

**Analyzing Musical *Mario*-media:
Variations in the Music of *Super Mario* Video Games**

Guillaume Laroche

Department of Music Research
McGill University, Montréal

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Abstract

Responding to a severe lack of score-based music-theoretical analyses in the academic discourse surrounding video game music, this study proposes such an analysis of several tunes from the *Super Mario* video game series written by series lead composer Koji Kondo. Specifically, this study offers a variational analysis of those musical tunes featuring common motives and/or themes. The study divides tunes into two categories: series themes, in which a melody recurs in multiple tunes excerpted from several *Super Mario* games; and game themes, in which a melody recurs in multiple tunes within a single *Super Mario* game.

Following reviews of the design of *Super Mario* video games, the life and music of Koji Kondo, and the existing principal literature on video game music, the study analyzes 26 works composed by Kondo between 1985 and 2002. Series and game themes are analyzed in terms of variational technique, designating the most plausibly earliest-written tune as the ‘original’ theme and deeming other tunes that came afterwards variations upon this original. In reviewing the results of these analyses, the study concludes that the musical features of series themes, and by extension the variational approaches used in developing them, are unlike those of game themes. Series themes feature an unchanging musical parameter (often the melody), the *essential element*, that Kondo refuses to modify in any variation; rather, variation is applied to musical events surrounding the essential element. Game themes are much more flexible, and constructed from smaller motives which develop themselves into larger chunks of music through a process which is generally analogous to Schoenberg’s concept of the developing variation. In all, the study shows that Koji Kondo purposefully differentiates his compositional approach to both themes and variations depending upon whether the theme in question is a series theme or a game theme.

Résumé

Répondant à un manque d'analyses à base de partitions dans le discours académique portant sur la musique de jeu vidéo, cette étude propose une telle analyse de plusieurs oeuvres musicales de la série *Super Mario* du compositeur principal de la série, Koji Kondo. Spécifiquement, ce mémoire étudie la variation dans les pièces présentant des motifs et/ou thèmes musicaux communs. Il divise ces pièces en deux catégories: les thèmes de la série, c'est-à-dire les thèmes qui se présentent dans plusieurs jeux de la série *Super Mario* ; et les thèmes de jeu, c'est-à-dire les thèmes que l'on retrouve seulement dans un seul jeu de la série *Super Mario*.

Suite à des survols de la conception des jeux vidéo *Super Mario*, de la vie et musique de Koji Kondo et de la littérature actuelle portant sur la musique de jeu vidéo, cette étude présente une analyse de 26 pièces composées par Kondo entre 1985 et 2002. Les thèmes sont analysés en fonction des techniques de variation, où l'oeuvre la plus probablement composée en premier est désignée «l'originale» et toutes les autres sont comprises en tant que variations développées à partir de cette originale. En révisant les résultats, le mémoire conclue que les caractéristiques musicales principales des thèmes de la série, et par extension leurs développements variationnels, sont dissemblables à celles des thèmes de jeu. Les thèmes de la série sont marqués par un paramètre musical inflexible (souvent la mélodie), nommé ici *l'élément essentiel*, que Kondo refuse de modifier dans ses variations ; ce sont plutôt les événements musicaux qui enveloppent cet élément essentiel qui sont variés. Les thèmes de jeu se montrent davantage flexibles, et sont construits à partir de petits motifs qui se développent en plus grands fragments par un processus généralement semblable à la variation développée telle que conçue par Schoenberg. En fin de compte, l'étude démontre que Koji Kondo différencie son approche à la composition d'un thème et de ses variations dépendant de si le thème en question est de la série ou de jeu.

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Certainement que mes parents n'auraient jamais cru en 1991 qu'en achetant une console de jeux vidéo pour moi et mes frères, il y avait là la toute première étape d'un cheminement qui se clorait 20 ans plus tard par le dépôt de mon mémoire de maîtrise ; on aurait bien plus raisonnablement cru exactement le contraire, qu'il s'agissait là d'une menace envers les études plutôt qu'un moteur! Certainement, je n'avais aucune idée moi non plus à ce moment-là que la musique offerte par *Super Mario World* et d'autres jeux deviendrait un jour une composante de projets de recherche subventionnés par deux universités de calibre international et un conseil de recherche national. L'insistance de mes parents sur l'importance de la musique comme activité, dans les succès comme les échecs, m'a profondément marqué, et c'est une valeur de laquelle je continuerai de chérir à vie à cause de leur efforts. L'appui sous toutes ses formes qu'ils m'ont offert tout au long de mes études musicales, d'abord parascolaires et plus tard universitaires, a toujours été grandement apprécié. Merci beaucoup!

Introduction

Over the past decade, academia has witnessed a steady rise in the attention given to video games.¹ In this context, video games have been studied from a range of perspectives: their narrative devices, their consequences for human identity and representation in virtual spaces, the technical aspects of their design, debates about their merit as works of art. Their music, too, has received some attention, with authors exploring its varying roles and uses, the similarities and differences between scoring for films versus games, and how technology influences compositional choices in the video game medium. Overall, “that music plays an important role in the overall experience of video gaming is widely accepted,”² and this importance is reflected in the ever-growing number of studies that video game music attracts.

It is curious to note, however, that within this area, there has been “very little written on what makes a great game soundtrack,”³ or even on which compositional techniques are most prevalent within the music of video games. Very few studies have considered video game music using the tools of music-theoretical analysis; on the contrary, most studies limit themselves to describing music qualitatively, using whatever adjectives appeal to an author who reviews a particular game track.⁴ Occasionally, one reads that a game score makes “use of large orchestral forces and a type of harmony and orchestration associated with nineteenth-century composers such as Wagner,”⁵ or that developers know “that musical scores that settle among minor and diminished chords, or

¹ Some manuals prefer the term ‘computer games’ on the basis that games are played via some kind of computer system (consoles are computers too), be it connected to a television or a monitor. I prefer the more colloquial term video games, fully conscious of the term’s lack of technical precision.

² Sean Zehnder and Scott Lipscomb, “The Role of Music in Video Games,” in *Playing Video Games: Motives, Responses, and Consequences*, ed. Peter Vorderer and Jennings Bryant (Mahwah, NJ: Lawrence Erlbaum, 2006), 244.

³ Thomas Gersic, “Toward a New Sound for Games,” in *Playing the Past: History and Nostalgia in Video Games*, ed. Zach Whalen and Laurie Taylor (Nashville: Vanderbilt University Press, 2008), 147.

⁴ To clarify my terms, the word ‘track’ is sometimes used to describe one particular musical selection excerpted from a video game. I use the term interchangeably with others such as: tune, work, piece, etc.

⁵ David Bessell, “What’s That Funny Noise? An Examination of the Role of Music in *Cool Boarders 2*, *Alien Trilogy* and *Medieval 2*,” in *Screenplay: Cinema/Videogames/Interfaces*, ed. Geoff King and Tanya Krzywinska (London: Wallflower Press, 2002), 138, discussing the soundtrack of the video game *Alien Trilogy*.

that depend on dissonance, are unnerving;”⁶ however, musical descriptions rarely extend beyond such basic observations and musical terminology. This situation prompts what is currently a largely unanswered question: what can analyzing game music in more detail bring to an understanding of the genre of game music and the medium of video games?

Certainly there are plenty of reasons why a musical analyst might be interested in studying video game music. The success of tours such as *Play* and *Video Games Live*, where orchestras perform arrangements of video game tunes in symphonic halls before hundreds of fans (many of whom dress up as their favourite gaming character for the occasion)⁷ all over the Americas, Europe and East Asia, suggests that the music of video games is considered by many listeners and professional musicians as meritorious not only as collages of sounds accompanying virtual journeys, but also as music in and of itself, to be listened to intently for its own sake away from its gaming contexts. An analyst might turn to musical analysis to question how game music relates to other popular forms of music these fans enjoy, perhaps to see if their enjoyment of the music derives from the musical features themselves or the mental associations they make between these melodies and their game-playing hobby. Alternatively, perhaps an analyst wishes to explore how specific musical features draw players into the feeling of ‘immersion,’⁸ applying the results not only to video games, but also to other immersive technologies like video lottery terminals, which use musical cues to attract gamblers, mask their financial losses and discourage them from leaving.⁹ In such contexts, mapping specific musical gestures

⁶ Ken McAllister, *Game Work: Language, Power, and Computer Game Culture* (Tuscaloosa: University of Alabama Press, 2004), 87.

⁷ Such events’ success has prompted others to set up ensembles uniquely dedicated to this cause, such as Montreal’s *Orchestre des jeux vidéo*. In other spheres, popular bands such as *The I-ups* and *The Minibosses* do covers of renowned game tunes.

⁸ Biocca and Delaney define the term ‘immersion’ in the context of video games as the extent to which a “virtual environment submerges the perceptual system of the user in computer-generated stimuli. The more the system captivates the sense and blocks out stimuli from the physical world, the more the system is considered immersive.” Frank Biocca and B. Delaney, “Immersive Virtual Reality Technology,” in *Communication in the Age of Virtual Reality*, ed. Frank Biocca and Mark Levy (Hillsdale, NJ: Erlbaum, 1995), 57.

⁹ See generally K. Collins et al., “Sound in Electronic Gambling Machines: A Review of the Literature and its Relevance to Game Sound,” in *Game Sound Technology and Player Interaction: Concepts and Development*, ed. Mark Grimshaw (Hershey PA: Information Science Reference, 2011), at 1-21.

onto human behaviours opens further inquiries into how the mind understands and reacts to music. Perhaps an analyst is interested in understanding the history of video game composition techniques as part of research for a class s/he is teaching in a university music program dedicated to video game composition—of which there are gradually more and more offered,¹⁰ yet with apparently little knowledge of the critical repertoire from the past.¹¹ Or, perhaps, an analyst might simply be interested in the compositional logic and peculiarities of the modern tonal practices from video game music for their own sake. Thus, there are many avenues which are open for video game music research. Yet few have been explored. It has been over a decade since Nicholas Cook warned that “music is booming; but it is booming outside of music theory,”¹² yet the extension of music theoretical paradigms to a booming and decidedly popular genre like video game music has been markedly slow.

This last idea of exploring the compositional logic of video game music for its own sake holds significant personal appeal for me, and is one of the overarching purposes of this study. Video game music is a most curious genre, one that music theory has yet to peer into with any degree of rigour or seriousness. Originally a largely Japanese endeavour, as for video games more generally, the peculiarity of video game music was perhaps most astutely captured by Matthew Belinkie, who suggested it emerged from and continues to thrive in a context where “eastern musicians, greatly influenced by western music, compose music for an eastern audience which is later sold back to the west.”¹³

¹⁰ Karen Collins briefly details a few examples of such programs. See Karen Collins, *Game Sound: An Introduction to the History, Theory and Practice of Video Game Music and Sound Design* (Cambridge, MA: MIT Press, 2008), ix.

¹¹ It is worth pondering for a moment if any music program worth its salt would ever graduate film-scoring students who never considered the works and techniques of Korngold, Elfmán or Williams, or string players who never played a Beethoven string quartet. How is it that the aforementioned video game music programs do not consider the historical repertoire of the genre in any detail, since just about every other music program out there makes the examination of important historical works and figures of the genre an important pedagogical objective? If these programs do accomplish this objective, then it is worth asking why details of this research have not yet surfaced in publication anywhere.

¹² Nicholas Cook, *Analysing Musical Multimedia* (Oxford: Clarendon Press, 1998), viii.

¹³ Matthew Belinkie, “Video Game Music: Not Just Kids Stuff,” VGMusic.com, 1999, accessed August 3, 2011, <http://www.vgmusic.com/vgpaper.shtml>.

Viewed from this angle, that video game music attracts a worldwide following is a minor miracle of international cultural exchange.

In order to begin addressing some of the unresolved questions facing video game music, this study proposes a comprehensive analysis of several tunes from the *Super Mario* video game series. The reasons for selecting these video games are numerous. First, as the “most famous game character of all-time,”¹⁴ whom reports suggest was at one time better known in the United States than even Mickey Mouse,¹⁵ it is a safe bet that most people—theorists and otherwise— have encountered Mario and the games he features in somewhere before, providing a reasonable level of basic familiarity and context for the study.¹⁶ Some tunes from *Super Mario* games are also widely known, not the least of which is the track simply known as the *Super Mario Bros. Theme*.¹⁷ The *Super Mario* series is also long-running, having celebrated its 25th anniversary in 2010, offering lots of music up for analysis. Said otherwise, for a first major inquiry wanting to motivate further research into video game music, familiarity is likely a better strategy than obscurity.

Yet, the *Super Mario* series is appealing as a research object for more musically-centred reasons, too. Much of the *Super Mario* series’ music was composed by the same musician, Koji Kondo, allowing for a reasonable theoretical assumption about the consistency of musical thought applied to the writing of the series’ soundtracks. Moreover, Kondo is objectively important in the history of video game music, given that

¹⁴ Steven Jones, *The Meaning of Video Games: Gaming and Textual Strategies* (New York: Routledge, 2008), 138.

¹⁵ Steven Kent, “Super Mario Nation,” in *The Medium of the Video Game*, ed. Mark Wolf (Austin: University of Texas Press, 2001), 46.

¹⁶ Although I will offer some explanations and recall certain non-musical details about the *Super Mario Bros.* series as is relevant, having a general background knowledge of *Super Mario* games and gaming is likely useful in reading this study, in the same way that knowing a specific opera or a film and the techniques and vocabulary of those genres is useful in reading about their associated musics.

¹⁷ Several examples illustrate this tune’s popularity: from 2006 to 2009 it was the most downloaded cellular phone ringtone worldwide; it has been arranged for numerous musical ensembles, from rock bands to a cappella jazz choirs to brass quintets; it is a staple of the repertoire of various touring video game music symphonic shows (notably, *Play and Video Games Live*); and several performers have created covers and adaptations of the work, most notably Taiwanese pianist and music star Jay Chou, who in 2006 famously inserted the tune into a pop adaptation of J.S. Bach’s C- Prelude (WTC I) during a performance for Filipino broadcaster GMA.

he was the first person, circa 1984, to write actual music for a video game,¹⁸ in the 1985 game *Super Mario Bros.* Prior to Kondo, video games featured *sounds*, but (with apologies to John Cage) not what most people would describe as *music*. The sound aura of *Pong* perhaps best represents the pre-musical game sound era: whenever the ‘ball’ hits one of the paddles at the edge of the screen, a sound is created, a *beep* of somekind; yet, surely few people would describe the accumulation of *beeps* emerging from even the most hotly contested *Pong* match as music. Koji Kondo’s contributions, then, establish him as the first game *music* composer, and thus his aesthetics can reasonably be hypothesized to inform many of game music’s foundational norms. Additionally, Kondo remains a towering figure of the game music genre today, having been recognized by his peers with a lifetime achievement award in 2007 from the Game Audio Network Guild.¹⁹

Thus, a study of the music of *Mario* and Koji Kondo seems like a good starting point for inquiries into game music, not only due to its popularity at its beginnings and today, but also for the contributions the series and its principal composer have made towards the very idea of video game music itself.

[The next paragraph begins on the next page.]

¹⁸ Belinkie.

¹⁹ Bryn Williams, “Koji Kondo’s Musical Landscape,” *Gamespy*, March 7, 2007, accessed August 3, 2011, <http://wii.gamespy.com/articles/771/771397p1.html>.

The specific problem under consideration here is more targeted than simply analyzing the music. Rather, based on the main canon of *Super Mario* video games,²⁰ this study proposes an analysis of those musical works featuring common motives and/or themes.²¹ Indeed, in video game series such as *Super Mario*, it will be shown that there exist several recurring musical themes, somewhat akin to leitmotifs, but with less narrative connotations than the term usually invokes. Such recurrences usually go beyond simply copying themes from one track or game to another; changes occur in comparison to the ‘original’ tune, such as alternations to its melody, harmonies, rhythms, and overall character. Applied across several games, this process creates a rich canon of related works reflective of Koji Kondo’s variational approach.

²⁰ Although by some counts, the character Mario has appeared in over 200 video games, for the purpose of defining the *Super Mario* series, eleven games are considered to form the main canon of *Mario* games. This is per Nintendo’s own *Super Mario History 1985-2010* commemorative booklet, included as a pack-in with a 25th anniversary edition of *Mario* games released for the Nintendo Wii in 2010. The eleven titles are: *Super Mario Bros.* (1985), *Super Mario Bros. 2* (1988), and *Super Mario Bros. 3* (1990), all for the Nintendo Entertainment System; *Super Mario World* (1991) and *Super Mario All-Stars* (1993; note that this game featured visually updated versions of the NES *Mario* games including *The Lost Levels* (see below), although changing next to nothing about the actual gameplay) for the Super Nintendo Entertainment System; *Super Mario 64* (1996) for the Nintendo 64; *Super Mario Sunshine* (2002) for the Nintendo Gamecube; *New Super Mario Bros.* (2006) for the Nintendo DS; and *Super Mario Galaxy* (2007), *New Super Mario Bros. Wii* (2009) and *Super Mario Galaxy 2* (2010) for the Nintendo Wii. Also note that, in 1986, Nintendo released *Super Mario Bros.: The Lost Levels* in Japan only, which was later included in the more widely distributed *Super Mario All-Stars* (1993); this game mostly used the same music as the original *Super Mario Bros.*, however, so its absence from the official timeline is unproblematic for this study. The reasons for which Nintendo excludes games such as *Super Mario Land* (1989, for the Nintendo Game Boy) from its official North American *Mario* history remain unclear, though it is known that pivotal developers of the *Mario* series, such as *Mario* creator Shigeru Miyamoto and composer Koji Kondo, were generally not involved in designing most of these other titles. Throughout the study, individual game titles will be referred to by their full name and year of publication so as to facilitate the reader’s approximation of the game’s place in the series and its level of technological sophistication. See Nintendo, *Super Mario All-Stars: Mario 25th Anniversary Edition (Wii®)* (Redmond, WA: Nintendo of America, 2010).

²¹ Of course, the point at which motives become themes continues to be a contentious issue in music theory more generally. From this point onwards, I will use the term *theme* to describe a repeating musical phrase featured across several *Mario* compositions, without regard for whether or not such a theme features “a conventional set of initiating, medial, and ending intrathematic functions” which close with a cadence, as William Caplin (p. 257) would want them to in the high classical tradition, or any other period-specific stylistic conceptions of the term. *Motives*, on the other hand, are understood as elements from within the themes—akin to gestures, interrupted or incomplete phrases, the bases of ostinatos, individual examples of Caplin’s intrathematic functions, etc.—and, while they usually satisfy Roger Sessions’ definition in their “small but rhythmically self-sufficient” character (p. 44), they may not always neatly fit in any of these categories either. In sum, for this study, motives are joined into themes, and the boundaries of these terms are somewhat elastic in relationship to their traditional music theoretical definitions. See William Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven* (New York: Oxford University Press, 1998) and Roger Sessions, *The Musical Experience of Composer, Performer, Listener* (New York: Atheneum, 1965).

