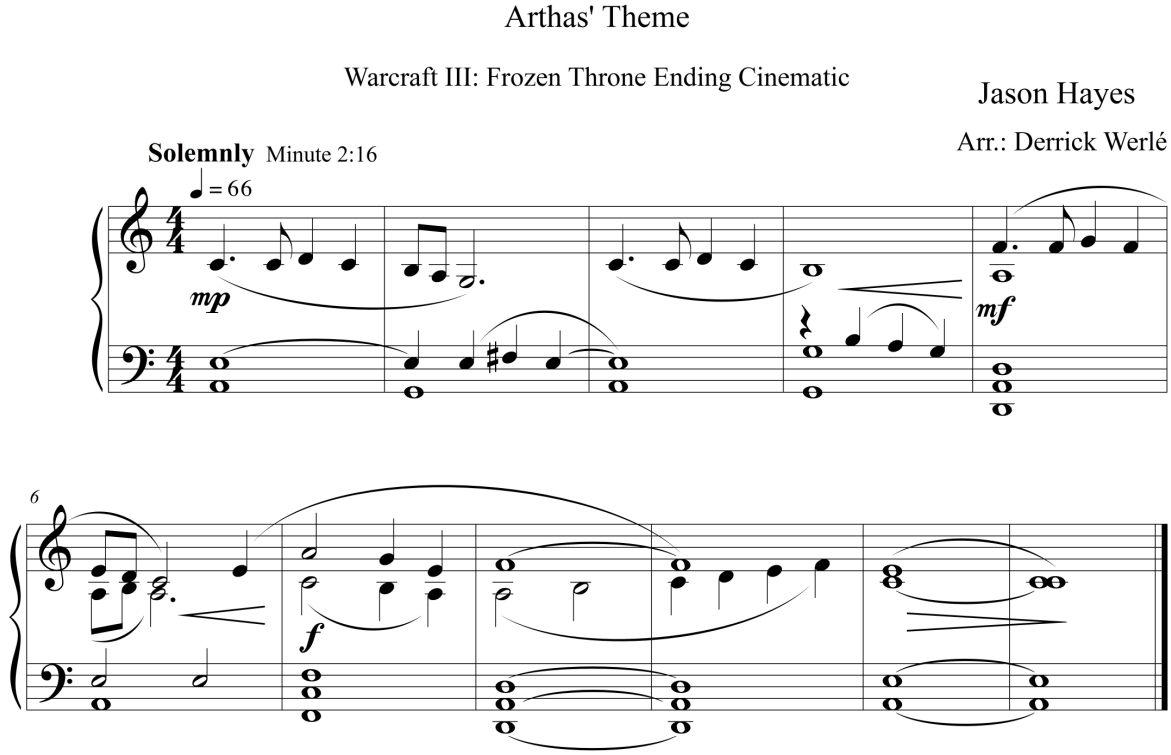

Figure 1-4: Arthas' Theme, Warcraft III: Frozen Throne Ending Cinematic. Minute 2:16
Composer: Jason Hayes; Arrangement: Derrick Werlé

1.2.2. Musical Unity, the Styles

Although each composer has his or her own personal style, there are also three overall styles—epic, ambient, and folk—shared by all of *World of Warcraft*'s composers. By adhering to the "unity of styles" of these three musical styles, the assigned composer is capable of delivering music with the required components regardless of his or her personal style.

1.2.2.1. Epic Music Style

As mentioned above, the narratives in *World of Warcraft* are of an epic nature; the game's music must and does depict this epic narrative with distinctive epic qualities which describe the destiny of the player's group as they quest and make war. The majority of this dissertation is dedicated to a thorough analysis of epic style music. Its key qualities will be discussed in Chapter 4.

Epic music is used in *World of Warcraft* chiefly to highlight particularly heroic events, or to set the tone for an area upon entering it. For example, whenever a player enters Stormwind, the capital city of the Human Race, a piece of Signpost music plays (See Figure 4-18). This Signpost music has a theme with a heroic melody that makes it an excellent choice for extracting the essence of "Epicness" in *World of Warcraft*, and will be discussed thoroughly later in this dissertation.

1.2.2.2. Ambient Music Style

Just like in a movie, music in a game is not constant. Bombard players with loud and bold music at all times would be distracting, and would not enhance gameplay. In the DVD, *World of Warcraft: Behind the Scenes*, Lead Composer Jason Hayes admits that, despite Blizzard composers' love of epic music, they try to limit its use to Cinematic scenes and Trailers, and in situational cases when it comes to in-game music. "You don't want to be out in the middle of a field killing snakes having that kind of sound: massive and epic, because it's not an epic event".[19] Hayes' goal is to create a game where the players won't turn off the speakers. As such, many of the situations and areas in the game use ambient music instead of epic music.

[19] *World of Warcraft Behind the Scenes.* (Blizzard Entertainment, 2004), DVD. Chapter: "*World of Warcraft* Music."

Ambient music can be difficult to define precisely. Professor Ian Krouse, the Head of Composition, Music Department, UCLA, jokingly calls it, " the Grand Canyon Bookstore Music. You know it when you hear it".[20] Brian Eno was the first artist to explicitly call his music ambient, in his Album *Ambient 1: Music for Airports*. A manifesto on the rear cover of the album defines ambient music according to Eno:

> " I have begun using the term ambient music. An ambience is defined as an atmosphere, or a surrounding influence: a tint. My intention is to produce original pieces ostensibly (but not exclusively) for particular times and situations with a view to building up a small but versatile catalogue of environmental music suited to a wide variety of moods and atmospheres."[21]

From this broad definition of ambient music, four elements emerge: chronology, location, atmosphere, and audience. The element of chronology shows above in Eno's description of pieces "ostensibly ... for particular *times*" (emphasis mine), although it should also be noted that Eno stresses his ambient music can also be used for other times. Similarly, ambient music is location-based; this is apparent from the title of the album, "Music for Airports." The third element, "atmosphere," is also called out explicitly by Eno in the excerpt above. Audience, the final element, is so broad it almost lacks a precise sense. If one strips down Eno's broader definition of ambient music, one can arrive at a more generic definition: ambient music is music with the goal of making people feel a certain way about a certain place, time, and situation.

[20] Ian Krouse, interview by author, UCLA, February 7th 2014.

[21] Brian Eno, " Manifesto," located in rear cover notes, *Ambient 1: Music for Airports*, Polydor Records, 1978, CD.

Later in the manifesto, Eno claims his ambient music is intended to "induce calm and a space to think."[22] Again, this album is entitled “Music for Airports." Eno's ambient music was composed to create a calm space to think in the otherwise harried environment of an airport.

Eno's first ambient music album is titled "Discreet Music." This album name explains his approach to ambient music as discreet and ignorable, yet still interesting when paid attention to. Eno explicitlydescribes this particular quality of his ambient music too in "Music for Airports." Ambient music must be able to accommodate many levels of listening attention without enforcing one in particular; it must be as ignorable as it is interesting."[23]

This quality corresponds especially well to the general goal of ambient music and sound design in *World of Warcraft*. Jason Hayes and Russell Brower both have a vision of composing unnoticeable music which can blend in with the décor while still being capable of reproducing, and of indicating a certain mood. This is called Zone Music, which is ambient in the sense Eno describes as its purpose is to provide the ambience of the area.

1.2.2.3. Folk Music Style

Some music in *World of Warcraft* does not resemble either Epic or Ambient music. This third music type, Folk Music Style, has a theme, a distinctive melodic line, and flavor; it is more in the foreground than Ambient music, but not as assertive and bold as the Epic Music Style;

[22] Eno, "Manifesto."

[23] Eno, "Manifesto."

and its instrumentation tends to be that of a smaller ensemble, rather than a gigantic orchestral sound. It is important to note that *World of Warcraft*'s Folk Music Style does not present real-life folk music, but an imaginative "Faux-folk music" with a strong affiliation to certain in-game characters, places, buildings, and in-game cultures and races.

For example, all the game's tavern music is in the Folk Music Style, with a single melodic line that represents the in-game race to whom the tavern belongs (e.g. human, orc, night elf, etc.). Folk Music style can also make use of leitmotif—a recurrent musical phrase associated with a person, a place, or an idea by means of a specific melody, harmony, or rhythm—as evidenced in *World of Warcraft*'s only in-game songs. For example, the song "Lament of the Highborne," sung by an important non-player character, highlights an imaginative folkloric "elfish" melodic line, while the recurrent usage of diminished chords in the song is a leitmotif of the game's Blood Elf race.

1.3. Background

1.3.1. An Academic Need

Traditional scholarly resources such as printed scores and academic writings are not abundant in the area of video game music.[24] In particular, there is no textbook or academic literature describing the epic music style of *World of Warcraft*. However, video game music is extensively practiced, despite not being taught at a conservatory or in a university as an established discipline. The lack of secondary sources requires scholars of video game music

[24] There are publications and books about video game music in general, such as K.J. Donnelly's *Music In Video Games: Studying Play*, and William Cheng's *Sound Play: Video Games and the Musical Imagination*. However, there is no specific writing about the style of epic music as discussed here.

to directly analyze in-game sound files without bias from the work of others. When approaching a new area within a discipline, one should directly analyze video game music using tools that are available and examine directly the music. If traditional tools are insufficient, then it is the researcher's responsibility to adapt, or even create a new spectrum of tools to venture into this new area.

Despite the lack of scholarly attention to date, *World of Warcraft* is the first MMORPG with such a wide audience of listeners. Additionally, Bilzzard hires orchestras to play music for its games, giving their compositionstremendous complexity, richness, and diversity. Academic study of *World of Warcraft*'s music is clearly overdue.

1.3.2. Video Game Music as a Discipline

New arts typically start as outcasts from their lineage. For example, film music was not appreciated as an artistic discipline similar to classical music until very recently. Film composers, even if they are extremely successful, have historically felt (and may still feel) the need to justify their academic abilities by composing "serious" concert music. While many film composers do use "shorthand" to orchestrate their music, this does not mean they are incapable of orchestrating. Ultimately, film music—just like video game music—is a commercial product, and the composer must pay more attention to deadlines set by the companies who hire him or her. Because of these deadlines, it can be more economically and efficiently feasible to use an orchestrator, or even to assign cues to another composer altogether.

Certain music critics, however, attack not only this method of composing, but the music

itself. They constantly treat film music as a lower form of art than the great classics, or refuse to admit it can be art at all. The music critic of *The Guardian*, a prominent UK newspaper, once wrote: "Pirates of the Caribbean is not a classical opus. Nor is the theme from Schindler's List. And as for Hans Zimmer's Gladiator - don't even get me started." [25]

Video game music composers currently suffer the same treatment, if not worse. Even though they are admired by video game players, their music is linked to the "evilness" of video games in the eyes of some parents, academics, and researchers, and is frowned upon or ignored. At the extreme, video games are blamed for inducing violent childhood behavior.[26] It is mostly speculation rather than facts.

To argue that lovers of epic video game have violent tendencies would be similar to insinuating that opera lovers have incestual tendencies because they watch Wagner's *Die Walküre*, or that they become psychopaths who want to strip naked and kiss a severed head after seeing a performance of Richard Strauss' Opera *Salomé*.[27] [28] [29]

[25] The music critic is Tristan Jakob-Hoff, who wrote an article on April 7th, 2008, titled "Can film music ever be classical?" in which he criticized Classic FM for elevating film composers Shore, Williams, and Zimmer to the same level as Beethoven, Tchaikovsky and Mendelssohn. Jakob-Hoff, Tristan. "Can film music ever be classical?" *The Guardian*, April 7, 2008. accessed January, 31st, 2014. http://www.theguardian.com/music/musicblog/2008/apr/07/canfilmmusiceverbeclassical

[26] There are many researches on the causality between violence and video games. For example, an article "Violent Video Games Cause an Increase in Aggression Long After the Game Has Been Turned Off" published by B. J. Bushman and B. Gibson in *Social Psychological & Personality Science*.

[27] In Wagner's "*Die Walküre*", Siegmund mates with Sieglinde, his sister.

[28] In Richard Strauss' "Salomé", in the ending scene "the dance of the seven veils", Salomé stripped naked, asked for the severed head of John the Baptist to be brought to her, and kissed it passionately while declaring her love for him.

[29] On January 22nd, 1908, Salomé premiered at the Metropolitan Opera, but the daughter of J.P. Morgan, after attending the rehearsal, complained about what she had seen. After the premiere, J.P. Morgan, who was on the board of the Metropolitan Opera, called for a meeting with Heinrich Conried, the opera company's general manager and unilaterally cancelled three subsequent performances which were all sold out.

"Where words fail, music speaks."

— Hans Christian Andersen

2. The Art of Composing Music for *World of Warcraft*

Video game music shares certain similarity with music of other disciplines such as film and concert music.[30] However, composing music for video games is generally not the same as composing concert music, nor should it be regarded as theatrical or film music.

The particular challenge of composing music for video games is that the composer can never predict exactly what each player is going to do, especially in a game like *World of Warcraft* with such a huge universe to explore. A player can move forward, backward, take quests, and go on journeys. His game can be interrupted by encountering a special character or simply because he was queued up for a random dungeon while doing his daily quest. Sometimes a player can be disconnected due to the failure of his internet connection and resume the game later on.

[30] "Lament of the Highborne," already briefly discussed, is a good example. Like concert music, it is thoroughly composed, and its musical performance is not interrupted in-game. This piece will be discussed more below.

The randomness and unpredictability of these events and behaviors are unique to video game music composition. Further complicating matters in *World of Warcraft* is that music can be categorized into two groups according to its function: "trailer music" and "in-game music," with each group presenting different technical problems.

2.1. Trailer Music

Trailer music in *World of Warcraft* is composed specifically for a promotional trailer video with the goal of increasing sales of the game. Certain patches are so important that they have their own trailers; for example, the Patch 2.3, The Gods of Zul'Aman. This trailer music is usually not a part of the game play, and differs from the in-game music because of its promotional purpose.

Trailer music is cinematic in nature.
It follows the images and the cinematic experience of the trailer; these cinematic images direct the music, and each cue corresponds to what the Cinematic Director for the trailer would like to evoke. Consequently in a cinematic project, the Music Director is in constant communication with the Cinematic Director. Russell Brower, the Music Director for *World of Warcraft*, says that the role of this kind of music: " *is closer to its role in a movie, in that we can convey what would take too many words to describe otherwise*."[31]

2.2. In-Game Music

There is a large amount of in-game music. Each sound in these pieces is meticulously placed

[31] Blizzard entertainment. "*The Music of Mists" behind the scenes DVD*.

and has a reason to be heard. Even the apparent randomness of certain in-game music is the result of a thoroughly designed procedure to create a world of musical complexity and to realize the world envisioned by the composers and sound designers.

2.2.1. Login Music

Because *World of Warcraft* is an MMORPG, a player is obliged to connect the client (game interface) to the internet through a login screen. Login music is the music that plays when the player starts the game, with a login screen which loads before he enters his account information and password and joins the game.

The login screen has multiple functions. It is a place to create an account, update one's account information, link to the *World of Warcraft* community, adjust the system settings, or, if a player wishes, download and see the cinematics of other expansion packs, as well as read the terms of use and credits list for the game. Blizzard also uses the login screen to communicate with players about server status, as the server on which a player's character is stored can occasionally be down for maintenance. A "Breaking news" column on the login screen informs the player if the server is up or down.

One challenge particular to the login music is when and how the music should stop. There are three possible solutions: the login music could stop abruptly, fade out, or be replaced with transitional music. The solution used by Blizzard is that the music fades out during a transitional "loading screen". After the player enters his login information, a pop up displayswith various status messages, and the player is then redirected to the server on which his characters are saved. First-time players must instead choose a server on which their

characters will be developed and saved. It is only after choosing or creating a character that a "loading screen" appears, showing a loading progress bar on a background scene related to that character's last in-game location. The login music continues to play until the loading bar reaches 95%, at which point it fades out rapidly and the player is logged into the area in which his character was previously found with a bell -like sound.

While this process remains the same, the login music and background screen are updated with each expansion. They both showcase any newly added race, along with images of its culture or heritage. For example, the first expansion, "Burning Crusade," has a login screen with a dark portal in the background and the login music is Burning Crusade's main title. The second expansion, "The Wrath of the Lich King", showcases the "Sindragosa wyrm," with the chilling main title music of that expansion. This login screen in particular is unpopular with players because, in addition to music, the wyrm in the background makes roaring noises and shakes the screen. Some players even admit having the urge to log in quickly before the wyrm can roar their login data away, because of how obnoxious they find it.

Figure 2-1: The Wrath of Lich King expansion login screen, featuring the Sindragosa wyrm roaring and shaking the player's screen

2.2.2. Loading Music

Another type of transitional music in *World of Warcraft* is "loading music." This the music which plays when a player is teleported to another continent, or into an instance. Generally, loading music uses the zone Music from the area the player was in before being teleported. Similarly to login music, loading music fades out once the loading bar reaches 95%. However, in the case of very short event music pieces, the music plays until it ends.[32] For example, if a player is teleported from Orgrimmar to a Battleground instance, the loading music will be the one of the musical pieces from the Orgrimmar zone, which would fade out as the loading bar reached 95%. However, when a battle is finished and the player is

[32] Event music is discussed in more detail later on in the dissertation.

teleported back to his original location, a piece of short event music plays, and in this case the music does not fade out.

2.2.3. In-Game Cinematic Music

Cinematics are an important aspect of game-play in *World of Warcraft*; they help immerse *World of Warcraft* players in the fantasy world of Azeroth and the struggles between the Alliance and the Horde. A cinematic is essentially a short video which provides a background story on the races and power dynamics of the game. For example, when a player first creates a character, he is taken to the starting zone of the race that he has chosen. A cinematic is played describing where this race is from, what it fights for and against whom it fights. The camera flies over the starting zone while the narrative does its work. At the same time, music composed for the specific race and for this specific cinematic plays. At the end of the cinematic, the camera focuses on the player's character and the cinematic music ends. Unlike the login or loading music, cinematic is precisely as long as the cinematic, and is thoroughly composed.

Cinematic music is also played during specific important in-game moments or encounters. Cinematics are especially common when a player completes a quest. For example, in the "Wrath of the Lich King" expansion, upon completion of the quest "Return to Angrathar" a cut scene (in-game cinematic) plays for both Alliance and Horde players which shows the battle of Angrathar.

Players who are not interested in the narrative background for the game can use the "Esc" key whenever the cinematic starts playing. In this case, the music and animation cuts out and the

game jumps to what happens after the cinematic.

2.2.4. Zone Music

Zone music is often referred to as the "General Music" of a specific zone. Each of the 333 zones in *World of Warcraft* has its own music, although sometimes a big area of several zones shares a pool of musicinstead. The music of each zone highlights the culture, race, and ambience associated with it.

As mentioned above, both Jason Hayes and Russell Brower are concerned that too much music would make players turn off their speakers. Because of this desire for music to blend in like décor, music is not constant—silence often occupies the biggest part of the zone. Jason Hayes describes zone music as being similar to the lighting of a zone.[33] The goal is not to disturb and distract players, but to give the "feel" of each zone. Zone music must blend well with the vegetation or terrain of its zone.

Zone music is, generally speaking, geographically related to its zone. For example, in Orgrimmar, the capital city of the Horde, more ambient musicis played, while in the capital city of the Alliance, more epic musicplays.

[33] Blizzard Entertainment. *World of Warcraft: Behind the Scenes.*

Figure 2-2: Gate of Stormwind, the capital of the Human race, Alliance faction

Figure 2-3: Gate of Orgrimmar, the capital of the Orc race, Horde faction

Another example is the Darkmoon Faire, a market introduced in Patch 4.3 with its own zone Music due to its location on Darkmoon Island. The physical gate to the Darkmoon Faire acts

more like the portals that lead to instances, because it is situated in a geographically specific place. However, to enter the gate, one needs to first be teleported to Darkmoon Island from one of the two portals, one situated in Elwyn Forest for the Alliance, and one in Mulgore for the Horde. Zone music is often referred to as the "General Music" of a specific zone.

Figure 2-4: The Darkmoon Faire on Darkmoon Island, as of Patch 4.3

2.2.5. Source Music

Source music is a type of music that has been borrowed from the film industry. It is music which the characters in the film are aware of—as distinguished from underscoring, which is music intended to be heard only by the audience. Of course, both source music and underscoring can be heard by the audience, but the audience is conscious that source music is the only music that the characters in the film can hear.

Source music in *World of Warcraft* is music intended to be heard by in-game characters, and

is triggered mostly when a player walks into a specific building, or place. For example, if a player walks into a tavern, the game shows musicians playing music in the tavern, suggesting it can be heard by both the player and his character. Tavern music is particularly interesting in that almost each tavern in-game has its own music, so that with the number of new races and areas released in expansions and patches, there is now enough to release a whole CD of nothing but tavern music.

2.2.6. Signpost Music

Signpost music is music which triggers when players walk neara landmark. It is a musical sign telling players that they have reached a certain landmark. For example, when players enter the gate of Stormwind, the signpost music beings to play which fades out when players exit the city. Signpost Music replaces the zone music, and is heard exclusively at the designated landmark or its immediate surroundings. For example, if the player walks close to the cathedral in Stormwind, the music of the Cathedral District starts to play. In the Ashenvale area, certain ruins will trigger the ruin signpost music

There can also be other conditions which affect whether or not the signpost music plays: lead composer Jason Hayes in a telephone conversation with the author of this dissertation indicates, for instance, that there is a threshold of 30 minutes to trigger the Stormwind music again, to address potential game situations when a player might need to enter and exit the city gate several times.

2.2.7. Event Music and Signal Music

Event music is a musical piece that replaces the general zone music in response to a special

event or encounter. It can be long, and may replace the Zone Music completely. For example, when the player's character is killed by another player or a monster, the player can accept having his character sent to the nearest graveyard. His character is transformed into its ghost form, and he is required to find his body at the place where he died. From the moment the player is sent to the graveyard, the graveyard event music plays, and it does not cease until the player can find his body and revive himself again.

Signal music is a short musical phrase that informs players something has happened. For example, a trumpet may soudn to signal that a tower has been taken by the enemy in a battleground instance, or a C Major triad may signal to a recently killed player that his character has been revived. Signal music differs from event music in that it can overlay zone music, and in that it is directional—meaning that it is targeted only to players whom it concerns. For example, in the case of a player being revived by another player, the C Major triad can be heard by the player casting the revival spell, the revived player and any members of the party who are near the revived player.

The beginning of a piece of event music and its ending can be coupled with signal music. In these cases, the two musical pieces together, they signal when an event starts, what it is, its duration, and when it ends. The goal is not to transition from one musical piece to the next, it is rather to mark a beginning, the duration and the end of it.

Event music does not always need to be coupled with signal music. If it is not, the event music simply plays from the beginning until the end and is not subject to fading out or fading in. The best example of this kind of event music is "Lament of the Highborne," discussed

briefly earlier in the dissertation. When the non-player character starts to sing this song, the music is played from the beginning until the end regardless of whether she is attacked or not. Another example is a daily quest called "The Sky Race," in which players race each other by riding a "Cloud Serpent." The general zone music fades out when the race starts, replaced by a piece called "Serpent Riders" which plays on a loop during the entire quest, no matter its duration. The general music of the zone does not return until the player reaches the finish line, at which point a sound file of acclamation (in a sense, a *bruitage* with the same function as signal music) interrupts the music.

Figure 2-5: A Daily Quest: the Sky Race

2.2.8. Sound design/*Bruitage*/Foley/Ambient Noise

World of Warcraft is a game where a lot of different "races" reside. Besides all the races,

there are various creatures, animals, waterfalls, seas, lakes, natural landscapes, all kinds of actions, non-actions, and environmental elements whichmust be represented by sound. In order to bring these objects to life, a "Foley" is required. These sounds are a layer on top of the music, and can be qualified as noise or *bruitage*.[34] The goal is to make the *bruitage* sound as natural as possible and to blend in with the area's décor.

Sometimes, this *bruitage* is embedded into the soundtrack of zone music. For example, in the "Wisdom of Yu'lon" soundtrack, chirping birds are part of the music. At other times, environmental noise made by animals is played in a random rate, and at random distance, to simulate nature. Some other sounds, like waterfall noise, is geographically related, with ambient noise fading in as the player gets close to the waterfall, and fading out again the further he gets from it. Still other noises are action-related, such as falling into a pond, or throwing a fishing pole into the lake. The sound of the player's footfalls can be very challenging, as it must account for the terrain, gait, and footwear of the character, and can be further complicated by weather noise if the zone is experiencing rain, wind, or snow.

2.3. Ambiguity of In-Game Music

With the exception of in-game cinematic music, which plays during cinematics where the player has no control over his character, and which is of a definite length not subject to fading, it can often be ambiguous what musical role a specific piece is playing. Signpost music may be interpreted as zone music on occasion, and many of the other types of music can similarly be interpreted ambiguously depending on a number of variables. This musical

[34] *Bruitage* is a French noun similar in meaning to a Foley: a reproduction of a sound effect in a given environment. Jack Donovan Foley was the first sound effect artist who worked at Universal Studio from 1914 to 1967.

ambiguity arises because the goal of Blizzard's composers is not to distinguish between each musical category, but to create a musical experience for the player that blends in with the game's décor and enhances its gameplay.

2.3.1. Ambiguity of Zone, Source, Signpost and Event Music

Zone music, source music, signpost music and event music are mutually exclusive. However, any given piece of music can be qualified different at different times: the line between the musical categories is thin.

Dungeon music can simultaneously be considered as a type of zone music because of its geographical specificity; as signpost music, because the music belongs to the landmark of the specific dungeon; and as event music, because the music plays only in the dungeon when player's encounter enemies.

For example, in Patch 5.2, Lei Shen the Thunder King initiates a massive new raid dungeon called the Throne of Thunder in the Isle of Thunder. The music which plays during this raid can be considered zone, signpost, and event music all at once. If one considers the Throne of Thunder to be a zone, then its music iszone music; if one considers that the music of Lei Shen is attached to the dungeon as a geographical landmark, then it's signpost music; and if one considers the Throne of Thunder to be replacing the general zone music of the Isle of Thunder and marking an encounter with the non-player character Emperor Lei Shen, then it is event music.[35]

[35] However, since event music does not generally use fading techniques, event music can be removed from the list of possibilities if a dungeon's music ends by fading out when players exit it.

Another example, the Darkmoon Faire music, could in its original incarnation have been considered signpost music because it was related to the Darkmoon Faire architectural entity.[36] This entity appeared in a specific area during the time of the faire, and when players went near its immediate surroundings, they could hear its music. At the same time, the Darkmoon Faire music in this original incarnation could also have been considered source music, because it was intended to be heard by the in-game characters as well as the player. After Patch 4.3, Darkmoon Faire's music is definitely zone music, as the entity and the music are now both situated on Darkmoon Island, a geographically distinct zone.

One specific piece of music from Darkmoon Faire, the merry-go-round music, deserves a more in-depth analysis. As this music comes from an attraction players can ride, it can best be considered source music. At the same time, however, it can be considered event music because it indicates the beginning, duration and end of an event. It may even, at a stretch, be considered signpost music, because it indicates the landmark of the merry-go-round ride. As previously stated, event music seldom fades in and out; however, due to the merry-go-round's location within Darkmoon Faire, its music fades in and out according to how far away from it the character is. Additionally, a *bruitage* at the beginning of the ride indicates that the player has used a Darkmoon Faire token, also resulting in a fade-in behavior.

It is certain that Zone/Source/Sign Post/Event Music differ most of the time from In-Game Cinematic Music as to players are able to control their characters during these categories of music whereas "In-Game Cinematic", players lose control over their characters and the camera; thus the game takes control of the camera. In Game Cinematic Music is of a definite

[36] Prior to patch 4.3, discussed above, one was not required to teleporte to Darkmoon Island.

length and is not subject to fading techniques. It plays according to video images, frame by frame.

It is also important to note that the techniques of looping and fade-in, fade-out are very similar to the purpose of the "*timbre de développement*" in *chanson de geste* that will be discussed in Chapter 4 "Epicness" - Lore of Epic Music in order to create a sense of musical continuity *en vue* of possible interruptive randomness in the middle of a musical phrase.

2.3.2. Ambiguity of Zone/General vs. Ambient Music vs. Ambient Noise

As previously discussed, zone music can often be described as general and it can also be qualified as ambient music. To clarify: zone/general music is a **type** of music in *World of Warcraft*, while ambient music is a **style** of music.
More specifically still, "ambient music" is used to qualify zone music which does not have a distinctive, recognizable melody. Note this does not mean that the music has no character; describing zone music as "ambient " means simply that it renders the zone's "ambience.". Ambient music can still be extremely recognizable without a straightforward melody. The best example is the zone music in Azuremyst Isle, which has a very particular and recognizable timbre, but lacks a definite melody.

"Ambient music" is not to be confused with "ambient noise". As discussed above, ambient noise does not contain any pitched instruments, harmony, or melody, but is purely an imitation of natural and other atmospheric noise in a given area, building, or zone.