To those even passingly familiar with the *Super Mario* series' music, this much is already abundantly clear, even if the variational techniques in and of themselves could come into sharper focus. My main thesis goes one step further, in that I propose that a careful analysis of thematically-related works demonstrates a planned differentiation of motivic variational approaches based on the role that a particular theme plays within the context of the *Super Mario* series as a whole. Koji Kondo does not just vary his themes; he varies them purposefully with consideration for a given theme's pivotal musical identity, that which will later be deemed its *essential element*. Larger-scale consistencies in some applications of variational techniques are such that informal rules may be abstracted about how Koji Kondo approaches composing music for the *Super Mario* video games.

To this end, the study is structured in five parts beyond this introduction. First, some background details on the *Super Mario* series and Koji Kondo will be developed to provide context about gameplay and the musical ideas which may have influenced the development of *Mario* soundtracks. Second, a review of recent literature about video game music will showcase some methodologies currently used in this research area, and demonstrate the utility of score analysis as a capable tool for research in game audio. Third, a general analytical framework will be developed for how to analyze the music of *Super Mario* video games, so as to better abstract common musical elements from more notable ones. Fourth, five sets of thematically-related works drawn from multiple *Super Mario* titles will be analyzed in detail. Fifth, unearthed trends in the analysis will be discussed, and their relationships to gameplay and other *Mario* contexts elaborated. Readers are also invited to consult the appendix of scores joined to this study, so as to facilitate an understanding of the music of *Mario* and my research about it. Overall, the study offers a first sketch of Koji Kondo's approach to variation in his music.

I. *Sweet Participation*: Mario's Gameplay and Creators

In a study dedicated to the music of *Super Mario*, some expository context on the games themselves and the composer is appropriate to clarify many of the study's terms and contexts which will be referred to periodically in this study. This section also presents an outline of the process by which video game music is written, which differs in some important ways from music that theorists usually consider. Finally, the largely unknown yet key figure that is Koji Kondo, principal composer of the *Super Mario* games, is elucidated.

The Basics of Super Mario

Introducing the *Super Mario* series ought be a relatively simple task, given that the main character and the games he features in “are as deeply ingrained in the national consciousness as the Disney menagerie”²² (if not more so, as was alluded to earlier). Its “jump-and-run”²³ gameplay now extends to hundreds of other gaming titles (*Mario* and non-*Mario* alike), where the main goal is to navigate a path full of enemies and obstacles to reach a goal somewhere in the virtual space by running and jumping; there is also some swimming, sliding, flying, etc. thrown in for variety. The main canon of the series now comprises 11 major titles featuring this type of gameplay.²⁴ In early *Mario* titles, players move left-to-right through a two-dimensional world, seeking out individual levels' finish lines (a flag, a special box, a gate, sometimes implicitly ‘breached’ or ‘found’ by defeating a major enemy, etc.), allowing them to advance to more difficult levels. Since *Super Mario 64* (1996), three-dimensional virtual spaces render gameplay less linear, in that the players no longer need to move left-to-right; they can go left, right, up, down, around objects, into the sky or underwater, etc. as they choose. Still, the objective remains to accomplish some goal (such as defeating an enemy, winning a race, collecting an

²² Kent, “Super Mario Nation,” 35.

²³ Michael Nitsche, *Video Game Spaces: Image, Play, and Structure in 3D Game Worlds* (Cambridge, MA: MIT Press, 2008), 96.

²⁴ See footnote 20 above for a full description of the Mario canon.

object, etc.) within this environment, and achieving it unlocks more difficult challenges.²⁵ In all instances, the environments themselves change periodically to offer a broader range of challenges to players, or to suggest narrative elements. For example, castles feature prominently in the *Mario* series, since this is where the games' antagonists hide from Mario. Hence, entering a castle is usually a sign that a major battle is about to take place.

The narrative goal of accomplishing these feats is usually to save Princess Peach of the Mushroom Kingdom from some unthinkable fate in the hands of the evil Bowser, a giant spiky-shelled turtle, or one of his cronies. There is nothing particularly special about this setup; as Jeff Newman notes, it represents a typical narrative rescue plot with an "archetypical damsel in distress" needing rescuing.²⁶ Of course, to players, the motivation for playing a *Mario* game is not so much to win back the princess as it is to "battle against the terrain of the landscape" to be traversed,"²⁷ and the personal satisfaction that comes from overcoming difficult enemies and obstacles in the process of doing so. As players travel across different virtual spaces, the music changes to match the new environment in which players find themselves, say underwater or in a fiery castle.

One of the key distinctions which should be explicated for later analytical purposes is the nuance between the *Super Mario* game series and a particular *Mario* game. Comparisons to other arts are useful for grasping the similarities and differences which exist in gaming series versus series in other media. In traditional literature, one could cite J.R.R. Tolkien's *Lord of the Rings* trilogy as being somewhat analogous to a series in gaming, and specific instalments of the trilogy (say, *The Two Towers*) as equivalent to a single title, like *Super Mario World* (1991). Literary series generally feature recurring characters, locations, plot elements and a unifying written style; individual entries develop their own plots (that is, they are not re-treads of the previous novels), yet feature narrative structures which insert themselves into the broader themes and contexts of the series as a whole. Video game series are often very similar in this

²⁵ Note that difficulty generally resets between titles; hence, the start of *Super Mario Bros. 2* (1988) features easier challenges than the end of *Super Mario Bros.* (1985).

²⁶ James Newman, *Videogames* (London: Routledge, 2004), 94 and 55.

²⁷ *Ibid.*, 113.

respect. In games of the *Super Mario* series, however, there is no overarching narrative structure that continues from one instalment into the next, as is the case with literary series. Rather, as hinted at above, the storyline in each *Mario* game is largely similar to that of any other *Mario* game: Princess Peach has been kidnapped, and Mario must rescue her. In this sense, a more apt literary comparison might be with detective novels (such as Agatha Christie's *Miss Marples* or *Hercules Poirot* series, or Georges Simenon's *Jules Maigret* series) or various adventure novels (Dixon's *The Hardy Boys*, Verne's *Bob Morane*, etc.); characters and genres return, but the setting and circumstances of the action generally reset between titles, offering the hero fresh, new challenges. This kind of approach is occasionally used in television animation, too. A good example comes from the *Looney Tunes* cartoon series, such as that series featuring the Road Runner and Wile E. Coyote. The excitement in watching such cartoons comes not from knowing that the Road Runner will escape the Coyote's plan and the Coyote will end up hurting himself in each episode, but rather in *how* this will play out. *Mario* games narratively function in very similar way: it is not the fact that the princess has been kidnapped again which retains attention, it is the challenges that Mario will need to overcome to get her back that do. Series in games, then, emphasize the *action* which is to be taken to accomplish a narrative goal, rather than the denouement of the goal itself, and various series associate themselves by their branding to specific kinds of actions. In the case of *Mario* games, this is running and jumping through lands in the name of saving a princess, over and over again, but always in a somewhat different way.

The relationship between *Super Mario* series/games and game music is complex and will be the subject of much elaboration later on, but one clear point should be made now. Some musical themes, such the well-known *Super Mario Bros. Theme*, transcend individual games of the series and are featured in some form in most *Mario* titles. Other themes are expanded within the soundtrack of only one game, such as the *Super Mario World Theme*; as the name suggests, this theme is only found in the game *Super Mario World* (1991). This study considers both 'series themes' and 'game themes' in their appropriate context, that is, by extending series themes across multiple games and gaming

platforms, and by limiting game themes to whichever specific titles in which they are developed. These terms, *series theme* and *game theme*, will be used throughout to clarify the nature and breadth of a theme's use.

Game audio development

A second important contextual detail in a study of the music of the *Super Mario* series concerns the processes by which game music is developed. Unlike art music, game music is composed in an industrial setting where musical products must not only satisfy their composers, but also others—colleagues, directors, testers—involved in the game development process.

Karen Collins provides the most straightforward and non-technical account of the game audio development process in chapter 5 of her book *Game Sound*.²⁸ An important principle in the production of video games is the hierarchy built into audio design studios; all work is approved along a chain of command. The head of the studio is typically the sound director, who “is responsible for the overall audio vision” of a game and “oversees the design, [and] defines and drives the creative and technical directions” of the audio project.²⁹ The sound director typically reports to the game director, who oversees all branches of a game's development. An audio design studio typically specializes the functions of its employees such that sound designers, licensing/contracting directors (where music is being licensed from external sources), composers and audio programmers all work together to satisfy the sound director's requests.³⁰ At Nintendo, the sound team which *Mario* composer Koji Kondo now directs reportedly employs approximately 40 people.³¹

²⁸ Karen Collins, *Game Sound: An Introduction to the History, Theory and Practice of Video Game Music and Sound Design* (Cambridge, MA: MIT Press, 2008). This section is intended as a summary of the process; for further reading, consult Collins' text, or any technical manual described in section II of this study.

²⁹ *Ibid.*, 87.

³⁰ *Ibid.*, 87.

³¹ Glitterberri [online moniker], “Special Interview – Koji Kondo,” Glitterberri.com, October 26, 2010, accessed August 3, 2011, <http://www.glitterberri.com/ocarina-of-time/special-interview-koji-kondo>.

Collins presents game audio production as a three-step method: pre-production, production, and post-production. In the pre-production stage, sound teams—which include designers working not only on music, but also sound effects and dialogue—gather to chart what kind of audio the game likely needs and divide up the work. Sound teams sometimes produce an “audio design document” to summarize their vision for their work.³² Also, by studying “storyboards, concept art, crude gameplay, [and/or] character sketches” supplied by other development teams in the studio (such as graphics, story, programming, etc.), the styles, moods and functionality of audio in relation to other game elements may be better understood early in the development process.³³

The production stage emphasizes what one might reasonably expect in touring a game audio development studio: artists at work on their fragments of a much larger project. Some less expected tasks come along, too. Composers, having completed a score, may need to code cues, loops or splits into their score³⁴ so as to better integrate the music with its functional role in the game. In some games, audio channels may need to be redistributed from the composer’s original work to allow for special gameplay effects.³⁵ If compositions are being orchestrated, musical materials (scores, MIDI multitracks, etc.) are sometimes sent to an external professional orchestrator;³⁶ later, an orchestra will be assembled and the music recorded. Late in the process, all sounds—music, effects, dialogue—are integrated into a playable version of the game,³⁷ and revisions undertaken as necessary to fit the overall vision of the game.

³² Collins, *Game Sound*, 89.

³³ *Ibid.*, 90.

³⁴ *Ibid.*, 99; simply said, these terms refer to various computer instructions which affect how a track is played in-game and how tunes transition from one track to another in-game.

³⁵ *Ibid.*, 103. An example might be to allow for seamless stereo panning of a diegetic musical event that a player passes by in the game’s virtual space.

³⁶ *Ibid.*, 95.

³⁷ *Ibid.*, 99.

Audio post-production, for its part, “typically involves some degree of [audio] mixing” in order to adjust the balance between all sound elements.³⁸ In this stage, problems of “overlap between frequencies,” where several distinctly programmed sounds coincidentally occupy the same pitch range and thus clash when sounded together in the course of normal gaming events, are typically addressed.³⁹ Upon reaching a satisfactory balance for all sound elements as well as the transition between elements, the final audio setup is approved. Developers will briefly celebrate their achievement and the end of a project before soon beginning another.

Of course, Karen Collins’ model is only a generalization of highly variable approaches used throughout the game development industry. Understanding more about *Mario*-specific musical processes requires that we turn our attention towards the series’ composer Koji Kondo and the practices by which he reportedly composes and directs *Super Mario* soundtracks.

A snapshot of Koji Kondo

Compared to many musicians, relatively little is known about Koji Kondo, lead composer of the *Super Mario* series since 1985 and currently the manager of sound development at Nintendo’s Entertainment Analysis and Development division, an in-house game development studio.⁴⁰ Given his profession, perhaps the fact that little is known about him is not so surprising; unlike travelling performers or composers premiering works across the globe, Kondo’s tasks require that he mostly stay in his studio. Although there are no authoritative biographies available, many salient details about his life, musical influences, and approach to composition and audio development can be gleaned from the occasional interviews he gives to gaming media outlets.⁴¹

³⁸ Ibid., 102.

³⁹ Ibid., 102.

⁴⁰ Satoru Iwata, “Super Mario All-Stars: Vol. 1 The Music,” Iwata Asks, 2010, accessed August 3, 2011, http://us.wii.com/iwata_asks/super-mario-all-stars/vol1_page1.jsp.

⁴¹ Note that Koji Kondo knows little English. Therefore, all of the English-language interviews consulted here presumably made use of a simultaneous translation service during the interview, or some translation by a third party later. In any case, direct quotations from Kondo should be understood as being mediated via a translator, whose own level of musical sophistication is unknown.

Beyond *Super Mario*, Kondo's musical credits include much of the music for other Nintendo series such as *The Legend of Zelda* and *Star Fox*.

Born in Nagoya in 1960, he began musical studies at age five on an electric keyboard.⁴² From age seven, he mostly played electric organ,⁴³ over time also experimenting with conventional piano and various kinds of synthesizers.⁴⁴ More recently, he is learning to play the cello.⁴⁵ From middle school, Kondo played electric organ in a band. In its first few years, the band mostly did covers of the music of hard rock band Deep Purple, but later, in high school, it turned more towards jazz and fusion.⁴⁶ Upon graduation from high school, he attended the Osaka University of Arts,⁴⁷ where he followed a general fine arts program, taking courses in composition, music mixing and painting.⁴⁸ As a university student, Kondo spent quite some time in local cafés and arcades playing video games. It was these early interactions between computer sounds and images which sparked his interest in sound programming.⁴⁹

As he recounts it, Kondo's employment with Nintendo was a "lucky break."⁵⁰ Nintendo, headquartered at the time in nearby Kyoto and looking for its first sound/music employee, had sent recruiters to the Osaka University of Arts just before Kondo was slated to graduate in 1984.^{51,52} A friend of Kondo's heard about this and let him know

⁴² Chris Kohler, "VGL: Koji Kondo Interview," *Wired*, March 11, 2007, accessed August 3, 2011, http://www.wired.com/gamelife/2007/03/vgl_koji_kondo/.

⁴³ Glitterberri, "Special Interview – Koji Kondo."

⁴⁴ IGN, "Koji Kondo: An Interview with a Legend," *IGN.com*, March 12, 2007, accessed August 3, 2011, <http://wii.ign.com/articles/772/772299p1.html>.

⁴⁵ Koji Kondo, "Inside Zelda: Part 4," *Zelda.com*, 2005, accessed August 3, 2011, <http://www.zelda.com/universe/game/twilightprincess/inside04.jsp> [Originally published in *Nintendo Power*, Vol. 195 (2005)].

⁴⁶ Kohler, "VGL: Koji Kondo Interview."

⁴⁷ *Ibid.*

⁴⁸ Mark MacDonald, "Koji Kondo Interview," *1up.com/Electronic Gaming Monthly*, March 2005, accessed August 3, 2011, <http://www.1up.com/do/feature?pager.offset=5&cId=3140040>.

⁴⁹ Kohler, "VGL: Koji Kondo Interview."

⁵⁰ Kondo, "Inside Zelda: Part 4."

⁵¹ MacDonald, "Koji Kondo Interview."

⁵² Kohler, "VGL: Koji Kondo Interview."

about the opportunity, thinking it would be a good match for him given all the games he played at the arcades.⁵³ Kondo says he never submitted a demo tape as part of the interview process (although there were some tests of an unspecified nature administered); he now suspects that Nintendo never asked for one because nobody in the company at the time could have properly evaluated such a tape.⁵⁴ Kondo won the job.

For his first few projects at Nintendo, Kondo acted as a sound programmer only;⁵⁵ none of these early works remain particularly notable today. His real breakthrough came with the development in 1984 and 1985 of the original *Super Mario Bros.* game, in which he moved into a music programming role. Citing inspiration from the bright blue background in the game (video games until *Super Mario Bros.* usually used a black background),⁵⁶ he aimed “to create something that had never been heard before,” something that was unlike the game music of the era.⁵⁷ Although he quickly wrote the original Underwater tune, the main Overworld tune (also known as the *Super Mario Bros. Theme*) required several re-writes; the tune needed to “enhance the gameplay and make it more enjoyable” and be “part of the game.”⁵⁸ Kondo eventually found that the best way to coordinate the music and images of *Super Mario Bros.* (1985) and *Mario* games thereafter lay in identifying the game’s rhythm (*N.B.*, *not* the music’s rhythm)—the speed at which Mario runs, jumps, swims, etc.—and then to try to capture the feel of that rhythm in composing music which fits it.⁵⁹ Kondo cites the physicality of game control inputs as one way of identifying a game’s rhythm, in that depressing buttons on a controller is inherently a physical activity whose patterns can be felt by a player.⁶⁰ Kondo

⁵³ Glitterberri, “Special Interview – Koji Kondo.”

⁵⁴ MacDonald, “Koji Kondo Interview.”

⁵⁵ Kohler, “VGL: Koji Kondo Interview.”

⁵⁶ Iwata, “Super Mario All-Stars (2010).”

⁵⁷ Kohler, “VGL: Koji Kondo Interview.” Recall that, up until that point in time, most video game ‘music’ was perhaps better described as streams of sound effects

⁵⁸ Ibid.

⁵⁹ Glitterberri, “Special Interview – Koji Kondo.”

⁶⁰ Kohler, “VGL: Koji Kondo Interview.”

blends this approach with his empirical finding that the music of *Mario* requires “something bright, short, airy, happy-go-lucky” due to its gameplay centred on jumping,⁶¹ and the result is new *Mario* music for a new game.

In terms of developmental approaches, Kondo describes his modern-day compositional process as follows:

Basically, what happens for me at Nintendo, is that, midway through the game’s development, the staff [from outside the audio department] will bring over a project that they’re currently working on, and I’ll play through it over and over and attempt to grasp the feeling players should get through the game. Then I begin to create the melodies and themes for the game. From that point, it’s a parallel process alongside the game. The music changes as the game changes.⁶²

At Nintendo, then, the pre-production phrase is only loosely observed, with its tasks mostly re-distributed into the production phase. Kondo also reports that the guiding question which decides whether to accept or reject his own (and, more recently, others’) musical tracks is: do the game and music fit one another?⁶³ Kondo also emphasizes listening to game music in its natural context by playing sounds and music back through television speakers in the compositional process,⁶⁴ given that this is how the music will normally be experienced by gamers. This approach intimately weaves Kondo’s impressions of his own *Mario*-playing experience into a game’s musical soundtrack. Hence, Kondo’s *Mario* scores represent both a musical reaction to his experience of playing the game and a reflection of his conception of the players’ intended impressions from playing the game.

Kondo’s personal musical influences remain somewhat unclear. Aside from Deep Purple, Kondo rarely mentions the same artists when asked from who he draws musical inspiration. The answer is also never the same when asked what he is listening to at any

⁶¹ Kevin Gifford, “How Mario Music Gets Made,” 1up.com, February 24, 2010, accessed August 3, 2011, <http://www.1up.com/news/mario-music>.

⁶² IGN. The punctuation of the excerpt has been edited silently for clarity.

⁶³ Glitterberri, “Special Interview – Koji Kondo.”

⁶⁴ Ibid.

given time. Kondo praises Japanese bop saxophonist Sadao Watanabe's style as having easy melody to remember over a jazz-like yet harmonically simple accompaniment;⁶⁵ given Kondo's own style of composition, Watanabe is a reasonable influence to infer, in that Kondo's melodies, as will be seen, also feature jazz-like yet harmonically simple accompaniments to catchy melodies. At various times, Kondo cited the following musicians and styles as influencing him: Casiopeia (a Japanese jazz fusion band), Chick Corea, and Herbie Hancock;⁶⁶ Paul McCartney;⁶⁷ the Beatles;⁶⁸ Emerson, Lake and Palmer, Sarah Brightman, and Hammond organists Jimmy Smith and Joey DeFrancesco;⁶⁹ Latin music, "ethnic music from around the world" and adventure movie soundtracks.⁷⁰ Oddly enough, he does not mention American ragtime or Caribbean music anywhere, even though, as this study will later show, Kondo clearly carries important influences forward from these genres too.⁷¹

All in all, these accounts of the *Mario* series, game audio development, and Koji Kondo's biography and approach to composing game music demonstrate the extent to which game audio is ripe for exploration in greater detail. After all, how much analytical

⁶⁵ Glitterberri, "Special Interview – Koji Kondo." Takeshi "Sadao" Watanabe was "a seminal figure in Japanese jazz, regarded by many as its [father]" (Minor, 273). His skill was such that he was national celebrity in Japan by the late sixties (Atkins, 243), and he remains popular today, still occasionally giving concerts. Watanabe trained as a musician at Berklee School of Music in Boston in the 1950s, and was only the second Japanese artist to do so (Atkins, 273). Through his music, he almost singlehandedly "energized Japan's lethargic jazz community, bridged its generation gaps, piqued the interest of jazz fans old and new, and inspired musicians to develop their talents" (Atkins, 236). His work divides into three categories: Charlie Parker-style bop, jazz fusion, and overtly commercial recordings (Minor, 275). Given Watanabe's interest in fusion, the link between his musical interests and Kondo's are quite obvious. Watanabe also once did a cover of the *Super Mario Bros. Theme*, a record that Kondo says is among his most treasured possessions (Glitterberri). See William Minor, *Jazz Journeys to Japan: The Heart Within* (Ann Arbor: University of Michigan Press, 2004), E. Taylor Atkins, *Blue Nippon: Authenticating Jazz in Japan* (Durham: Duke University Press, 2001).

⁶⁶ Kohler, "VGL: Koji Kondo Interview."

⁶⁷ Glitterberri, "Special Interview – Koji Kondo." The article suggests that Paul McCartney also reciprocates the admiration.

⁶⁸ Gifford, "How Mario Music Gets Made."

⁶⁹ Kondo, "Inside Zelda: Part 4."

⁷⁰ MacDonald, "Koji Kondo Interview."

⁷¹ That being said, the line between Latin music and Caribbean music is sometimes a bit fuzzy. Additionally, as alluded to earlier, Kondo speaks Japanese in these interviews, therefore some precision of musical meaning may have been lost in translation. (see note 41)

work in music theory deals with music emerging from spheres blending all of the elements discussed in this section? Before turning towards an analysis of the music of the *Super Mario* series, however, a survey of the work already completed in video game music studies in combination with an overview of the special pertinence that music analysis plays in the development of the area's literature will provide methodological suggestions to inform the eventual analysis.

II. A Topical Guide to Game Audio Literature: A Review

In perusing the existing literature on video game music to look for potential frameworks, methodologies or studies pushing similar analytical aims, I conclude, like others, that there is a dearth of video game music literature at this time.⁷² Existing works on video game music generally take one of three forms: technical manuals about composing game music, studies of the use and roles of music in games, or musical analyses. Analyses are by far the least common, but, as it turns out, also the most useful in formulating the most compelling arguments about the nature of video game music. Note that I will address the main music theoretical works which are relevant to this study (a book by Robert Nelson and the writings of Arnold Schoenberg, both the topic of variational techniques) in Section V.

Despite their practical orientation on composing game music and sound effects, technical manuals such as *The Game Audio Tutorial* by Richard Stevens and Dave Raybould,⁷³ *The Complete Guide to Game Audio* by Aaron Marks,⁷⁴ and *Creating Music and Sound for Games* by G.W. Childs⁷⁵ all emphasize technological rather than musical skills. The 'practicality' these manuals offer is one focused on using industry-standard software and tools, learning industry lingo, and getting and keeping a job in the industry.

⁷² Thomas Gersic, "Toward a New Sound for Games," in *Playing the Past: History and Nostalgia in Video Games*, ed. Zach Whalen and Laurie Taylor (Nashville: Vanderbilt University Press, 2008), 145.

⁷³ Richard Stevens and Dave Raybould, *The Game Audio Tutorial: A Practical Guide to Sound and Music for Interactive Games* (Burlington, MA: Focal Press, 2011).

⁷⁴ Aaron Marks, *The Complete Guide to Game Audio: For Composers, Musicians, Sound Designers, and Game Developers* (Burlington, MA: Focal Press/Elsevier, 2009).

⁷⁵ G. W. Childs, *Creating Music and Sound for Games* (Boston: Thomson Course Technology, 2007).

Some, such as Marks' book, offer interviews with North American and European composers. Such books are clearly aimed at a non-academic audience. Still, what is most surprising about these texts is the extent to which they shy away from or treat as somewhat foreign issues artistically central to music. For example, in an interview with game composer Lennie Moore about a recent orchestral game score, Aaron Marks adds an intriguing editorial note to Moore's comment:

In bar 45 of the Lumina region in *Outcast* I was trying to figure out how to create a very shimmering effect in the strings, where the violins and violas moved up and down through different chord inversions (**you'll need some music theory to get this!**) by doing a technique called fingered tremolo, similar to a trill but actually trilling between different notes of a given chord rather than the normal whole-or half-step trill. Then I had to figure out how to divide up the fingered tremolo so it could be easy to read and very playable. In the end, I chose to divide the rhythms on each eighth note, plus I voiced it in a five-part divisi, which gave it a beautifully rich color.⁷⁶

The author is actually warning readers, who presumably want to become composers, that they will need some music theory to understand the terms which will follow, most of which are fairly basic musical terms (*i.e.*, tremolo, trilling, whole-step, half-step, divisi). Certainly, Marks is correct in noting that readers will require music-theoretical knowledge, if not to understand the passage, then certainly to compose music. But the necessary edit—at page 246, no less—exemplifies the extent to which music-theoretical and compositional ideas remain conspicuously absent in these 'composition' manuals. Such an approach is even wholeheartedly embraced and admitted in Stevens and Raybould's text, who at the beginning of their chapter on musical scores say:

As you're reading this section, you're obviously interested in writing or implementing music in games, so we're going to assume some musical knowledge. If you don't know how to write music, then we'd suggest you put down this book and go and learn about pitch, rhythm, harmony, timbre, texture, instrumentation, and how to structure all of these things into a successful musical whole.

You're back. Well done! Now let's move on.⁷⁷

⁷⁶ Marks, *Complete Guide to Game Audio*, 246 (Emphasis mine).

⁷⁷ Stevens and Raybould, *Game Audio Tutorial*, 161.

In only two sentences, Stevens and Raybould take a massive shortcut—with some jest, certainly—through the musically technical and artistic aspects of composition. To be fair, other books are already available on the topics they zoom by, and Carl Schachter and Samuel Adler are respectively likely to be better harmony and instrumentation teachers than Richard Stevens and Dave Raybould. While it is clear that the authors think the above musical elements deserve some attention in the art of composition, they are at the same time unwilling to grant them any space within their book.⁷⁸ The problem, thus, is not that the manual's authors fail to introduce musical parameters to the reader; the problem is that the above paragraph constitutes the only substantial mention of the importance of pitch, rhythm, harmony, timbre, texture, instrumentation and form in a 400-page book that is ostensibly about creating sound and music. 'Musical' examples show impressive computer screenshots of how to program loops or sound decays, but musical notation is nowhere to be found. None of the manuals present music from any game repertoire or discuss musical features of existing works in any detail. Thus, while technical manuals offer interesting glimpses into the industry, it is clear that the industry thinks and talks in technological terms rather than musical ones, and these authors' expertise is unfortunately of little use to this study.

The second category of game audio literature deals with book chapters and articles (and sometimes simply chapter sections) which focus on the role of music in video games. Such publications ask some variant of the question: what does music add to this game and/or gameplay experience? In "The role of Music in Video Games," Sean Zehnder and Scott Lipscomb explore the "contribution of music" to gaming and try to apply theories of film music to the gaming context.⁷⁹ They suggest that music functions to heighten players' immersion into the virtual environment, provide narrative details, and

⁷⁸ It is rather revealing that video game music composition, managed by computer programs, allows aspiring composers to be surprisingly musically illiterate while still churning out at least decent-sounding music. Perhaps a substantial portion of the authors' intended readership are musically lay composers who aspire to a career in writing video game music; in this context, discussions of harmony, metre and rhythm might indeed be largely pointless exercises.

⁷⁹ Sean Zehnder and Scott Lipscomb, "The Role of Music in Video Games," in *Playing Video Games: Motives, Responses, and Consequences*, ed. Peter Vorderer and Jennings Bryant (Mahwah, NJ: Erlbaum, 2006), 241.

infuse emotion into a game.⁸⁰ All of this, however, is accomplished through means other than musical analysis; rather, the authors use descriptive analyses and a simple experiment to reach their conclusions. While these conclusions are important in clarifying the modes and effects of listening to game music, they do not offer any insight into the structure of game music whatsoever.

Ken McAllister reaches a similar conclusion in his book *Game Work*. His study leads him to conclude that developers' choices of how to match "image and sound are designed to keep players stimulated and engaged" by matching game action with an appropriate soundtrack.⁸¹ There is little analysis of how an appropriate soundtrack might be selected, or what the musical features of an appropriate soundtracks might be, beyond general observations such as the use of "up-tempo rock scores with a driving bassline" in racing games or dissonance in scenarios where players should "feel suspicious, reluctant, or scared."⁸² Descriptive analyses such as McAllister's and Zehnder and Lipscomb's do not as a rule dive very far into the music.

For their part, the essays in Karen Collins' collection in *From Pac-Man to Pop Music*⁸³ discuss many of the same issues surveyed thus far: technological methods and the role of various sounds/music in gaming. With only one exception (to which I will return to shortly), none of them provide any musical analysis as part of their methodology, nor do they focus on *Mario* games. While their utility is therefore somewhat limited in directly supporting this work, there are still methodological lessons to be taken from these essays.

Encouragingly, some articles in the 'roles and functions of music' category gravitate towards musical analysis, yet do so without ever fully engaging in it. For his part, Thomas Gersic, a composer and sound designer in Chicago, brings up many of the

⁸⁰ Ibid., 249-50.

⁸¹ Ken McAllister, *Game Work: Language, Power, and Computer Game Culture* (Tuscaloosa: University of Alabama Press, 2004), 87.

⁸² Ibid., 87.

⁸³ Karen Collins, ed., *From Pac-Man to Pop Music: Interactive Audio in Games and New Media* (Aldershot: Ashgate, 2008).

challenges facing music analyses and relates these challenges to other multimedia genres, chiefly reconsolidating Nicholas Cook's ideas from *Analysing Musical Multimedia* for the gaming context.⁸⁴ While his initial presentation is geared towards various ideas of the function of game music and some basic mechanisms by which these functions are accomplished, Gersic's eventual goal is revealed as the analysis of a game soundtrack "as a single work,"⁸⁵ which implies a search for unifying compositional features or some form of consistency in musical thought, not unlike that sought in this study. His choice of soundtrack, that of *Resident Evil Zero*, however, is a difficult parallel for this study, given the widely disparate musical and gameplay experiences between a zombie/survival horror game compared to any *Super Mario* game. Still, Gersic recognizes that the lack of musical analysis facing the field of gaming music is problematic, and offers a short analysis of a game soundtrack in an effort to curb the trend.

Michael Nitsche also pursues jointly the analysis of character roles and musical materials in the section dedicated to music of his book *Video Game Spaces*.⁸⁶ Like Gersic and Zehnder and Lipscomb, Nitsche's initial conclusions about the use of music in video games are overall broad and non-technical; that soundtracks "support the setting and evocative narrative elements" in gameplay was well documented by 2010.⁸⁷ However, Nitsche pushes the envelope a bit further by extending leitmotivic ideas from *Star Wars* films to the context of video games, detecting that, in the *Star Wars* video games on the 1980s, "given the reappearance of the films' soundtrack [...], the recognizable musical pattern provides a unifying element between the film and the game."⁸⁸ This is an important statement to which I will return much later. For now, though, suffice it to say that, if a known soundtrack boosts the attractiveness of the experience of gaming because

⁸⁴ Thomas Gersic, "Toward a New Sound for Games," in *Playing the Past: History and Nostalgia in Video Games*, ed. Zach Whalen and Laurie Taylor (Nashville: Vanderbilt University Press, 2008). Gersic's biographical details are from the contributors' section of this same book at 266.

⁸⁵ Gersic, "Toward a New Sound for Games," 151.

⁸⁶ Michael Nitsche, *Video Game Spaces: Image, Play, and Structure in 3D Game Worlds* (Cambridge, MA: MIT Press, 2008).

⁸⁷ *Ibid.*, 133.

⁸⁸ *Ibid.*

the melodies which are featured in the game are already leitmotivically associated with positive experiences from their inclusion in a film the player has previously seen, then it is a small step to suggest that similarly musical ‘unifying elements’ from an earlier video game could also inform how players experience other games featuring those same elements.

Karen Collins’ second book, *Game Sound*,⁸⁹ treads much closer to the ‘musical analysis’ line than her first book does, without ever really stepping into the topic. Her aims in the book broadly encompass an historical look at the technology of video game music, game music development,⁹⁰ and these topics’ related commercial issues such as intellectual property rights and marketing. Then, like any video game music scholar seemingly ought do, she discusses the various uses and functions of game audio. Of note is Collins’ inclusion of a useful glossary of terms at the nexus of gaming and music as an appendix to her book.⁹¹ Yet, Karen Collins truly sets herself apart through her willingness to explore the musical dimensions of game music farther than any aforementioned author. Collins frequently applies musical terminology in the context of describing technological issues, citing many diverse musical examples to illustrate her points. For example, immediately following a technical explanation of the NES’s three tone channels, she offers that “two pulse channels commonly worked as a chord or solo lead, with the triangle channel as a bass accompaniment” in *Nintendo Entertainment System* game music compositions.⁹² Collins does not just describe music technology, but also its common musical applications. Furthermore, she usually backs these claims by citing examples from the canon of video game music, and, especially in earlier chapters, occasionally offers a score of the music she has just cited as an example such that a reader may better grasp her point. This approach also allows her to cite lesser-known musical

⁸⁹ Karen Collins, *Game Sound: An Introduction to the History, Theory and Practice of Video Game Music and Sound Design* (Cambridge, MA: MIT Press, 2008).

⁹⁰ As was seen in section I.

⁹¹ Collins, *Game Sound*, 183-87. For another great video game glossary, see Mark Wolf, *The Video Game Explosion: A History from PONG to Playstation and Beyond* (Westport, CT: Greenwood Press, 2008), at 311-16.

⁹² *Ibid.*, 25.

works. The result is methodologically convincing. For example, in discussing other examples of how NES channels were used in composition, Collins writes that:

At times, all three channels were used as chords (as in *Ultima*'s battle music [...]), or with one channel arpeggiated (as in *Castlevania*'s "Poison Mind," figure 2.4).⁹³



Excerpt 1. Figure 2.4 from Karen Collins' book *Game Sound*, showing the tune "Poison Mind" from *Castlevania* (1987). Excerpted from page 25.

The use of a score to illustrate the arpeggiation that Collins discusses in her text immediately makes clear exactly what it is she is talking about. It also clarifies the nature of the term 'arpeggiation' in this context to mean some kind of a soprano Alberti pattern. In short, the score provides information which supplements Collins' text-based analysis, and reveals further details about the nature of *Castlevania*'s music.

Thus, while Collins' aims remain different than my own, her use of scores and willingness to extend basic musical analyses into her work illustrate the immediate potency and wider potential of game music analysis as an approach for understanding the nature of game audio. Since her approach allows for the discovery of compositional principles underlying early video game music, it is no stretch to suggest that further analyses tailored to more specific questions about the nature of video game music may also be readily answered via analysis.

Two final examples from the literature bear this idea out, landing squarely in the third category originally designated in game audio literature, that of musical analysis. The first is music theorist Peter Shultz's article "Music Theory in Music Games,"⁹⁴ which

⁹³ Image and text from Collins, *Game Sound*, 25.

⁹⁴ Peter Shultz, "Music Theory in Music Games," in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins (Aldershot: Ashgate, 2008), at 177-88.

studies approaches to musical notation in music video games like the *Guitar Hero* and *Dance Dance Revolution* series. Shultz maps how elements of pitch and rhythm are simplified and transcribed for musical laypersons who play these games. For example, in *Guitar Hero*, Shultz notices that, as players increase the difficulty of the game from easy to medium, hard, and finally expert, the musical combinations players must perform gradually resembles the surface musical activity of a song more and more, having started out as a basic simplification on the easiest setting. Since players normally progress from easier to more difficult settings, Shultz, also drawing on research on research into learning patterns, concludes that “players conceive of difficult patterns as elaborated versions of simpler ones, in a manner analogous to Schenkerian and other reductive or generative theories of music.”⁹⁵ His transcription of game and musical patterns highlights this trend especially well:⁹⁶



Excerpt 2. Figure 12.7 from Peter Shultz’s article, showing a *Guitar Hero* transcription of the tune “Less Talk More Roko.” Excerpted from page 187.