2.3.3. Ambiguity of Event Music and In-Game Cinematic Music

In-game cinematics cause the player to lose control of his character whereas event music does not cause the player to lose control of his character. Event music states that his character is being forced into a certain condition such as being dead and the player can still control his character in a ghost form until he finds his body.

However, some event music is such that, even though players do not lose control of their characters, they lose their desire to control their characters as they are mesmerized by its extremely story-driven nature. In these cases, event music can play a similar role to in-game cinematic music.

One prime example is the already-discussed song, "The Lament of the Highborne." When players trigger this song by returning an item to the non-player character who sings it as part of a quest,no in-game mechanism obliges them to stay and listen. However, the narrative quality and the beauty of the music catches players by surprise, and many sit and listen for the entire song just as if it were part of a cinematic. Some players even repeat the quest in order to hear the song again. So even while the "Lament" is event music—marking the end of a quest—and players do not lose control of their characters, as a practical matter players briefly cede control of their characters to become part of an "eventful in-game cinematic." Likewise, the story-driven quality of this event music makes it similar to in-game cinematic music.

A similar situation takes place in "The Song of Liu Lang," a story-driven event song which Pandaren players can hear on the Wandering Isle before choosing a faction. Rather than playing at the end of a quest, "The Song of Liu Lang" plays when players are invited by a non-player character to assist in a history lesson given to some Pandaren children. This song,

which tells the story of Liu Lang, the first Pandaren explorer, is similar to the "Lament" in that it does not oblige players to stay and listen, but the story telling is so interesting that first-time Pandaren players usually do stay.

Figure 2-6: Lady Sylvanas (in the middle) singing "Lament of the Highborne" while people gather to listen to her.

The merry-go-round in Darkmoon Faire, already discussed above as fitting several different musical roles, can also loosely be considered in-game cinematic music. Although players are able hop off anytime, they typically lose the desire to do so, and thus in a sense lose control of their characters until the end of the ride.

2.3.4. Ambiguity of Signal Music and Sound Design/*Bruitage*

Signal music, as mentioned above, signals that something has happened, or that an event has begun or ended.. Because signal music pieces are often very short, and usually overlap with the general music already playing, one could be tempted to classify many pieces of signal music as mere sound design.

While in most cases, signal music does not mimic environmental or natural noises, thus

clearly distinguishing it from sound design,the line between the two becomes more blurred when a piece of signal music is extremely simple and organic. For example, the simple C major triad played to signal the revival of a recently killed character, or the wind chimes which signal a completed teleportation are both organic sounds enhanced or modified electronically by the Digital Audio Workstation.

"The life of the law has not been logic; it has been experience."

- Holmes, Oliver Wendell, Jr.

3. "Epicness" - Lore of Epic Music

3.1. Definition of "Epicness"

According to the Oxford English Dictionary (OED), "epic," when used as an adjective, means "heroic or grand in scale or character;"when treating the word as a noun, the OED defines epic as "a long poem, typically one derived from ancient oral tradition, narrating the deeds and adventures of heroic or legendary figures or the history of a nation."[37] An Epic, that is, is a poetic, book-length narrative told in verse form using highly stylized and elevated language, the whole of which is presented objectively by the poet *in medias res*.[38] Epics, like the background narrative of *World of Warcraft*, recount the journeys and superhuman exploits of

[37] *Oxford English Dictionary Online*, s.v. "epic," accessed December 3, 2014, http://www.oed.com/view/Entry/63237?redirectedFrom=epic

[38] Definition from Dr. L. KIP WHEELER, professor of composition and literature at Carson-Newman University. Accessed December 4th, 2014. https://web.cn.edu/kwheeler/documents/Epic.pdf *In medias res* means in the middle of the thing. Epic writing usually starts the poem in the middle of a crucial moment rather than starts from the beginning of the story. For example Homer's Iliad, the poem starts directly in the quarrel between Achilles and Agamemnon during the Trojan War instead from the birth of Achilles.

heros, including their virtues and shortcomings. The hero's larger-than-life deeds and extraordinary achievements also typically determine the fate of an entire people or nation. Epics are typically placed in a vast geographic setting and often involves gods, goddess, or mythical creatures. Two classic examples are Homer's *Iliad* and *Odyssey*.

Epicness, then, is the quality and state of being epic.[39] In vernacular language in particular, the words "epic" and "epicness" can carry a broader general meaning of something being awesome, bold, or great, or of something which imparts extreme sensation.

While many players of *World of Warcraft* would probably be more likely to describe the game as "epic" in the vernacular meaning of the word, the game also qualifies as epic in the classical sense. Each character a player chooses is required to accomplish heroic deeds which affect the in-game destiny of the entire people of his race—and sometimes even the whole virtual world of Azeroth. Each character also possesses superhuman powers. And while each character's virtual "life" as a player-controlled avatar begins in a starting zone, the war between the Alliance and the Horde has been ongoing in game terms for many years. Thus, any player necessarily enters the game *in medias res*.

Beyond the epic hero like qualities of each player's characters, the narratives of each quest use a highly stylized language; especially in the Mists of Pandaria expansion. *World of Warcraft*'s vast geographical spread and its the ongoing creation of new areas, instances, and zones through expansions and patches means that, if a poet were to write down all the lore of the *World of Warcraft*, it would require several volumes to capture.

[39] *Wiktionary*. s.v. "epicness," accessed February 2nd, 2014. http://en.wiktionary.org/wiki/epicness

3.2. "Epicness" in Music

3.2.1. Epic Music in History

World of Warcraft's music is not the first example of epic music. One can trace the genre back to the *chanson de geste,* a musical genre that *Jean de Grouchy* (*Johannes de Grocheio*) describes in his 13th-century musical treatise "*Ars Musicae.*"

> "Cantum vero gestualem dicimus in quo gesta heroum et antiquorum patrum opera recitantur, sicuti vita et martyria sanctorum et proelia et adversitates quas antiqui viri pro fide et veritate passi sunt, sicuti vita beati Stephani protomartyris et historia regis Karoli.″

The translation of the Latin text:

> We call a *chanson de geste* a song in which the deeds of heroes and the achievements of our forefathers are recounted, like the life and sufferings of the saints and the conflicts and adversities which men of old endured for the faith and for the truth - the life of St. Stephen the first martyr, for example, and the story of Charlemagne.[40]

A chanson de geste, as described in *de Grouchy*'s treatise, has two key components. First, it's a song—"chanson"is the French word for song. Second, it takes as its subject matter the deeds of heroes and forefathers. "*De*" means "of" and *"geste*" comes from Latin "*gesta*," meaning "deeds, actions accomplished." While a literal translation of *chanson de geste* would thus be something like "song of deeds," "epic song" or "song of epic actions" would not be much of a stretch. Although a full analysis of the *chanson de geste* is beyond the scope of this

[40] Translation from John Stevens, *Words and Music in the Middle Ages: Song, Narrative, Dance and Drama, 1050-1350.* (Cambridge, UK: Cambridge University Press, 1986).

dissertation, it is important to briefly summarize the genre's similarity with the music of *World of Warcraft* and its status as the forerunner of the epic music genre.

C*hanson de geste* can be analyzed in two aspects: the musical part (the form), and the textual part (the narrative, the content).

The musical part can be divided into the rhythmic component and the melodic component. The rhythmic component is driven by the lyrics. C*hanson de geste* are typically divided into several *laisses* (stanzas). Each *laisse* comprises a number *vers* (verses), from ten to several hundreds, each of which uses either *octosyllabe* (a *vers* of 8 *syllabes*) or *décasyllabe* (a *vers* of 10 *syllabes*).[41] Each *vers* can be subdivided into two *hemistiches* (hemistiches), the divider between which is called a *césure* (caesura). Further, each *laisse* is assonanced, meaning all *vers* have the same last accented vowel, but not necessarily the same last consonant. It does not rhyme. In addition, each *laisse* talks about one single subject. This gives certain uniformity to each *laisse*.

In modern musical notation, the signature of an *octosyllabe* would be 8/8 or 4+4/8, . while that of a *décasyllabe* would be 10/8, or possibly 6+4/8 or 4+6/8 in order to mark the *césure*. Starting in the 12th century, with the *Roman d'Alexandre*, some *chanson de geste* used 12 *syllabes* (6+6) in a *vers*; these would be represented as 12/8, or 6/8 with 2 bars.

The Lead Composer of *World of Warcraft*, Jason Hayes, uses the time signature 6/8 very often, especially in "A Call to Arms," the song used as the ending of the original *World of Warcraft* Trailer. In the Mists of Pandaria expansion, the main theme, "The Heart of

[41] Information concerning *Chanson de geste* is according to the Course book "*Introduction à la littérature du Moyen-Âge*" by Professor *Jean-Pierre Perrot*, *Professeur de Lettres Modernes* that he used to teach at University of *Savoie*, France. In addition, email correspondence to one of his Ph.d. students Alexandra Pifarré was made to clarify certain information. Translations of any terms are my own unless otherwise noted.

Pandaria," is also written in 6/8.

The melodic part of the *chanson de geste* is comprised of three different parts. The first part has a melody and is called "*timbre d'intonation.*" This melody serves as an introduction. The second part is a different melody which will be used to sing all the remaining *vers* but the last one. It is called "*timbre de développement*". The last *vers* has a conclusive melody, which is different from the two other melodies and is called "*timbre de conclusion.*" This melodic structure gives the first and the last *vers* more importance than the middle *vers*, while the shared melody in all the other *vers* creates a certain repetitiveness that is an advantage for the forgetful performer, as one or two *vers* can be skipped without being noticeable musically for the audience. This repetitive quality to the melody of the *vers* in a *chanson de geste* is similar to the looping and fading techniques used in much of the music of *World of Warcraft*. Similarly, the *timbre d'intonation* and *timbre de conclusion* are close in function to *World of Warcraft'*s Signal music.

C*hanson de geste* were typically performed by a *jongleur*, a type of itinerant entertainer in medieval France. *Jongleurs* could be acrobats, mimes, musicians, lion tamers, or reciters of literary works. When a *jongleur* psalmed a *chanson de geste*, he would change his intonation, and sometimes even his clothing, according to the roles of the story. He would often be accompanied by a person playing a *vielle*, and would perform in front of a painting chosen according to the scene of the story.[42]

Textually speaking—as described above in the excerpt from *Jean de Grouchy*—the content of *chanson de geste* contains heroic deeds or the achievements of national/cultural forefathers. The most famous *chanson de geste* is "*la chanson de Roland,*" in which Roland, the nephew

[42] A *vielle* is a medieval bowed stringed instrument similar to the violin, used by troubadours and jongleurs.

of Charlemagne, fights against the Saracen army in the Battle of Roncevaux. Vastly outnumbered, Roland dies with bravery by blowing an *olifant* which calls Charlemagne to battle.[43]

Figure 3-1: *Chanson de Roland*, the battle of Roncevaux. Roland is the knight in gold and blue carrying an oliphant. Flemish manuscript illumination, 1462.

Although they were always based on historical events, the deeds depicted in *chanson de geste* were often exaggerated or embellished. For example, when *Roland* dies from blowing the *olifant*, the text describes him as blowing the *olifant* with such valiance that his temple breaks and his mouth spills blood. Angels then come down to take Roland's soul to heaven because of his heroic actions against the Saracen.

> *Chanson de Roland*
> *Laisse CXXXVI(93), vers 1-4.*

[43] An olifant is a musical instrument made from the ivory of an elephant.

The Count Rolländ in his great anguish blows
His olifant so mightily, with such
Despairing agony, his mouth pours forth
The crimson blood, and his swoll'n temples burst.

Laisse CLXXVIII(126), vers 15-18.

He breathed his last. God sent his Cherubim,
Saint-Raphaël, _Saint Michiel del Peril_.
Together with them Gabriel came.--All bring
The soul of Count Rolländ to Paradise....
Aoi.[44]

Despite all the exaggeration and embellishment, *chanson de geste* nonetheless describe historical events. Over time, the content of *chanson de geste* started to develop more mythical and fantastic stories, eventually resulting in extreme exaggeration of the actual event. For example, *vers* about the Saracen giant Rainouart and a beautiful Saracen princess are included in *Guillaume d'Orange*, where the epic nature of the content and narrative is enriched by these mythical, fantastic and fictional characters with superpowers.

Although the *chanson de geste* was typically a French form, Joseph Fabre, in the preface of his 1906 translation of *Chanson de Roland*, makes a convincing case for counting the Middle High German epic poem *Nibelungenlied, written between the 12th and 13th century by an anonymous poet* as a *chanson de geste*.[45] Fabre states that the *Nibelungenlied*, despite its Nordic content, can also be traced to the French *chanson de geste*, and that it could be considered a *chanson de geste "à l'allemande"*. *Nibelungenlied,* the content of which was

[44] Léonce Rabillon, trans., *La Chanson de Roland, by Léon Gautier*. (New York: Henry Holt and Company, 1885). Accessed February 2nd, 2014. http://www.gutenberg.org/ebooks/23819

[45] Joseph Fabre. *La Chanson de Geste, Traduction nouvelle et complète.* (Paris: Belin Frère, 1906), 15

inspired by an Icelandic epic called the *Elder Edda* and a saga called *Völsunga Saga*, is of a fantastic nature, similar to many later *chanson de geste*, and deals with similarly superhuman deeds. The main difference between the two is that *chanson de geste* talk about the matter of France and Charlemagne, whereas the *Nibelungenlied* deals with more Germanic and Nordic topics.

This difference in topic, however, is not so big a difference when one considers that the territories that now mainly constitute France and Germany were bother under the rule of Emperor Charlemagne during the 9th century. Charlemagne was the son of *Pépin le Bref*, the king of the Franks. He passed the whole of his realm onto his only surviving son, *Louis le Pieux*, who named Co-Emperor one year before his father's death. After *Louis le Pieux*'s death, Charlemagne's three grandsons each inherited 1/3 of the Empire, which gradually crumbled into the modern states of western continental Europe.

The continual fight between France and Germany was one direct result of this dismemberment, as both fledgling nations sought justification to claim themselves as the sole legitimate heir of Charlemagne's Empire. This conflict manifested in a number of ways, one of which Fabre points out in the popularization of the *Nibelungenlied* in the 19th century, with Wagner's *Der Ring des Nibelungen* taking direct inspiration from it. Wagner's choice of and interest in a retelling of the *Nibelungenlied* was not a coincidence: as a 19th century German nationalist, his ultimate goal was to build a glorious mythical origin for Germanic culture, and to help it distinguish itself from the Latin-speaking culture of its neighbor, France. This use of the *chanson de geste* and derived forms for something other than strictly artistic purposes is another effect mentioned in de Grouchy's treatise:

> "This kind of music should be laid on for the elderly, for working citizens and for those of middle station when they rest from their usual toil, so that, having heard the miseries and calamities of others, they may more easily bear their own and so that anyone may undertake his own labour with more alacrity. Therefore this kind of cantus has the power to preserve the whole city."[46]

In essence, this kind of effect may be described as a positive, emotional one. *World of Warcraft* has a similar effect, if not arguably a more positive one which results from the game's immersive qualities: because players become heroes themselves and accomplish their own extraordinary deeds, the game allows people to enter a dream world free of the travails of life and cope with their daily miseries just as *de Grouchy* describes. On a more negative note, however, players can easily become addicted to *World of Warcraft*, especially young adults and those who are not satisfied in real life. Many admit that they feel capable of accomplishing more in *World of Warcraft* than in real life; and that the game gives them more satisfaction that their real life.

3.2.2. Epic Music Today

Just as Wagner was inspired by the *chanson de* geste, Tolkien was inspired by Wagner's *Ring Cycle*. Tolkien's *Lord of the Rings*, while not a musical piece, is an epic all the same because of its narrative's epic qualities. The recent adaptation of Tolkein's trilogy into a movie make it possible for us to hear the epic's music as composed by Howard Shore. Shore admitted studying Wagner's *Nibelung*, especially as concernins the pairing of two minor triads separated by four half steps—for example, c minor triad and e minor triad—to make the

[46] Joseph Harris and Karl Reichl, trans. "Performance Modes and Audience Interaction," in *Medieval Oral Literature,* Karl Reichl, ed. (Berlin, Germany: Walter de Gruyter, 2012), 186. Original text in Latin and in translated German from Ernst Rohloff, trans. and ed., *Der Musiktraktat des Johannes de Grocheo.* (Leipzig, Germany: Media Latinitas Musica, 1943), 2.

film's music suitably epic.[47]

As noted earlier, the word "epic" in colloquial speech today often tends to a more simplistic meaning along the lines of "great," "majestic," “noble" in some sense, or sometimes even "nostalgic," without any of the classical connotations of heroic deeds and battles. This colloquial meaning is often heard in music as well: for example, in many of British Broadcasting Corporation nature documentaries the soundtracks sound epic to a lot of people even though the documentaries are not about bloody battles, mythical creatures, or heroics. The idea of taking a "journey through history" or a "destiny" seem sufficient to confer an epic character; thus, the epic music today is colloquially used to describe very loosely a bold, loud, vibrant and evocative music.

3.3. "Epicness" in Video games

3.3.1. In the Narrative

As mentioned above, *World of Warcraft*'s narrative is essentially an epic one: players create a hero and go on quests, many of which require super-human feats of strength or magical ability. Blizzard game developer Chris Metzen claims that this type of storyline in *World of Warcraft* makes it third or fourth generation fantasy from Tolkien's *Lord of the Rings*.[48] However, given what I have already laid out with regards to Tolkien's lineage, one can go further back and trace a more-or-less direct line from *World of Warcraft* through Tolkein's *Lord of the Rings and* Wagner's *Nibelung* and, at last, to the *chanson de geste*.

[47] Howard Shore, interview by Alex Ross, "Howard Shore on the Music of the Lord of the Rings," *New Yorker,* December 22nd, 2003. Accessed Feburary 2nd 2014. http://www.newyorker.com/archive/2003/12/22/031222crat_atlarge

[48] Blizzard Entertainment. *World of Warcraft: Behind the Scenes*.

3.3.2. In the Music

Bernard Suits, a distinguished emeritus professor of philosophy at the University of Waterloo defines games as "the voluntary attempt to overcome unnecessary obstacles" in his book "The Grasshopper: Games, Life and Utopia." One reason people attempt to tackle these "unnecessary" obstacles is the feedback effect, whereby people receive a positive response for their actions which can result in a short "high.".

Great music can maximize this effect. According to Russell Brower, the Music Director for *World of Warcraft*, "people say that [music] can tell you how you're supposed to feel, and I suppose that's true sometimes, but sometimes it amplifies what's already there."[49] In *World of Warcraft*, as described above, what is "already there" is a largely epic narrative, so it stands to reason that the game—as well as similarly epic games and moviesGames such as *World of Warcraft*are generally accompanied by a catalyst of epic music, driven by the epic nature of the narrative.

[49] Blizzard entertainment. "The Music of Mists."

"I, at any rate, am convinced that He (God) does not throw dice."

- Albert Einstein

4. Quintessence of "epic music" in *World of Warcraft*

4.1. The Making of Epic Music in *World of Warcraft*

As previously mentioned, composing *World of Warcraft*'s music differs from composing classical music in several ways. Not only is the process of composing shared between multiple composers, but the act of "composing" involves other disciplines; additionally, unlike classical music, where music is the center of attention, video game music must act as effective support for the game it accompanies.

4.1.1. The Music per se

4.1.1.1. Roles of Music in *World of Warcraft*

4.1.1.1.1. Support

Jason Hayes, the Lead Composer for *World of Warcraft*, is against the idea of massive "bombastic music" in the background during gameplay. According to him, such music would be very tiresome, even though it would ostensibly fit a game about war between two factions.[50] For Hayes, the game's music should be "textual," meaning that it should describe the feeling of the moment at which it is playing. That is: players should be able to understand what the music is describing without being required to listen the entire piece of music. It is for this reason that the music in *World of Warcraft* does not go from point A to point B but stays in that one moment intended by the composer. This "moment-based" nature of the game's music enables it to fade in and fade out without being noticed by players.

4.1.1.1.2. Enhancer

Given the supporting nature of *World of Warcraft*'s music, and its lead composer's desire to have it be almost unnoticeable, one may question whether music is even necessary in the game. Russell Brower, Music Director and Producer for the game's expansions, answers this concern by stating that "music is meant not to be noticed but to be felt."[51] Hayes, as mentioned previously, believes that game music should blend in, comparing a game's musical score to movie lighting: it is there, but its purpose is one of enhancement to the narrative, not one of drawing notice to itself. Brower makes this explicit, arguing that "the first rule of music in a game is to enhance the mood and the setting and the story, but not to annoy people and not to have it run on and on incessantly."[52] While game music does not serve the same role as traditional concert music, then, it is absolutely essential to the game's narrative

[50] *World of Warcraft Behind the Scenes.* (Blizzard Entertainment, 2004), DVD. Chapter: "*World of Warcraft* Music/Sound Design."

[51] Russell Brower on Music in Burning Crusade Expansion, Behind the Scene DVD.

[52] Russell Brower on Music in Wrath of the Lich King Expansion, Behind the Scene DVD.

experience.

4.1.1.1.3. Interpreter, Unifier

Even though *World of Warcraft*'s music generally plays a support role, it can also occasionally act as an interpreter of the game's narrative, or as the element which unifies several distinct sub-areas of a zone. For example, the "Terrokar Forest" zone is made up of two distinct areas: one a "bone waste" and the other a more traditional forest. While the bone waste is easily interpreted as horrifying just by the skeletons and bones on the ground, the zone's music serves to interpret that horror as menacing, lifeless, and immense. Long static chord progressions, electronic orchestration with high strings, and very deep bass communicates more effectively what the environment alone would failed to show.

The visual depiction of the forest part of Terrokar Forest, in addition, might give a very wrong impression without music, as it looks more like a fairy tale forest. However, here too the music clearly tells players that they are still in a lifeless, threatening zone. In this sense, the music unifies the zone's two areas and its narrative, as well as providing ambient support to the gameplay.

Figure 4-1: The Bone Waste in Terrokar Forest.

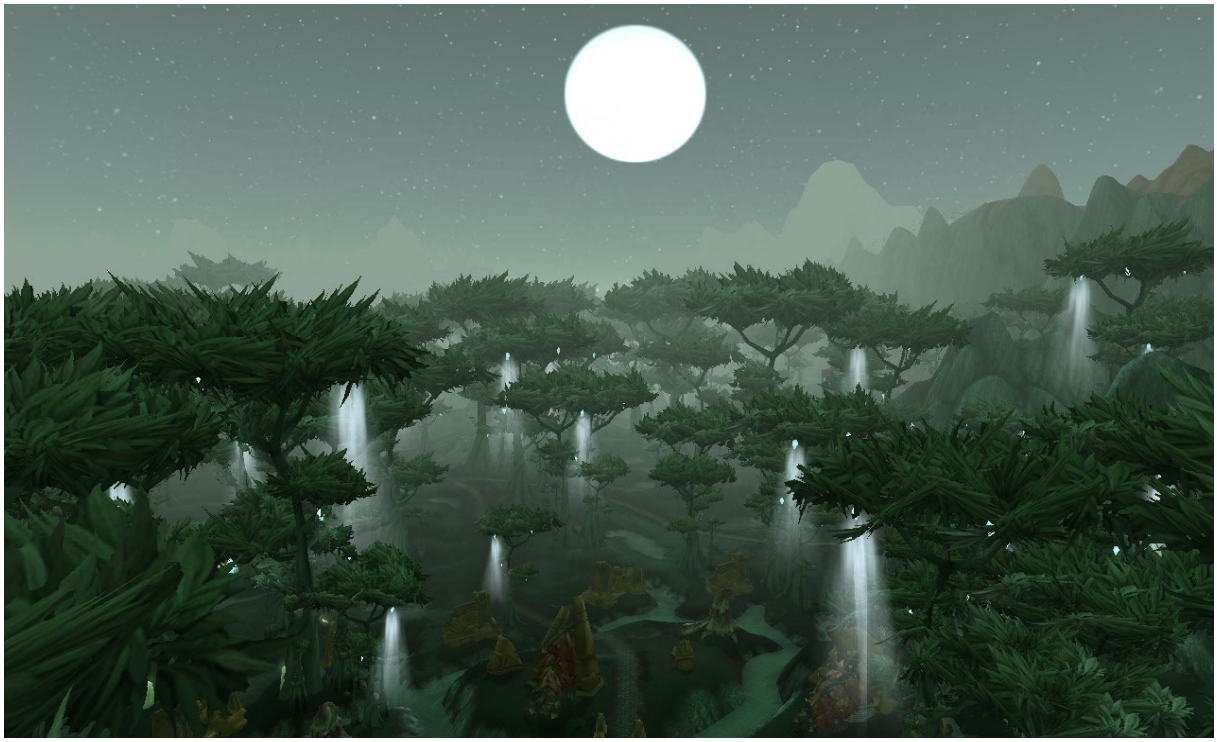

Figure 4-2: The forested part of Terrokar Forest.

4.1.1.1.4. Punctuator

Hayes indicates that there are, however, certain moments when epic music is appropriate. During these moments, a more epic-style music serves to punctuate the importance of events with its huge orchestral sound and beautiful heroic melodic lines played by brass instruments. In these moments, the boldness of the game's epic music not only enhances the player's feelings, but punctuates the moment and makes it memorable.

4.1.1.1.5. To Silence or Not to Silence

Given the punctuational aspect of *World of Warcraft*'s epic music described above, it is clearly not the goalof Blizzard's composers to completely suppress bold and affirmative music. Rather, the "organic" nature of *World of Warcraft*'s music allows it to blend in with the décor in an ambient supporting role, yet still be capable of *transmorphing* to appear in the

foreground, making specific moments of gameplay memorable with heroic, bold, and catchy melodies. When that heroic moment is up, it is again the music's organic nature which allows it *shape shift* into its next role with seamless transition.

Sometimes the most important tool of music is silence. Russell Brower, *World of Warcraft*'s Music Director, acknowledges this, as well, stating that "It is important to not to use sound just as it is important when to use the sound".[53] His philosophy about music in *World of Warcraft* is similar to Hayes's: that the music should not demand attention from the player. A player should be able to form an opinion about the zone itself, while the music fades in and out in a bed of ambient noise and *bruitage*. For Brower, the line between music and ambient noise is grey, to the extent that he would consider *World of Warcraft*'s music a faliure if a player noticed it more than the narrative of the game itself.

4.1.1.2. Inspirations of Music in *World of Warcraft*

4.1.1.2.1. Artwork

One of the main inspirations of *World of Warcraft*'s music is the artwork of each specific zone. Composers are provided several pieces of concept art for the in-game environment to give them a feel for the place for which they are composing. For example, the music in the starting zone for the Draenei race, Azuremyst Isle, is inspired by art of the zone's environment: purple crystal-like structures jutting from mountains and hills. The zone's music features elongated chords with echoing reverb, intended to depict this fantastical landscape. The imitation of glass harmonica-sounding timbre mixed with a bass flute timbre creates a fantastic new timbre specific to Azuremyst Isle. In addition, the plucking of a harp, combined

[53] Russell Brower on Music in Cataclysm Expansion, Behind the Scenes DVD.

with the low *sostenuto* and haunting tapestry of an electronic choir and a bass flute solo, with hand drums played in an odd, almost improvised tempo, create an absolute *délice* of color that is both cold and warm at the same time—just like the visual effects of the purple crystals in the Isle's art. Composer Derek Duke successfully created this distinct musical vocabulary for the Draenei race.

Figure 4-3: Artwork depicting Azuremyst isle.

Figure 4-4: Caspar David Friedrich 1823-1824, The Sea of Ice

As a side note, the Artwork of Draenei is very similar to a painting of Caspar David Friedrich "The Sea of Ice".

The instrumentation of each zone is also heavily driven by its artwork. For example, in Nagrand, a majestic zone of valleys and mountains complete with floating islands, full orchestral timbre is used instead of a simple string quartet. Likewise, in Dragonblight, the frozen landscape depicted in the zone's artwork is presented through the use of prepared piano, with the plucking and striking the strings creating a harsh, cold sound.

Figure 4-5: Artwork of Nagrand, showing the floating isles which inspire the use of a full orchestral score.

Figure 4-6: Dragonblight Artwork inspires the use of prepared piano to emulate the hostile environment.

4.1.1.2.2. Lore and Narrative

Lore and stories from the game world are also sources of inspiration. The character of a race,

along with their appearance and the reasons behind their conflicts, are elements for composing music for zones with the culture of a specific race. The Draenei race, mentioned briefly above, is one of an alien race which crashed on Azuremyst Isle with their space ship and its purple crystals. It was this story, as much as the artwork, which led composer Derek Duke to invent a new musical timbre and vocabulary for the zone music of Azuremyst.

4.1.1.2.3. Other Sources

Sometimes the inspiration for music comes from outside *World of Warcraft*. Russell Brower admits that in the Mists of Pandaria expansion, because of the qualities of the Pandaren race, Blizzard's composers engaged in "out-sourcing" some of their musical inspiration by watching and listening to "Wild China" and "the Last Samurai".[54] The exotic flavor of the Pandaria continent comes from not only the in-game environment, but also the use of Chinese instruments in its music. Composers had to learn the registers of Erhu, Guzheng, Pipa and Dizi, stepping outside of their compositional comfort zones to learn exotic timbres that only enhance gameplay but also tell stories of their own.