Shultz’s figure handily illustrates how the complexity of the distinct combinations of buttons that players must press on their controller (represented as staff lines) increases with difficulty, and how, by the time a player reaches the ‘expert’ setting, the logic of the button sequences mirrors that of the contour of the melody being performed in the game (in this instance, Freezepop’s “Less Talk More Roko”). Other levels of difficulty mimic the contour of the melody to varying degrees. Overall, Shultz’s mapping of musical lines

⁹⁵ Ibid., 187.

⁹⁶ Image from Schultz, “Music Theory in Music Games,” 187.

onto gameplay gestures, with its patterns regularized via analytical functions, is both succinct and convincing. Furthermore, his analysis illustrates how game designers conceive of musical reduction as a practical tool within the gaming experience. Whereas reduction is a somewhat abstract concept in pure music theory, here it is clearly practical in its orientation. In this sense, here, music theory not only informs gaming practice, but gaming practice informs the applications of otherwise abstract music theoretical tools. Thus, while analysis in music video games is likely to have different aims than the analysis of music from adventure or platform games (such as *Super Mario* games), the point remains that scores are a powerful tool for uncovering patterns of musical thought in game music.

The second analytical article is Zach Whalen's essay "An Approach to Video Game Music."⁹⁷ Although mostly interested in narrative gameplay and on-screen actions as recounted through music, Whalen uses musical analysis as his method of choice for defending his theories. In his most directly relevant example, he analyzes sound effects from "arguably the most influential console game thus far, *Super Mario Bros.*"⁹⁸ His analysis is worth quoting at some length:

Super Mario Brothers provides a ready example of musical functions borrowed from animation at an early stage in videogames' development. Specifically, Mario's (or Luigi's) movement on the screen is accompanied by a musical mickey mousing gesture. In line with Koji Kondo's peppy theme music, Mario's "jump" (Figure 2a [redacted]) is accompanied by an ascending chromatic glissando or slide – think of a "boing" sound (Figure 2b). Like Mickey [Mouse]'s cigarette toss in *Gallopig Gauchos*, Mario's leap has a pleasant sound (i.e., it does not use minor or diminished intervals), not only because we are supposed to identify favourably with Mario, but also because a typical game player will likely hear the same sound repeated hundreds of times in a dedicated period of gameplay. The mickey mousing effect is also intended to emphasize the physicality of Mario and his kinesthetic involvement with his environment. Accordingly, in Figure 3a [redacted], Mario has "powered up" [using a mushroom] to Super Mario, so, as Figure 3b demonstrates, the sound effect of his jumping is mimicked as the same glissando figure an octave below the original. Other movements and

⁹⁷ Zach Whalen, "Play Along – An Approach to Videogame Music," *Game Studies* 4, no. 1 (2004), <http://www.gamestudies.org/0401/whalen/>.

⁹⁸ Whalen, "Play Along."

collisions in the game respond to Mario in a way that enhances the impact of the represented on-screen events. In this case, the musical mickey mousing is in tune with the creation of a believable gameworld, one which is fully characterized by the non-diegetic theme music.⁹⁹



Excerpt 3. Figure 2b from Zach Whalen's article. The original caption reads: "Approximate musical notation for Mario's jump effect."



Excerpt 4. Figure 3b from Zach Whalen's article. The original caption reads: "Approximate musical notation for Super Mario's jump effect."

To summarize, Whalen observes an idea consistent between the music of classical television animation and that of early game music, and maps specific musical features (*i.e.*, an octave glissandi) to an observable gameplay action (jumping). He then follows how the original musical cue is transformed by common gameplay actions, identifying a planned musical relationship between two game sound effects in *Super Mario Bros.* (1985). Yes, the musical analysis is simple; but then again, so are the sounds Whalen examines.

Whalen's example suggests there is much more to be unearthed in carefully analyzing the music of the *Super Mario* series and relating analytical claims to gameplay outcomes—perhaps not always as specific nor as mundane as Mario jumping, but no less related to some aspect of playing *Super Mario* games.

This section has reviewed the main literature available at this time on video game music, classifying it according to its purpose and evaluating each class for the useful methodologies which may be spun into this study. The conclusion is clear: score analysis

⁹⁹ Text and images from Whalen (Ibid.). Note that Figures 2a and 3a are redacted in this excerpt; the original figures show still images of Mario jumping in the original *Super Mario Bros.*

provides the most directly intelligible mechanism by which to understand elements of video game music. With this in mind, I now turn towards building an analytical framework within which to filter the specific musical elements of the *Super Mario* series.

III. *Not Very Classical Form: A Primer on Analyzing the Music of Mario*

Up until now, most of the information and studies presented here about analyzing video game music has not been tailored to the specific context of the *Super Mario* series, as exemplified by my review of literature. There may have been some occasional applicability, but generally, analyses of the music of *Resident Evil Zero*, a survival horror game that uses atmospheric soundtracks, and *Rock Band*, where the objective of the game is to simulate musical performance, go in a different direction than an analysis of *Mario*'s music should. Zach Whalen's study of *Mario* sound effects, while encouraging, is not a particularly suitable point of comparison for a study undertaking analyses of full musical scores. Hence, this section asks: what musical realities specific to *Super Mario* games should inform analyses of its scores? In some sense, an analysis requires mechanisms by which to parse important and unimportant musical information, and to evaluate the quality of relevant information; otherwise, an analysis risks getting caught up in largely irrelevant or unreliable details. Three modes with which to calibrate analysis for *Super Mario* game music are proposed for consideration: first, the role of music in *Super Mario* games; second, basic technological constraints of the video game medium and their general effects on composition; third, issues of musical transcription in analysis. Taken as a whole, these three parameters create a framework which will allow us to discount in our later analytical reviews the merely common traits of game music from the salient musical elements that might emerge.

The role of music in Super Mario games

As indicated earlier, one of the more developed areas of the study of video game music consists of evaluations of its use and purposes. Since, however, none of these studies addresses musical use and purpose directly in the *Super Mario* games,

acknowledging this role now will render later analyses relating musical choices to their functional role in *Mario* games more straightforward.

In interviews, Koji Kondo suggests repeatedly that *Mario* music should match the visual presentation of the game,¹⁰⁰ so as “to enhance the gameplay and make it more enjoyable.”¹⁰¹ One of the first functions of music in *Super Mario* games, then, is to set the mood of the game’s action via a non-diegetic accompanying soundtrack. Mahito Yokota, one of Kondo’s junior associates in music composition at Nintendo whose own credits include compositions for *Super Mario Galaxy* (2007) and *Super Mario Galaxy 2* (2010), draws the following comparison:

[*Mario* music is] like music in a silent film. Just by listening to the music, you can tell what kind of story is unfolding. That’s the characteristic of *Mario* games.¹⁰²

Using the original *Super Mario Bros.* (1985) and *Super Mario Bros. Theme* as an example, this seems intuitively correct; playing level 1-1 without the background music, while preserving other sounds—the coin-collection chime, the power-up sound effect, the 100-second warning bell—would likely leave the *gameplay* intact (*i.e.*, a player would not lose a turn any more or less often), but the fun and enthusiasm associated with playing a *Mario* game might be diminished due to the absence of the music. Without music, the contrasts between the “upbeat and chipper”¹⁰³ *Super Mario Bros. Theme* of level 1-1 and the sparse, monophonic tune of level 1-2, the *Underground* theme, would be lost; all silence, all the time would not provide for changes of mood. Similarly, always playing the same background music would create the same musical mood throughout the game. Music, then, is an essential component of a player’s internal reaction to gameplay. Yokota

¹⁰⁰ Mark MacDonald, “Koji Kondo Interview,” *1up.com/Electronic Gaming Monthly*, March 2005, accessed August 3, 2011, <http://www.1up.com/do/feature?pager.offset=5&cId=3140040>.

¹⁰¹ Chris Kohler, “VGL: Koji Kondo Interview,” *Wired*, March 11, 2007, accessed August 3, 2011, http://www.wired.com/gamelifelife/2007/03/vgl_koji_kondo/.

¹⁰² Satoru Iwata, “Super Mario All-Stars: Vol. 1 The Music,” *Iwata Asks*, 2010, accessed August 3, 2011, http://us.wii.com/iwata_asks/super-mario-all-stars/vol1_page1.jsp.

¹⁰³ Matthew Belinkie, “Video Game Music: Not Just Kids Stuff,” *VGMusic.com*, 1999, accessed August 3, 2011, <http://www.vgmusic.com/vgpaper.shtml>.

suggests that players' moods and reactions can be further refined to suggest specific gameplay information in *Mario* music:

[*Mario* music] is music that [...] tells players as soon as they hear it whether they're in danger, or safe, or need to hurry, or can take time.¹⁰⁴

Yokota suggests that contrasts of mood may collectively elicit different player responses, in that players may wish to avoid areas and/or quickly resolve gameplay situations associated with frantic music, whereas they may or may not be in any hurry to leave an area featuring ceremonial or relaxed music. The doubling of the tempo at the 100-second warning in the original *Super Mario Bros.* (1985) illustrates this idea handily: when the chime is heard, players react by striving to reach the finish line (flag) at the end of the level as quickly as possible. Nintendo's sound department terms this idea "function through music."¹⁰⁵

There is a reasonable experimental basis on which to support the notion that music can motivate these kinds of informational and emotive responses from players. Kristine Jørgensen documents a study where she asked gameplayers to play games with and without sound.¹⁰⁶ Although *Super Mario* games were not used, some of Jørgensen's conclusions may still be extended to this context. In playing the game *Hitmen Contracts*, a game where players must stealthily assassinate targets or accomplish tactical mission objectives without being caught by guards or security cameras, players were introduced to music in the game as an indicator of "his/her own status in relation to the game environment;" should the player be caught or act suspiciously, "the background music will change according to whether the situation is calm or critical,"¹⁰⁷ with the character of the music matching the gameplay situation. Hence, when the sound was later turned off, players could no longer benefit from the music to inform them about their environment;

¹⁰⁴ Iwata, "Super Mario All-Stars (2010)."

¹⁰⁵ Ibid.

¹⁰⁶ Kristine Jørgensen, "Left in the Dark: Playing Computer Games with the Sound Turned Off," in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins (Aldershot: Ashgate, 2008), at 163-76.

¹⁰⁷ Ibid., 166.

one player described the experience as “being left completely in the dark [...] while another compared it to losing a leg.”¹⁰⁸ Even though the game genre is different, Jørgensen’s experiment suggests the idea of ‘function through music’ is real, and positively influences gamers’ experiences.

Jørgensen’s results also aid in understanding the concept of immersion through sound in video games. Several participants of her study expressed “that the game felt less engaging without any sound,”¹⁰⁹ removing what Jorgenson terms “the sense of presence in the game world.”¹¹⁰ She goes on to say:

The sense of presence demands that we direct our perceptions to a different reality than that of which we are currently part. This means that feeling present in a game is feeling that you are part of the environment in question, and that you understand the world presented as a three-dimensional reality that can be interacted with in a similar way to our own world.¹¹¹

Hence, the consequence of not having any sound is that “the artificiality of the virtual surroundings becomes clearer.”¹¹² If music plays a role in gaming immersion as Jørgensen claims, and if different musical styles can colour the mood that is conveyed by an image, then Kondo and Yokota are entirely correct in trying to craft the most appropriate background music as possible for *Mario* games. A player’s sense of immersion depends on it.

There are also other functions of music within *Super Mario* games. A recent example from *Super Mario Galaxy 2* (2010) matches the tempo of the background music in a particular level with the speed at which a ball is rolling down a hill, so as to assist the player in gauging the ball’s speed not only visually, but aurally too. If the ball is rolling slowly, the music creeps forward at a snails pace, but should the ball barrel down a steep hill, the music speeds up to a tempo far beyond that found on any standard metronome.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid.

¹¹⁰ Ibid., 171.

¹¹¹ Ibid.

¹¹² Ibid., 172.

Another example, from the *New Super Mario Bros.* games (2006 and 2009), has enemies interrupt their attack pattern and briefly ‘dance’ on-screen to supposedly non-diegetic musical features when a chord featuring a doo-wop-like timbre is heard. In all *Mario* games, a special music accompanies the action when Mario is invincible through the use of a power star; the expiration of the power star’s abilities is linked to the return of the original background music, signalling to players that their special abilities are about to lapse. All of these examples are in some sense also portraying other approaches to the idea of ‘function through music,’ in that music provides specific gameplay information to the player which is not about musical information in and of itself (that is, the point of the *Star Theme* is not to signal to players the importance of alternating ii and I chords over a repetitive melody to create game music, but is rather related to onscreen action).

While there are undoubtedly other functions of music in *Super Mario* games, because all musical tracks selected for analysis in this study align themselves with the mood-setting characteristics first described above, an analysis of all possible musical functions in *Super Mario* games exceeds the analytical context of the questions considered here. The important point to carry forward is that musical features are mapped onto gameplay elements and attempt to adjust players’ reactions to gameplay by setting an intended mood for the game’s action.

On technology

Within the music to be analyzed here, there are some basic features which are sufficiently omnipresent to deserve comment up front and only sparse mention thereafter. The first of these is technology, and mostly concerns older *Mario* games. That the Nintendo Entertainment System (NES) suffered from various technological limitations has already been hinted at previously. By today’s standards, its musical hardware systems appear rather simplistic and restrictive, despite being at the cutting edge of affordable computer sound technology in 1985: three programmable sound tracks (two square waves

and one triangle wave),¹¹³ with an extra track for sound effects. Another strict limitation was the amount of memory dedicated to music for NES games such as the original *Super Mario Bros.* (1985), between 1 to 1.5 kilobytes.¹¹⁴ Given these strict requirements, it is not surprising to find out that the total length of music in the original *Super Mario Bros.* (1985), excluding repetitions, is approximately 160 seconds, or just over two and half minutes.¹¹⁵ If harmonies are not always full, some chords inconclusive as to their identity or some melodic pitches unpleasant in timbre, technological limitations are often to blame.

Of course, over time, technology improved, and so did the possibilities offered to Koji Kondo in writing music for *Super Mario* games. The Super Nintendo Entertainment System allowed for a full eight separate tracks with which to compose music by 1990,¹¹⁶ and later titles continued to expand the possibilities available to Kondo such that, by 2007, recording live orchestral music for direct playback or further mixing with MIDI-based sounds was possible for *Super Mario Galaxy*. Hence, technological bias in analysis should gradually reduce as the analyst moves away from NES-era titles.

Of course, beyond limiting the textural variety and timbre of musical works, early technological limitations left their effects on the music of *Mario* in other ways. One obvious consequence was that compositions were generally quite short. Without much memory in which to store music, brevity quickly became a virtue of sorts. Among NES *Mario* soundtracks, the longest track (before repetition) is the ending melody from *Super*

¹¹³ Collins, *Game Sound*, 25. To be clear, wave generators were used in early video games to create the sounds. The shape of the wave (square, triangle, sawtooth, etc.) dictated the timbre of the sound. Thus, in the case of *Super Mario Bros.*, two square waves would have the same timbre, and the triangle wave would have a contrasting timbre. For further information, consult Karen Collins' book *Game Sound*, which has an excellent and easy to understand discussion about waves and wave generators at 16-18.

¹¹⁴ Or, for comparison, smaller than the size of a modern short plain text file. See Satoru Iwata, "Super Mario Galaxy: Vol. 3 The Sound Team," Iwata Asks, 2007, accessed October 11, 2011, http://us.wii.com/iwata_asks_vol3_page4.jsp.

¹¹⁵ The lion's share of this time is accorded to the *Super Mario Bros. Theme*, which lasts 89 seconds before looping; of course, the piece is internally repetitive, so the actual amount of music composed is closer to 38 seconds, even allowing for partial motivic repetitions. The *Underground* tune lasts twelve seconds, the *Underwater* theme loops every 25 seconds, the *Castle* theme's duration is only eight seconds, the *Ending* song repeats every six seconds, and various other short musical effects total 21 seconds (losing a life, game over, level clear, etc.).

¹¹⁶ Iwata, "Super Mario All-Stars (2010)."

Mario Bros. 3 (1990), at 91 seconds. Indeed, most *Mario* tracks from before *Super Mario 64* (1996) last less than 30 seconds before looping around; tracks from and after *Super Mario 64* only raise this limit slightly. In sum, *Mario* music is short music, looped often.

Loops themselves are a key feature of game music. Game soundtracks never quite end, they simply return to a previous point in the score—sometimes the beginning, but usually one or two measures after the beginning so as to skip the introduction.¹¹⁷ *Mario* music also features a lot of internal repetition. Consider once again the *Super Mario Bros. Theme* (score A-1). After a one-bar introduction, a two-bar motive is stated, then immediately repeated; the next phrases closely follow this pattern of statement and repetition, sometimes varying endings to achieve specific formal functions of continuation or intermediary closure. Given its brevity, loops and internal motivic repetitions, one of the most defining traits of *Mario* music is its repetitiveness. It never takes long to hear again what you just heard in a *Mario* game. The combination of these features into one game is rather unorthodox, and music theorists generally do not offer much attention to very short, repetitive works, whatever the reason.¹¹⁸ In much of the *Super Mario* series' music, however, brevity is the norm; on the contrary, what is surprising and noteworthy is a track lasting longer than one minute!

On transcription

One last common issue which informs the analysis of the music of *Super Mario* games, and, in fact, most video game music, is the need to transcribe the music. As the music natively exists only as digital code in game cartridges/discs before being translated into sounding pitches by the game console's hardware, analysts' usual methodology of obtaining an authoritative score of a work is not possible in this context. Yes, some *Super Mario* scores are sold commercially, but these are largely unsuitable for analysis. There are two principal reasons for this. First, such scores have usually been arranged by

¹¹⁷ Rarely, in some longer compositions, loops return to a point somewhere in the middle of the piece, as seen in *Super Mario World*'s "Fortress" soundtrack. See score C-7.

¹¹⁸ Part of the reason is undoubtedly that, since most composers work with limits much less strict than that of video game technology, they do not need to write music which is interesting despite being short and repetitive. These traits, repetitiveness, brevity and high interest, are, for all intents and purposes, some of video game music's key identifiers.

someone other than the composer and targeted to young musicians, and as such generally constitute simplified, ‘big note’ editions. Hence, they do not accurately represent all the details found in the digital ‘original’ tune, rendering them dubious sources for analysis. Second, such scores, even if they are not ‘big note’ editions, are necessarily arranged with performance in mind. The original digital format, unlike most music, is indifferent to the ‘performability’ of its would-be scores. Indeed, a brief look at some scores (*Super Mario World*’s “Athletic” track, for example, score C-5) quickly clarifies that a performance of the music as it is encoded into the game would be severely impractical for any soloist. Analysis, however, need not rely on the ‘performability’ of the music to achieve its objectives; the analytical attention granted to Conlon Nancarrow’s works for player piano illustrates this point handily.

This being said, certainly some ‘authentic’ scores exist, either as those used by Kondo himself in the compositional process or by orchestras who require scores to record some game music. These, however, are impractical to acquire, and sometimes downright impossible. Nintendo, for example, predictably does not release sketches of Kondo’s (or any game designer’s) work for general consultation so as to better manage its intellectual property rights to its advantage.

Therefore, the only practical solution for the would-be *Super Mario* music analyst is transcription. Good transcriptions take time, especially in post-*Super Mario World* (1991) polyphonic tracks, yet are hardly authoritative in the way theorists usually think about scores. Yet, in the study of video game music like that of *Super Mario*, transcription, with all its hazards, comes part and parcel with the research territory. The limitations of only being able to approximate a composer’s intentions is replete with analytical consequences; however (and luckily!), as elaborated upon above, the music of *Mario* tends towards simplicity and repetitiveness, which together assist in countering some of transcription’s traps. Transcription is also challenging in this medium in that it can be difficult to represent unconventional electronic sounds in conventional notation. Overall, then, the analysis of the music of *Mario* requires an acknowledgement of the

approximated nature of the source text being analyzed. Thankfully, for this study at least, motivic matters are among the easiest musical features to confidently transcribe.¹¹⁹

With these ideas in the back of our mind—the purposes of the *Super Mario* music being considered here, *Mario* music’s repetitive nature and its only approximated notational representations—it is time to turn towards musical scores and consider what analysis can teach about approaches to game music and gameplay in the *Super Mario* series.

IV. *Styles and Ideas: Analyzing Mario’s Many Melodies*

Having now established the analytical framework within which music from the *Super Mario* series is to be examined, it is time to focus on the music itself. This section pursues three goals: first, it presents the music under consideration; second, it describes the analytical methodology in more detail; and finally, it presents analyses of the selected works, calling specific attention to variational transformations found within variants of a theme group. Other musically interesting phenomena are also noted, where appropriate. For now, the analysis favours a descriptive approach; wider trends will be explored in more detail in Section V.

In all, a total of 26 short works are retained for this study, and are classified into the following five theme groups [see the chart on the next page]:

¹¹⁹ For a further discussion of the transcriptional method, see the editorial note that prefaces the appendix of scores.

Theme Name	Theme Type	Theme Track	Game	Score #
Super Mario Bros. Theme	Series	Overworld / Super Mario Bros. Theme	<i>Super Mario Bros.</i> (1985)	A-1
		Game Over	<i>Super Mario Bros.</i> (1985)	A-2
		Subspace	<i>Super Mario Bros. 2</i> (1988)	A-3
		Music Box	<i>Super Mario Bros. 3</i> (1990)	A-4
		Super Mario Bros. Remix	<i>Super Mario World</i> (1991)	A-5
		Title Screen	<i>Super Mario 64</i> (1996)	A-6
		Obstacle Course	<i>Super Mario Sunshine</i> (2002)	A-7
Underground Theme	Series	Underground	<i>Super Mario Bros.</i> (1985)	B-1
		Underground	<i>Super Mario Bros. 3</i> (1990)	B-2
		Into the Tunnels!	<i>Super Mario Sunshine</i> (2002)	B-3
		Cave Dungeon	<i>Super Mario Sunshine</i> (2002)	B-4
		Delfino Airstrip	<i>Super Mario 64</i> (1996)	B-5
		Shadow Mario Theme	<i>Super Mario Sunshine</i> (2002)	B-6
Super Mario World Theme	Game	Main Theme	<i>Super Mario World</i> (1991)	C-1
		Underwater	<i>Super Mario World</i> (1991)	C-2
		Bonus	<i>Super Mario World</i> (1991)	C-3
		Underground	<i>Super Mario World</i> (1991)	C-4
		Athletic	<i>Super Mario World</i> (1991)	C-5
		Ghost House	<i>Super Mario World</i> (1991)	C-6
		Fortress	<i>Super Mario World</i> (1991)	C-7
Super Mario 64 Theme	Game	Main Theme	<i>Super Mario 64</i> (1996)	D-1
		Slider	<i>Super Mario 64</i> (1996)	D-2
		Snow Mountain	<i>Super Mario 64</i> (1996)	D-3
Super Mario Sunshine Theme	Game	Bianco Hills	<i>Super Mario Sunshine</i> (2002)	E-1
		Ricco Harbor	<i>Super Mario Sunshine</i> (2002)	E-2
		Gelato Beach	<i>Super Mario Sunshine</i> (2002)	E-3

Of course, this chart represents but a fraction of all of the music written for *Super Mario* games. The study emphasizes works published between 1985 to 2002, since this represents the period when Koji Kondo was most directly involved in soundtrack composition.¹²⁰ This allows the study to confidently retain its basic assumption that Kondo is the composer of the works under investigation; after 2002, this assumption is no longer secure.

The chart also categorizes themes as ‘series themes’ and ‘game themes.’ As mentioned earlier but worth repeating here, series themes examine a musical theme found within multiple *Super Mario* games, whereas game themes develop a theme only in the context of one particular game.

A closer look at the methodology

The methodology for analysis, taking into account the elements mentioned in Section III, is fairly straightforward. Using scores transcribed by ear or from a MIDI file,¹²¹ an ‘original theme’ is identified, and the other works in the same theme group are deemed variants on this original. These variants are analyzed in relation to the ‘original’ as well as cumulatively in relation to each other, where appropriate. The analyses chiefly consider five musical parameters (melody, harmony, rhythm, form/structure, and decoration), although not every parameter is substantially modified or relevant enough to merit discussion in each and every variation. Variation is, after all, the art of balancing old and new musical ideas. Note that, when reduction is employed as an analytical technique, although it may occasionally bear some notational similarity to the techniques of Heinrich Schenker, the main tones are not necessarily ‘prolonged’ in the Schenkerian sense, or fit into the wider model of an *Urfinie*. Reductions are used simply to clarify the relation between surface details of embellishment and the more structural tones underlying them. The tools offered by stem-and-slur and other reductive analysis techniques are simply

¹²⁰ As was suggested earlier, since *Super Mario Galaxy* (2007), Kondo delegates many more of his *Mario* compositional duties to his colleagues in the sound department of Nintendo’s game studios.

¹²¹ See the editorial note which accompanies the Appendix of Scores for more details on the methodology of transcription.

handy, well-known shortcuts for communicating ideas about the relative structural importance of pitches in a given excerpt.

There is one slightly problematic detail with the concept of the ‘original’ theme in the music of *Super Mario*, as it relates to the above methodology. In series themes, identifying the ‘original’ theme is straightforward: there was only one version of the *Super Mario Bros.* theme and one version of the *Underground* theme in *Super Mario Bros.* (1985), the game where both melodies were first heard. Thus, those themes as heard in that game are clearly the ‘originals,’ since they precede any other compositions using the same musical ideas; works based on those musical ideas after *Super Mario Bros.* (1985) are variants. For game themes, however, the version of the theme to be considered the ‘original’ may not be so clear. Indeed, within a single game, there is no way of knowing which work is the ‘original’ theme upon which variations are then derived, since the order in which Koji Kondo composed his music is unknown. Whatever the order of composition was, it probably was not the same order as that in which works are heard in the game. Kondo provides *some* help on this matter by calling a particular tune in most games the “main theme.” These “main themes” act as functional equivalents of ‘the theme’ in traditional variation sets such as those of Mozart, Beethoven and others, the basis upon which variations are built. Consequently, this parallel confers a certain musical status to a “main theme” in game music as an ‘original’ tune. Yet, in gaming practice, the tune called the “main theme” is often simply the tune most often heard throughout the game, and not necessarily that which was composed first, or that which acts as the compositional basis upon which to elaborate variations. The original *Super Mario Bros. Theme* is a good example of this (even the term ‘main’ seems redundant in describing it!), getting its name by virtue of being heard in half the stages of the original *Super Mario Bros.* (1985). Yet, it was not the first piece Kondo wrote in *Super Mario Bros.* (1985).¹²² With this in mind, it is entirely possible that the work Kondo called the *Super Mario World* “Main Theme” (score C-1) was in fact the last variation he composed, but since it

¹²² The *Underwater* tune was first (incidentally, it is included as score F-5 in the appendix of scores for analysis in Section V). See Chris Kohler, “VGL: Koji Kondo Interview,” *Wired*, March 11, 2007, accessed August 3, 2011, http://www.wired.com/gamelife/2007/03/vgl_koji_kondo_/.

fit best into the visual context of most of *Super Mario World*'s (1991) gaming areas, this garnered it lots of airtime in the game, from where it then got its name as the “Main Theme.” For that matter, given that Kondo has admitted to recomposing what became the original *Super Mario Bros. Theme* a few times before he was satisfied,¹²³ retaining only a few elements from one version of the work to the next (since sound programming at the time was finicky like that); what is to say that he did not do the same for a tune now deemed an ‘original,’ while a prior version of the piece was used as the basis for variations? Even more problematic is that the real ‘original’ theme which inspired variations may not even be in the game, having been cut by someone higher up in the hierarchy or Kondo himself, and all that players today are left with now are variations on an unknown and irretrievable original theme.

All this of course assumes something of an ‘ideal’ player/listener as the recipient of these variants; while it is not exaggerated to say that there are people out there who have played each *Mario* game in order and fully memorized its melodies, these folks constitute a distinctly small minority. Most *Mario* players are likely to have an imperfect knowledge of the music of the series; to most, music is not the prime reason they play *Mario* games. At best, good music is an incidental benefit which heightens the experience of gameplay. That any given player might not conceive of variations in the same way this study does is therefore overwhelmingly likely. Thus, any further mentions of ‘players’ in the analysis should take something of an idealized, as opposed to realistic, perspective on what they bring to the experience of music in video games.

The above problems underline the necessity of some basic assumptions about ‘originals,’ some of which simply need to be accepted as a point of methodology because there is no way the things they presume can be verified. There is also a need to be open about some of the methodological issues game audio research faces so as to promote discourse about potential solutions. For now, though, the study deems the tunes named the “main theme” as the ‘original’ in a game. Where this is not possible, for all the faults this

¹²³ Ibid.

approach may hold, the tune featuring a recurring theme that is heard earliest in the ordinary gameplay sequence of a *Mario* title is deemed the original.

Analysis

Each of the 26 works is considered in turn, in the order from the chart above. As mentioned, these analyses focus on describing general features of the music and variational transformations; functional analyses which explain larger trends in the musical transformations are reserved for Section V. It is recommended that readers familiarize themselves with the score of a tune before reading its analysis; recordings of the tune may often be found by consulting popular online video sharing websites (YouTube, etc.) and by searching for the tune's name and the title of the *Mario* game from which it is excerpted.

Super Mario Bros. Theme (Score series A)

Score A-1: Super Mario Bros. Theme / Overworld [score at page 134]

The best-known *Super Mario* tune certainly offers many analytical perspectives to dive into, but one of the most important for this study deals with motivic and formal divisions in the theme as a whole. The *Super Mario Bros. Theme*, also known as the “Overworld” theme, is written in four distinct parts comprising seven sections in all, plus a short introduction. The formal plan is as follows [continues on the next page]:

Section	Measures	Structure
Intro	1	(derived from C)
A	2 - 5	2 + 2
B	6 - 13	(2 + 2') x 2
C	14 - 17	2 + 2'
A	18 - 21	2 + 2
D	22 - 29	(2 + 2') x 2

Section	Measures	Structure
C	30 - 33	2 + 2'
D	34 - 37	(2 + 2') x 2

Besides outlining the form, the chart also details the construction of each section. Two-bar units are the basis of the composition; where the chart lists [2 + 2] as the structure of a section, this means a two-bar fragment is stated, then repeated. The notation [2 + 2'] indicates that the ending of the second statement is modified, but that the two statements largely resemble one another. The notation [x 2] means that the entire statement of four bars is repeated.

The point of such a structural analysis is threefold. First, it shows how repetitive the “Overworld” theme is; by one count, it contains only eleven distinct bars of music.¹²⁴ Second, it illustrates how, in this ‘original’ tune, musical ideas are organized in pairs, and how longer and shorter pairs generally alternate through the work. Third, it succinctly demonstrates how all motives except that from section B are repeated in the piece.

One of the reasons that Koji Kondo can repeat so much yet compose such a wildly popular tune is the contrasts between sections; although the organization of the tune’s sections is regular and even somewhat predictable, the contents of each section differ drastically from that of any other, providing frequent contrast. The Introduction and section A largely follow triadic harmonies heard in fifths or sixths in the upper two voices, with all voices moving homophonically within the same contour (see measures 1-5). Yet, in the more chromatic section B, the bass gains rhythmic independence from the melody, which itself retreats to harmony in thirds, but only until the ‘cadential’ point at measure 9, where the parts come together homophonically again. Section C does away with A and B’s disjunct motion, its melody constrained to moving mostly conjunctly until its own cadential point measure 17, at which point the texture returns to that of section A. By contrast, section D opens up with rapid changes of range, leaping melodic sixths and sevenths. One point is clear: the “Overworld” theme is motivically and formally disjunct,

¹²⁴ That is, two bars from section A, and three bars from each of sections B, C and D; the rest are repetitions.

in that it is constructed of rapidly changing and unrelated bits of music whose only point of commonality is their arrangement into two-bar units.

There are of course many more things to say about the “Overworld” theme, but these will be better situated within the context of variations, where specific musical traits or events call for a closer inspection of the original work. Kondo also only modifies selected elements from within this theme for variation, so an exhaustive look at the entire piece would, for the purposes of this study, only serve to turn up greater amounts of less useful information. This study instead focuses on specific parameters; a focused study of harmony, for example, is opportune within the first variant.

Score A-2: Game Over [score at page 136]

The first variant also comes from the original *Super Mario Bros.* (1985). It is a very short tune that plays on the ‘Game Over’ screen, when players lose all of their lives and must restart the game from the very beginning. I reproduce the score in full here, for convenience:



This variation is essentially an alternative, smoother rendition of the original opening of the “Main Theme:”



A quick reduction of both works reveals how the structure remains the same in both tunes:¹²⁵

The image shows a side-by-side comparison of two musical pieces, 'Game Over' and 'Overworld', in a reduced form. Each piece is shown on a grand staff (treble and bass clef). Above the staves, Schenkerian analysis symbols are used: 'N' for Neighboring notes and 'P' for Phrasing. In 'Game Over', the top staff has a sequence of notes with 'N' above the first, second, and fourth notes, and a 'P' above the third. The bottom staff has a 'IV' below the first note and '(piece ends)' at the end. In 'Overworld', the top staff has 'N' above the first, second, and fourth notes, and a 'P' above the third. The bottom staff has a 'IV' below the first note and '(piece continues)' at the end. Dashed lines connect corresponding notes between the two pieces, highlighting the structural similarities.

The reduction makes clear that it is only the expansion of IV that changes between the two tunes; the melodic neighbouring gesture of the A down to the G is structurally the same, but is more elaborately decorated in “Game Over.” The addition of the D $\flat$ in the bass and $\flat$ II harmony also expands IV, replacing the minor harmony which would result from the shift to A $\flat$ with the original F held over. Certainly, Kondo could have chosen to hold the F in place, but the parallel semitone motion between the D $\flat$ and A $\flat$ moving to C and G adds a smoothness to the sound that is absent in the original tune:

The image shows a musical score reduction for a single piece. It features a grand staff with a triplet of eighth notes in the treble clef, marked with a '3' and a slur. The word 'ritardando' is written below the first note of the triplet. Below the first two notes of the triplet, there is a 'P5' (perfect fifth) interval. The bass clef has a single note, and the piece ends with a double bar line.

Overall, here Kondo maintains the overall structure of his motivic model, but modifies its interior details; notice particularly how he changes the tail of his motive to a greater extent than he does its head.

¹²⁵ Again, while reductive scores in this thesis bear some notational similarity to the techniques of Heinrich Schenker, they are not intended to communicate the full complement of Schenker’s ideas, only the relative importance of pitches via handy, well-known shortcuts offered by stem-and-slur analyses. See “A closer look at the methodology,” above.

Score A-3: Subspace [score at page 137]

This variation from *Super Mario Bros. 2* (1988) is quite simple. Kondo uses sections A and B from his original theme to form a short composition. Note that, in its gameplay context, this tune does not need to be very long, since players only ever enter subspace—a sort of photo negative of the level they are playing—for ten seconds or so at a time, rarely longer. The music itself is untouched compared to the original “Overworld,” except for one detail: there is no internal repetition of the two-bar statement of A before proceeding to section B.¹²⁶ In sum, little changes here. The ‘variation’ is more notable for how it preserves the original tune instead of how it changes it. Still, Kondo’s inclusion of the contrast of section B sooner within the tune (by cutting out a repetition of A) suggests that players hearing motivic contrasts in the *Super Mario Bros. Theme* is important to him.

Score A-4: Music Box [score at page 138]

This variation from *Super Mario Bros. 3* (1990) is somewhat unorthodox for Kondo, in that it develops the motive from the original B section independently; all other variants focus more intensely on materials from section A. Kondo’s technique is remarkably simple: convert all rhythmic values to sixteenth notes, and have pitches repeat in sixteenths so as to fill in their original rhythmic duration (for example, one quarter note C becomes four consecutive sixteenth note C’s). The music is transposed up an octave, and given a bell-like timbre (to the extent that NES technology allows for ‘bell-like timbres,’ of course). Hence, in comparing the original and the variant:



This presentation of the B theme brings to light an important feature of Kondo’s compositional approach to rhythm. Temporarily modifying the beaming so as group

¹²⁶ While recognizing that it is somewhat of a moot point because players will normally exit subspace before hearing it, section B’s repetition is also eliminated.

gestures together in the soprano and show the rhythmic structure of the bassline, the score looks like this:

Melody

Accomp.

(3+3+2) X 2

3 8

retrograde

(3+3+2) X 2

2+3+3

3+3+2

The ‘half-a-clave’ pattern 3+3+2 (sometimes called a tresillo, and, as a staple of some Caribbean music,¹²⁷ a likely influence for Kondo) is very common in Kondo’s music, though sometimes not obvious on the page because Kondo substitutes a rest for some parts of the beat; in this variation, however, its presence is obvious, with the right beaming. Retrospectively, the same rhythm is found in much of the “Overworld” theme too, even though it is not always obvious on the page due to substituted rests for some part of the rhythmic duration (for example, at measure 6 of A-1). With regular 4/4 metric beaming, “Music Box” shows how rhythmically influenced Kondo is by ragtime and Caribbean tropes in his rhythmic approach to melody:

Melody

Accomp.

3 8

¹²⁷ Robin Moore, *Music in the Hispanic Caribbean: Experiencing Music, Expressing Culture* (New York: Oxford University Press, 2010), 219.