4.1.1.2.4. The Vision of a Composer

Inspiration alone is sometimes not enough to compose a musical piece, and composers often add touches from their own vision which could not have come from images, lore, or other external sources. For example, the Hellfire zone of Azeroth, which serves as a rough analog of Christian Hell, does not seem like a fitting environment for music based on the surf guitar. Yet the composer, Matt Uelmen, had a compositional vision which used the timbre of a surf guitar , and it works in-game as if it Is the most natural thing in the world.

[54] As opposed to "in-sourcing": to be inspired by the in-game lore and narrative of *World of Warcraft*.

4.1.1.2.5. Composition Itself

Sometimes, as mentioned above, Blizzard's composer will repurpose music from another situation or game. This repurposing can also go both ways, with composers using zone music for other situations in-game. The "Lament of the Highborne" song, discussed above, was originally written to serve as the zone music for the starting Blood Elf zone, with only orchestral instrumentation. Because of the lyrical nature of the melody, however, the game's composers decided to write a song for it and invite a soprano to sing it with lyrics in Thalassian, a constructed language like Esperanto. The song's popularity with players and its beauty show that earlier compositions can serve as excellent inspiration for newer pieces of in-game music.

4.1.1.3. The Form of Music in *World of Warcraft*

Given the differences in video game and concert music, it might seem odd to talk about its form. Given its supporting role, video game music clearly does not dictate the appearance of the video game or its image. Indeed, it would be inappropriate and unhelpful to attempt to classify the music of Stormwind as a sonata, or to try and qualify certain zone music as a binary form or other traditional forms. This way of analyzing musical form does not help our understanding video game music: a different genre of music, a different approach.

Instead, I categorize the music of *World of Warcraft* into six different forms: designed form, loopable form, fade-in form, fade-out form, fade-in-and-out form and loopable designed ending form.

4.1.1.3.1. Designed Form

A designed form is one that is thoroughly composed and is timed to a specific image or event. It can be timed frame by frame to a visual image such as a cinematic or a trailer, or it can be timed to a certain event. As "The Lament of the Highborne" has a definite length and is not interruptible unless the player decides to cancel it, this piece of music is a designed form.

4.1.1.3.2. Loopable Form

As previously discussed in 4.1.1.1, "Roles of Music in ," the game's composers want players to be able feel the ambience of a zone at any moment during its music. Loopable music is extremely useful in accomplishing this goal; for most music in the *World of Warcraft*, it is important to create a piece that can repeat itself seamlessly no matter how long the player may take to complete a certain task or journey.

Music that adopts this form has a definite start point and a definite end point, but it is also composed to be loopable. Most of the time, this form is used in combination with the fade-in and fade-out techniques as points of entry and departure.

For example, the music which plays in the game's taverns is in a Loopable Form. Without using any fading techniques, the music is loopable by itself. As long as players stay in the Tavern, the music can be played without musical interruption. After a certain amount of repetition, however, the music stops and starts again randomly to simulate the ambience of a tavern. Classically speaking, much of the tavern music takes on binary form (AABB), or sometimes even rounded binary form (AABBA). Although the music's tonalities do not strictly follow the requirements of binary form, thinking of tavern form music as similar can be helpful in understanding its looping mechanism.

4.1.1.3.3. Fading Forms

The fade-in form, fade out form, and fade-in-and-out form are frequently used in video games. Fading in at the beginning or out at the end of a piece of music connects different kinds of music and provides continuity.

These three forms (fade-in form, fade-out form, fade-in-and-out form) are not "forms" *per se*, because a composer does not compose something that starts from nowhere or ends nowhere. Those forms are rather techniques that applied to musical compositions. I classify these as fade-in form or fade-out form due to (video game) player perception. When these techniques are applied to a piece of music, even though the music has a definite beginning and a definite ending, it is nonetheless perceived as fading in, fading out or both. One can then say that even thoroughly composed music "becomes" these forms so far as the player is concerned.

4.1.1.3.3.1. Fade-in Form

Russell Brower indicated in the Burning Crusade Expansion “Behind the Scenes” DVD that "The music doesn’t play all the time. It kind of fades in out of the bed of sound effects and the ambience of the area."[55]

The fade-in form is often used with zone music so that players do not notice its entrance. Sometimes, ambient noise is even directly composed into the zone music so it can be faded in and blended more easily with a zone's ambient noise. For example, most of the soundtracks in the Mists of Pandaria expansion contain ambient noise in the ambient soundtrack already.

4.1.1.3.3.2. Fade-out Form

[55] The ambient mentioned here by R. Brower is not the same as the Ambient Music as defined in this dissertation. The ambient mentioned here is the "*bruitage*" as defined in this dissertation.

The login music is the clearest example of this form, which never starts by fading in and always ends by fading out. Since the login music begins when the player first opens the game, it has a definite start point, and does not use the fade-in technique.

4.1.1.3.3.3. Fade-in-and-out Form

Fade-in and fade-out techniques connect different pieces of music; the fade-in-and-out form does as well, but in slightly different circumstances. One common use is when a player is flying over several zones and the signpost music of each zone is heard, fading in and then out for several seconds. Even when within a single zone, the music can sometimes fade in and fade out behind a sound effect in order to create a more discreet introduction and ending of the music. Another example of fade-in-and-out form occurs when a player walks in through the gate of Stormwind and then walks out again. The "Music of Stormwind" piece in this case becomes a fade-in-out form, with the exception of there being a threshold of 30 minutes between replayings of the song , as mentioned above, to prevent excessive repetition from annoying players.

4.1.1.3.3.4. Ambiguity of fading forms

All zone music can be perceived as either fade-in, fade-out or both, depending on which part of the time-line is used to determine the form. When a player goes into a zone or building from another zone or building, the previous zone music fades out, giving it fade-out form; at the same time, the new zone music fades in, making it fade-in form. These forms are not limited to interactions between zone music pieces, but can be applied to each category of music. For example, a player who walks into a tavern before the Stormwind zone music

comes to an end of its musical phrase will experience a fade-out of the zone music before the new music can be triggered or faded in. It is worth noting that in this and similar circumstances, fade-in form music can be delayed;this does not cause a real issue because in the real world when one walks into a confined place, one's ears take some time to adjust to the ambient sound.

4.1.1.3.4. Loopable Designed Ending Form

This is a very intelligent device that is designed to deal with the complexity of video game music. In this form, the music has a definite start point and a definite end point; moreover, this music has a definite ending phrase. The beginning and ending sections of the music are thoroughly composed, but the middle part of the music takes loopable form so that the piece as a whole can last as long as needed. The problem here is that the composer must connect the end of the music with the looping phrase, despite the fact that the loopable phrase might not have finished its cycle when the ending phrase enters. The device used in order to make this transition seamless is to to interrupt the loopable phrase with a relevant in-game noise so before introducing the ending phrase. The interruption disguises the musical discontinuity of the piece, and allow the player to perceive it as a musically unified piece.

The music of the daily quest "Sky Race" is a very good example of this form. The event music for the quest starts when the quest giver yells "Go! To the skies," After which the composed beginning of the music plays before the piece moves into its loopable phrase. When the player arrives at the end of the quest, a huge acclamation noise cheers the player, interrupting the loopable phrase so the designed ending phrase can start up without being noticed.

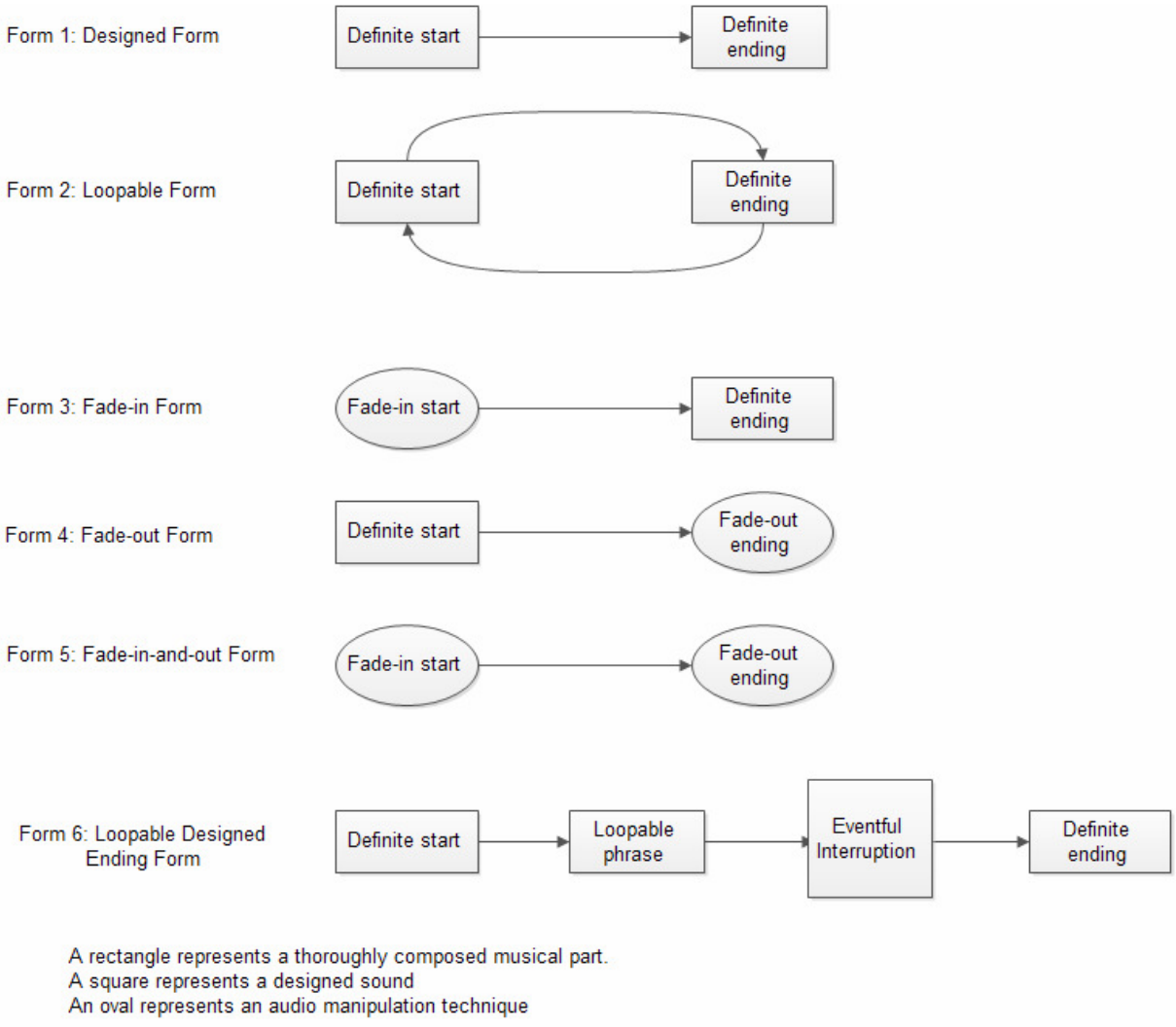

Figure 4-7: The six musical forms of *World of Warcraft*

4.1.1.4. Recording the Music of *World of Warcraft*

At the production stage, Blizzard makes use of common techniques in recording to enhance the epic quality of the music. For example, in order to create a 96-voice choir, Blizzard hires a 32-voice choir and records it singing the same piece three times. The microphone is placed farther away from the choir during each successive recording and sound designers overlay each layer to create the impression of 96 voices.

4.1.2. Sound Design

Sound design, also called Foley or *Bruitage*, is a technique borrowed from film making. It consists of reproducing everyday sounds and noises and integrating them into the in-game universe. Several examples of sound design can be found in the sections above.

4.1.2.1. The Goal of Sound Design

Sound Design enhances players' in-game experience and makes *World of Warcraft* more realistic. The Lead Sound Designer of the original *World of Warcraft*, Brain Farr, states in the "Behind the Scenes" DVD that the main goal of sound design in *World of Warcraft* is to blend in perfectly, "not to stick out". This goal coincides with Jason Hayes' and Russell Brower's approach to "blend in music." A good sound designer integrates sound effects into the action of the game unobtrusively.

4.1.2.2. Solution for Repetitiveness

One problem encountered during sound design is the repetitiveness of many sound effects. The exact repetition of a sound effect makes it appear unnatural. For example, in order to defeat a beast in combat, players must hit it several times until its health points (HP) are brought down to zero. If the beast makes the same sound over and over in response to each blow, however, the repetitiveness of the sound would make the fight unrealistic and boring. Blizzard employs several solutions to this, as follows.

4.1.2.2.1. Large database

The sound designers at Blizzard create a wide variety of sound effects for the same action or noise source. For example, when a player goes into the gate of an area called Lordaeron, he can hear bells in the distance and a ghostly, haunting sound. There are 80 different ambient loops for just this one chamber, all of which are played at random.[56] The possibility resulting from this combination is huge, enabling the game experience to sound more realistic to players.

4.1.2.2.2. Individualization

Not only there is a large quantity of sounds for emulating a single sound source, there are different sets of sound effects for night and day. In addition, there are individualized sound effects for different places; for example, each dungeon has its own set of sound effects. There is not a single "dungeon set" for all dungeons, but unique sets of sound effects for each dungeon. No monster shares the same sound effect, either, with each making 9 to 12 different sounds. Weapons armor, as well as spells and other noise-making items and powers, all have their own sound.

4.1.2.2.3. Detailization

Sound effects in *World of Warcraft* are complex, combining multimple individual noises to create specific sounds. For example, if a hunter uses his bow to shoot a boar, the sound of the arrow traveling through the air is heard in the game, as well as the impact. At the same time, if the player moves around, the noise produced by his armor is heard as well.

The footstep is a very good example of "Detailization". Different sound effects are produced for different sizes of foot, from small, medium, large, to the extra-large feet of giants. The

[56] Figure from Burning Crusade Behind the Scenes DVD.

noise each foot makes upon impact also varies depending on different ground textures. Beasts also have their own footstep sound effects, similarly combined with different ground textures. When a player falls to the ground, each type of terrain—for example rock or grass—creates a different sound. The sheer level of detail created by this technique, in conjunction with the size of *World of Warcraft*'s sound database, makes for an incredibly immersive experience.

4.1.2.2.4. Multi-dimentionalization: Layering

Besides enlarging the database of sound effects, another technique to eradicate repetitiveness is to complexify a sound effect that could sometimes be very one-dimensional. This technique is called "layering," and it consists of putting several different recordings of the same action on top of one another in order to produce a multidimensional feeling. It adds depth into an otherwise flat single-layer recording. Blizzard's sound designers also process sound files and manipulate them electronically in order to make the sound effect more realistic and natural. For example, a dragon's death moaning has 7 layers. These recordings are layered on top of each other by the sound designer to create multiple possible noises for the death of a dragon.

4.1.2.2.5. Randomness

Randomness is the most direct solution for repetitiveness. Four different kinds of randomness are used: randomness in triggering sound file samples of a single sound source; randomness in triggering sounds at a random rate; randomness of the perceived distance; and randomness in sound direction.

The first kind of randomness corrects the problem of the recorded sound file's artificiality. Assuming monsters rarely make precisely the same noise twice, a pool of 9 to 12 samples per

monster randomly played creates the illusion of naturalness.

The second kind of randomness helps in spacing the sound file in a random rate. Wolves are not always constantly howling in the forest, so wolf sound files are played randomly in time.

The third kind of randomness creates the spatial world of sound. Crickets in a forest are not all situated at the same distance from the character. One can be far, another can be closer.

The fourth randomness adds to the third to create a three dimensional world of sound. When a player walks into a forest, if the source of the noise was always coming from one direction, it would sound very artificial. But when *World of Warcraft* plays the sound of several night owls and randomizes their rate, distance and direction, sound becomes very realistic.

4.1.2.3. Creativity

Jonas Laster, the Assistant Sound Designer for the Burning Crusade Expansion, indicates that a sound designer needs a lot of creativity. The sound designer is obliged to have "the ability to take sound [where] most people wouldn't consider as being whatever it is they are experiencing or looking at and you are layering all this things and you are making something out of them."

For example, in the Mists of Pandaria expansion, the Pandaren Monk's sound of impact when he hits an enemy is not produced by bashing two fists together, but rather by "banging" two cabbages together. The sound of the "Crackling Jade Lightning" spell is actually produced by tearing a cabbage apart.[57]

[57] Source: Sound Design Chapter from the DVD, Mists of Pandaria Expansion, Behind the Scenes.

Creativity is the capacity to produce embellished in-game sound from a variety of real life sounds. In the game, these sounds are entirely believable and integrate seamlessly with their environment.

4.1.3. The Voice-Over (VO)

This technique borrowed from filmmaking has a slightly different meaning in *World of Warcraft*.

4.1.3.1. Definition in the Film Industry

In the film industry, the term voice-over refers to a piece of narration where a voice is heard but the person speaking is usually not seen in the image. This can be a person commenting on the image without being seen, or the actor in the image commenting on his own actions or the actions of others as an after-thought.

4.1.3.2. Definition in the Video Game Industry

According to Jason Hayes, "in the game industry, voice-over is used as a general term that refers to all use of voice, whether for characters, narration, or anything else."[58]

This definition is a broader use of the voice-over technique, which might refer to a voice actor imitating a noise or speaking as an in-game character, be it a non-player character or one controlled by the player.

[58] Jason Hayes, e-mail correspondence with the author, February 12, 2014.

This does not preclude *World of Warcraft* from using voice-overs in the manner used by the film industry. For example, in the introductory in-game cinematic for each race, the game makes use of film industry voice-overs: a narrative voice describes the origin of the player's chosen race and its story while the camera flies over the starting zone and lands on the character.

A very particular use of voice-over can be found in the Lich King expansion when players choose the Death Knight Race. Death Knight players hear the voice of the Lich King inciting them to do things, or commenting on their actions while they are doing quests, so long as they are in their starting zone of Ebon Hold. This corresponds to the traditional meaning of voice-over, but in a highly innovative way.

4.1.3.3. Goal

The usual goal of the voice-over in *World of Warcraft* is to signal the progress of the game play. Voice-overs have an informative role for players. For example, when a player clicks on a character, that character answers the player. If the player is asking his character to do something which he is incapable of, the character will tell the player this. Voice-overs can also inform multiple players. For example, if a player is out of mana,[59] he can let other players know by typing "/oom" in the dialogue box used for in-game text chat. That player's character then expresses physically and verbally to other players that it is out of mana. The voice-over enables the player to express himself through his character to other players, rather than communicating directly them, enhancing the immersiveness of the roleplaying

[59] Mana is a magical power resource used to cast spells. Each magical spell requires a certain amount of mana in order for the player to cast it. The amount of available mana is indicated as a blue bar below the health bar under the character's portrait.

experience.

4.1.3.4. Categories of VO

4.1.3.4.1. Cinematic VO

This kind of voice-over is akin to dubbing using the Automated Dialogue Replacement (ADR) method. This way of producing voice-over is the same as used for animated films and cartoons. Both trailers and in-game cinematics use this kind of voice-over.

4.1.3.4.2. Character-Based VO

4.1.3.4.2.1. Non Player Character VO

Non-player characters have three different kinds of voice-over: active, passive, and interactive. The term "non-player character," in the context of *World of Warcraft*, comprises all humanoids, creatures, animals, monsters and other speaking objects.

4.1.3.4.2.1.1. Active VO

In active voice-over, a non-player character will either make noise (if it's a creature) or speak an intelligible phrase. For example, during the raid against the "Sha of Anger," the Sha expresses itself in English to players participating in the raid when it enters the field by saying things like "Give in to your anger." or "Your rage gives you strength."

4.1.3.4.2.1.2. Interactive VO

An Interactive voice-over is triggered when two in-game characters physically interact with

each other. Often, this takes the form of things that various enemies say while being attacked or while taunting the player. For example, when the Sha of Anger is attacked, it yells: "Yes, YES! Bring your rage to bear! Try to strike me down!" Interactive voice-over can also be specific to certain actions. For example, if the Sha of Anger casts the spell "Growing Anger," which makes participants in the raid kill each other, it shouts out, "Feed me with your anger!" Interactive voice-over can serve to inject humor. For example, Mekgineer Steamrigger, the second boss in The Steamvault of Coilfang Reservoir instance, cries out "Mommy!" when it is slain by players.

4.1.3.4.2.1.3. Passive VO

Passive voice-over is triggered in response to player actions (usually, clicking on a target character). It is not triggered by physical contact with another in-game character as interactive voice-over is. For example, when a Death Knight player clicks on the Lich King non-player character to retrieve a quest in Ebon Hold, the Lich King speaks one of several voice-overs: "Speak!"; "Bow to your Masters!"; "Your will is not your own." or "All life must end." Similarly, after the player accepts a quest, one of several passive farewell voice-overs plays: "All. Must. Die." or "You know what to do."; "Slay all who oppose us."; "Go forth and defile these lands."; "Conquer in my name!" Sometimes, the phrase spoken when a quest is accepted can be quite long: "All that I am: anger, cruelty, vengeance - I bestow upon you, my chosen knight. I have granted you immortality so that you may herald in a new, dark age for the Scourge." At other times, the Lich King simply says nothing.

4.1.3.4.2.2. Player Character VO

Player-character voice-overs are divided into three categories: emotes, error speech, and pet

sounds.

4.1.3.4.2.2.1. Emotes

To emote in *World of Warcraft* means "to express emotion."[60] Emotes make the player's character express emotion both physically and vocally. This sort of expression is an essential part of an MMORPG, as it allows the players to take on their role more fully. All sorts of emotes can be triggered by typing in the desired emote in the dialogue box. For example, to make his character laugh, a player can hit type "/laugh." Emotes can play differently depending on context; a player can click on another in-game character or another player and type "/laugh" to trigger a different reaction as the player's character is laughing at the other character.

4.1.3.4.2.2.2. Error Speech

Video game voice-overs are not only a way for a player to act as his character; they also provide a way for the character itself to communicate with the player. For example, if a player is trying to use a spell while out of mana, his character will express itself vocally: *"Not enough mana" or "I need more mana."* Additionally, some spells and powers have a "cool-down" period before they can be reused; if the player is trying to cast one of these too quickly, his character will say "That spell is not ready yet!"; "That is still recharging." or "I cannot cast that yet." If a player ignores his character's error speech and tries to repeatedly cast the desired spell anyway, the character's emote will begin to sound angry. This creates a distinct personality for the character, and creating the impression that it is a living individual with emotions.

[60] *WoWwiki.com,*. s.v."emote," Accessed Feb. 12th 2014. http://www.wowwiki.com/Emote

4.1.3.4.2.2.3. Pet Sounds

In *World of Warcraft*, each player controls not only a character, but also pets. Pets may be combat pets, which will join in while the character is fighting, or companions, which take no part in battle. For example, many hunter class characters have a constant combat pet that they have tamed to help them while hunting. Non-combat pets can also fight against each other, or, since implementation of the "Pet Battle System", in the Mists of Pandaria expansion, help capture wild pets.[61] Both combat and companion pets make sounds, which are divided into two sound data pools: idle and aggro.[62] Idle sounds are made by pets when they are not in combat, while aggro sounds are used in combat.

4.1.3.5. Solution for Repetitiveness in VO

The problem of character-based voice-overs is similar to the problem faced with sound design: repetitiveness. Mechanical repetition has a negative impact on the game, because it makes the game unrealistic. The solutions developed by Blizzard are similar to the ones for the Sound Design repetitiveness problem.

4.1.3.5.1. Variety and Randomness

For player characters, there are many different emotes a character users to express itself. These range from all kinds of emotions such as happy, angry, sad etc; to simple phrases telling the player what the character can or cannot do.

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[61] *WoWwiki.com,* s.v. "Pet Battle System," Accessed 13th February, 2014. http://www.wowwiki.com/Pet_Battle_System

[62] "Aggro" generally refers to monsters who will aggressively attack player's characters without provokation. In this sense, it refers to the aggressive nature of the sounds made by the player's controlled pets.

Adding to this, for any given emote, there are several different phrases that can be triggered. These phrases are played randomly to make players feel their character is responding like a real person. For example, if a player is trying to buy an item without sufficient funds, there are three different emotes he may encounter: "I do not have enough money." "I cannot afford that." "It is too expensive." These three phrases are played at random to give the character's commentary more variety.

The Music/Sound Design team devotes substantial resources to developing important non-player characters. For example, the Lich King has a large pool of voice-overs from very short to very long; these range from saying nothing to the well-developed, complex phrases described above. The combination of a large data pool of various emotes and the randomness with which they are employed help make the Lich King a vivid, memorable character.

4.1.3.5.2. Specificity

The variety and randomness of voice-overs for each action is insufficient in creating a vivid world. To be believable, a world needs a history, cultures, and heritage. As such, each race, sex, and class of character has specific ways of speaking. Characters express themselves using accents, intonations, etc., which are derived from their created history and culture. A Pandaren female without enough money, for example, would speak with the imagined accent of a Pandaren female. In order to produce these specificities, voice actors and actresses are hired according to their ages, sexes, and voice pitches for each specific race, class, or character. Each race, sex, and class also has its own unique way of phrasing things, which aids in the feel of a living world with diverse cultural heritages.

This specificity is not limited to individual in-game characters, but can also be found in group

voice-overs. In the Wrath Gate in-game cinematic, a specific voice-over is produced which simulates the voices of a large group of people preparing for war. To produce this voice-over, Blizzard's employees were gathered and told to yell as loud as they could.[63]

4.2. Statistical Analysis of Epic Music in *World of Warcraft*

4.2.1. Elements of Analysis

This section contains a list of the elements (variables, factors) used in the analysis table below, along with their definitions.

Area heard: the area in which music is heard. *World of Warcraft* is divided into several virtual zones and comprises many virtual cities and areas. Music is played at a random time, or sometimes as a loop.

In-Game Music: if music is strictly composed for in-game purposes, this is marked as "yes." If it is composed for other purposes such as a trailer or an exclusive track that can only be heard on the soundtrack CD, or repurposed from a previous Warcraft series game, this will be marked as "no."

Style: epic, ambient and thematic styles are marked according to the general feel of each track. Because one track can combine several segments of in-game music into a single track, it is sometimes necessary to indicate all the styles that happen in one track. Epic style describes music that is bold and heroic. Ambient style comprises the regular ambient sounds of an area. Folk Style means a piece of music with a defined, folkloric, melodic line and accompaniment. Folkloric elements include both real world folk music and in-game folkloric creation.

Tonality begin: the tonality in which the music starts. If the tonality is not identifiable due to electronic distortion or atonality, it is marked as "?". If the tonality is ambiguous, I have categorized it as "tonality-ish," or if it has a tonal center, then it will be marked "uncertain

[63] Wrath of the Lich King Expansion, Behind the Scenes DVD. Sound Design Chapter.

pitch." Certain tracks have a chord that is either permanent of present most of the time; while others have one chord that is constantly present without one being able to identify its tonality. In this case, the chord is named instead of a tonality. A lot of times, because of the intensive usage of exotic instruments such as Duduk, or Shakuhachi, a western tonality might not be identifiable because it simply does not fit into the traditional definition of western music tonalities. The usage of tonality besides major or minor is classified as "Other tonal".

Tonality end: the tonality in which the music ends with. All the types of tonality described in "Tonality begin" also apply here.

Time signature: the time signature of the beginning of the piece is marked. However, if the music changes time signature, the second time signature is marked after the first one. If the time signature changes for only a measure without being a pattern, this is ignored. If the time signature cannot be identified, it is classified as uncertain (indicated in the data file as "?").

Tempo: the speed at which the music is played, characterized by an Arabic number representing the note value, an equal sign, and the number of beats per minute (bpm). For example, a quarter note that equals 60 bpm. is marked: 4=60. If the tempo is not identifiable, it will be coded as "?".

Mood: the feelings evoked by the music. This is subject to interpretation and is not objective data. Mood is noted for reference, but not included in the testing.

Complex rhythm: This is a category that includes both vertical complexity (two or more voices) and horizontal complexity (within one voice). Vertical complexity includes polymeter and polyrhythm. Polymeter is two or more voices having meters of their own simultaneously; while polyrhythm is under one established meter, a voice or more using a rhythm that is in contrast with the established meter such as hemiola (3:2). Horizontal complexity includes syncopation, and any odd accents on unexpected beats or off-beats. The presence of Complex rhythm in the music is observed to be present (coded in the data tables as "yes"), or absent (coded as "no.").

Big Crescendo: a crescendo that is consequent and noticeable, specifically one with propulsion power, the power of building up tension. The presence of a big crescendo in the music is coded as "yes" when present or "no" when absent.

Sudden silence: an abrupt interruption of the music by silence or a huge drop in dynamic.

This does not apply when music gradually comes to a stop because a musical phrase has ended expectedly. However, if it comes to an end abruptly with *ff*, and restarts with a different mood, then it will be counted as sudden silence. Also, a *p subito* will be assimilated to sudden silence. The presence of a sudden silence in the music is coded as "yes" when present or "no" when absent..

Repetitive line: an idea, a motif, or a musical element that is repeated and becomes a pattern, be it in the base line, in the highest pitch or a percussive pattern that repeats itself. The presence of a repetitive line in the music is is coded as "yes" when present or "no" when absent.
Percussion: the usage of a percussive instrument, be it pitched or not. The presence of percussion in the music is coded as "yes" when present or "no" when absent.

High strings: the usage of strings in high tessitura. The presence of high strings in the music is coded as "yes" when present or "no" when absent.
Voice: the usage of human voice, be it electronically modified, simulated, or not. The presence of voice in the music is coded as "yes" when present or "no" when absent.

Brass: the usage of brass instruments, be they electronically modified, simulated, or not. The presence of brass instruments in the music is coded as "yes" when present or "no" when absent.

Catchy melody: the usage of a melody that is easy to remember for the general public. The presence of a catchy melody in the music is coded as "yes" when present or "no" when absent.

Exotic instruments: the usage of instruments that are generally absent in western orchestral instrumentation, be they electronically modified, simulated, or not. The presence of an exotic instrument in the music is coded as "yes" when present or "no" when absent.. If the exotic instrument is identifiable, it will be identified in the miscellaneous column.

Suspension: the usage of suspension in harmony. The presence of suspension in the music is coded as "yes" when present or "no" when absent.

Unprepared modulation: the usage of an abrupt change in tonality without a pivot chord or any harmonic transition. The presence of unprepared modulation in the music is coded as "yes" when present or "no" when absent. In case of the presence of an unprepared

modulation, the time when it occurred in the track is recorded in the next column, and the harmonic progression of the unprepared modulation is specified in the following column.

Sequence: the usage of harmonic sequence. The presence of sequence in the music is coded as "yes" when present or "no" when absent.

Flat leading tone: the usage of a leading tone that is flattened. The presence of a flattened leading tone in the music is coded as "yes" when present or "no" when absent.
Unorthodox interval: the usage of all augmented, diminished intervals, or any microtones-intervals. The presence of an unorthodox interval in the music is coded as "yes" when present or "no" when absent.

***Bruitage*/Electronic**: the usage of noise or electronic timbre that cannot be pitched. If it is pitched, it is marked in the exotic instrument category. The presence of *Bruitage*/electronic in the music is coded as "yes" when present or "no" when absent.

Interrupted cadence: the usage of an interrupted cadence or cadences that can be perceived as interrupting the arrival of a tonic chord. The presence of an interrupted cadence in the music is coded as "yes" when present or "no" when absent.

Miscellaneous 1: the identified exotic instrument used in the soundtrack. This column is not included in statistical analysis.

Miscellaneous 2: any other interesting observations. This column is not included in statistical analysis

4.2.2. Database

4.2.2.1. Inclusion

The analyzed tracks are from 5 specific albums:[64]

[64] Information about the soundtracks are from the Blizzard website. Accessed February 15th 2014. http://eu.blizzard.com/en-gb/games/music/

1. *World of Warcraft (Original Game Soundtrack)*
   Year of Release: November 23, 2004,
   By: Jason Hayes, Tracy W. Bush, Derek Duke and Glenn Stafford.
   Number of tracks: 30

2. *World of Warcraft: The Burning Crusade (Original Game Soundtrack)*
   Year of Release: 16 January 2007
   By: Russell Brower, Derek Duke, Matt Uelmen
   Number of tracks: 21

3. *World of Warcraft: Wrath of the Lich King (Original Game Soundtrack)*
   Year of Release: 13 November 2008
   By: Russell Brower, Derek Duke, Glenn Stafford
   Number of tracks: 21

4. *World of Warcraft: Cataclysm (Original Game Soundtrack)*
   Year of Release: 07 December 2010
   By: Russell Brower, Derek Duke, Neal Acree, David Arkenstone, Glenn Stafford
   Number of tracks: 17

5. *World of Warcraft: Mists of Pandaria (Original Game Soundtrack)*
   Year of Release: 25 September 2012
   By: Russell Brower, Neal Acree, Sam Cardon, Edo Guidotti, Jeremy Soule
   Number of tracks: 20

Rationale: these five albums contain the music that the composers feel is representative of each game and expansion. It is relevant to include all five albums, as doing so provides a collection of samples from each expansion.

4.2.2.2. Exclusion

The following Soundtracks were excluded from analysis:

- *World of Warcraft: Taverns of Azeroth (Original Game Soundtrack)*
Reason: Tavern music is not the subject of the study. This CD is excluded due to its

containing exclusively folk style music, making it a poor fit for a study of the epic music of *World of Warcraft*. In addition, the five included albums contain multiple instances of tavern music already. It is thus not necessary to include an album dedicated to tavern music.

- *Warcraft III: Reign of Chaos (Original Game Soundtrack)*
Reason: Even though there is overlap of musical ideas, phrases, and motifs in the music of *World of Warcraft* and Warcraft III, this study is not concerned with games prior to *World of Warcraft*.

- Soundtracks from major patches and other in-game soundtracks not included in the five albums
As *World of Warcraft* is a living universe, game mechanisms, graphics, environments, sounds, and music are constantly updated. It is thus impossible to include all in-game music.

4.2.3. Choice of Elements for Analysis

Before analyzing the soundtracks of *World of Warcraft*, it is important to know why these elements (variables, factors) were chosen.

4.2.3.1. Music, an Artistic Discipline

It is not the goal here to produce a mathematical table of epic music, as composing music does not follow mathematical formulas, nor is music a scientific discipline. Composition is an act of artistic creation, capable of expressing emotional subtlety and a wide range of moods. Although there have been some recent efforts to create computer programs that can generate music, this study is concerned not with automatically generated sound, but with the actions of human composers. If music could be successfully reduced to a mathematical formula or artificially generated sound pattern, one could consider any computer program capable of

composing contemporary music to be a composer in its own right.[65] David Cope, who has developed one such program, claims that it can compose beautiful and intelligible contemporary music (atonal), similar to pieces produced by human composers, without emulating any works of human composers.[66] But in a sense, coding this program is a way of composing music, since a human is still responsible for coding the program. Since the beauty of music is subjective, terms like "beauty" and "successful," when used to describe music, is entirely up to the listener.

Thus, the selection of each of the elements used for analysis in this study is partly subjective. At the same time, although there is some amount of arbitrariness, aesthetic judgment and analysis is never random. Below is a brief commentary explaining the elements used for analysis.

4.2.3.2. Referential Elements

Some elements mentioned in the analysis are strictly informative, and are not actually used to analyze or test the music. These elements, such as Game and Expansion Title, Area Heard, In Game Music, and Mood, are listed rather as an identifying reference.

4.2.3.3. Analytical Elements

Elements that are used to analyze the soundtrack are: Style, Tonalities, Time Signature,

[65] Diaz-Jerez, Gustavo. "Composing with Melomics: delving into the computational world for musical inspiration". *Leonardo Music Journal* vol. 21 (2011): 13–14.

[66] Cope, a professor at UC Santa Cruz, is the creator of a program called "Emily Howell" that is capable of analyzing composition from a composer and regenerate by itself a new composition in the same style. He "teaches" the program to generate music according to his taste based on analyzed music.

Tempo, Polymeter/polyrhythm, Big Crescendo, Sudden Silence, Repetitive Line, Percussion, High Strings, Voice, Brass, Catchy Melody, Exotic Instrument, Suspension, Unprepared Modulation, Sequence, Flat Leading Tone, Unorthodox Interval, *Bruitage*/Electronic, and Interrupted Cadence. The definition of each element may be found in section 4.21, above.

4.2.3.3.1. Styles

This dissertation is focused on style, especially the epic style. The presence or absence of epic style is the primary outcome of its analysis. Each track in *World of Warcraft* is classified into three styles: epic, ambient and folk. These classifications of each soundtrack are somewhat arbitrary, as some can be both folk and ambient, or epic and folk. Ambient and epic styles are mutually exclusive styles, as ambient music induces a certain mood of calm, peace or spookiness, while epic music evokes heroic sensations, excitement, and a surge in adrenaline. However, a single soundtrack can be labeled Ambient/Epic. This does not mean the music is at the same time epic and ambient, but that it combines several small music fragments that are in very different styles. The beginning of a piece can be very epic, with the rest of it ambient. Folk style music can also be included in some epic and ambient music. For example, Howling Fjord soundtrack No. 15 of Wrath of the Lich King Expansion is ambient but heavily influenced by the folk style.

To justify the arbitrary decision of labeling one piece of music as epic, ambient or folk, it is necessary again to mention the innate subjectivity of music. Indeed, even scientific disciplines such as genealogy can involve inherently subjective definitions, upon which entire hypotheses hinge. One example of this is an article published in the prestigious *Nature,* titled "The genomic landscape of Neanderthal ancestry in present-day humans," in which the

authors draw fairly arbitrary lines of ethnicity between European and American ancestors.[67]

Table 1 below details the arbitrary nature of their research.

Table 1 | Genome-wide estimates of Neanderthal ancestry

Region	Population	Number of individuals	Neanderthal ancestry on autosomes (%)	Neanderthal ancestry on the X chromosome (%)
Europe	CEU	85	1.17 ± 0.08	0.21 ± 0.17
	FIN	93	1.20 ± 0.07	0.19 ± 0.14
	GBR	89	1.15 ± 0.08	0.20 ± 0.15
	IBS	14	1.07 ± 0.06	0.23 ± 0.18
	TSI	98	1.11 ± 0.07	0.25 ± 0.20
East Asia	CHB	97	1.40 ± 0.08	0.30 ± 0.21
	CHS	100	1.37 ± 0.08	0.27 ± 0.21
	JPT	89	1.38 ± 0.10	0.26 ± 0.21
America	CLM	60	1.14 ± 0.12	0.22 ± 0.16
	MXL	66	1.22 ± 0.09	0.21 ± 0.15
	PUR	55	1.05 ± 0.12	0.20 ± 0.15
Africa	LWK	97	0.08 ± 0.02	0.04 ± 0.07
	ASW	61	0.34 ± 0.22	0.07 ± 0.11

For each computationally phased genome in each population, we estimated the probability of Neanderthal ancestry at each SNP and the fraction of autosomal and X chromosome SNPs that are confidently of Neanderthal origin in each individual (marginal probability >90%). The table reports the average and standard deviation of this statistic across individuals within each population. ASW, people with African ancestry in Southwest United States; CEU, Utah residents with northern and western European ancestry (from the Centre d'Etude du Polymorphisme Humain (CEPH) collection); CHB, Han Chinese in Beijing, China; CHS, Han Chinese in South China; CLM, Colombians in Medellin, Colombia; FIN, Finnish in Finland; GBR, British from England and Scotland, UK; IBS, Iberian populations in Spain; JPT, Japanese in Tokyo, Japan; LWK, African Luhya in Webuye, Kenya; MXL, people with Mexican ancestry in Los Angeles, California; PUR, Puerto Ricans in Puerto Rico; TSI, Toscani in Italy.

Figure 4-8: Table 1 from "The genomic landscape of Neanderthal ancestry in present day humans."

4.2.3.3.2. Tonality

[67] Sankararaman, S. et al. Nature http://dx.doi.org/10.1038/nature12961 (2014). In this article, the scientific researchers claimed that the modern European and Asian have more Neanderthal genome than the African. In Table 1: Genome-wide estimates of Neanderthal ancestry of the article, among the people who are classified as European, there are CEU, Utah residents with northern and western European ancestry and IBS, Iberian populations in Spain. In the American region table, there are CLM, Colombians in Medellin, Colombia; MXL, people with Mexican ancestry in Los Angeles, California; and PUR, Puerto Ricans in Puerto Rico. This is an arbitrary and highly suspect classification that is arguably more based on appearance and social stereotypes than any recognized biological characteristics. One can see the Iberian is classified as European whereas a cursory review of history reminds us that many people with Mexican ancestry in Los Angeles were originally from Spain (i.e Iberia) Consequently , a subject with genetic roots in Iberia, is classified as American, not European while an Utah resident with northern and western European ancestry is classified as European. Amerindians are not even in the database of the American Region. Puerto Rico was the landing island of Columbus' second voyage to America in September 25th 1493, and it is an historical fact that Puerto Rico, was called San Juan Bautista, served as the key of expansion for the Spanish Empire. After that in 16th century, Africans were brought to this Island as slavery force, thus the Puerto Rican population also has significant African ancestry, yet are categorized as Americans in the study. Since a scientific manuscript with this level of subjectivity can appear in the "Nature" paper, music as an already subjective domain can very well resort to an arbitrary subjective classification, provided it is clearly defined and is reproducible.

Tonality's representation of mood has been the subject of multiple studies. Minor tones are typically equated with sad and negative emotions, while major tones are equated with happy and positive ones.[68] It is thus relevant to include this element to determine if epic music has an inclination toward minor, major, or other form of tonality.

4.2.3.3.3. Time Signature

Western music is metered into several different time signatures, like 4/4, 6/8 etc.; just as *Chanson de geste, vers* is divided into two *hemistiches* that can be annotated 4+6/8. Time signature is also a tool that is used to compose music in *World of Warcraft*.

4.2.3.3.4. Tempo, Complex Rhythm

Accelerating tempo creates a sense of excitement. Polymeter is the combination of two or more different meters, thus creating an uneasy feeling. Complex Rhythm is the use of different contrasting rhythmic patterns, under a single established meter. These devices each create an exalted musical sensation, because they confuse the audience's expectations of rhythm. The sensation is similar to a man suddenly feeling Earth's gravity altered by the additional G-force of an airplane taking off. The established rhythmic pattern in this example is the Earth's gravity; when the airplane takes off, just as when polyrhythm comes into play, the rules of gravity, or rhythm, are suddenly challenged. This creates excitement and a sensation of euphoria which derives from the feeling of some force fighting against gravity. Polymeter, similarly, would be akin to placing the man close enough to two planets so that he experiences both gravities simultaneously.

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[68] Katharine M. L. Mead & Linden J. Ball "Music tonality and context-dependent recall: The influence of key change and mood mediation" *European Journal of Cognitive Psychology*, Vol. 19:1 (2007): P63 DOI:10.1080/09541440600591999

4.2.3.3.5. Dynamics

Dynamics such as big crescendo or sudden silence can be very dramatic. In epic music, just as in the narratives of *Chanson de geste*, heroic deeds and tasks often provoke dramatic situations. A big crescendo can stimulate the flow of adrenaline just as much as a sudden silence. One builds up slowly, while the other is a surge of emotion. One is a roller coaster ride at a theme park, while the other is more like a drop tower.

4.2.3.3.6. Instrumentation

Instrumentation and timbre, including the use of percussion, high strings, voice, brass instruments, and exotic instruments, can change completely the feel of a piece. For example, a piece that is played by a solo violin does not give the same feeling as being played by Erhu. The heroic association of the horn might be from the Oliphant, even though it's not a brass instrument. Drums were often used in battle to direct groups of warriors. Voice is the most human instrument, and different types of singing can trigger different kinds of emotions and memories.

Instrumentation in electronic music has a different connotation than in traditional instrumentation. For example, in traditional instrumentation, composers must worry about what is physically possible for each musician and his or her instrument. For wind and brass players, for example, breathing is an important part of the practice of their instruments. In electronic music, this is less of an issue, because the composer can write an impossibly long non-rest line which can be played out in the Digital Audio Workstation. Even though it is possible for a composer to compose music that is not playable for musicians and only playable in the Digital Audio Workstation, composers tend to stick with what is possible for a real musician to aid with believability. When they compose something that is impossible for a

real player, it is a conscious decision, usually one which provides certain special effects that they are looking for. Nonetheless, the instrumentation of electronic music using sound libraries and Digital Audio Workstation has a wider spectrum of possibilities than traditional instrumentation.

4.2.3.3.7. Compositional techniques

Compositional techniques such as catchy melody, repetitive lines, unprepared modulations, sequence, flat leading tone, unorthodox intervals, and interrupted cadence are tools that have been used for centuries by composers to create emotion. A catchy melody is easy to remember, whereas an unprepared modulation can create a surprising effect, just as an augmented second recalls certain real-world cultures and civilizations.

4.2.4. Limitation of Analysis by Listening

4.2.4.1. Difference between Analyzing a Score and a Soundtrack

Russell Brower, the music director at Blizzard, notes that he prefers to compose with pen and paper, and the help of a piano.[69] More often, though the music of *World of Warcraft* and most other video games is composed directly onto a Digital audio workstation, without the support of live performers playing a traditional music score. Likewise, composers of video game music are most of the time the performers of their compositions, using DAW and conventional sound libraries or an ad-hoc sound library. Even sheet music intended to be performed by live musicians for video games undergoes digital modifications before reaching

[69] A conversation between the author and Russell Brower during the Birthday Bash of Tommy Tallarico/ Video Games Live - Level 3 Album Release Party on February 18th, 2014 in Mission Viejo, CA, USA.

its final state. The goal is always to produce a track that can be used in-game, and not a score. Because of the resultant scarcity of musical scores for video game music, the only way to analyze it is through listening to each music file. Even where a score is available, it is difficult to analyze the music in *World of Warcraft* using only that because of the extensive modification and embellishments mentioned above.

4.2.4.2. Advantage of Limitation: Single Interpretation

There is often a difference between what the ears perceive and what a written score is trying to convey. This is why traditional notation sometimes causes problems of interpretation. The intention of the composer is the most difficult thing to play for a performer. One key limitation of analyzing music by listening to it is the differences between the music arrangement transcribed by dictation and the original intent of the composer. The latter can never be verified unless the composer explicitly expresses it in a score. Indeed, even for scores classical composers have written themselves, we have no guarantee that the exact interpretation can be fully respected or even understood. There have been many cases in classical music where a composer has changed his mind from one edition to the next, or where the composer's intention was obscured by the editor. For example, in the opening passage bar 7 of the First Ballade of Chopin, D, G, and E flat are clearly marked on the left-hand chord of the French edition, which was based on Chopin's manuscripts. At the same time, Chopin's German publisher decided to alter the top E flat to D, maybe due to the unexpected dissonance.[70]

[70] Jim Samson. *Chopin: The Four Ballades*. (Cambridge, UK: Cambridge University Press, 1992), 22.

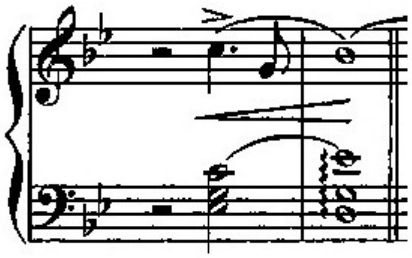


Figure 4-9: Bar 6-7, Chopin Ballade No. 1 First French Edition in 1836. Schlesinger Plate No. MS1928(1836)

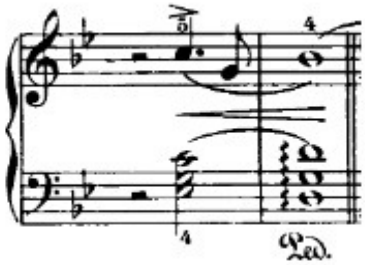


Figure 4-10: Bar 6-7, Chopin Ballade No. 1 First German Edition in 1836. Breitkopf & Härtel, Plate No. 5706

Since there are no scores, analyzing the soundtracks of *World of Warcraft* by listening to them does not bring up the traditional problems of interpretating scores. In a sense, the soundtracks in the *World of Warcraft* are the only rendition of the composers' music, directly approved by themselves. The music is frozen in time from the moment the game is finished and released to the public. Hence, having approved soundtracks instead of scores is not a limitation but actually an advantage. Of course, the exact rendition of in-game music changes over time since it's subjected to numerous updates and patches. However at any given moment, the downloaded version is always the approved interpretation in the universe of Warcraft.

4.2.4.3. Limitation in Comparing Multiple Tracks

Whether a particular piece of music was created by being directly played onto the Digital Audio Workstation or composed through sheet music and recording with live musicians, the outcome in *World of Warcraft* is the same: a single track. This limitation does not have a significant impact on analyzing the piece itself, given the broader usage of music in the game. However, it does limit analytical precision among pieces. For example, a person can hear a soundtrack in 4/4 with a quarter note equal to 60 bpm even if the composer intended to write

8/8 with one eighth note equal to 120 bpm. While the analysis of the rhythmic component of the piece itself won't be impacted by this limitation, a comparison of multiple pieces may result in erroneous understandings of their purpose.

This actually occurred in the transcription in *World of Warcraft* suite; Jason Hayes observed that the orchestrator felt the time signature of "A Call to Arms" was 12/8, whereas when he composed it, in his mind it was 6/8, not 12/8.[71]

4.2.5. Essence of "Epicness" in the music of *World of Warcraft*

The raw data of analysis can present certain aspects of epicness, but there are other important findings as well.

4.2.5.1. Definition: Statistical Significance

Hypothesis testing is a commonly used approach in science. The fundamental tenet underlying hypothesis testing is that it is easier to disprove a concept than to prove it. For example, a hypothesis that all cows have four legs would be rapidly disproved by finding a single cow with fewer than four legs. A common approach is to create a null hypothesis, e.g. that "all cows have legs other than four." The alternative hypothesis would be that "all cows do not have legs other than four," (which we are trying to prove). If we observe a single cow with four legs, we can reject the null hypothesis and therefore accept the alternative hypothesis.

Fisher's exact test calculates all the possible permutations of data being observed and

[71] A telephone conversation between the author and J. Hayes in 2013.

provides the probability of an identical or more extreme result being obtained if the null hypothesis is true. If that probability is less than a predetermined value, one may reject the null hypothesis and accept the alternative hypothesis. For medical, biological and social sciences, $p<0.05$ is generally considered an appropriate predetermined value.

4.2.5.2. Hypothesis

I hypothesized that there are differences in the prevalence of variables (elements, factors) listed in 4.2.1, Elements of Analysis, between epic and non-epic music in *World of Warcraft*. The null hypothesis was that there would be no differences in the prevalence of these variables. Thus, the alternative hypothesis was that they were **not** not different (i.e. that they were different). I set a *p*-value of 0.05 as the predetermined value required to reject the null hypothesis.

4.2.5.3. Methodology

Data collection was performed in two steps. First, I listened to each track, and noted if predetermined characteristics (all variables but the style) were present in the track or not. Then I listened to all 109 tracks again to decide the applicable style of the track.

When a variable was present in a track it is coded as "yes," and when absent as "no." One single presence of an element is enough to trigger "yes." The aim of this step was not to measure the frequency of the variable present in the track, but simply its presence or absence. For tonality, the quality of the tonality is also measured, such as minor, major, etc.; in addition to the presence of tonality as such.

Time signature is categorized by the occurrence of each time signature, not the combination of time signatures that happen over time in one track. Because of the extreme individuality of each track (almost every track has its own tempo, regardless of style), tempo was disregarded in hypothesis testing.

I then performed Fisher's exact test without correction for multiple comparisons (as these were planned, rather than post-hoc, analyses and the typically used Bonferroni corrections are widely considered overly conservative). We would expect one in 20 tests to be potentially spuriously significant at the p=0.05 level. Four tables were produced, as follows: The frequency of each variable (expressed as a percentage) in all tracks; pure epic tracks vs. all others; pure ambient tracks vs. all others; and pure folk tracks vs. all others.

4.2.5.4. Raw data

The null hypothesis that "the frequency was not different between the targeted style and the other styles" can be rejected for $p \leq 0.05$. This means that the alternative hypothesis can be accepted, meaning that there is difference of the variable's frequency between musical styles. The difference can either be more or less prevalent in the targeted style. If the p-value is more than 0.05, then the finding is non-significant.

Tables displaying raw data are attached at the end of this dissertation.

Table 1 shows the frequency of each variable in all 109 tracks, regardless of styles**. Table 2** shows the frequency of each variable in the pure epic style pieces compared to all the other styles. **Table 3** shows the frequency of each variable in pure ambient style pieces compared to

all the other styles. **Table 4** shows the frequency of each variable in pure folk style pieces compared to all the other styles.

4.2.5.4.1. Positive findings

4.2.5.4.1.1. Epic Style vs Others

In Table 2, 29 tracks of pure epic style are compared to 80 tracks of other styles (ambient, folk, and different combinations of all three).

4.2.5.4.1.1.1. Time Signature 7/8

In the time signature variables, 6/8+7/8 and 7/8 shows there might be a positive use of these two variables in the epic style in the music of *World of Warcraft*. This is due to the fact that the rhythmic pattern of 7/8 in the main title of *World of Warcraft* Original Soundtrack 2004 is reused in the main title of each expansion pack (See Figure 4-11 below). As described previously, 7/8 can also be written as 7/4 depending on how the composer intended to score.

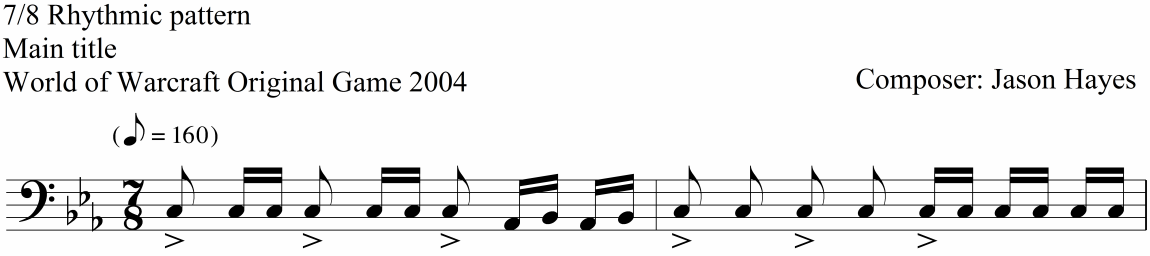


Figure 4-11: Track 1, Rhythmic pattern of the Main title from *World of Warcraft* Original Game 2004. Composer: Jason Hayes

The 7/8 pattern is also used in the Intro Movie, Track 7 of *World of Warcraft* OST 2004 (See

Figure 4-12 below), where it creates an epic feeling as the dynamic is ranged from *pp* to *mp*. This example strongly argues that epic style is not a synonym of *ff*. A very low dynamic passage can be extremely epic using a time signature such as 7/8. In addition to the time signature, the combination of an offset rhythmic pattern, shown on the first staff in Figure 4-13 below, with the accents on beat three and six interlocking with the accents on beats one, three and five of the third and fourth staffs, creates a complex rhythmic dynamic that makes this music epic just by means of time signature, rhyme and accents.