The preponderance of voicing changes on syncopated beats, especially in the lower voice, betrays these influences. At the same time, there is no specific pattern—like a full clave, for example—to direct the music, only fleeting glimpses at the origins of some new rhythmic fusion. Matthew Belinkie’s remark, cited earlier, that “eastern musicians, greatly influenced by western music, compose music for an eastern audience which is later sold back to the west” suddenly seems that much more appropriate when read in conjunction with these musical passages.

Score A-5: Super Mario Bros. Remix [score at page 139]

This variation is not normally heard by players of *Super Mario World* (1991); its inclusion is more like that of an ‘Easter egg,’ a secret feature of sorts. Late in the game, if players let the “Special World” theme play (see score F-1, included for reference at page 190) for just over two minutes, this “remixed” version of the original *Super Mario Bros. Theme* will kick in. While its form remains unchanged from the original theme,¹²⁸ a snapshot of the new “remixed” version of the motive from section A (hereafter, simply motive A, and similarly so for the motives from sections B, C and D) quickly communicates some of the changes made:

The image shows a musical score for three parts: 'Special World motives', 'SMB theme', and 'Bass'. The score is written in 4/4 time and consists of two measures. The first measure is marked with a '4' and an '8'. The second measure has a '3' under the bass staff. The 'Special World motives' staff features a melody of eighth notes. The 'SMB theme' staff features a melody of quarter and eighth notes. The 'Bass' staff features a bassline of eighth notes.

There are three changes here. The most minor is that the main melody is now in thirds and fourths, not fifths and sixths. The second is the bassline; although it still outlines the same I to IV harmony of the original, it does so more directly and in more of a boogie-like pattern. This pattern also repeats as somewhat of an ostinato throughout the A section and into the B section as well, though its harmony adjusts there. The third and most

¹²⁸ Note however that, in the included transcription, because two bars of the “Special World” theme are included for context, the entire form is offset by two bars compared to the chart given in the discussion of score A-1, above.

notable difference is the addition of a countermelody above the main motive A, borrowed from *Super Mario World*'s "Special World" theme. A more technically precise term for this countermelody would be a Cuban *guajeo*¹²⁹ which generally emphasizes the tonic and mediant tones. Because players recognize both melodies, the effect in practice is not one of melody and countermelody, but rather of quodlibet, since both melodies play off of each other. Notice, for example, how both turns avoid sounding 'on the beat,' preferring to enter/move on the sixteenth after it.

In the B section, little changes, aside from the aforementioned bassline and the elimination of the "Special World" countermelody. At measures 11 and 15, bass chromatic ornamentation is added into a small gap in the music (this will become a standard addition in later variants). These changes are indeed almost inconsequential.

The C section sees the bassline return to its format from the original "Overworld" theme, though it sounds an octave lower. The "Special World" theme, for its part, is reintroduced in an adjusted form:



In some sense, there is a reversal of approaches here. Earlier, when the disjunct and triadic main theme sounded, the "Special World" theme accompanied it in a more conjunct line, the repeating high E splitting off into its own perceptual stream (thus, the line is C-B-A-B-B-C-D). At measure 16, where the melody is more conjunct (as usual per section C), the countermelody becomes more disjunct, reaching for farther tones and arpeggiating on beat 4 instead of using stepwise motion. These are small shifts, but they suggest that Kondo keeps an ear tuned towards the balance of conjunct and disjunct lines

¹²⁹ A *guajeo* is a melodic ostinato pattern common in Cuban and other Caribbean music, often played on a specialized guitar called a *tres*. See Peter Manuel, Kenneth Bilby, and Michael Largey, *Caribbean Currents: Caribbean Music from Rumba to Reggae* (Philadelphia: Temple University Press, 2006), at 44, 47 and 303.

in his music; if this is the case, then it should come as no surprise that this attention for balance might influence his variational choices.

Finally, section D is essentially unchanged from the original. Thus, in terms of the variational balance of old against new, Kondo errs much closer to the side of his model than that of new approaches. In particular, his singular insistence on preserving the original melody *intact* in a tune he himself deems a “remix” stands out. Kondo seems much more content to modify what is *around* the *Super Mario Bros. Theme* than the theme itself.

Score A-6: Title Screen (Super Mario 64) [score at page 142]

The major modifications in this variant target the overall form, and the internal structure of the first A section. The overall form of the tune is as follows:

Section	Measures
Introduction	1
A'	2 - 13
B	14 - 21
C	22 - 25
A	26 - 29
D	30 - 37

As the chart shows, the return of sections C and D at the end after the first statement of D is cut from this arrangement. The most peculiar modifications, however, come in the first A section, which differs enough from its usual and expected form so as to warrant the designation A'.¹³⁰ These changes are immediately apparent from the score of the melody from the Introduction to section B:

¹³⁰ Although this is admittedly analytically backwards compared to conventional practice, it would be even weirder to label the unchanged, ‘normal’ section at measures 26-29 as A’. Formal labels should be understood within the context of variational practice of the whole game theme being considered, not just piece-by-piece.

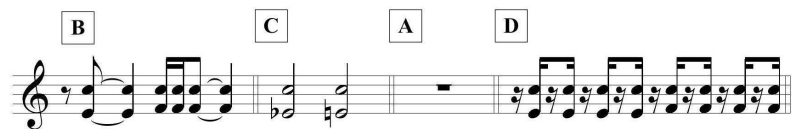


The empty measures represent percussion interludes; in this variant, such interludes interrupt the main motive, seemingly preventing it from completing its ‘two-bars-and-repeat’ formula. Indeed, the entire opening section seems to play with musical notions of starting, stopping and repeating. Notice how, contrary to his usual tricks, Kondo tries to make his melody’s progression unpredictable. A narrative approach to analysis handily communicates the many musical issues. Starting with the well-known Introduction (measure 1), the music suddenly stops (measure 2); the *Super Mario* leitmotiv a player expects to hear following the introduction is replaced by a two-bar drumkit solo (measures 2-3). Then, at measures 4-5, the motive is finally heard—relief! But instead of repeating as it usually does, the tune is again interrupted by a percussion solo (measure 6). Of course, this has been heard before, and following the two-bar rule of thumb, this interlude should last two bars and then the music will continue—except that is not what happens, since Kondo inserts only *one* bar of percussion this time. The main motive reappears (measure 8), but just as the expectation of hearing its second half is formed, the first half repeats, then repeats again, as if stuck in a rut. Finally, the second half is heard and... there’s another percussion interlude, whose length may be one bar, perhaps two, perhaps longer, since Kondo is not showing any regularity within this feature. The second half of the motive unconventionally appears alone separated from its first half, then the tune enters the B section.

In sum, Kondo plays with listeners’ expectations at every turn in the opening of the “Title Screen” variant. Notice that he does not substantially rewrite the existing music; there is only one small adjustment to the bassline. The music, organization aside,

is otherwise untouched. Only the order and number of events are scrambled, with interpolations of percussion added into the mix.

Surprisingly, given the treatment of the first section, the rest of the tune closely adheres to the original model. The changes that are made remain fairly minor, but serve to further differentiate the various sections from one another, creating greater contrast between them. For example, from B onwards, the onset density and rhythmic timing of the interior harmonic jingle is varied from section to section. This summary shows the jingle from the first bar of every section, which is representative of the textural role it plays therein:



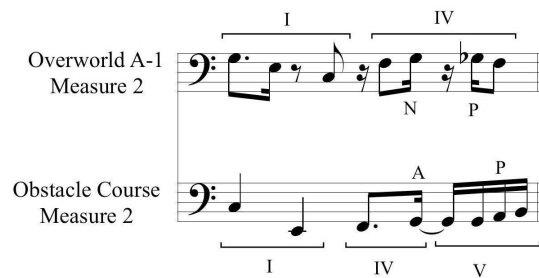
These minor changes accentuate each section's distinct character, and thus further emphasize the structurally disjunct form discussed earlier at score A-1. Section C feels smoother, while D seems more active due to the syncopation of the jingle against the main beat. Additionally, when taking into account the contrasts between A' and A, as well as the elimination of the extra statements of C and D, the overall effect is to add greater overall contrast into the tune because different sections, each more distinct from one another than ever, now succeed one another more quickly.

Yet, through it all, the main *Mario* tune remains intact. Kondo once again refuses to change even a single pitch or rhythm of it. One spots an emerging trend.

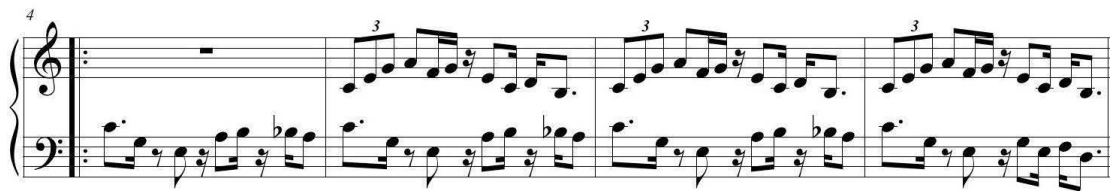
Score A-7: Obstacle Course [score at page 145]

This tune from special action levels in *Super Mario Sunshine* (2002) is a quasi-barbershop/1980's doo-wop setting of the *Super Mario Bros. Theme.*, and a rather fun one that also provides a few new variational tricks. Aside from the offset generated from a longer introduction (three bars instead of one in the original tune), the form is as in the "Overworld" theme.

The tune starts with its now famous one-bar introduction, but instead of hearing the main motive succeed the introduction, only a bassline follows. This bassline, of course, strongly relates to the original bassline of the “Overworld” theme:



The “Obstacle Course” bassline more strongly suggests the harmony V on beat 4, but the general idea of I-IV-V is nonetheless present in both fragments, though the V harmony is in practice not particularly strong in the “Overworld” tune, more decorative than substantial. This bassline becomes an ostinato through both the A and B sections (with adjustments at the very end of B for the $\flat$ VI chord); the clearer V harmony allows Kondo to do this consonantly throughout. By comparison, in “Super Mario Bros. Remix” (A-5), the ostinato more strongly emphasized I-IV only, and hence Kondo needed to change the bass pattern at B so as to maintain a consonant sound against the chromatic melodic material therein (see measure 8 of A-5). In any case, after two statements, the main motive enters, but its treatment is different from the norm:



The variational technique used here is a mix of ostinato and quodlibet: the lower line repeats the first half of the motive, and the higher voice, jumping in at the appropriate time, repeats the second half over the lower line. Thus, one of the reasons why Kondo adds a V chord to his bass ostinato is revealed: if he keeps beat 4 as harmony built around the subdominant F, the chord created on that beat by these three lines—the original bass,

the first half of the motive, and the second half—will be harshly dissonant;¹³¹ with a V chord, the B/B $\flat$ create a major/minor blue note effect as the thirds of a V chord instead of a harmonic identity crisis if they are left as the roots of the chords vii/ $\flat$ VII. At measure 7, the last middle-voice statement is adjusted such that V⁷ is formed and the music ‘cadences’ into the B section, with the help of the bassline modification.

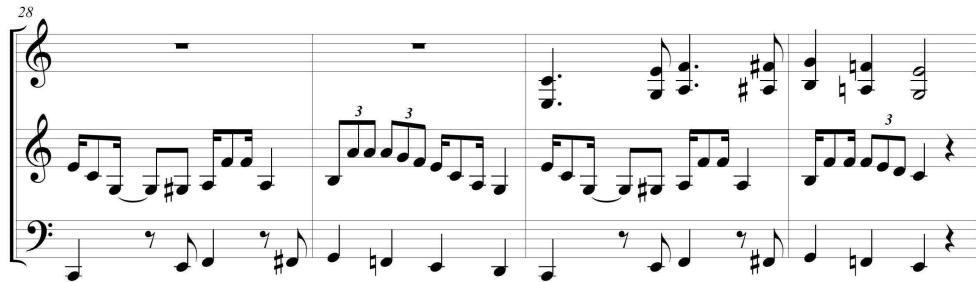
The next important change comes in section C (measure 16). Ever the smooth, conjunct section, Kondo adds some extra chromaticism via the bass, and in doing so changes the harmonic outline of the section. Whereas this section has always featured A $\flat$ octaves sliding down to G octaves and back every half note, Kondo actually makes a harmonic progression out of his new material:

This kind of chromatic/harmonic play in this quick rhythm is of course typical of the barbershop/doo-wop vocal style Kondo emulates in this variant; yet, the added chromaticism to the motive which is traditionally the least embellished of the four main fragments of the *Super Mario Bros. Theme* also provides a new form of contrast within section C.

After a repetition of section A, section D also morphs according to the principles of the barbershop/doo-wop style. For the first time in this theme series, the main melody enters the bass part while other voices rest:

¹³¹ Notice how Kondo does not use many diminished chords and relatively few minor chords; most of his harmonies are major. His apparent preference for major chords may explain why 1) he writes in major keys, and 2) frequently substitutes $\flat$ VI in places where vi might otherwise be expected, and V/V for ii.

Kondo adds to this texture on the repeat, not unlike the additive process he used at the very beginning of the piece:



Presenting the theme sporting the widest range in this way serves to further exaggerate this element, as does the transposition of the theme up an octave at its reprise. Unlike in the “Overworld” theme, the accompanying parts now imitate the melody’s contour, taking off some of the disjunct, angular and syncopated edge that the D motive usually provides. Oddly enough, when the music reaches section C anew, it becomes more active instead of less, as is usually the case. Hence, Kondo plays with the character-giving elements of his motives to change their functional role within the overall piece; functionally, C and D trade roles in “Obstacle Course.” Yet, he does so with an ear for balance, adding musical tension in one place only to take some away in another.

Once again, however, the one thing that Kondo does not change in the *Super Mario Bros. Theme* is its melody. Its rhythms and pitches remain untouched despite several harmonic and chromatic shifts in other parts, and even ostinato- and quodlibet-based formulae applied to the melody itself do not change its pitches and rhythms. A trend is emerging in Kondo’s approaches to variation. The question now is: does this trend hold in other series themes?

Underground Theme (Score series B)

Score B-1: Underground (Super Mario Bros.) [score at page 147]

The original “Underground” theme from the first *Super Mario* game is a curious piece, and one whose construction can be reasonably argued from a number of analytical points of view. Written as a C-dorian bassline with some added semitone chromaticism, it is easy

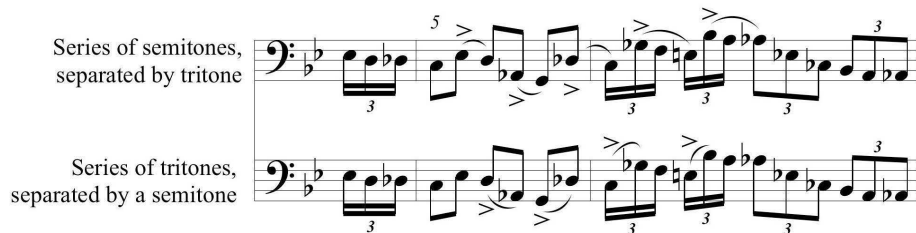
to conclude that Kondo is connecting the low musical range of the tune to the fact that Mario now finds himself ‘underground’ in virtual space. Yet the piece offers much more intrigue. Among its clearer features is the form, which divides into parts A, B and C as follows:



The parsing of two of the three motives from this form is simple enough, with motive *a* being the repeating broken octaves, and motive *c* comprising of silence, matching the labels of the formal sections in which they are found. Notice how the duration of *c*, approximated here as a measure of 5/8 time, throws the entire form of the piece into an odd kind of metrical dissonance. The metre of the theme is already somewhat difficult to grasp, given the (relatively) long pauses between statements; the addition of a full measure of silence in a complex metre at the looping point adds to this difficulty. Indeed, just as a listener might grasp the meter of the piece towards the end of section A, the rhythm changes to eighths and then triplets of sixteenths and eighths; in context, it sounds like the tempo is accelerating, as opposed to the rhythm, throwing out any mentally formed metre. The irregular length of the silence of motive *c*, then, also interrupts any vaguely established metric pattern during section B, ensuring that when heard aurally, the theme as a whole never sits too comfortably in any metric identity. This feature will alternatively be expanded and eliminated in later variants.

Melodically and harmonically, the piece is quite intriguing. On the whole, the tune is essentially a solo bassline, using the range and chromatic decorations that a solo jazz bass might use in a C-dorian passage. Turning to specific sections, Section A is easy enough to rationalize: the motive C-A-B $\flat$ is stated twice, then transposed down a fifth and stated twice again. The more peculiar part is section B. Two principal interpretations of measure 5 and the first half of measure 6 are possible. In the first, the main melodic

motion is heard as successive groups of descending semitones, separated by a tritone. In the second, melodic tritones are gradually transposed down a semitone. The following two scores illustrate the different interpretations, slurring the main melodic motion, with accents marking the first note of a group:



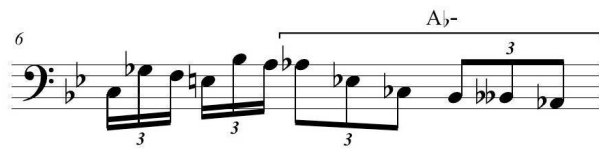
Whether one reads section B in semitones or tritones, the ‘other’ interval constitutes the gap between groups. Still, the interpretation based on semitone groups separated by a tritone is more convincing. Consider the overall semitone motion from measure 5 and how it continues into measure 6. Initially, the motive E $\flat$ -D skips down a tritone to A $\flat$ -G, then up a tritone to D $\flat$ -C. The pattern, if continued, would look like this:



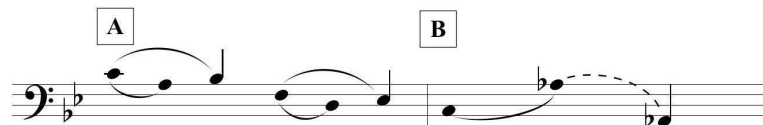
Yet, from G $\flat$ -F, Kondo does not move to C $\flat$ -B $\flat$, as the model predicts; instead, he expands the semitone motion G $\flat$ -F by an extra step to E at measure 6 and then inserts the tritone gap and repeats this new pattern; he also does this using a quicker rhythm. These changes modify the pathway of the chromatic motion, allowing Kondo to reach the target A $\flat$ much more quickly than what the cyclical pattern that was first established would usually require.¹³² Hence, the structural acceleration of the chromatic pattern is mapped onto a sudden rhythmic acceleration, driving the music towards the high A $\flat$.

The second half of measure 6 outlines an A $\flat$ minor triad, with chromatic motion passing between the third and root. Hence, the A $\sharp$ on the original score is better understood as a passing B $\flat\flat$, the $\flat$ II of A $\flat$ minor:

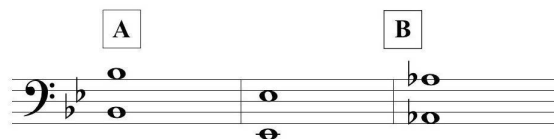
¹³² That is, loop back all the way to the E $\flat$ -D which started the pattern, then one more step to A $\flat$ -G, thirteen statements in all.



Even with this in mind, the overall plan of the piece is still far from clear. Zach Whalen reads the piece in G minor, but does not account for any of the motion from the B section within that context, preferring to dismiss its contents as chromatic and the work as a whole as lacking a tonal centre.¹³³ A more rigorous analysis of the successive goals of each motive from the tune reveals a different pattern:¹³⁴



Seen this way, the piece moves in descending fifths; it starts around B $\flat$, drops to E $\flat$, then finishes on A $\flat$ before looping around. However, it approaches its second leap of a fifth very differently from the first, developing the semitone motion from motive *a* into the principal motor of melodic direction in section B. This motion also corresponds to the three main octaves in the tune: B $\flat$ (measures 1-2), E $\flat$ (measures 3-4) and A $\flat$ (measure 6, expanded via arpeggiation).¹³⁵ While the high A $\flat$ may be the melodic goal of the motion in fifths, the low A $\flat$ is that which brings closure to the structural motion which underlines the entire theme, that is, octaves moving in fifths:



¹³³ Zach Whalen, "Play Along – An Approach to Videogame Music," *Game Studies* 4, no. 1 (2004), <http://www.gamestudies.org/0401/whalen/>.

¹³⁴ Again, while reductive scores in this thesis bear some notational similarity to the techniques of Heinrich Schenker, they are not intended to communicate the full complement of Schenker's ideas, only the relative importance of pitches via handy, well-known shortcuts offered by stem-and-slur analyses. See "A closer look at the methodology," above.

¹³⁵ B $\flat$ and E $\flat$ of course being decorated by tones heard in octaves, too.

The arrival on A $\flat$ also explains the use of the rest at section C. The harmony $\flat$ vii, relative to the original starting point B $\flat$, is an uncomfortable spot from which to directly return. The function of the rest at section C, then, is to reset the musical playing field, and allow the process to begin anew starting on B $\flat$.

Overall, the original “Underground” theme is marked by two characteristics: its intentional metric disorganization, which prevents any regular beat from appearing clearly; and the descending fifths which outline the work, where the first fifth is realized via a simple transposition, and the second is spanned chromatically.

Score B-2: Underground (Super Mario Bros. 3) [score at page 148]

For the most part, this variant follows the original tune very closely. Two principal additions are made: the first is a rock beat accompaniment; the second is an introduction that establishes a clear metre. These additions effect other musical changes, too. First, the original “Underground” tune’s bouts of silence are discarded, along with their metre-destroying properties. Where, in the original, the metre was often unclear, here, the regular beat ensures that the metre is never lost by the listener, bringing stability to the work as a whole. The variant even provides a two-bar introduction within which to clearly hear the metre before the original tune is superimposed over the rock beat. This beat also gives the piece somewhat of a late 1980’s pop/grunge musical character, reflective of its compositional era.

The second consequence of the rock beat is the clarification that the 4/4 metre brings to the melodic aspects of the theme. The two main pitches of the B section are thus reinforced: the C on the downbeat of measure 7, and the high A $\flat$ on the downbeat of measure 8. Note how the chromatic pattern leading to the downbeat C is metrically displaced in comparison with the original tune so as to allow for the C to land on the percussively-affirmed downbeat; in the original, the chromatic motive enters one beat sooner. Similarly, the A $\flat$ —a metrically uncertain goal in the original tune, given it falls on beat 2 of a measure in 3/4 time—now lands squarely on a downbeat, affirming its importance as the melodic goal of the phrase.

Overall, this variant adds structural context to the “Underground” theme via the simple addition of a drum pattern. With that, the theme’s character shifts from uncertain and fleeting to confident and pop-ish.

Score B-3: Into the Tunnels! [score at page 149]

Momentarily jumping ahead several *Mario* games so as to deal with the simplest variants together, this example, heard early in *Super Mario Sunshine* (2002), introduces an echo effect into the “Underground” theme. Instead of inserting a rest into the texture between statements as in the original theme and previous variant, Kondo drops motive *a* into the bass register and repeats it. Hence, while the main motion of the “Underground” theme is preserved, yet its overall gesture is modified, given the immediate repetition an octave below. The softer echo itself slightly modifies the motive, clarifying which of the two statements is the ‘real’ motive, and which is the imitator. In sum, registral echoes substitute for silence.

Other simple changes also remove silence from this variant. Most notably, the final two pitches of motives *a* and *b*¹³⁶ are repeated in spaces previously occupied by rests. In motive *a*, the final pitch (B_♭ or E_♭) is repeated; in motive *b*, the A_♭ is repeated until it fades away, extending this motive into the space previously occupied by the rests of motive *c*. Second, a new percussion accompaniment, a quiet hi-hat pattern with no particular stylistic associations, serves much of the metric function that the rock beat in *Super Mario Bros. 3*’s “Underground” theme (score B-2) did. The only difference is that, because rests have been eliminated through rhythmically regular pitch-based content, a strong percussive line is no longer necessary to establish the tune’s metre. Perhaps this is why Kondo chooses to keep the hi-hat quiet and indistinct, in that the metric properties of the repeating percussion line are already served through by the continuous repetition of motive *a*.

Overall, this is not a hugely ingenious or complex variant. However, it illustrates the importance Kondo places on preserving the original motives’ forms (and especially that of motive *a*) as a key part of his variational approach to the “Underground” theme.

¹³⁶ Since I have not used these terms yet, that is, the motives which comprise sections A and B, respectively.

Kondo changes the context surrounding these original motives—adding echoes, percussive lines, endnote pitch repetitions—but the core of the motive remains untouched.

Score B-4: Cave Dungeon [score at page 150]

This work, from *Super Mario 64* (1996), represents Kondo’s first attempt at extending his relatively short “Underground” theme into a longer composition. The main analytical points for discussion in this work include: the form and its relationship to Kondo’s layered ostinato approach; the relatedness of the musical materials; and the role of rests in the variation.

To begin, the form of the work is cyclical:

Section	Measures
Introduction	1 - 6
A1	7 - 20
A2	21 - 32
A2’	33 - 45 (repeats)
A3	46 - 57

Except for the Introduction, the form is dictated by the addition (and later, subtraction) of various ostinatos and melodies that evolve around the “Underground” theme. In section A1, there are two musical ideas, a modified version of motive *a*, and a repeating three-note bass pattern. Section A2 states the complete “Underground” theme with motive *a* in its original form, followed by motive *b* slowed to half its usual speed relative to *a*, in which the much-touted ‘target’ A_b is moved up to A_♯. These motives are surrounded by two ostinatos, the continuing bass pattern from A1 (which now harmonically adjusts to the descent of a fifth in motive *a*), and a high tonic pedal in a clave rhythm. Section A2’ adds a countermelody into this soundscape. For its part, section A3 eliminates the bass ostinato and modifies the accompanying countermelody, all the while preserving the complete “Underground” theme and clave pedal. Thus, given its appearance in sections A2, A2’ and A3, the original “Underground” theme (motive *a* untouched, motive *b*

tweaked) acts as the core of the work; in this capacity, it too acts as an ostinato of sorts (despite being substantially longer than all the other repeating patterns), repeating throughout the piece amidst the other, shorter repeating motifs.

The purpose of section A1, then, is to allow Kondo an extra frame within which to gradually add the various layers of his collage of ostinatos onto one another. The incomplete statement of the “Underground” theme in A1, itself introduced by the Introduction and featuring only motive *a* in a varied form, actually serves to introduce A2, the complete and ‘true’ main theme of the tune.¹³⁷ Said otherwise, the incomplete statement of the theme at A1 prompts a re-initiation of the process at A2, which is successful in stating the theme in its complete and (mostly) original *a + b* form.

With the various layers of ostinato explained, we can turn to the Introduction to study its relationship to the rest of the piece. As it turns out, the six-bar introduction prepares the main bass ostinato which will be heard through most of the tune. A basic reductive analysis clarifies the main tones of the introduction:

Surface bass, m. 1-4

Reduction

The image shows two staves of music. The top staff, labeled 'Surface bass, m. 1-4', is in bass clef and contains a melodic line with eighth and sixteenth notes, including a triplet. The bottom staff, labeled 'Reduction', is also in bass clef and shows the simplified harmonic structure with whole and half notes.

The treble line features a similar motion, although it is decorated differently; it emphasizes an accented decoration of the main B $\flat$ via the upper neighbour C $\flat$, then imitates the bass in its main C to G motion:

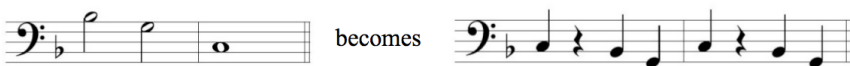
Surface treble, m. 3-6

Reduction

The image shows two staves of music. The top staff, labeled 'Surface treble, m. 3-6', is in treble clef and contains a melodic line with eighth notes, triplets, and a ritardando marking. The bottom staff, labeled 'Reduction', is also in treble clef and shows the simplified harmonic structure with whole and half notes.

On the whole, the Introduction’s main motion is B $\flat$ -G-C, and the tune’s main ostinato is just a permutation of this trichord with an added shift in register. Thus:

¹³⁷ As shall be seen later in discussing the *Super Mario World* (1991) game theme (score series C), such ‘double introductions’ are actually somewhat of a normal feature in some of Koji Kondo’s music.



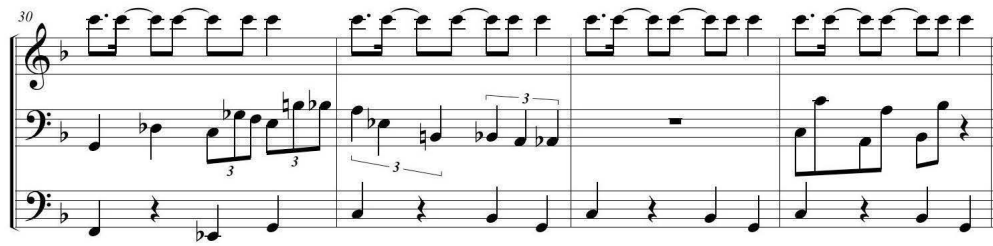
Or at least, that is how a listener experiences the progression in time: the Introduction plays with and decorates the main tones of the bass ostinato, and then, at A1, the ostinato appears, a logical continuation of the music heard thus far. Yet, the compositional basis of the ostinato suggests that the introduction was derived from the ostinato, rather than vice-versa. The ostinato itself is strongly related to motive *a*, and thus more reasonably derived from it instead of the meandering, somewhat directionless Introduction. Kondo lays bare the relationship between the ostinato and motive *a* at both measures 11 and 21:

Measure 21's use of register in particular makes clear that the bass ostinato is a reworked version of motive *a*, its descending motion of a third expanded one step further from the B $\flat$, with its initial third then deleted. This deletion is hardly a problem though, since the interval is sounded by motive *a* at the octave above the ostinato. Visually, the process is:

"Underground" motive "missing link" ostinato motive

Thus, one sees how Kondo composed this variation. From the original motive *a*, a bass ostinato was derived, and then set against the original theme. Other ostinatos and melodies were added into the mix, as was an introduction to lead into the bass ostinato.

Among the elements that return to this variant are the rests from the original “Underground” theme (i.e., the fickle motive C). Note specifically the middle line from the score at measures 30 to 33:



The ostinatos above and below the theme continue through motive C at measure 32, in practice covering up its silence, but the rest in the theme itself returns, unlike in several other variations.

The countermelodies in this variation deserve some brief attention. The first, from A2' (measure 35), sticks to the tones C, D and G, and sounds while the main “Underground” theme observes a rest; conversely, when motive *a* sounds, the countermelody sustains a tone. This creates a melodic interplay between melody and countermelody in this section. From A3, however, the countermelody moves slowly and dissonantly against the main melodic theme, contrasting the relationship seen between melody and countermelody in A2'. It also gives the music a somewhat darker character, especially since the tune loses its grounding feature, the ostinato bass, in A3.

One point this variation is particularly useful for elucidating is Kondo's own harmonic interpretation of the nature of the “Underground” theme. The emphasis on the tone C placed throughout the tune, most notably as the downbeat of the bass ostinato and the tone of the clave pattern, strongly suggests Kondo conceives of his theme in C-mixolydian, with transpositions to F-mixolydian on the repeat of motive *a* a fifth lower; admittedly, it is unclear how motive *b* fits into this interpretation, alongside its emphasis of the tone A $\flat$. Still, given this setting as well as those seen in upcoming variations which all suggest some attachment of the “Underground” theme to the tonic pitch C, this nonetheless seems to be Kondo's mindset, incomplete as our understanding of it may be.

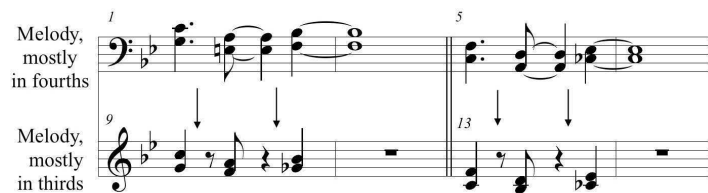
On the whole, four points should be retained from this variation. The first is that the variation is structurally tied to the entrance of the “Underground” theme in its original form, resulting in a double-introduction for the piece. Second, where modifications occur to motives *a* and *b*, these occur at the tail of the motive, not the head. Third, Kondo

develops his tune via layers of ostinatos which enter and leave within the overall looping process of the piece. Finally, many of the basic materials—motive *a*, ostinato, introduction—of the composition feature strong thematic relations with one another.

Score B-5: Delfino Airstrip [score at page 152]

This variation from *Super Mario Sunshine* (2002) goes in a completely different direction from that of “Cave Dungeon.” It uses a new harmonic approach to varying motive *a*, includes a new section featuring entirely new music, and transforms the function of motive *b* such that it now acts as a bridge between motive *a* and the new section.

Harmonically speaking, in this variation Kondo focuses attention on motive *a*’s three main melodic pitches, *sans* octaves. This motive is first heard in fourths; the last two of these fourths gradually contract to major thirds:

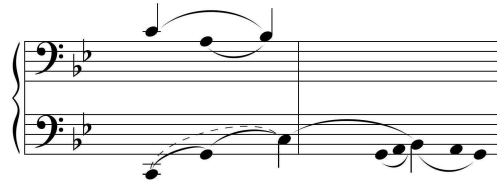


Parenthetically, notice how Kondo once again uses his favourite 3+3+2 rhythm in setting motive *a* here. Back on the topic of harmony, though, the flavour here is mostly quartal. Even when the two of the fourths contract to major thirds, a perfect fourth is sustained below the motive (see measures 9 to 15 in the score). Thus, while the main idea of motive *a* is preserved, it is subjected to a new harmonic treatment within its own register.

A new bassline joins this harmony, incidentally emphasizing the same tones as the bass ostinato from *Cave Dungeon* (score B-4). Yet, here, the bass takes on more of an accompanimental and even countermelodic role, given its contrasts with the slower moving motive *a* above it:



A quick reduction of this excerpt reveals Kondo's trick in composing this variation (or at least, its early contrapuntal aspects):¹³⁸



Both the melody and bassline are supported by the same principal motion, C to B $\flat$, but it is the differing decorations and rates of development of this motion in the two registers that create the interplay of melody and countermelody. While the melody, motive *a*, moves from C to B $\flat$ via a decorating A in three beats, the bass requires double that time to reach its B $\flat$, and decorates its C via chordal skips. As in “Cave Dungeon,” Kondo develops his bassline accompaniment for motive *a* by reworking the motive itself into another pattern.

Turning to wider issues of organization in the variation, the work's form is as follows:

Section	Measure	Motives
A	1 - 8	<i>a</i>
A'	9 - 16	<i>a</i>
B	17 - 19	<i>b</i> , modified
C	20 - 28	new material

We have already addressed the principal issues of section A and A'. Before turning to section B, however, it is better to first understand the goals of section C. From measure 20, Kondo adds a brand new musical idea to the “Underground” theme via a ragtime melody. The opening of this section bears a strange resemblance to Scott Joplin's *The*

¹³⁸ Again, while reductive scores in this thesis bear some notational similarity to the techniques of Heinrich Schenker, they are not intended to communicate the full complement of Schenker's ideas, only the relative importance of pitches via handy, well-known shortcuts offered by stem-and-slur analyses. See “A closer look at the methodology,” above.

Entertainer, both of which begin with a rising quasi-chromatic line leading to an ascending melodic minor sixth:¹³⁹



Kondo's troping of the ragtime idiom could not announce itself any more clearly than that.¹⁴⁰ Three further ideas retain attention in section C. The first is the bass's motion: it is not in the ragtime style at all! Rather, Kondo reinserts the bassline pattern from sections A and A' here. Second, the chromatic line leading into the main melodic minor sixth has actually been heard by the listener several times throughout the tune, only in another context. Kondo reinterprets the motive in another context for his ragtime interlude:

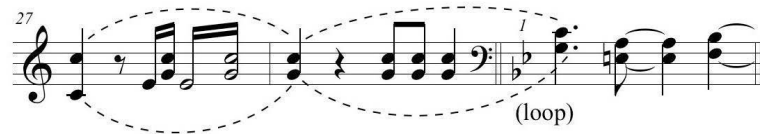


Thus, the small turn which decorates the principal B $\flat$ in the opening bass pattern is expanded to decorate the rag's melody. The bassline, while not in the ragtime style at all, nonetheless contains the seeds of the eventual ragtime gesture from later in the piece. Consequently, the rag, while still stylistically and formally distinct, nonetheless shares features with motive *a*'s treatment in this variant.

¹³⁹ "The Entertainer" reproduced from Scott Joplin, *Complete Piano Rags*, ed. David Jasen (New York: Dover, 1988), 31.

¹⁴⁰ It is opportune here to answer the question of why Kondo chooses to insert a ragtime interlude. The answer, I suspect, ties in more closely to game narratives than it does music. This tune is the very first track heard as gameplay background music in *Super Mario Sunshine*, as Mario investigates the nature of a strange liquid on the runway of the airport his plane has just landed at. The sombre "Underground" theme is used to communicate the unusualness of the situation Mario finds himself in; by contrast, the upbeat rag reiterates that Mario is on a sunny island for a vacation. Perhaps being unable to reconcile the feeling of being on vacation in the sun with that of the troubling strange substance on the airport runway, Kondo writes the accompanying tune in two parts, each reflecting a different aspect of the game's narrative.