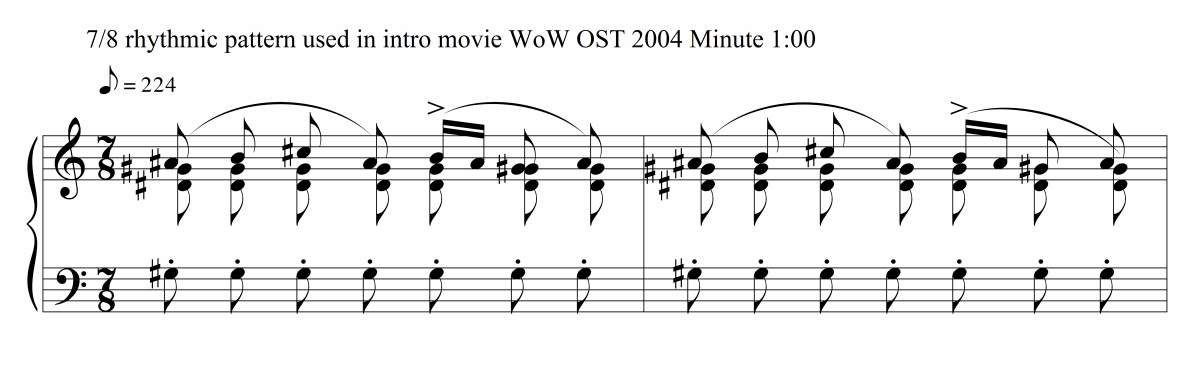


Figure 4-12: Track 7, *World of Warcraft* OST 2004 Reduction. Minute 1:00
Composer: Jason Hayes; Arrangement: Derrick Werlé

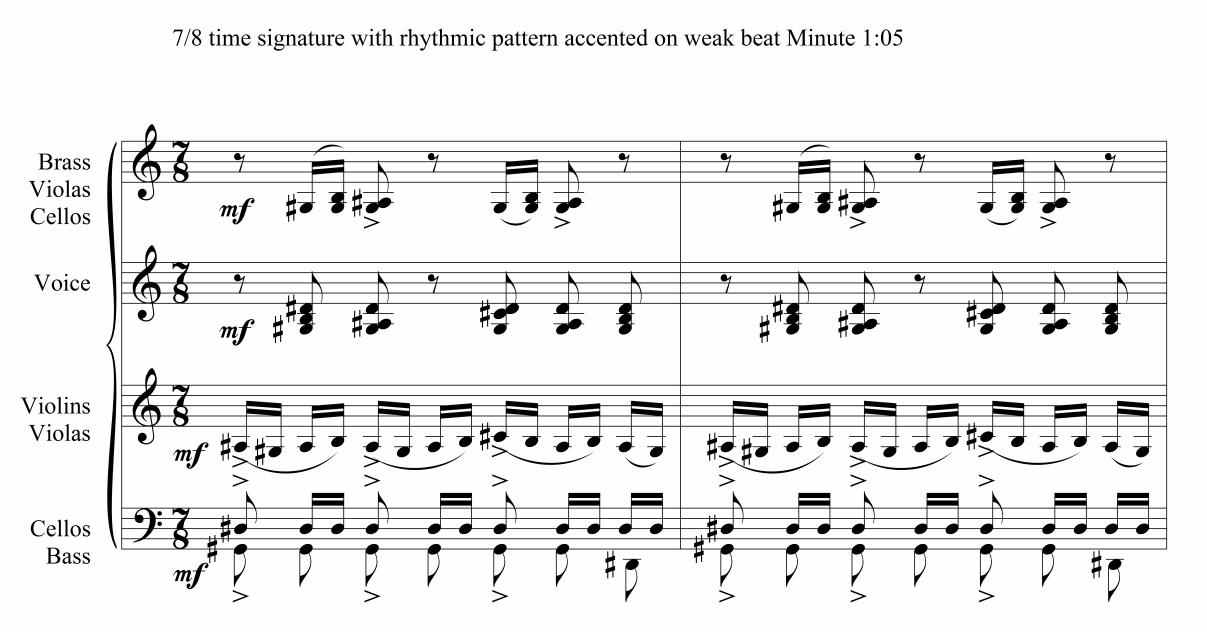


Figure 4-13: Track 7, *World of Warcraft* OST 2004 Reduction. Minute 1:05
Composer: Jason Hayes; Arrangement: Derrick Werlé

4.2.5.4.1.1.2. Minor tonality

The quality of tonality at the beginning of each track shows statistical significance. 27/29 (93%) of the epic tracks begin with a minor tonality; additionally, no epic track starts with a major tonality. The ending tonality is also strongly minor 83%, while major tonality occur in only 14% of tracks. Both the beginning and the end of pure epic tracks are thus statistically significantly different from the tracks of other styles. The majority of epic pieces have minor tonality. War is never a happy event; it makes people anxious and nervous. Heroic quests are a burden that a hero needs to overcome, thus it may be that the quasi-exclusivity of minor tonality in epic music in *World of Warcraft* is an attempt to use a minor tonality to create a negative feeling. However, when a hero accomplishes a task or overcomes any difficulties, the ending is gloriously positive, hence the occasional use of major tonality at the end of the track. For example, in Track 20, "Serpent Rider," from the soundtrack of the Mists of

Pandaria Expansion, the track, which is in the epic style, ends with A-flat Major while it begins with b minor.

4.2.5.4.1.1.3. Complex Rhythm

Complex rhythm occurs in 19/29 (66%) of pure epic and 26/80 (33%) non epic styles (p=0.002). Complex rhythm includes both vertical (polyrhythm, polymeter) and horizontal complex (syncopation and odd accents).

Polyrhythm is a classical tool used to create an uneasy sensation. One example is hemiola, three against two (3:2) in one bar, used to counter an established meter. Hemiola can happen also in one single voice, though it requires more craft on behalf of the singer. For example, in the Ukrainian song "Shchedryk" (Щедрик) the four-note *ostinato* is a hemiola even though it happens in a single voice. (See Figure 4-14: Shchedryk motif. The top staff shows the one-voice hemiola *ostinato*, while the bottom staff shows the perception of two-voice hemiola). Polyrhythm does not need to be in a 3:2 ratio, but 3:2 is considered as the base of other types of ratio. An odd signature is generally associated with embedded polyrhythm. Figure 4-13 above has shown four layers of rhythmic pattern against each other. The top two layers are in 3+4/7, while the bottom two layers are in 4+3/7.

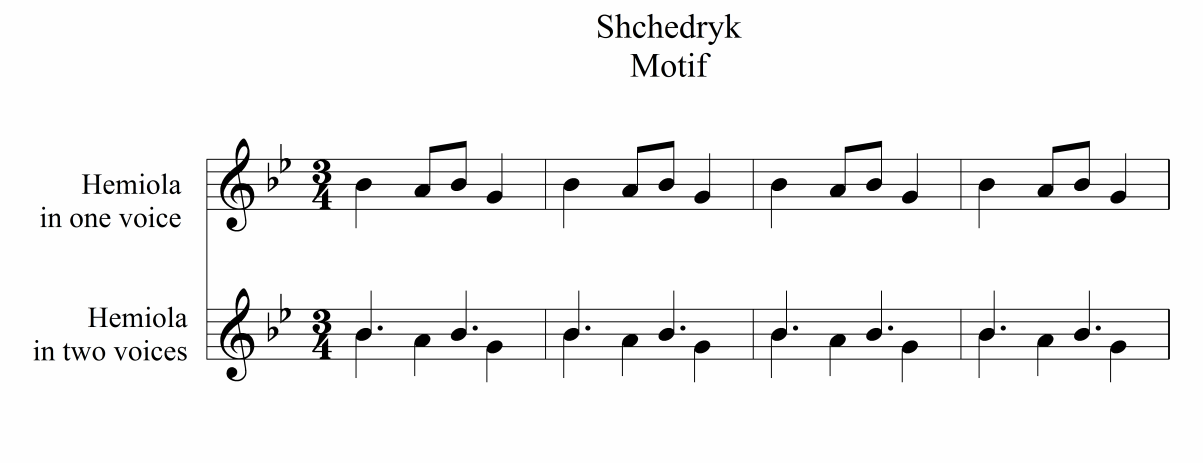


Figure 4-14: Shchedryk motif from a Ukrainian Song

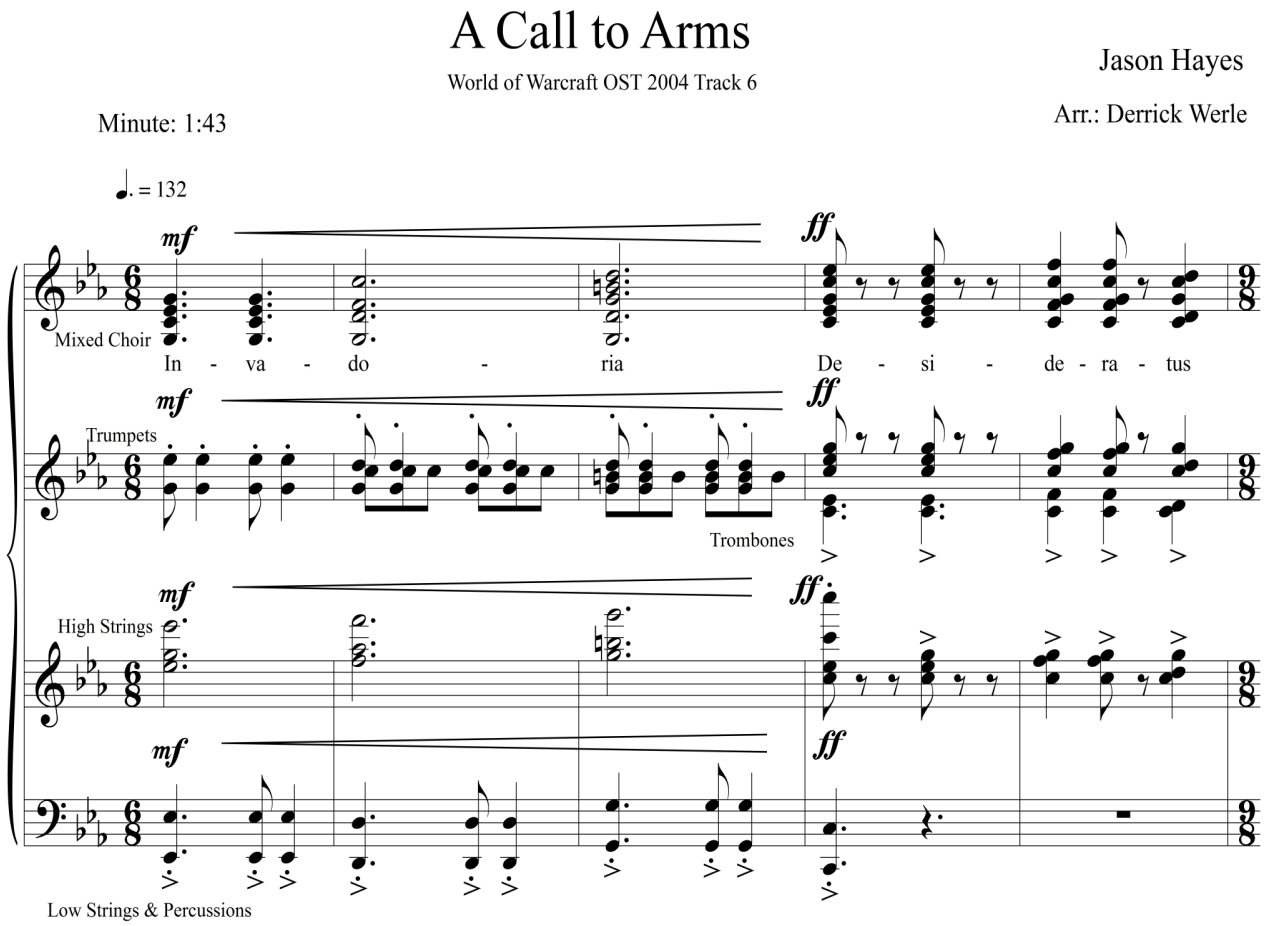
Polymeter is two or more voices having their own meter simultaneously. Although polymeter is not found explicitly in any of the tracks, it is nonetheless extant. This is the limitation of analyzing by listening, as polymeter may be misclassified as polyrhythm due to the lack of a tangible score.

Syncopation and odd accents are also devices used for epic music. Again in Figure 4-13 above, the top layer on the first staff indicates two accents on beats three and six, with the bar divided into 3+4. The second staff is without accent, but divided into 3+4/7. The third staff is divided into 3+4/7, with a subdivision of 2+2+2+1/7, and is accented on the first, third and fifth beats. The bottom layer is divided into 2+2+3, with the same accent positions as the middle layer. Figure 4-15 below also demonstrates a polyrhythm being used in an epic moment.

4.2.5.4.1.1.4. Big Crescendo

Big crescendo has a *p*-value of <0.001 in Table 2 and is present in 27/29 (93%) of pure epic

style tracks vs. 38/80 (48%) in other styles. A big crescendo, with its force of building up, is a very common way to get the audience excited. The example in Figure 4-15 below shows a big crescendo at the end of the word "Invadoria." The arrival on the 4th bar in *ff*, combined with the hemiola of 3:2 on 5th bar, creates an epic moment. It is to be noted that the hemiola is heard without the established rhythm of 6/8 being played by any of the instruments simultaneously.



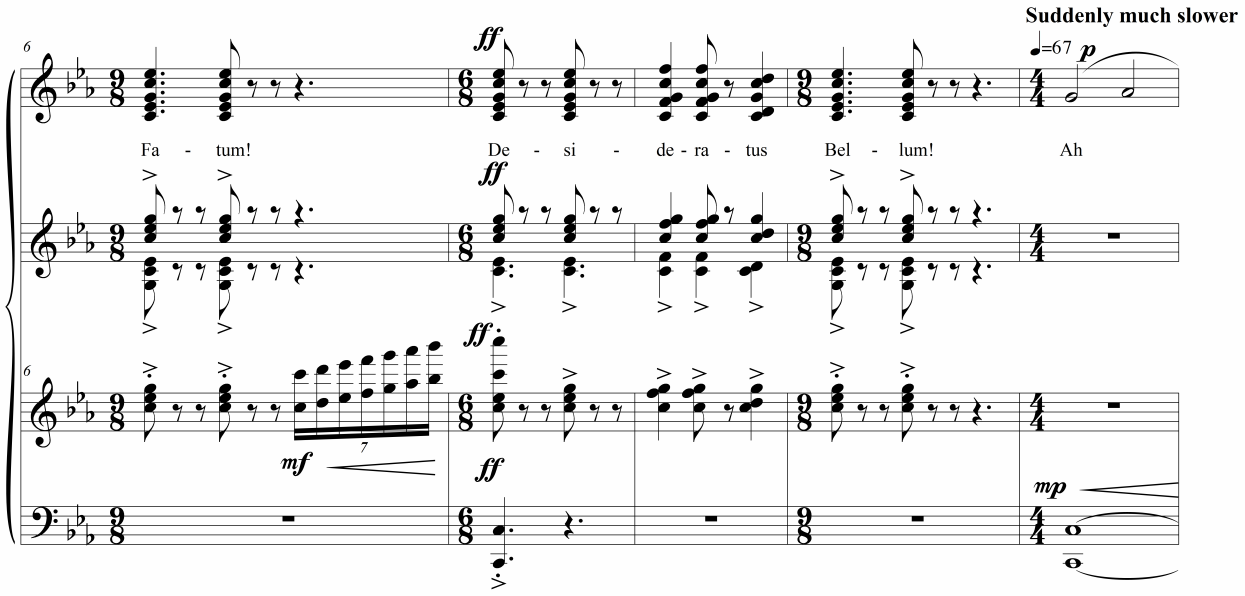


Figure 4-15: Track 6, A Call to Arms, *World of Warcraft* OST 2004. Minute 1:43
Composer: Jason Hayes; Arrangement: Derrick Werlé

4.2.5.4.1.1.5. Sudden Silence

Sudden silence has a *p*-value of <0.001 with a presence in 14/29 (48%) of pure epic style tracks against 3/80 (4%) in all other styles. Sudden silence has an immediate effect of raising an audience's adrenaline. The use of *piano subito* can also be assimilated to sudden silence, not because of its absolute soundlessness, but because of its sudden drop in dynamic. For example, in Figure 4-16 below, the *piano subito* in bar 9 produces exactly the same effect as sudden silence. As previously described, sudden silence is like a drop tower: one does not need to drop to the 1st floor from the 75th floor in order to feel the effect of dropping. Any sufficiently large drop in an abrupt, unpredictable way will produce the sudden silence effect. In Figure 4-15 above, bar 9, the 7th beat shows a very effective sudden silence. To add oil to the fire, it continues without dynamic transition, and goes directly into a much slower part.

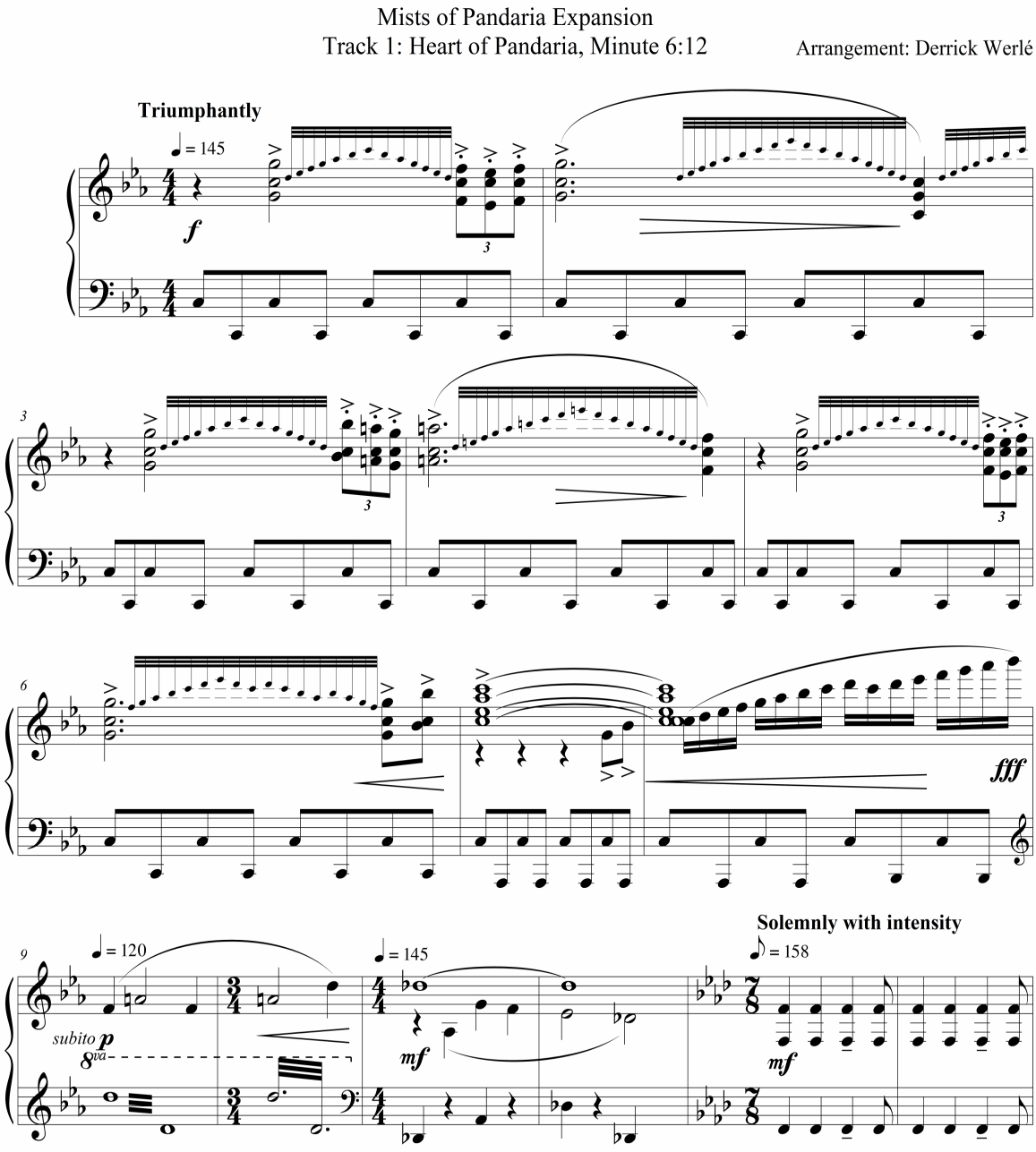


Figure 4-16: Track 1, Mists of Pandaria Expansion. Minute 6:12

4.2.5.4.1.1.6. Repetitive line

Repetitive line happens in 28/29 (97%) of pure epic tracks, as opposed to 50/80 (63%) of other styles (*p*- <0.001). This variable is a recurrent element in most epic music. Some epic

sensation can be induced solely by the complexity and epicness of the repetitive line. This element is often paired with the complex rhythm variable to form an epic base and build up to the epic moment climax. In Figure 4-16 above, Bar 13, 7/8,a repetitive line paired with the accent on the 5th beat builds track 1 of Mists of Pandaria expansion to its climactic ending. In Figure 4-17 below, Bar 13 shows a Repetitive line. The variation is due to the piano reduction merging the Repetitive line of low strings with the entry of Timpani in Bar 17, beat 4.

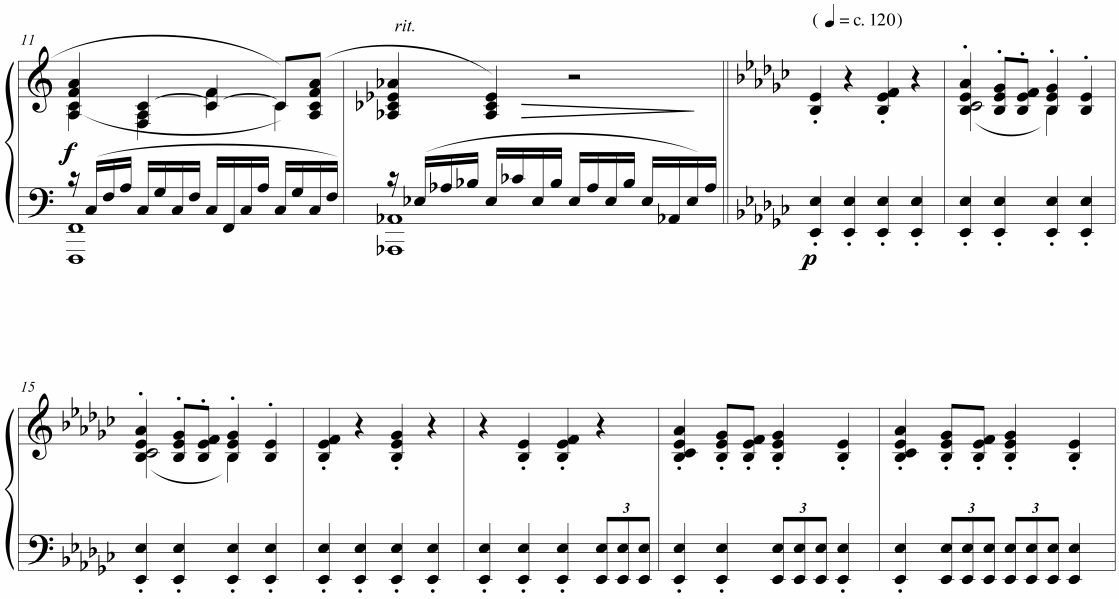


Figure 4-17: Track 8, *World of Warcraft*, OST 2004, Stormwind. Minute 0:36
Composer: Jason Hayes; Arrangement: Derrick Werlé

4.2.5.4.1.1.7. Percussion

The use of percussive instruments was present in 100% of the analyzed pure epic style tracks (29/29), versus 78% (62/80) in other styles (p= 0.005). Percussive instruments are widely

used in music of all styles, with a wide range of instruments from pitched to un-pitched, and play styles from being struck, scraped by a mallet, or hit against each other.

However, percussive instruments have their epic roots in the use of drums to direct troops on battlegrounds since ancient times. For example, the Mongolian war drum "Guangu" was used by Kublai Khan, the sixth Grand Kahn of the Tartars (1215 - 1294), as recorded in Marco Polo's *The Travels of Marco Polo*.[72] In Book III, Chapter XLVII, "Of Great Turkey," Marco Polo describes extensively the use of a war drum called "Nacar" on the battleground between the nephew of the Grand Kahn, King Kaidu and the son of the Grand Khan, Baron Nomogan:

> "And when the two armies were drawn up in the field, and waited only for the signal to be given by sounding the nacar, they sang and sounded their instruments of music in such a manner that it was wonderful to hear. For the Tartars are not allowed to commence a battle till they hear the nacars of their lord begin to sound, but the moment it sounds they begin to fight; and it is their custom, while thus waiting the signal of battle, to sing and sound their two−corded instruments very sweetly, and make great solace. As soon as the sound of the nacars was heard, the battle began, and they put their hands to their bows, and placed the arrows to the strings."

In Japan, the taiko drum was used to motivate troops and signal a retreat or advance.[73] Likewise, European militaries have used drums since the medieval era to pace march.[74]

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[72] Polo, Marco. *The Travels of Marco Polo*. Book II, Chapter I gives the following details:
"As soon as the order of battle was arranged, an infinite number of wind instruments of various kinds were sounded, and these were succeeded by songs, according to the custom of the Tartars before they engage in fight, which commences upon the signal given by the cymbals and drums, and there was such a beating of the cymbals and drums, and such singing, that it was wonderful to hear. This signal, by the orders of the grand khan, was first given to the right and left wings; and then a fierce and bloody conflict began."

[73] Turnbull, Stephen. *War in Japan 1467-1615*. (Oxfrod: Osprey Publishing. 2012), 27–28.

[74] Sterling, Christopher H. "Military Communications: From Ancient Times to the 21st Century" in *Medieval Military Signaling (500-1500 CE),* (Santa Barbara, CA: ABC-CLIO, 2008), 286-287.

4.2.5.4.1.1.8. Voice

Voice is present in 23/39 (79%) of the pure epic tracks vs. 46/80 (57%) of others (p=.037). Voice is used very often in epic style music. This may come as no surprise, since its predecessor, *Chanson de geste*, is a song of heroic deeds. The example in Figure 4-18 below shows an epic moment in the entrance of a male choir in bar 39, third beat, accompanied by a repetitive line in the lower orchestral section. In Figure 4-15 above, "a Call to Arms" by Jason Hayes also gives example of the usage of voice. As mentioned earlier, Hayes used the technique of layering in this track by recording the same choir several times and layering each recording on top of the other.

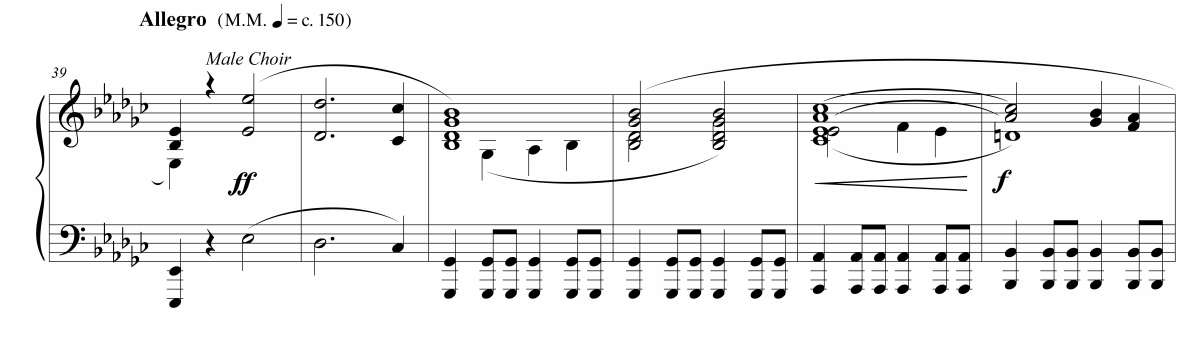


Figure 4-18: Track 8, *World of Warcraft*, OST 2004, "Stormwind". Minute 1:36.
Composer: Jason Hayes; Arrangement: Derrick Werlé.

4.2.5.4.1.1.9. Brass

28/29 (97%) of pure epic tracks contain brass instrument (*p*= 0.002). Brass instruments have been associated with heroic deeds since the *Chason de geste*, when *Chanson de Roland*

described how *Roland* died by blowing the Oliphant in order to warn Charlemagne's army. Even though the Oliphant was not a brass instrument, but an ivory one, the brass family has always brought heroic coloration to the music. In France, *la trompe de chasse* was used for hunting during the time of Louis XV, whereas *le cor de chasse* was used for military communication. Beacuse of this long history of using brass instruments to communicate exciting events such as hunting, or epic events such as battles or war fares, the brass *timbre* often evokes an epic moment.

Besides the traditional semantic association of the brass *timbre, v*ery often brass instruments are used as tools to create a big crescendo in an orchestra. The reason is that it is hard to contain the volume of brass instruments and one brass instrument usually would require a group of many other instruments to balance it out in the orchestra. This was the reason why brass instruments were used in the battle to communicate or direct the troops: they were loud and clear, and could be heard across a wide open field. Even today, *le cor des Alpes* (Alpine horn) is used for long distance communication in the Alps by warning the village people of a danger, or telling them to gather in the church. Because of the loud volume of brass instruments, they contribute to the effect of sudden silence. Brass instruments can also help place odd accents to counter the rest of an orchestra's established rhythm, easily creating complex rhythm. A brass instrument such as French horn can sometimes be paired with a plucked instrument like the harp to create a bell-like percussive instrument timbre. The versatile character of brass instruments and their strong semantic association with war and battle makes this variable a significant element of epic music. At the same time, however, the flexible character of brass instruments means that 54/80 (68%) of tracks in other styles also take advantage of this instrumentation.

4.2.5.4.1.1.10. Catchy Melody

Chanson de Roland was a song describing the heroic actions of *Roland*; as suhc, it and other *chanson de geste* required a melodic component. A catchy melody is easier to remember both for the audience, and especially for the *jongleur*, so he could recount the epic narrative without being preoccupied by the melody. As described above, *chanson de geste* used three melodies in the simple structure of its *laisses* in order to allow *jongleurs* to sing through hundreds or thousands of *vers*.

From the audience's point of view, it is much easier to recall a catchy melody. Epic music usually speaks to a larger audience rather than well trained musicians, so it is especially useful for it to have a simple, catchy melody. Because epic music provokes a euphoric sensation, the ability to recall an epic melody that is simple and easy is an invaluable publicity for the creator of epic music.

Very often, though not always, the catchy melody in epic music is played by brass instruments. Catchy melodies can also be sung; Figure 4-18 above shows the Theme of Stormwind sung by a male choir in Bar 39, 3rd beat. A catchy melody does not need to be sung by a single voice; it can also be sung by the whole orchestra. In Figure 4-19 below, the melody for "Balloon Ride Theme" is played in *tutti*. It is this theme that is played when Pandaren characters leave the Wandering Isle and take one last chance to glimpse the Isle from the balloon. This theme is very catchy, and is one of the most epic moments in *World of Warcraft*. (See Figure 1-1 and Figure 1-2 above for the in game screen shots.)

26/29 (90%) of pure epic tracks contain catchy melodies versus 34/80 (43%) for other tracks.

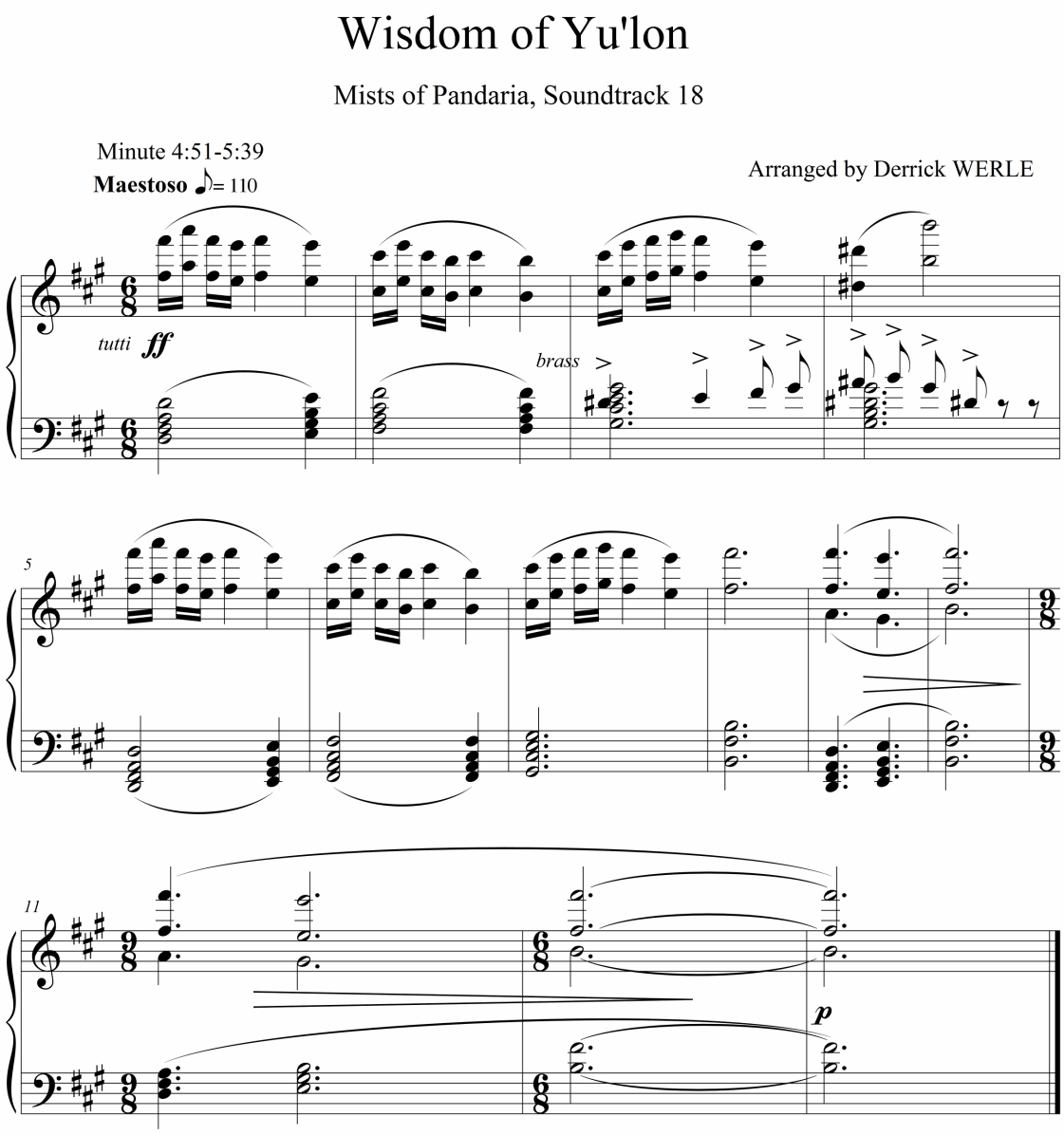


Figure 4-19: Track 18, Mists of Pandaria Expansion Soundtrack, "Wisdom of Yu'lon". Minute 4:51. Composer: Sam Cardon; Arrangement: Derrick Werlé. [75]

[75] Although this Track is tagged as "Wisdom of Yu'lon", this theme is often referred as "Balloon Ride Theme" or "Heart of Pandaria." "Balloon Ride Theme," mentioned above, is a name acquired from the music's association with the in-game cinematic of a Pandaren leaving the Wandering Isle on a balloon; the name "Heart of Pandaria" is due to the fact that it constitutes one of the segments of login music, tagged as Track 1 "Heart of Pandaria". The difference is that Heart of Pandaria and Balloon Ride Theme are both in F Major, whereas Wisdom of Yu'lon is transposed in D Major.

4.2.5.4.1.1.11. Suspension

Suspension is one of the most common devices used to induce an epic feeling by intriguing the senses. It has a 79% (23/29) presence in pure epic tracks, versus 30% (24/80) in other tracks (p <0.001). In Figure 4-18 above, bars 13-14 demonstrate a double suspension in the male choir. Suspension can be incredibly useful in modulation, especially when used as form of enharmonic modulation. Figure 4-20 below shows enharmonic modulation using suspension which becomes a pivot note for the modulation through the enharmonic note G-flat to F-sharp. This example also shows the beautiful use of a non-European melody matched with European harmonic language. Traditional Chinese music does not have a harmonic direction, due to the pentatonic division of its scale. Also the melody sounds more like an improvisation than a thoroughly written part. However, this is used to advantage in coupling the Chinese pentatonic melody with the European harmony. Because of the pentatonic scale, it is easier to rearrange the distribution of the scale and create an enharmonic modulation when the music is reduced to one single note, like a seed ready to germinate in the new tonality. This is what happens between bars 2 and 3. The top melody, played by Dizi, uses a scale of A-flat, C-flat, D-flat, E-flat and G-flat. The relationship between the 5 notes are: 1st note (3 half steps) 2nd note (2 half steps) 3rd note (2 half steps) 4th note (3 half steps) 5th note. When the music is reduced to one note in the last note of bar 2, the redistribution of the relationship makes a new pentatonic scale and thus arrives in the new European tonality: the G-flat was the 5th note of the pentatonic scale harmonized in the original keyof A-flat minor; after redistribution of the scales, it becomes the first note of the arrival scale, harmonized in the new tonality of f-sharp minor. Even with the new pentatonic scale, this new scale (F#, A, B, C#, E) can be harmonized in both f#-minor and b-minor. This "eel"-like quality of the pentatonic scale makes it suitable for easy manipulated in different

kinds of European harmonic situations. It is to be noted that the ending of the 5th bar in Figure 4-20 shows that the middle staff, played by Guzheng, ends in A and has a major feel, while the harmony indicates a f#-minor. It almost has a Major-minor feel with A-Major in the melody, while the harmony is in f#-minor.

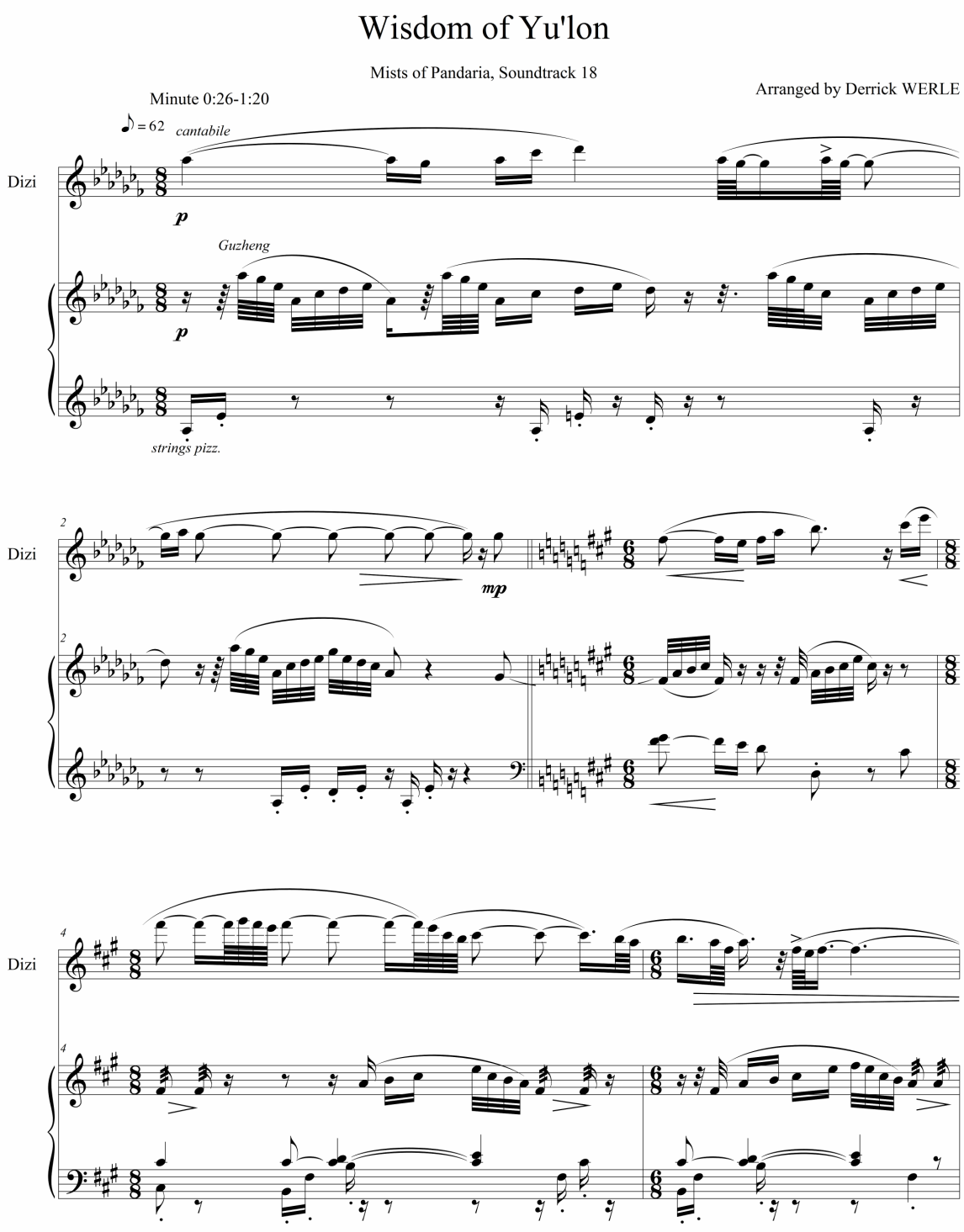


Figure 4-20: Track 18, Mists of Pandaria, "Wisdom of Yu'lon". Minute 0:26.

4.2.5.4.1.1.12. Unprepared Modulation

Each unprepared modulation is a unique craftsman's gem. Unprepared modulation is modulation from one key to another without any pivot chord, and does not use any sequence. It often creates a surprising effect. It can generally be classified into two types: phrase modulation and static modulation. A phrase modulation is a modulation where a phrase ends on one key and the next phrase starts in another key with no relation to the previous key. A static modulation is a modulation where one single musical phrase spans two keys. In *World of Warcraft*, 21/29 (72%) of the pure epic tracks contain unprepared modulation, versus 29/80 (36%) of other tracks, including mixed tracks of epic, folk, and ambient (p <0.001). A great example of an unprepared modulation is in Track 1 of the *World of Warcraft*, Original Sound Track (OST) 2004, "Legends of Azeroth" by Jason Hayes (Figure 4-21 below). The unprepared modulation happens between Bars 6 and 7. The E-minor triad on bar 5 is itself artificial because it is a result of a lowered $\hat{2}$ and a lowered leading tone as root in f-minor. On top of the altered $\hat{7}$ triad (e-flat minor triad) with a lowered $\hat{2}$ (G-flat), the melodic line is in G-flat Lydian mode. It starts on the fifth beat with the B natural (respelled C), as the $\hat{4}$ of the Lydian scale in G-flat. The combination of an unprepared modulation from an E-flat minor triad to an A-Major triad with a melodic line of Lydian mode in G-flat demonstrates Jason Hayes' true craftsmanship.

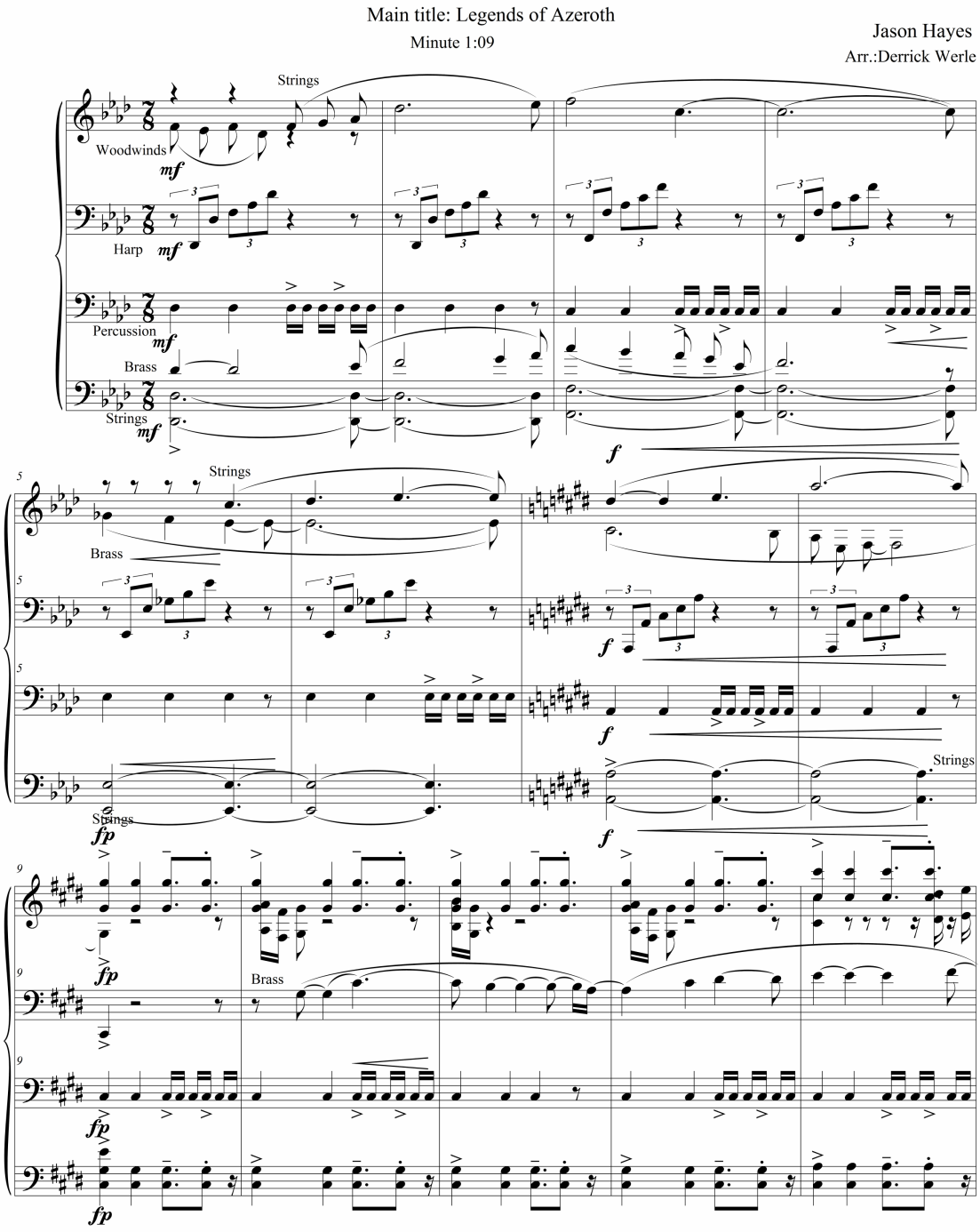


Figure 4-21: Track 1, *World of Warcraft*, OST 2004, "Legends of Azeroth". Minute1:09

Composer: Jason Hayes; Arrangement: Derrick Werlé

4.2.5.4.1.1.13. Sequence

Sequence is present in 21% (6/29) of the pure epic tracks, versus 5% (4/80) of other tracks (p=0.012).[76] The sequence is often used in epic tracks to build up excitement in order to reach the climax at the moment of arrival. (See Figure 4-22 below.)

4.2.5.4.1.1.14. Flat Leading Tone

Flat leading tone in minor gives an ancient medieval color to the music. 22/29 (76%) of the pure epic tracks use at least one flat leading tone, versus 34/80 (43%) of other tracks (p=0.002). Examples given in Figure 4-21 and Figure 1-4 above show moments where the leading tone is better left unaltered in minor mode. The flat leading tone has been a way for composers to escape from the Germanic classical tradition. Sometimes, instead of flattening the leading tone, composers in general leave out the leading tone to create an epic effect of hollowness. In Figure 4-19 above, the last 2 bars in 6/8 show a half cadence in E-minor omitting the third (leading tone). This gives an uncertain feeling to the dominant chord in a progression of nebulous tonality. The progression is actually a "Mario Cadence," a cadence composed of a chain of three major triads in juxtaposition with full step between them, which has been altered into what I call a "Pandaren Half Cadence." In a "Mario Cadence," the major triad in the arrival is a major third above the beginning major triad, with the tonic chord being the third chord of the chain. In a "Pandaren Half Cadence," the procedure is almost identical, except that the tonic chord is the second, and the ending chord, instead of being full step above the second triad, jumps to the dominant chord of the second triad as shown in Figure

[76] It is statistically significant, but this does not necessarily mean that it is important. Statistical significance is not the synonym of importance. Importance can only be determined by domain experts, statistical significance means only the finding is not likely due to random chance.

4-24 below.

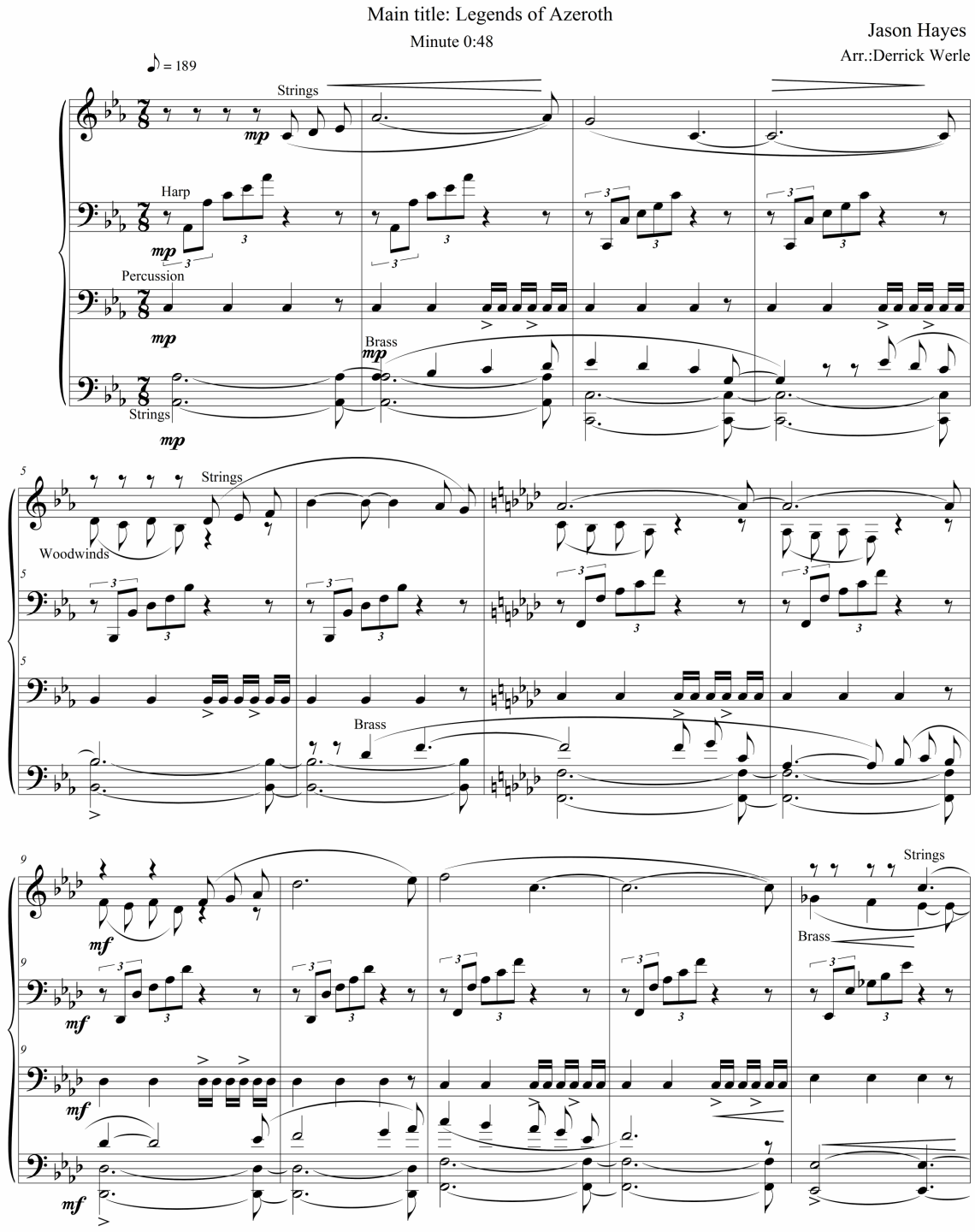


Figure 4-22: Track 1, *World of Warcraft*, OST 2004, "Legends of Azeroth". Minute 0:48. Composer: Jason Hayes; Arrangement: Derrick Werlé

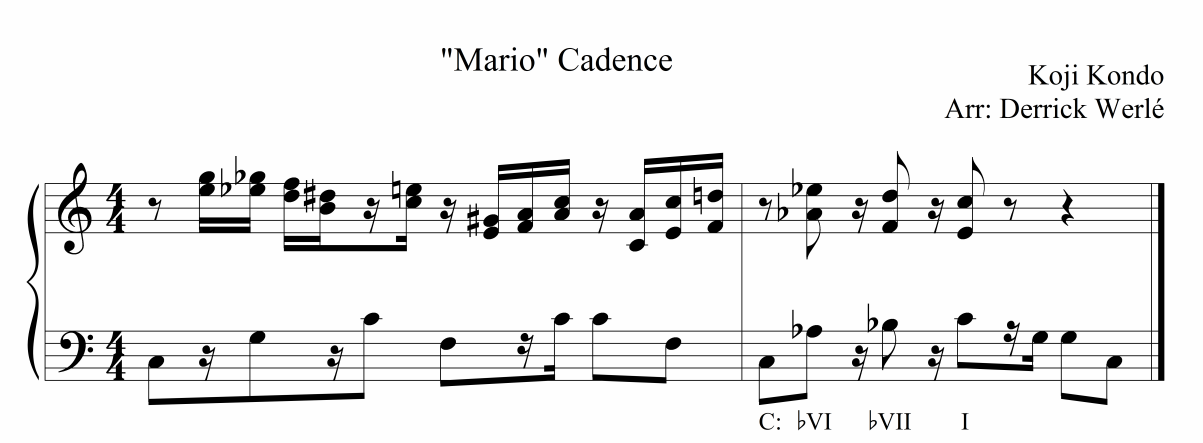


Figure 4-23: "Mario" Cadence from Koji Kondo's Mario bro. Theme.

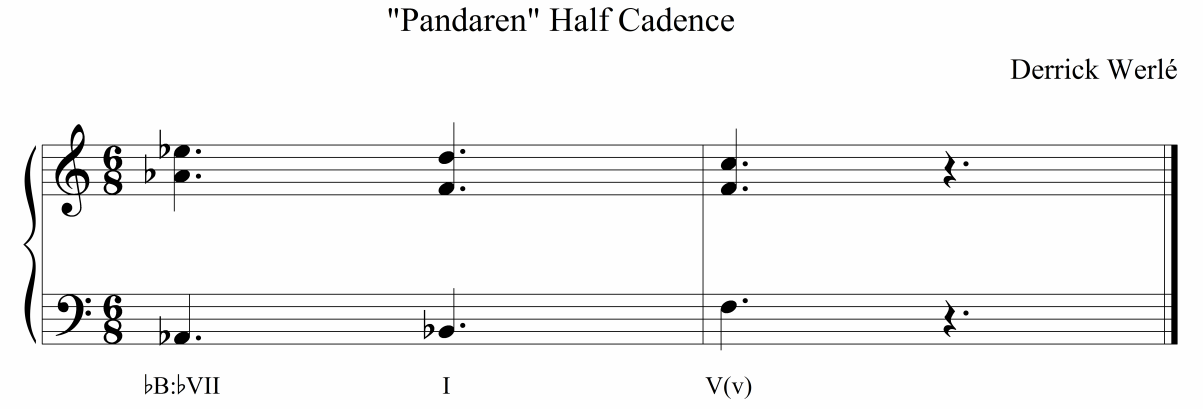


Figure 4-24:"Pandaren Half Cadence," extracted from Sam Cardon's Balloon ride theme.

4.2.5.4.2. Negative findings

4.2.5.4.2.1. Epic Style vs Others

B*ruitage*/electronic noise is present in 31% of the pure epic tracks, versus 70% of other tracks

(p<0.001). This shows that epic music does not use *bruitage*/electronic as often as other tracks in *World of Warcraft*. Ambient style tracks use this variable the most (see Table 3: Frequency of presence of each variable). The undefined time signature (marked as ? under time signature in the data tables) was not found in pure epic tracks (p<0.001). Most undefined tonality (marked as ? under tonality in the data tables) had a 0% presence in pure epic tracks, and was used in pure ambient style tracks (*p*=<0.001) (see Table 3).

4.2.5.5. Beyond raw data

4.2.5.5.1. Importance of Statistically Non-Significant Variables

4.2.5.5.1.1. Epic Style vs Others

High strings, exotic instrument, unorthodox intervals, and interrupted cadence are non-significant statistically, along with the use of 3/4, 4/4, 5/8, 6/8, and 8/8 time. However, it is important to note that 6/8 is very often used by Jason Hayes in his epic music due to its versatile quality. It was used in "A Call to Arms" (Figure 4-15 above) and also other epic tracks by Sam Cardon in Figure 4-19 above.[77]

4.2.5.5.2. Importance of Negative findings

4.2.5.5.2.1. Epic Style vs Others

Undefined time signature or tonalities are never used in the pure epic style in *World of Warcraft*. This is due to the fact that epic music needs to speak to the public, and it is impossible to create a melody or even repetitive line without a time signature or any

[77] As mentioned earlier, Hayes has explicitly stated that the epic piece "a Call to Arms" is composed in 6/8 and not 12/8, despite its appearing on certain scores as 12/8.

tonalities. Without a time signature, it is hard to define any rhythm, and certainly impossible to produce complex rhythmic patterns that can be understood and felt by a general audience. While it is possible to create rhythmic pattern outside a framework, it is the general framework that makes us feel the beat, counter beat, and anything that derives from it. For example, in conducting a hemiola passage of 3:2 in a 4/4, if the conductor taps the hemiola instead of the beat of quarter note, the whole orchestra would be confused. In syncopation, it is the conductor's job to give the down beat instead of tapping the syncopated rhythm. Similarly, in order to feel any sort of complicated rhythmic pattern, one needs the framework of a time signature. In order to sing a melodic line that appeals to the public, one needs a defined tonality, be it traditional European or other.

4.2.5.5.3. Insufficiency of positive findings

4.2.5.5.3.1. Epic Style vs Others

The quality of a tonality might be significant to epic tracks in *World of Warcraft*, but minor tonality is also significant to a lot of styles. Even though the raw data shows significance of minor in epic music, it and all other positive findings mentioned above are elements that are also used in other styles of music. In order to determine whether there is a a combination of variables that makes music quintessentially epic, a Classification and Regression Tree Analysis (CART) of epic music is needed.

4.3. Classification and Regression Tree (CART) Analysis of Epic Music Today

CART analysis is a device used in data mining, and to predicts outcomes. CART generates easily understood decision trees to explain its findings. I used CART analysis as implemented

the conditional classification analysis and regression tree implemented (ctree) in the party package in "R."[78]

I imposed 1000:1 and 100:1 penalties for misclassification. This is essentially a modified oversampling technique developed by computer scientists to improve the predicative accuracy of CART decision trees. The price of this approach is a loss of specificity, as the user must accepts that some cases may have to remain unclassifiable in order to avoid misclassifying them.

In addition to cross-fold validation, I validated my CART model using entirely new musical pieces from a variety of sources.

4.3.1. Predictive Models

4.3.1.1. CART 100:1 Penalty

In Figure 4-26 below, the following variables were identified as being associated with epic music in *World of Warcraft*: end tonality, begin tonality, big crescendo, repetitive line, complex rhythm, catchy melody, and voice. To test if a piece could be classified as epic, I listened to each piece and recorded the presence of each variable. Then, I followed the CART starting from "End tonality." Each time there is a choice to make and route to follow in order to predict if a piece is epic or not.

For example, if a piece ends with either major or minor tonality, but begins with minor, and also has big crescendo, repetitive line, complex rhythm and catchy melody, then according to

[78] R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. Accessed February 23rd, 2014. http://www.r-project.org/

CART 100:1, there is a 99.9% chance of its being epic. However, if a piece ends with either minor-ish, other, or undefined tonality with a catchy melody, then there is a 97% chance. The left-most track of the CART shows that if a piece begins in other tonalities, such as Arabic, or Chinese, which cannot be defined as either major or minor, but ends in a minor or major tone, this piece would be classified as epic 99.5% of the time. This is due the large amount of pure epic tracks representing Chinese music in Mists of Pandaria expansion. This is also an indicator of how much of the epic trailer music starts with exotic single melodic scales in its instrumentation or vocals. This exotic opening is then transformed into European harmonized epic music. Even outside of *World of Warcraft*, this can be seen in the trailers for epic-style movies, such as the opening music in the movie "Troy," with a piece composer James Horner titles "3600 years ago." This piece features a Bulgarian women's choir singing an "exotic" chant. (See Figure 4-25 below). Professor Ian Krouse in a conversation with the author indicates that "this chant immediately time travels the audience back to the time of Troy."

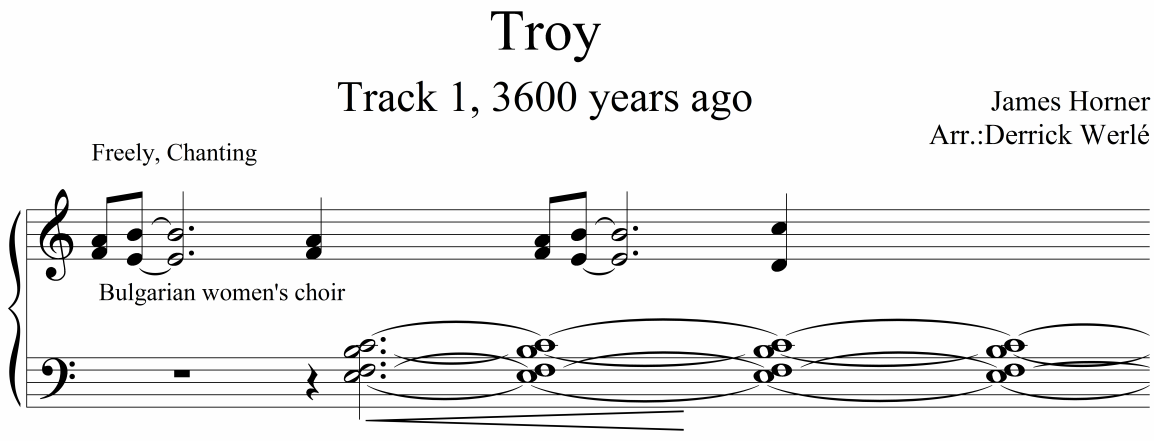


Figure 4-25: Track 1, "Troy" Soundtrack 2004, "3600 Years Ago". Minute 0:00

As this piece shows, the power of voice and chants can easily override other instrumental elements to make music epic. In Figure 4-26, one branch on the far right side indicates that a

catchy melody alone can override the rest of the elements if a piece of music ends with minor-ish, undefined or other tone. In the case of Voice (No.7) in Figure 4-26, the voice overrides the other elements and determines the epicness of a piece of music when there is no big crescendo in a piece that begins in minor and ends in either major or minor. Both branches indicate the heritage of *chanson de geste* still remains in epic music today.

This model works well in predicting musical styles in the context of *World of Warcraft*. Note, however, that the elements and analysis would be less useful outside of that context, as almost all popular songs would be misqualified as epic. This is due to the generality of the elements, as many songs begin in a minor tone and end in either major or minor without a big crescendo, and so on. The analysis works for *World of Warcraft* precisely because the data contains only 3 different styles—epic, folk, and ambient—as defined in the context of the game. In order to compensate for this, a 1000:1 penalty is imposed in order to try and build a model capable of classifying epic music outside of *World of Warcraft*.

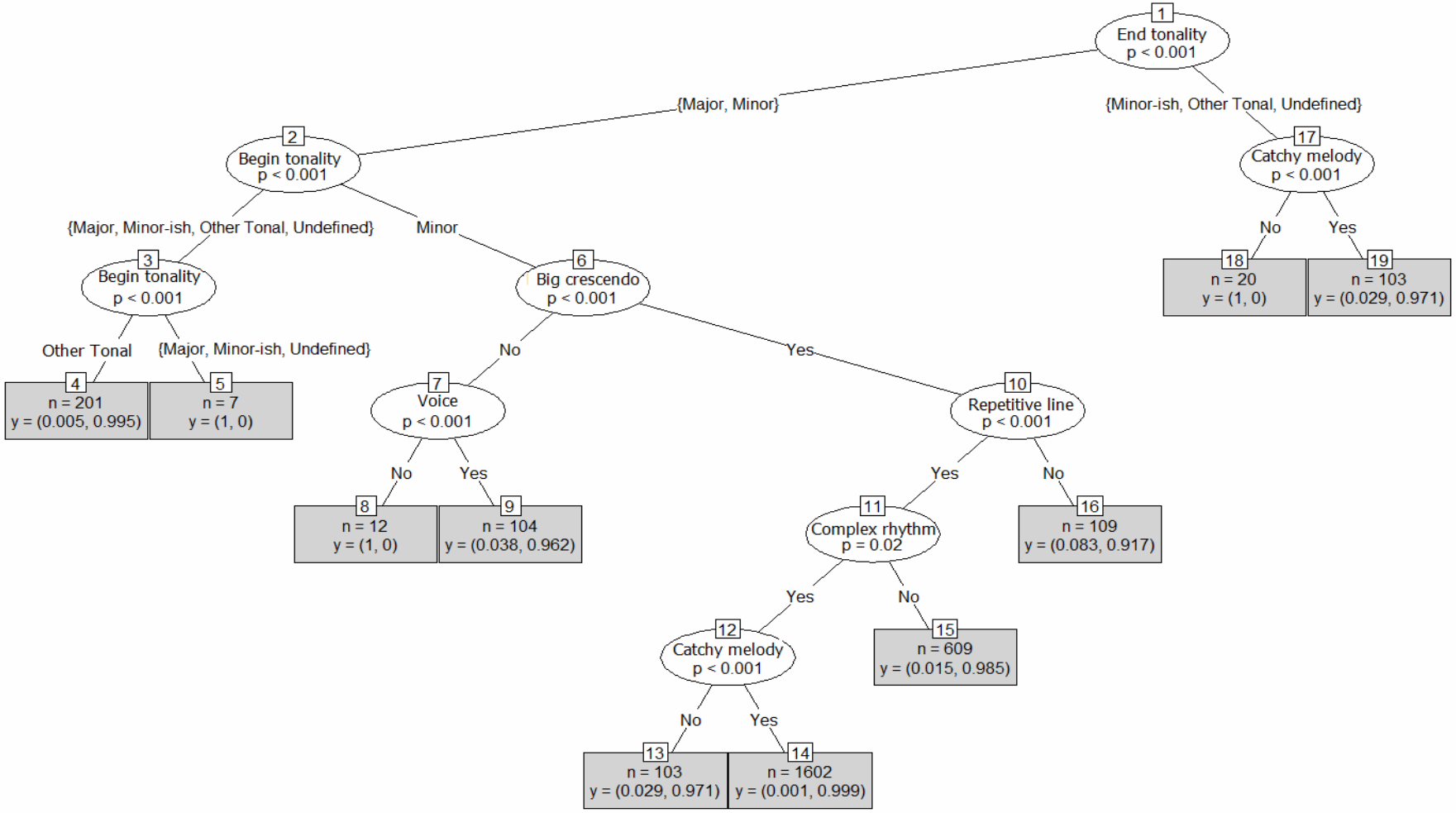
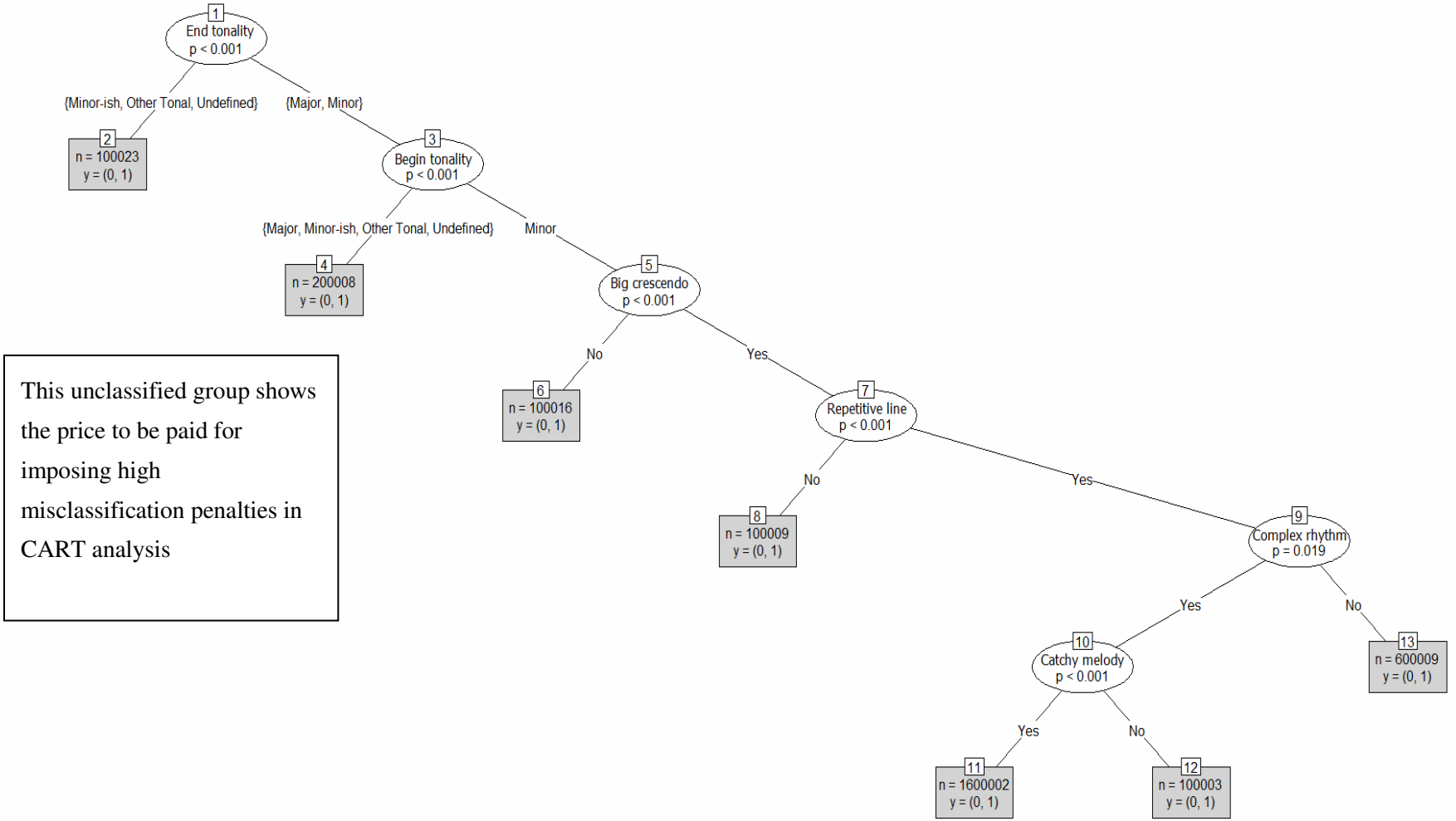


Figure 4-26: CART Analysis, 100:1 by Derrick Werlé.

4.3.1.2. CART 1000:1 Penalty

This CART analysis with 1000:1 penalty, shown in Figure 4-27, provides a more accurate prediction despite its leaving out some of the rarest type of epic music as in the opening of the movie "Troy." This CART is more viable in qualifying music outside *World of Warcraft* as epic, because most popular songs don't contain a big crescendo, and thus would be qualified as non-epic. Likewise, the complex rhythm variable requirement would disqualify such a song. Of course, misclassification is always going to be a possibility no matter how specific one gets. Even with the CART 1000:1, some songs would still be misclassified. There are always exceptions. As the American jurist, Oliver Wendell Holmes, Jr. once said: "The young man knows the rules, but the old man knows the exceptions."



This unclassified group shows the price to be paid for imposing high misclassification penalties in CART analysis

Figure 4-27: CART Analysis, 1000:1 by Derrick Werlé.

4.3.2. Validation on Separate Data - Attempt at Generalization

The CART 1000:1 works well on the music of *World of Warcraft*, but it must also be validated against other data before one can generalize the quintessential elements of epicness in music.

I used the following method in the validation process: I gathered a random selection of soundtracks from movies and games. Each piece of music was classified by a gestalt impression as epic or non-epic (can be indicated as some other styles). Then each track was listened to in order to form a "First listen" classification. The second listen served as verification of the presence of epic variables in the CART 1000:1. The section below provides the analyses of these tracks, including my gestalt and "first listen" impressions and a table showing the presence of epic elements. It is important to note that, like *World of Warcraft* music, there is often a lack of a definitive score in film and video game music; as such the exact version of the song indicated as a Youtube link is the only version to which my analysis implies.

4.3.2.1. Dota 2 Trailer by Jason Hayes

Youtube link: https://www.youtube.com/watch?v=FUSTuiSEKQk

Game genre: Multiplayer Online Battle Arena (MOBA) video game.

Gestalt impression: epic music.

First listen: The first listen confirms the epic feel.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	e-flat minor	1:52
Begin minor	c minor	0:00
Big crescendo	yes	1:05
Repetitive line	yes	0:21
Complex rhythm	yes	1:08
Catchy melody	yes	0:42

Validation of CART 1000:1: the CART is validated by the presence of epic variables, which correspond to the first listen classification and the gestalt impression.

4.3.2.2. Requiem for a Dream Original Song by Clint Mansell

Youtube link: https://www.youtube.com/watch?v=MWvOqSV99xE

Film genre: Drama. 2000.

Gestalt impression: non-epic.

First listen: This music is minimalist music, as from beginning to end there is only one progression: i - IV - V(v) - i. Several elements repeat themselves with the help of big crescendo, build up and sudden silence to make the music exciting.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	g minor	6:35
Begin minor	g minor	0:00
Big crescendo	yes	3:56
Repetitive line	yes	0:07
Complex rhythm	yes	3:11
Catchy melody	yes	0:58

Validation of CART 1000:1: the CART is validated due to the correspondence between the presence of epic variable. The first listen classification was biased as well as the gestalt impression because of the film where the music originates. This film, "Requiem for a Dream, " is a psycho-drama. The epicness of the music is nevertheless confirmed by the use of the exact same music in "The Lord of the Rings: The Two Towers" trailer.

4.3.2.3. Shchedryk (Щедрик) as arranged by Mykola Leontovych

Youtube link: https://www.youtube.com/watch?v=IMTHbZ0Rf4s

Music genre: folk chant, new year's wishes, Christmas music.

Gestalt impression: non-epic.

First listen: One would never think of a Christmas carol as epic. Yet this rendition by Mykola Leontovych is as epic as any other epic music.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	g minor	1:44
Begin minor	g minor	0:00
Big crescendo	yes	0:17
Repetitive line	yes	0:00
Complex rhythm	yes	0:00
Catchy melody	yes	0:00

Validation of CART 1000:1: the CART is validated. All the elements of the epic variables are present, almost for the entire duration of the song. This corresponds to the first listen classification. The background story of the song and its arrangement by Leontovych are also epic in scope: this song was not originally composed for Christmas, but for New Year's Eve

according to the Julian Calendar (Jan. 13th).[79] The original lyric was about a swallow telling the master of the home the wealth he will have for the New Year. It was composed during a time when Ukraine was struggling for its national identity, and was arranged for a tour to Western Europe to promote Ukrainian music. It is only when Peter Wilhousky rearranged the lyrics that it became associated with Christmas and known as "Carol of the Bells" in English-speaking countries.

4.3.2.4. Heart of Courage by Two Steps from Hell

Youtube link: https://www.youtube.com/watch?v=LRLdhFVzqt4

The track is used in the trailer for "The Chronicles of Narnia: The Voyage of the Dawn Treader" and the trailer of "Nehrim: At Fate's Edge," a self-contained game based on the popular fantasy video game "The Elder Scrolls IV: Oblivion."

Gestalt impression: epic music.

First listen: the first listen confirms an epic feel.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	b-flat minor	1:59
Begin minor	b-flat minor	0:00
Big crescendo	yes	1:38
Repetitive line	yes	0:29
Complex rhythm	yes	0:29
Catchy melody	yes	0:43

Validation of CART 1000:1: all the elements of the epic variables are present, so the CART

[79] Accessed February 27, 2014. http://www.eurekalert.org/pub_releases/2004-12/ru-ot121304.php

is validated.

4.3.2.5. Pirates of the Caribbean - He's a Pirate by Hans Zimmer and Klaus Badelt

Youtube link: https://www.youtube.com/watch?v=dFBBKfw59kA

Film genre: Action, Adventure, Fantasy. 2003, 2006, 2011.

Gestalt impression: adventurous, epic music.

First listen: the first listen casts doubt on the pure epic classification.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	d minor	1:22
Begin minor	d minor	0:00
Big crescendo	yes/no	0:04
Repetitive line	yes	0:00
Complex rhythm	yes	0:05
Catchy melody	yes	0:05

Validation of CART 1000:1: all the elements of the epic variables are present to a certain degree. Although one could argue the amplitude of the big crescendo due to the constant *ff* of the music, it is undeniable that 0:04 contains a short crescendo from *p* to *f*. Strictly speaking, this music is more adventure-oriented than purely epic. The lack of a distinguished big crescendo can disqualify the pure epicness of the track, thus validating the CART 1000:1 because this version of the song (The Curse of the Black Pearl) lacks of the "build up" and "propulsion" quality of epic music. The music is very loud from the beginning till the end and does not bring us on a journey. In other words, the music is "here," but it is not "taking" us

towards there. However, in the Dead Man's Chest version, the big crescendo and build up are absolutely there.[80] Maybe the Curse of the Black Pearl version is a subgenre of epic style and could be qualified as "adventurous epic style" or "fantastic epic style." It is to be noted that the 6/8 time signature has an embedded polymeter of 3/4 against 6/8. The melody is in 3/4 while the accompaniment is in 6/8. This reflects the reason why many epic pieces are in 6/8 or some odd time signature so that the embedded polymeter can easily emerge when it's needed.

4.3.2.6. Braveheart - For The Love Of A Princess by James Horner

Youtube link: https://www.youtube.com/watch?v=fk8323r577w

Film genre: Action, Biography, Drama. 1995.

Gestalt impression: epic music.

First listen: the gestalt impression classification is rejected due to a pervasive folk music style, and solely lyrical features of the music with no exciting stimuli. Instead, this might be best classified as patriotic tune with folkloric tendencies. Such a classification would correspond to the genre of the film.

On a second listening, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	a minor	4:04
Begin minor	a minor	0:00
Big crescendo	yes	2:42
Repetitive line	no	
Complex rhythm	no	
Catchy melody	yes	0:00

[80] Dead Man's Chest version: http://www.youtube.com/watch?v=lCVWAoZ8WNs Build up from 0:52.

Validation of CART 1000:1: the prediction tree is validated: not only did it classify this music as non epic, but it confirms the bias one can have towards epic music in war movies. The movie is about heroic deeds, but the music is a patriotic imitation of Celtic folkloric melody, rather than of an epic nature. This tune by James Horner can be compared with the middle section in one of Holst's "Plants Suite" movement, "Jupiter." Holst also later adapted his tune to fit the patriotic poem, "I Vow to Thee, My Country," in 1921. Other uses of the melody include Ralph Vaughan Williams' inclusion of it in "Song of Praise" in 1926 as "Thaxted." One can also consider Holst's melody to have been inspired by Sir Hubert Parry's Hymn "Jerusalem" in 1916.

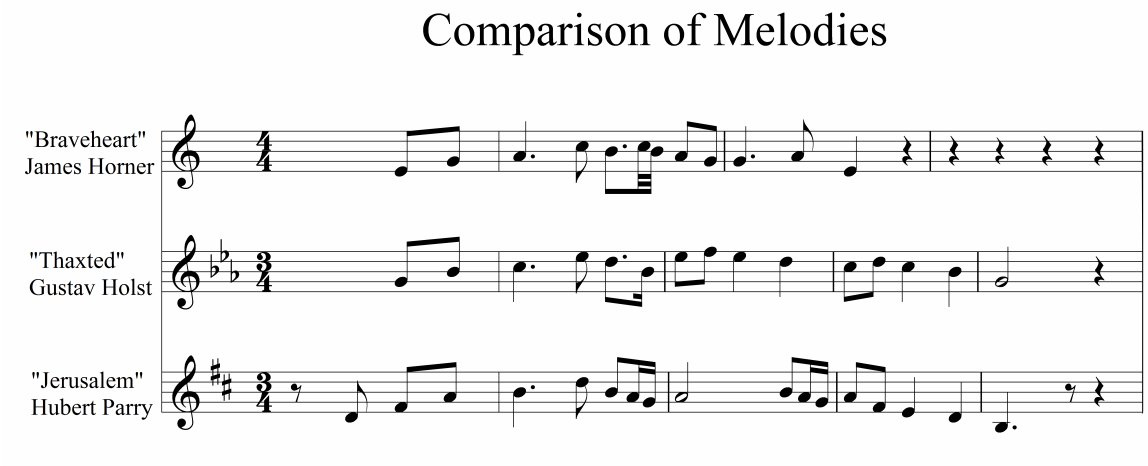


Figure 4-28: Comparison of melodies from "Braveheart", "Thaxted", and "Jerusalem".

4.3.2.7. The Elder Scroll V: Skyrim - Dragonborn by Jeremy Soule

Youtube link: https://www.youtube.com/watch?v=s_R8N70nqBE

Genre: Action Role-playing video game.

Gestalt impression: epic music.

First listening: the gestalt impression classification is confirmed.

Second listening, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	E Major	3:50
Begin minor	b minor	0:07
Big crescendo	yes	3:25
Repetitive line	yes	0:00
Complex rhythm	yes	1:27
Catchy melody	yes	0:36

Validation of CART 1000:1: the prediction tree is fully validated in this case. It correctly classifies "Dragonborn" as epic style, corresponding to both the gestalt impression and first listen classification.

4.3.2.8. Batman 1989 Theme by Danny Elfman

Youtube link: https://www.youtube.com/watch?v=kRZAk2rfESU

Film genre: Action, Fantasy. 1989.

Gestalt impression: epic music.

First listen: the gestalt impression classification is confirmed by the first listen.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	d minor	8:23
Begin minor	b minor	0:02
Big crescendo	yes	0:25
Repetitive line	yes	0:48

Complex rhythm	yes	2:27
Catchy melody	yes	0:02

Validation of CART 1000:1: CART is validated as it classifies this Batman Theme 1989 by Danny Elfman as epic music, corresponding to the first listen and gestalt impressions of the music.

4.3.2.9. Forrest Gump Suite by Alan Silvestri

Youtube link: https://www.youtube.com/watch?v=ASbxBzez-X8

Film genre: Drama, Romance.

Gestalt impression: non-epic.

First listen: the gestalt impression classification is confirmed.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	A Major	8:47
Begin minor	no (A Major)	
Big crescendo	yes	6:47
Repetitive line	yes	0:00
Complex rhythm	no	
Catchy melody	yes	0:10

Validation of CART 1000:1: the prediction tree is validated, as it successfully rejects this soundtrack as non-epic.

4.3.2.10. Themes by John Williams

4.3.2.10.1. Hedwig's Theme by John Williams

Film genre: Fantasy. Fiction.

It is difficult to judge whether this theme is epic or not. Moreover, different versions of the same theme can give different impressions.

4.3.2.10.1.1. Harry Potter and the Prisoner of Azkaban Soundtrack - 01. Lumos!

Youtube link: http://www.youtube.com/watch?v=md7O1Ve8K7M

Gestalt impression: magical, almost feels like Tchaikovsky's "Sugar Plum Fairy" from Nutcracker ballet.

First listen: the gestalt impression classification is confirmed as non-epic.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	e minor	1:34
Begin minor	e minor	0:00
Big crescendo	no	
Repetitive line	no	
Complex rhythm	no	
Catchy melody	yes	0:00

Validation of CART 1000:1: the theme in this version does not represent any epic feeling, thus the CART is validated.

4.3.2.10.1.2. Harry Potter and the Sorcerer's Stone Soundtrack - 19. Hedwig's Theme a.k.a Hedwig's Flight

Youtube link: https://www.youtube.com/watch?v=1Li0SWlwe34

Gestalt impression: fantastic, magical.

First listen: the gestalt impression classification is confirmed.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	C Major	5:00
Begin minor	e minor	0:00
Big crescendo	yes	4:57
Repetitive line	no	
Complex rhythm	yes	2:55
Catchy melody	yes	0:00

Validation of CART 1000:1: this version of the theme is longer and more elaborate. Even though it is beautiful music, it does not create an epic feeling.

4.3.2.10.2. Star Wars - The Imperial March

Youtube link: https://www.youtube.com/watch?v=-bzWSJG93P8

Film genre: Science Fiction, Fantasy.

Gestalt impression: dark, epic music.

First listen: the gestalt impression classification as epic music is confirmed.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	g minor	3:02
Begin minor	g minor	0:00
Big crescendo	yes	0:44
Repetitive line	yes	0:00

Complex rhythm	yes	2:17
Catchy melody	yes	0:09

Validation of CART 1000:1: the presence of variables predict the Imperial March as epic music, corresponding to the first listen and gestalt impressions. Thus the CART is validated.

4.3.2.10.3. Raiders of the Lost Ark - Raiders March

Youtube link: https://www.youtube.com/watch?v=-bTpp8PQSog

Film Genre: Adventure. 1981.

Gestalt impression: not exactly epic, but adventurous.

First listen: more adventurous music than pure epic.[81]

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	F Major	5:25
Begin minor	No (C Major)	
Big crescendo	yes	5:15
Repetitive line	yes	0:00
Complex rhythm	yes	0:02
Catchy melody	yes	0:07

Validation of CART 1000:1: the piece begins with C Major, thus CART classifies it as non-epic. However, this shares a lot of common elements with epic music. Only the tonality is in major, while all other essential variables of epic music are present. This could be qualified as "Epic adventure" style, corresponding to the film's genre of "Adventure."

[81] Jason Hayes, in a telephone conversation with author in early 2014 called this music "High Adventure".

4.3.2.10.4. Superman Soundtrack - 01. Theme from Superman (Main Title), OST 1978

Youtube link: https://www.youtube.com/watch?v=AGUyNy07ZYg

Film genre: Action, Fantasy, Sci-fi. 1978.

Gestalt impression: Sci-fi, heroic, adventurous.

First listen: the gestalt impression classification is confirmed.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	No (in G)	4:21
Begin minor	No (C Major)	0:00
Big crescendo	yes	0:29
Repetitive line	yes	0:41
Complex rhythm	yes	2:17
Catchy melody	yes	0:41

Validation of CART 1000:1: this is the second time that a piece music has all epic variables Except the beginning tonality. It seems that a beginning tonality in Major, at least in the example of the Indiana Jones and Superman themes, can play a huge role in determining if a music is of epic nature or not. Both tracks are entirely in major, besides the ending of the Superman theme, which is in G without the third. This means that other genres might share a lot of similarities with epic music, but still be distinguishable from it. For example, the use of brass seems to be more prevalent in both the Indiana Jones and Superman themes, while the use of brass is not a must-have factor in CART 1000:1. The prediction tree is thus validated.

4.3.2.10.5. E.T. Soundtrack- Track 05. Flying, OST 1982

Youtube link: https://www.youtube.com/watch?v=mDXbYJyr81g

Film genre: Adventure, Sci-fi, Fantasy. 1982

Gestalt impression: adventurous, sci-fi, non epic.

First listen: the gestalt impression is confirmed.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	C Major	3:23
Begin minor	No (C Major)	
Big crescendo	yes	2:30
Repetitive line	yes	0:01
Complex rhythm	no	
Catchy melody	yes	0:13

Validation of CART 1000:1: the CART classifies this as non-epic, corresponding to the first listen and the gestalt impressions. Instead, this might be classified as adventure sci-fi music.

4.3.2.11. The Chronicles of Narnia: The Lion, the Witch and the Wardrobe Soundtrack - 12. The Battle by Harry Gregson-Williams 2005

Youtube link: http://www.youtube.com/watch?v=sxeiDFlJ5kU

Film genre: Adventure, Fantasy. 2005

Gestalt impression: Epic style.

First listen: the gestalt impression classification is confirmed.

Second listen, presence of epic variables:

Epic Variables	Presence	Minute
End Major, minor	D Major	7:03
Begin minor	d minor	0:00
Big Crescendo	yes	4:33
Repetitive line	yes	1:01
Complex rhythm	yes	0:50
Catchy melody	yes	0:38

Validation of CART 1000:1: this track has everything that one can call epic. The CART tree is validated. Especially from 5:45, the power of propulsion, and the long, steady big crescendo that ends in the climax at 6:25 confirms the epicness of this amazing soundtrack.

4.3.3. Results

CART 1000:1 is capable of correctly classifying most of the music today outside *World of Warcraft* as epic or non epic. The CART 1000:1 does have difficulty distinguishing adventure style from epic style, due to the similarity of variables in both types of music. This difficulty of discussing any art forms resides in art's subjectivity and to varying individual appreciation. George Lucas, the producer of Star Wars, even denies that the movie is sci-fi, the classification used in this dissertation. Instead, he says it should be viewed as taking place in "a different dimension. The laws of physics are different here. Star Wars is not science fiction at all. It's much more attuned to mythology, to psychology, to history than it is to science."[82]

[82] Beth Hilton. "Lucas: 'Star Wars' is not sci-fi," *Digital Spy*, August 13, 2008. Accessed March 4th, 2014. http://www.digitalspy.com/movies/news/a122091/lucas-star-wars-is-not-sci-fi.html

One way to distinguish adventure from epic style music may be to view the content of the film or game it supports: while the outcome of an adventure determines the destiny of some, the outcome of an epic shapes the fate of an entire population. Even though epics and adventures share not only musical but ideological elements of excitement, the epic is larger in scale and the outcome is always uncertain. Thus, in epic music, one can hear a propulsion, a buildup to uncertainty not present in an adventure, which is often more positivist, with a predetermined successful outcome. In adventure stories, the protagonists will likely get out of dangerous situations safely, no matter how extreme they are, whilst for epics, nothing is a given, with a tragic outcome being equally likely for protagonists, even if their actions save many other people. Put simply, adventures highlight the positive impact of the individual for his or her own ends, while in an epic, the individual can be sacrificed for the greater good.

In most cases, the setting of the story in time distinguishes epic from sci-fi. Epics have generally already happened, or could theoretically have happened in the past, while science fiction is ongoing or set in the future. *Chanson de geste*, the precursor of epic style music, always described heroic deeds accomplished in the past, not in the present or the future.

Fantasy, on the other hand, can very well be considered a subset of epic style music. *Chanson de geste* were originally about the matter of France, but gradually developed into fantastic stories due to exaggeration. This is why it is possible for Harry Potter to become an epic when the protagonist leads an army to fight a battle that can determine the destiny of the entire population.

This may also explain why Lucas does not consider Star Wars to be sci-fi. He argues that it should be considered an American cinematographic epic, as it is "purposely designed not to be about where we're going. It's about where we've been and what we can learn from the past

in the present."

It is possible that there are subgenres of epic style such as "adventurous epic", "fantastic epic" or even "sci-fi epic." Genres can easily proliferate in this way, with the original genre spawning new ones, each of which could produce their own subgenres. For example, Westerns were already an established movie genre before the subgenre of "Spaghetti Westerns" became popularized to qualify Western movies of Italian production by Alfonso Sancha in the 1960s.[83] In addition to the Spaghetti Western, other subgenres of Westerns flourished, to such a degree that it is hard to find a consensus of each subgenre: sci-fi westerns, space westerns, neo-westerns, meat-pie westerns, euro westerns, and osterns are just some of the subgenres.

It is also worth reiterating that there are no absolute sets of rules for what music should sound like. Even harmony and counterpoint treaties are collections of what has been done before, rather than an absolute set of rules. The attempt to regulate music is a scholarly concern while "making music," regardless of rules, is that of composers. This is the difference of what we might expect from a scholar and a composer. A scholar's study is based upon what previously has been done while a composer innovates.

Also, it is important to mention that musical genre does not always correspond to film genre. A genre of movie can contain several different genres of musical styles. A theme or a leitmotif can be altered, arranged into different styles of music, and appear in different places in a film.

[83] Joyner, C. Courtney *Aldo Sambrell Interview The Westerners: Interviews with Actors, Directors, Writers and Producers* (Jefferson, NC: McFarland, 2009), 180.

Thus, more data outside the music of *World of Warcraft* needs to be collected and analyzed in order to build a model that is capable of predicting subgenre or even to discuss their existence, even though in the validation testing, almost all pieces randomly chosen were classified correctly as epic or non-epic in CART analysis. Nonetheless, it is only prudent to apply an arbitrary 1:20 penalty, as one could obtain the same result by chance alone. As such, the CART 1000:1 applying on the data outside *World of Warcraft* is viable at 95%.

«La musique, je le crois, doit être émotionnelle d'abord puis intellectuelle ensuite.»

- Maurice Ravel

5. Conclusion

Analysis of the musical elements in *World of Warcraft*, combined with the analysis of other music to validate the CART 1000:1 analysis, resulted in several primary and secondary findings, as follows.

Primary findings:

- The essence of epic music in *World of Warcraft* is composed of the following elements: Ending in major or minor; beginning in minor, a big crescendo, repetitive line, complex rhythm, and catchy melody;

- The CART 1000:1 of epic music is 99.9% correct in classifying epic music in *World of Warcraft*.

Secondary findings:

- The generalization of CART 1000:1 to determine whether music outside *World of Warcraft* is epic or not is valid to 95%, with the following reservation: the proportion of intensity in each variable was not measured, and certain thresholds of intensity in some variables might be able to override other variables in order to make the music epic;

- Subgenres of epic music may exist, and it is possible they share most of the variables with epic music with slight different variations. These subgenres could be examined in a separate study;

- In order to be able to fully generalize the findings of this research with regards to epic music in *World of Warcraft*, more research needs to be done. In particular, a wider variety of musical styles and a larger collection of data outside *World of Warcraft* should be included in further studies to arrive at a stronger proclamation of the essence of all epic music.

Table 1: Frequency of Presence of each variable in All Styles

Factor (Element, Variable)	Level	All Styles (yes%)
Number of tracks		109
Time signature	Undefined	14 (12.8%)
	3/4	5 (4.6%)
	4/4	75 (68.8%)
	5/8	1 (0.9%)
	6/8	22 (20.2%)
	6/8+7/8	3 (2.8%)
	7/8	9 (8.3%)
	8/8	2 (1.8%)
Begin tonality quality	Minor	83 (76.1%)
	Minor-ish	4 (3.7%)
	Major	4 (3.7%)
	Other Tonal	6 (5.5%)
	Undefined	12 (11.0%)
Tonality begin	Undefined	12 (11.0%)
	A Minor	15 (13.8%)
	A Minor(ish)	1 (0.9%)
	B Minor	4 (3.7%)
	B-flat Major	1 (0.9%)
	B-flat Minor	2 (1.8%)
	C Major	1 (0.9%)
	C Minor	21 (19.3%)
	C Minor(ish)	1 (0.9%)
	C# Minor	5 (4.6%)
	D Minor	12 (11.0%)
	d Minor(ish)	1 (0.9%)
	E Minor	7 (6.4%)
	E Minor(ish)	1 (0.9%)
	E-flat Major	1 (0.9%)
	F Major	1 (0.9%)
	F Minor	8 (7.3%)
	F# Diminished	2 (1.8%)
	F# Minor	3 (2.8%)
	G Minor	5 (4.6%)
	G# Minor	1 (0.9%)
	in A	1 (0.9%)
	in A-flat	1 (0.9%)
	in C	1 (0.9%)
	in D	1 (0.9%)
End tonality quality	Minor	67 (61.5%)
	Minor-ish	3 (2.8%)
	Major	13 (11.9%)
	Other Tonal	8 (7.3%)

	Undefined	18 (16.5%)

Tonality end	Undefined	18 (16.5%)
	A Major	1 (0.9%)
	A Minor(ish)	1 (0.9%)
	aug chord on F	1 (0.9%)
	B Major	1 (0.9%)
	B Minor	2 (1.8%)
	B-flat Major	1 (0.9%)
	B-flat Minor	4 (3.7%)
	C Major	1 (0.9%)
	C Minor	14 (12.8%)
	C Minor(ish)	1 (0.9%)
	C# Major	2 (1.8%)
	C# Minor	4 (3.7%)
	D Major	3 (2.8%)
	D Minor	13 (11.9%)
	E Minor	8 (7.3%)
	E-flat Minor	5 (4.6%)
	F Major	2 (1.8%)
	F Minor	7 (6.4%)
	F# Minor	3 (2.8%)
	F# Minor(ish)	1 (0.9%)
	G Minor	7 (6.4%)
	G# Major	1 (0.9%)
	G-flat Major	1 (0.9%)
	in C	1 (0.9%)
	in D	2 (1.8%)
	in E	1 (0.9%)
	in E-flat	2 (1.8%)
	in F#	1 (0.9%)
Polymeter/polyrhythm	present/absent	45 (41.3%)
Big crescendo	present/absent	65 (59.6%)
Sudden silence	present/absent	17 (15.6%)
Repetitive line	present/absent	78 (71.6%)
Percussion	present/absent	91 (83.5%)
High strings	present/absent	94 (86.2%)
Voice	present/absent	69 (63.3%)
Brass	present/absent	82 (75.2%)
Catchy melody	present/absent	60 (55.0%)
Exotic instrument	present/absent	46 (42.2%)
Suspension	present/absent	47 (43.1%)
Unprepared modulation	present/absent	50 (45.9%)
Sequence	present/absent	10 (9.2%)
Flat leading tone	present/absent	56 (51.4%)
Unorthodox interval	present/absent	40 (36.7%)
Bruitage/electronic	present/absent	65 (59.6%)
Interrupted cadence	present/absent	12 (11.0%)

Table 2: Frequency of presence of each variable

Pure Epic vs. All other styles

Factor (Element, Variable)	Level	All Other (yes%)	Pure Epic (yes%)	*p*-value
Number of tracks		80	29	
Time signature	?	14 (18%)	0 (0%)	0.019
	3/4	3 (4%)	2 (7%)	0.61
	4/4	55 (69%)	20 (69%)	1.00
	5/8	1 (1%)	0 (0%)	1.00
	6/8	13 (16%)	9 (31%)	0.11
	6/8+7/8	0 (0%)	3 (10%)	0.017
	7/8	0 (0%)	9 (31%)	<0.001
	8/8	1 (1%)	1 (3%)	0.46
Begin tonality quality	Minor	56 (70%)	27 (93%)	0.043
	Minor-ish	4 (5%)	0 (0%)	
	Major	4 (5%)	0 (0%)	
	Other Tonal	4 (5%)	2 (7%)	
	Undefined	12 (15%)	0 (0%)	
End tonality quality	Minor	43 (54%)	24 (83%)	0.009
	Minor-ish	3 (4%)	0 (0%)	
	Major	9 (11%)	4 (14%)	
	Other Tonal	7 (9%)	1 (3%)	
	Undefined	18 (23%)	0 (0%)	
Polymeter/polyrhythm	present/absent	26 (33%)	19 (66%)	0.002
Big crescendo	present/absent	38 (48%)	27 (93%)	<0.001
Sudden silence	present/absent	3 (4%)	14 (48%)	<0.001
Repetitive line	present/absent	50 (63%)	28 (97%)	<0.001
Percussion	present/absent	62 (78%)	29 (100%)	0.005
High strings	present/absent	66 (83%)	28 (97%)	0.060
Voice	present/absent	46 (57%)	23 (79%)	0.037
Brass	present/absent	54 (68%)	28 (97%)	0.002
Catchy melody	present/absent	34 (43%)	26 (90%)	<0.001
Exotic instrument	present/absent	37 (46%)	9 (31%)	0.16
Suspension	present/absent	24 (30%)	23 (79%)	<0.001
Unprepared modulation	present/absent	29 (36%)	21 (72%)	<0.001
Sequence	present/absent	4 (5%)	6 (21%)	0.012
Flat leading tone	present/absent	34 (43%)	22 (76%)	0.002
Unorthodox interval	present/absent	30 (38%)	10 (34%)	0.83
Bruitage/electronic	present/absent	56 (70%)	9 (31%)	<0.001
Interrupted cadence	present/absent	7 (9%)	5 (17%)	0.30

Table 3: Frequency of presence of each variable

Pure Ambient vs. All other styles

Factor (Element, Variable)	Level	All other (yes%)	Pure Ambient (yes%)	*p*-value
Number of tracks		63	46	
Time signature	?	1 (2%)	13 (28%)	<0.001
	3/4	5 (8%)	0 (0%)	0.072
	4/4	45 (71%)	30 (65%)	0.53
	5/8	1 (2%)	0 (0%)	1.00
	6/8	17 (27%)	5 (11%)	0.053
	6/8+7/8	3 (5%)	0 (0%)	0.26
	7/8	9 (14%)	0 (0%)	0.010
	8/8	2 (3%)	0 (0%)	0.51
Begin tonality quality	Minor	52 (83%)	31 (67%)	0.003
	Minor-ish	1 (2%)	3 (7%)	
	Major	4 (6%)	0 (0%)	
	Other Tonal	4 (6%)	2 (4%)	
	Undefined	2 (3%)	10 (22%)	
End tonality quality	Minor	46 (73%)	21 (46%)	<0.001
	Minor-ish	0 (0%)	3 (7%)	
	Major	12 (19%)	1 (2%)	
	Other Tonal	4 (6%)	4 (9%)	
	Undefined	1 (2%)	17 (37%)	
Polymeter/polyrhythm	present/absent	35 (56%)	10 (22%)	<0.001
Big crescendo	present/absent	44 (70%)	21 (46%)	0.011
Sudden silence	present/absent	16 (25%)	1 (2%)	<0.001
Repetitive line	present/absent	55 (87%)	23 (50%)	<0.001
Percussion	present/absent	57 (90%)	34 (74%)	0.021
High strings	present/absent	54 (86%)	40 (87%)	0.85
Voice	present/absent	44 (70%)	25 (54%)	0.097
Brass	present/absent	53 (84%)	29 (63%)	0.012
Catchy melody	present/absent	51 (81%)	9 (20%)	<0.001
Exotic instrument	present/absent	30 (48%)	16 (35%)	0.18
Suspension	present/absent	34 (54%)	13 (28%)	0.007
Unprepared modulation	present/absent	36 (57%)	14 (30%)	0.006
Sequence	present/absent	8 (13%)	2 (4%)	0.14
Flat leading tone	present/absent	45 (71%)	11 (24%)	<0.001
Unorthodox interval	present/absent	21 (33%)	19 (41%)	0.43
Bruitage/electronic	present/absent	32 (51%)	33 (72%)	0.031
Interrupted cadence	present/absent	10 (16%)	2 (4%)	0.069

Table 4: Frequency of presence of each variable

Pure Folk vs. All other styles

Factor (Element, Variable)	Level	All other (yes%)	Pure Folk (yes%)	*p*-value
Number of tracks		99	10	
Time signature	?	14 (14%)	0 (0%)	0.35
	3/4	5 (5%)	0 (0%)	1.00
	4/4	67 (68%)	8 (80%)	0.72
	5/8	1 (1%)	0 (0%)	1.00
	6/8	20 (20%)	2 (20%)	1.00
	6/8+7/8	3 (3%)	0 (0%)	1.00
	7/8	9 (9%)	0 (0%)	1.00
	8/8	2 (2%)	0 (0%)	1.00
Begin tonality quality	Minor	77 (78%)	6 (60%)	0.049
	Minor-ish	3 (3%)	1 (10%)	
	Major	3 (3%)	1 (10%)	
	Other Tonal	4 (4%)	2 (20%)	
	Undefined	12 (12%)	0 (0%)	
End tonality quality	Minor	59 (60%)	8 (80%)	0.59
	Minor-ish	3 (3%)	0 (0%)	
	Major	12 (12%)	1 (10%)	
	Other Tonal	7 (7%)	1 (10%)	
	Undefined	18 (18%)	0 (0%)	
Polymeter/polyrhythm	present/absent	42 (42%)	3 (30%)	0.45
Big crescendo	present/absent	61 (62%)	4 (40%)	0.18
Sudden silence	present/absent	17 (17%)	0 (0%)	0.15
Repetitive line	present/absent	69 (70%)	9 (90%)	0.17
Percussion	present/absent	83 (84%)	8 (80%)	0.76
High strings	present/absent	88 (89%)	6 (60%)	0.011
Voice	present/absent	65 (66%)	4 (40%)	0.11
Brass	present/absent	76 (77%)	6 (60%)	0.24
Catchy melody	present/absent	51 (52%)	9 (90%)	0.020
Exotic instrument	present/absent	38 (38%)	8 (80%)	0.011
Suspension	present/absent	46 (46%)	1 (10%)	0.026
Unprepared modulation	present/absent	46 (46%)	4 (40%)	0.70
Sequence	present/absent	10 (10%)	0 (0%)	0.29
Flat leading tone	present/absent	49 (49%)	7 (70%)	0.22
Unorthodox interval	present/absent	37 (37%)	3 (30%)	0.74
Bruitage/electronic	present/absent	61 (62%)	4 (40%)	0.31
Interrupted cadence	present/absent	11 (11%)	1 (10%)	1.00

Bibliography

Game theories:

Suits, Bernard. *The grasshopper: games, life, and Utopia*. Peterborough: Broadview Press, 2005.

This is a book about video game theory written by Bernard Suit. He provides a definition of game that is widely discussed in game research. Part of the book is written as a parody of Socrates' platonic dialogue. It is somewhat entertaining. The rest part of the book is about the definition of game that some people would find it a little bit too dry to read through. However it is a great source for scholars.

Zimmerman, Eric, and Katie Salen. *Rules of Play: Game Design Fundamentals*. Cambridge, MA: MIT Press, 2003.
It is a very exhaustive book about video game and game design. The authors go beyond the definition of games and game vocabulary. They offer tools and unified models to look at different games. However this book has seldom to do with video game music, neither do they mention the epicness in the game music. It is a broader approach towards video game in general and the design of video game.

***World of Warcraft* (WoW) related websites:**

WoW. "*World of Warcraft* Beginner's Guide." Accessed November 30, 2012. http://us.battle.net/wow/en/game/guide/
This website contains a very succinct guide to what the WoW is. Not only does it contain information about the genre of WoW as a video game, it also has detailed information about the game: how to play it, alone, with the others, and when the player reaches the high level. It also has a forum section for players to share their thoughts.

Dota 2 related websites:

Dota 2 blog. "Dota 2 Official blog." Accessed December 5, 2012. http://blog.dota2.com/
This is the official blog about Dota 2. This website contains all updates about the mechanism of the game. This site was useful because the full score of the Dota 2 trailer was found on this website. It is quite difficult to obtain scores for video game music.

Jason Hayes related websites:

Jason Hayes. "Jason Hayes' official Website." Accessed November 6, 2012.

http://www.musicbyjason.com/.
This website contains some information about Jason Hayes. This is an important resource since I am writing a dissertation about his music. I was able to contact him through the email listed on his website. There is a forum section where Jason interacts with other forumers.

WOW Wiki. "*World of Warcraft* Universal Guide on Jason Hayes." Accessed November 5, 2012.
http://www.wowwiki.com/Jason_Hayes
This website is a wiki-liked page that lists music composed by Jason Hayes for WOW. The list is very extensive and it is classified by theme and ambiance music. Jason Hayes is a lead composer of WoW and it is useful to have a list of music composed by him for WoW.

Epic music related websites:

IGN. "The Greatest Video Game Music 2 Tracklisting Revealed." Accessed December 6, 2012.
http://www.ign.com/articles/2012/09/14/the-greatest-video-game-music-tracklisting-revealed
A list of 20 greatest video game music. The most important part of this website is the interview with Andrew Skeet who is a composer and conductor. He recorded all 20 music themes from IGN with the London Philharmonic orchestra.

Andrew Skeet. "Official website of Andrew Skeet. Composer, arranger, conductor." Accessed December 6, 2012.
http://www.andrewskeet.com/
Andrew Skeet studied at the Royal College of Music. He has been active since then in the film music and TV series. His recently released a video game music album under the title "The Greatest video game music", recorded with the London Philharmonic orchestra. This album is a great hit. The valuable information about this website is that there is a recorded interview with the conductor himself talking about video game music and the reason they select those music to include in the album.

Two Steps from Hell. "Two Steps from Hell." Accessed November 5, 2012.
http://www.twostepsfromhell.com/
A company specialized in epic music. There are samples of epic music and an album composed by this company, created by two composers specialized in making movie trailers sound epic. There are several examples of those music and videos on this website. There is also contact information that I think is useful because it is important to see epic music genre from the point of view of other composers other than video game music. Professor Krouse states that epic music is not an exclusivity of video game music, which is true. However, in

video games, interactivity makes it possible to enhance musical emotions. This doesn not exist in other media that also use epic music.

Thomas Bergersen. “Official website of Thomas Bergersen.” Accessed Nov 4, 2012. http://www.thomasbergersen.com/.

One of the co-founders of Two Steps from Hell. This website is very useful, because it gives examples of his epic compositions. Most composers would not self classify their own music as epic. However T. Bergersen not only does epic music, but he shouts it out loud.

IGN. “Top 10 Epic Songs.” Accessed Nov 4, 2012.
http://www.ign.com/articles/2007/04/19/top-10-epic-songs
Article on epic music by Spence D. This website cites 10 epic songs and puts them on a “top 10” list. It begins with explaining what the meaning of epic is and what it means in songs. Spence states that the length has something to do with the epicness. Most popular songs are around three minutes, but an epic song stretches to the 6 minutes time mark. This might not be relevant as for video game music trailer since we know that J. Hayes’ epic trailers are around two to three minutes.

The New Yorker. “The Ring and the Rings.” Accessed December 4, 2012.
http://www.newyorker.com/archive/2003/12/22/031222crat_atlarge
This is an article written by Alex Ross, with a subtitle “ Wagner vs. Tolkien”. Accirding to Ross’ writing, the similarities between Wagner’s Rings and Tolkien’s Ring not only reside in the narratives, but also in the music, since film composer Howard Shore has admitted studying Wagner’s Rings for his composition. Without a doubt, Wagner’s “epicness” resides in musical grandeur. The formula has been dissected by Shore for Tolkien’s Ring.

Trailer Music News. “Articles and News about Trailer music.” Accessed December 6, 2012.
http://www.trailermusicnews.com/
This website is very helpful because it contains articles, reviews, and interviews with trailer music composers. Trailer music is not always epic because the music depends on the genre of the film. However, very often a trailer is the place where to find epic music, because over a very short duration, composer and filmmakers need to convince the audience to come to see their movie. This is a great resource for finding written interviews with trailer music composers.

Video Games live. “Official website of VGL.” Accessed December 9, 2012.
http://www.videogameslive.com/index.php?s=home
VGL is an orchestra that is specialized in live performance of video game music. As stated in this dissertations’ proposal, it is difficult to obtain any kind of primary source on this topic. Since this orchestra is specialized in performing video game music, obviously unpublished scores exist for the music they perform. However it is still unknown that they would share their scores with me. An email was sent to the manager of the orchestra to see if they would send the scores of some epic video game music that they perform. Video game performances are very popular, tickets are always sold out very

long in advance.

Skramstad, Per-Erik. “Wagner, the complete Epic.” Accessed December 9, 2012. http://www.wagneropera.net/Themes/Wagner-In-Movies-Wagner-Epic.htm
Skramstad is a web developer who has a great passion about Wagner’s operas. He is not only interested in Wagner’s operas, but also in Wagner’s life in general. On his website, there is a complete listing of Wagner’s operas. Each opera is detailed and analysed. What is more precious about this website is that there is a complete reproduction of Wagner’s autobiography: “My life.” Yes, I use “complete” a lot since this is a “complete Epic” website about Wagner, the man, his music, and his life.

Paulus, Irena. “Williams versus Wagner or an Attempt at Linking Musical Epics.” *International Review of the Aesthetics and Sociology of Music* vol. 31 No. 2 (2000): 153-84

Paulus writes about the similarity between John Williams’ musical conception and the one of Richard Wagner. She compares those two composers in their way of using leitmotif. The difference is that Wagner wrote it to dramatize the opera while John Williams was writing it for the movie. One calls it themes for the movie, the other one calls it leitmotifs for opera. The author also compares the similarities of musical examples of “Star Wars”, “Tristan und Isolde”, “Ring des Nibelungen” etc. Although this is not a video game per se, it is nevertheless useful as a tool of comparative analysis between two genres.

Harper-Scott, J. P. E.. “Medieval Romance and Wagner's Musical Narrative in the Ring.” *19th-Century Music* vol. 32 no. 3 (2009): 211-34.
The author tracks back to the source of “epic-ness” of Wagner’s Ring cycle. It is important to stress that epic music drains its power from the “epic-ness” of the narrative. In fact as the Oxford dictionary states it, the adjective epic has its historical root in Homer’s epic poems, Iliad and Odyssey. Wagner’s epic music cycle “Ring” has its roots in the “The Nibelungenlied” (ca. 1200). By analogy to comparing epic film music to epic operatic music, one could compare the similarities of epic video game music to either epic operatic music or epic film music.

Beck, Jean. “Musique des chansons de geste.” *Comptes-rendus des séances de l'Académie des Inscriptions et Belles-Lettres* vol. 55 no. 1 (1911): 39-45. http://www.persee.fr/web/revues/home/prescript/article/crai_0065-0536_1911_num_55_1_72752
This article in French is the only article that centers on the genre of “*musique epique*”. Here the author goes back to the original meaning of “*epique*” in French and cites a phrase from Jean de Grouchy when he talked about the genre of “*musique epique*” in his treatise *Ars musicae* ("The art of music") (c. 1300). “Epique” according to French “Larousse” dictionary, is defined as “*qui est relatif à l'épopée (un style épique), qui est mémorable par un caractère extraordinaire (un voyage épique)*” and “*épopée*” according to the same dictionary means ”*long récit poétique en vers, puis en prose où le merveilleux se mêle au vrai (l'Odyssée est une épopée antique), suite d'actions ou d'événements historiques à caractère extraordinaire et sublime (l'épopée napoléonienne)*”. In short, it is a music that serves as narrative of an

extraordinary journey, an adventure or an historic event. This is a very precious article because it treats exactly the subject of my dissertation in French.

Images and Music related:

Weidenaar, Reynold. "Live Music and Moving Images: Composing and Producing the Concert Video." *Perspectives of New Music* vol. 24 No. 2 (1986): 270-79.

An interesting article talks about how different it is to compose concert music and music composed for moving images. The author is somehow cynical about how composers who compose for moving images such as movies, do not have music as their first priority, but how to please the producers. According to W. Reyhold, such composers do not have any moral standard and are willing to recycle clichés in order to achieve their only goal of pleasing producers.

Sirius, George and Eric F. Clarke. "THE PERCEPTION OF AUDIOVISUAL RELATIONSHIPS." *Psychomusicology: Music, Mind & Brain* vol. 13 no. 1-2/3 (1994): 119-32.

http://tinyurl.com/bekjw7m

This article talks about the interaction between music and images and how our brain reacts to it. It is based on a previous study made by George Sirius in 1991 which was based on Marshall and Cohen's semantic studies in 1988. This new study by George Sirius and Eric Clarke in 1994 uses four different genres of movie and music, to see if there is any correlation between them. The result shows that music is additive to images, in evaluation of the audio-visual pleasance.

Nattiez, Jean-Jacques and Katharine Ellis. "Can One Speak of Narrativity in Music?." J*ournal of the Royal Musical Association* vol. 115 no. 2 (1990): 240-57.

http://www.jstor.org/stable/766438

Epic music in its original form means music that narrates. This article questions the ability of music to narrate on its own. Can a music tell a story of its own? Many studies have been done before to associate music with images that tell a story. The authors give the example of Ravel's "Bolero" and consider the narrativity of this apparently transparent music that needs a spectacular conclusion of its own: "*And in this perspective, I would be quite happy to explain the universal success of Ravel's Bolero in terms not of the simplicity of its repetitive structure, but of its capacity to evoke the irresistible rising of desire culminating in the orgasmic outburst of the trombones*." This empowers the importance of music in video game music because if music could magically dictate our emotion in a certain way, then the composer who has this formula would become an alchemist who can turn lead into gold. This article would support the idea of Sirius and Clarke that music is additive to images, in terms

of pleasance (archaic for pleasure).

Exotic music related:

Swedenburg, Ted. "SocietyThe 'Arab Wave' in World Music after 9/11." *Anthropologica* vol. 46 no. 2 (2004): 177-88

A very interesting article about orientalism and the paradox of the rise in popularity of Arab music after 9/11. Is there a correlation between this rise in popularity, and the use of exotic instruments in epic music and video game music in general? In WoW, the use Duduk is everywhere in use, just as is the Cimbalom in Dota 2. The Cimbalom, a Persian instrument, opens the epic music of Jason Haye's Dota 2 trailer.

Zeranska-Kominek, Sawomira. *The Tale of Crazy Harman: The Musician and the Concept of Music in the Turkmen Epic Tale, Harman Dali.* Translated from Polish by Jerzy Ossowski. Warsaw: Academic Publications Dialog, 1977.

A lot of video games took their "epic" feeling from exotic instruments. In this book, the author talks about the relationship between history, music, performance, and the social context of Turkmen Epic tales. The author believes that musical performance is in itself a medium between epic tale and ethnic identity, especially the vocal ability of performers shows the "shamanistic" influence on vocal effect, far before Islamic influence. The author also states that musical form and poetic structure have a significant chemistry in Turkmenistan. The musical performance of epic Turkmenistan tales is comparable to "recitative" forms in the western operatic music genre.