Third, although harmonic motion of the rag closes on the downbeat of measure 27 (notice the V to I bass motion), Kondo extends the tonic harmony so as to end on a chord which is exactly one octave above the first chord heard at the opening of the piece:



This motion simplifies Kondo's retransition into section A, since the chord at measure 28 is tonal/triadic looking back to the cadence at measure 27, but quartal looking forward to measure 1. The extension of the cadential I to reach this particular 'inversion' of the harmony thus serves as a direct 'tonal-to-quartal' pivot chord, allowing Kondo to smoothly retransition between two sections featuring widely divergent musical styles without jarring the listener.

This leaves only the short section B to explain. A quick look shows the section begins with motive *b*, but this motive is transformed en route to its goal and does not conclude as expected:



Motive *b* is used to transition from the sombre and harmonically complex motive *a* to the upbeat rag of section C. This is accomplished via a gradual 'ragtiming' of motive *b*'s rhythm, which explains the odd rhythm into which *b* is forced. This process completes itself at the cadential gesture (measure 19) that the section awkwardly progresses towards, instead of its usual A $\flat$ minor triad. In a conventional cadence, one would expect to find the C major harmony on the downbeat of measure 20; yet, it falls on beat 4's offbeat in measure 19. This resembles ragtime music's anticipations of cadential harmony in a similarly syncopated manner. This technique even appears in the very first example Scott Joplin gives in his "School of Ragtime" tutorial.¹⁴¹

¹⁴¹ Original score (next page) excerpted from Joplin, xii.



The only difference is that Kondo does not prolong tonic harmony into the next measure, and instead uses his opening bassline's sixteenths motive to launch into an actual rag. Thus, motive *b* abandons its function as *the* contrast to motive *a*, and instead becomes a bridge towards section C, which features even greater contrast than *b*.

Overall, this variant is somewhat rhythmically, harmonically, and stylistically abnormal, just like the original “Underground” theme. Yet, its awkward musical traits preserve the original character of the tune while still substantially changing the music itself. The one element that does not change, however, is the melodic pitches of motive *a*. Kondo preserves those exactly as they appeared in *Super Mario Bros.* (1985).

Score B-6: Shadow Mario Theme [score at page 153]

This variation, also from *Super Mario Sunshine* (2002), reintroduces some concepts seen in other “Underground” variations, yet in another combination and alongside new musical ideas. Here, Kondo almost refuses to let the players hear motive *b*, delaying its entry for as long as possible. The form of the work shows this handily:

Section	Measure
Introduction	1 -2
A	3 - 6
A	7 - 10
C	11 - 14
A	15 - 18
B	19 - 24
C'	25 - 30

The introduction presents a chromatic descending motive in one, two, then four parts (see measures 1-2). This chromatic motive is shortened and inverted to become the bass ostinato which persists throughout the tune; it is joined by a harmonic/rhythmic jingle in the high register. Both these elements were seen in “Cave Dungeon,” though they took different forms in that variant.

With this basic system in place—motive *a* and two ostinatos (both of which adjust harmonically to the transposition of motive *a* down a fifth)—Kondo plays a game of cat and mouse with motive *b*. Ordinarily, one would expect to find *b* at measure 7, following *a*; but Kondo chooses to repeat the contents of measures 3-6 instead. One would *then* expect to hear *b* following this repetition of *a*, perhaps following the model of “Delfino Airstrip;” but at measure 11, Kondo eliminates all motives and leaves only the ostinatos behind, having them alternate between their tonic and subdominant forms. Motive *a* then enters *again* at measure 15. Given’s Kondo’s aesthetic of repetition, one might expect him to repeat his trick from the beginning of the piece and deny motive *b* anew; instead, Kondo finally offers a thundering version of motive *b*, halving its usual speed and extending its rising triplets pattern two extra steps:



A grandiose chromatic descent back into the bass ostinato follows, leading the piece back to its opening.

Aside from how these motives are used in relation to one another, there is nothing special here about their treatment; rather, this tune follows the general model set out by *Super Mario 64*'s "Cave Dungeon" quite closely, also borrowing from that game's "Title Screen" (score A-6), insofar as it also interpolates motivically unrelated musical ideas within the normal sequence of the "Underground" theme's motives. As usual, then, motive *a* opens the work and drives the music forward, and motive *b* enacts closure. Yet, once again, motive *a*'s pitch material does not change. Motive *b*'s does, but only at its tail, never its head.

Having concluded studying the *Underground* series, some of the trends initially seen in the score series A are reaffirming themselves. As interesting as these trends may be, we now turn to additional *Mario* themes, to see if Kondo's variational techniques may differ between series themes and game themes. Having now established several solid analyses in series themes in which some trends emerge, it is time to see how those trends fare in game themes.

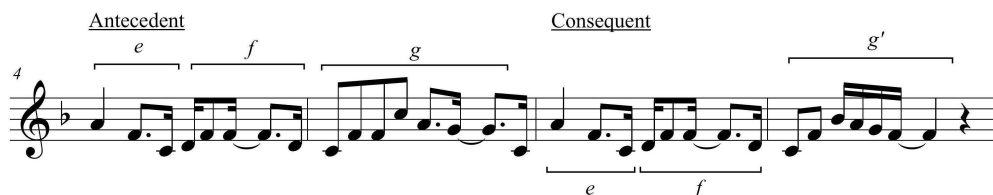
Super Mario World Theme (Score series C)

Score C-1: Super Mario World Main Theme [score at page 156]

As the name suggests, the "Main Theme" acts as *Super Mario World*'s 'original' melody, and is also the first background tune heard in action levels in the game. As a *game theme*, the motives from this tune are reworked in subsequent compositions in *Super Mario World* (1991), with Koji Kondo himself stating that the relatedness of musical themes was an important objective for the game's soundtrack.¹⁴² Another general observation about the entire game theme is that, somewhat uncannily for Kondo, most of these tunes are not written in C major; rather, most are in F major.

¹⁴² In an interview with Satoru Iwata, Kondo said that, "reflecting back on how I had put so many different songs into Super Mario Bros. 3, I decided to use the same themes, like "above ground" or "underground," in different arrangements for the various levels. If I did that, I thought the music would change scene by scene, but the melodies would be the same, so they would stick with the game's listeners." See Satoru Iwata, "Super Mario All-Stars: Vol. 1 The Music," Iwata Asks, 2010, accessed August 3, 2011, http://us.wii.com/iwata_asks/super-mario-all-stars/vol1_page1.jsp.

Digging into the variational techniques seen within this soundtrack first necessitates a clear parsing of three motives from the main melody. To differentiate them from all other musical motives studied in this work, I name these fragments *e*, *f* and *g*, as per their expression in the first two measures below.



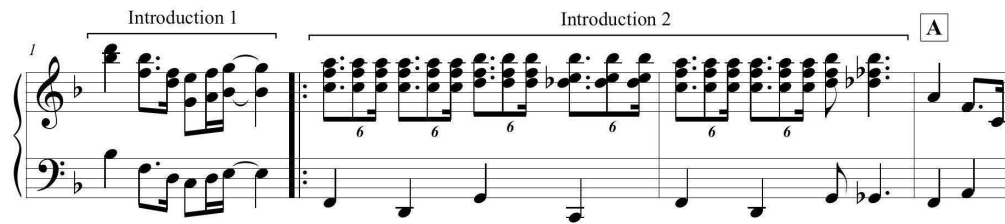
The eighths in the “Main Theme” (and also the “Underwater” (C-2)) should be understood as swung, even though they are not notated as such. This melody appears in some form in all seven tunes considered here. This analysis shows the melody’s basic construction as a period, and separates each statement into three fragments, the last of which, *g*, takes two forms so as to reflect the nature of the antecedent-consequent pairs. Fragment *e* is an arpeggiated tonic triad, while *f* emphasizes subdominant harmony.

As for the “Main Theme” itself, its formal design resembles this:

Section	Measures
Introduction 1	1
Introduction 2	2 - 3
A	4 - 11
B	12 - 15
A'	16 - 19
C	20 - 23

One musically peculiar feature that should be explained up front for this piece and many others from the *Super Mario World* theme series is what I term the ‘double introduction,’ that is, a formal partition of the music in which a first introductory gesture leads not to the main tune, but rather a motivically distinct second introduction. The first introduction is generally very short and harmonically inconclusive; the second is usually melodically

bland. Together, they signal that the main musical events have yet to occur. Consider for example the double introduction from the “Main Theme:”



The first introduction has melodic direction; the second, less so. In this sense, the second introduction is more classically ‘introductory’ than the first,¹⁴³ which is itself more like a bar-long anacrusis into the tune. The introductions also function this way within the wider context of the tune as it loops around multiple times. As the score above shows, the first introduction is heard only once, when a player first begins an action level; however, the second introduction is heard every time the tune loops around from its ‘end’ at measure 23. In this sense, the first introduction structurally acts like an elongated anacrusis and is heard only once, whereas the second is a well-defined section of the piece and heard periodically.

The “Main Theme” continues with the A section, comprised of two identical statements of the period shown above. The bassline moves mostly in quarter notes, except at motives *g* and *g'*, where it accelerates into eighth notes. A rhythmically regular jingle accompanies the above melody.

After this setup, Kondo approaches his “Main Theme” more developmentally. Whereas the *Super Mario Bros. Theme* distinguished itself by the distinctiveness of its motives at every formal section, and the “Underground” theme was mostly repetitive, Kondo explores simple variations of his opening motives in subsequent formal sections of the *Super Mario World* “Main Theme.” Section B, for example, develops motive *e* in a variety of triadic and rhythmic guises:

¹⁴³ William Caplin characterizes short introductory passages as consisting “of a brief passage prolonging tonic (sometimes dominant) with a progressive dynamic” which also feature “minimal melodic activity (so as not to suggest a basic idea).” This description fits the second introduction quite well. See William Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven* (New York: Oxford University Press, 1998), 257 at “thematic introduction.”



Kondo tries a number of simple variants here on the original motive *e*. In order: he modifies its rhythm; he leaves out the last pitch, C; he uses a minor version of the motive; and then repeats the entire sequence, changing the ending. Hence, the majority of the melodic materials in section B are derived from a single three-note motive heard earlier. For its part, the bass shifts to a more jazz-like arpeggiation in eighths, emphasizing chord tones.

Section A' can be heard in two principal ways, either as its own section, or as an extension/conclusion of section B. Given the B section's lack of strong cadential close here, the latter explanation is likely closer to the average listener's experience of the passage, but this analysis chooses to separate this melodic fragment into two sections due to 1) motivic reasons which shall become clear momentarily, and 2) how Kondo later treats these sections as separate musical entities in tunes such as the "Underground" theme (score C-4; see the analysis at that section for a further discussion of this topic). In any case, section A' reintroduces motives *e* and *f*, also in varied forms but in an order which recalls the opening material of section A:



Measures 18 and 19 vaguely suggest *g'*, but then again so will any motion from dominant to tonic. The main point is that, after having excluded it from section B, motive *f* reappears in A' and is also varied via small rhythmic and pitch-based transformations, just as *e* was in section B. These variations on motive *f* then extend into section C, which chromatically embellishes the main motion D to F, without any hint of motives *e* or *g*:



Overall, then, this tune presents a melody in section A, which is then spliced into three motives. The first of these is developed in section B, the first two are rejoined in A' (albeit in a different form than their original appearance) and finally the second motive is developed on its own, just before the tune loops around. Kondo's earlier statement about the relatedness of the musical themes in the different tunes goes much further than he hints, in that variational techniques not only drive the vision for the soundtrack as a whole, but also the development of musical ideas *within* the tunes themselves.

As a brief methodological note, the rest of the pieces in this theme group appear in the order I wish to discuss them instead of some gameplay-determined order. There are two reasons for this. First, multiple pathways through the game (even very early on) do not allow for a rigid ordering of the tunes, since players can often choose to attain goal Y via branch W or branch X, each branch featuring different music. Alternatively, a player might choose to momentarily abandon goal Y altogether and seek out another goal instead (say, goal Z, approached through neither W nor X), with its own pathways and music. Second, this allows me to discuss the tunes in a musically logical way, moving from greater degrees of conformity with the original "Main Theme" towards freer approaches which depart substantially from the original tune's model.

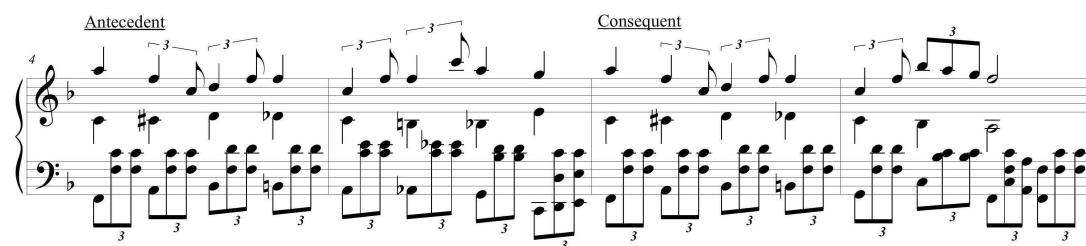
Score C-2: Underwater [score at page 158]

The next piece is the theme heard in underwater levels, where Mario must swim to safety. The main changes in this variation come from the character-giving elements, but there are other modifications too. The form, for instance, loses its C section and abridges A':

Section	Measures
Introduction 1	1
Introduction 2	2 - 3

Section	Measures
A	4 - 11
B	12 - 15
A'	16 - 17

The movement as a whole has the feeling of a lullaby—a somewhat active one given the bass’s motion, but a lullaby nonetheless. Although notated in 4/4, this more accurately reflects the work’s hypermeter, with the music actually felt as a rapid 3/4. In terms of character, the snappy dotted and syncopated rhythms of the “Main Theme” are traded for more relaxed ‘triplets.’ The harmony remains mostly the same, but continuous triplets transform the bass into the most active part, somewhat changing its relationship with the relaxed melody. Even with these changes, the period at A resembles its prior form:



The one change of note is the inner voice, which now slowly rises and dips chromatically, colouring the sound without necessarily being part of the ‘real’ harmony (notice the C/C# clash on beat 2 of measure 4). The period then repeats with a glockenspiel-like timbre doubling the melody at the octave.

At section B, however, this new voice stops doubling the melody and becomes its own countermelodic figure. This addition is based on the original g motive:

"Main Theme"
Motive g

"Underwater"
Countermelody
m.12-13

Motive g [transposed]

Motive *g*'s outline of an octave leap followed by a downward is identifiable in both measures 12 and 13. Thus, because section B also develops motive *e* in the melody, the addition of a countermelody based on the contour of motive *g* represents a new combination of motivic play; similarly to how section A' in the "Main Theme" developed motives *e* and *f* together, here, section B combines *e* and *g*. In terms of formal modifications, as alluded to earlier, Kondo cuts out section C and the *f*-centred motivic development which accompanies it. Also, section A' in this tune is not a development more so than a repetition of the consequent phrase from section A. Thus, Kondo minimizes motive *f* in this variation, without eliminating it entirely. This approach, where certain motives are selectively developed, extends to other variants too. Motive *f*, for example, is entirely cut out of the next variation, retroactively giving more credence to the theory that Kondo sought to minimize its melodic importance in the "Underwater" tune; after all, if he is willing to cut it out entirely in some places, he is probably willing to accord it only a minor part elsewhere.

Score C-3: Bonus [score at page 160]

This is a high tempo, high energy variant, played in some areas of the game where Mario finds vaults stashed with coins and other goodies. The form largely resembles that of the "Underwater" tune:

Section	Measures
Introduction 1	1 - 2
Introduction 2	3 - 6
A	7 - 14
B	15 - 18
A'	19 - 22

Both introductions are completely overhauled. The first, formerly somewhat triadic, becomes more chromatic (see measure 1-2). The second, which formerly explored some variant of a I-IV-ii-V progression, now simply alternates between I and vi (and does so in Kondo's favourite rhythmic pattern, 3+3+2). On some level, this might be considered an

expansion of motive *f*, which plays between the tonic and submediant tones, but, in context, Introduction 2 emphasizes *harmonies* instead of *tones*, and thus does not appear to be motivically derived.

At section A, the harmony is greatly simplified: it is all I, with a V chord at the end of every second measure. The melody adjusts to this new pattern by extending figurations of motive *e* and cutting out motive *f*:



As usual, section B then develops motive *e* in isolation; then, section A returns, half as long as the original, without any use of motive *f*. Hence, in this piece, Kondo entirely cuts out motive *f*, and the result is a more harmonically homogenous A section. The only hint of *f* comes in the second introduction, but as discussed, the I-vi motion there is more harmonically than motivically oriented.

That motive *f* keeps losing importance within these variations retroactively suggests a new interpretation of section C of the “Main Theme:” it is the space that Kondo grants to motive *f* for independent development, since he cuts it out entirely of some other works. All this, however, hinges on an as-of-yet underexplored assumption, that Kondo conceives of these three motivic fragments in the same way that this analysis does, that is, as three distinct entities which, when joined, sound the main motive of the original “Main Theme.” Kondo’s treatment of the three fragments in the next variation provides significant support for this theory.

*Score C-4: Underground*¹⁴⁴ [score at page 161]

In many ways, this is a very strange variation. Four statements of an odd ostinato, which repeats throughout the tune, begin the piece:

¹⁴⁴ Note that, while this tune shares a name with the “Underground” theme discussed in score series B, it is musically unrelated to it; only the name and gameplay context of being in a cave-like locale bind the tunes.



Despite being an accurate representation of the pitch content, the score does a poor job of communicating the timbre of the ostinato, which might best be described as a dry, muted timpani blended in with low, precisely-pitched woodblocks. In any case, this ostinato disrupts the usual two-introduction model seen thus far. There are indeed several formal adjustments here:

Section	Measures
Introduction (ostinato solo)	1 - 8
A	9 - 24
B	25 - 32

Section A, as always, comprises of two identical statements. However, these statements are no longer periods; here, they are just one, long melody. Here is an analysis:



There are several points to gather from the treatment of all three motives here. First, *e* is presented in its minor form immediately; notice how Kondo shifts the agogic emphasis from the mediant to the tonic by beginning his theme on beat 2 (he usually places the first note of the theme on the downbeat). Effectively, this transforms the A_b into an upbeat to the more strongly metric F on beat 3; whereas in the “Main Theme” the tone F acts as a chordal skip along the way to the dominant C and is subservient to the mediant, here in “Underground” the metric shifts emphasize on the tone F throughout.

Motive *f*, for its part, returns to the major mode, raising the sixth degree of F minor. Notice how Kondo elongates the motive to a full bar, and also accentuates the D by placing it in a metrically strong position. Together, these two modifications serve to

separate motive *f* from motive *e*, and grant it some independent importance; we shall return to this detail momentarily.

Motive *g* enters in the minor mode, but is then modified to ‘correct’ itself back to the major mode by a pitch slide on its last tone, which is sustained for four measures in lieu of the usual consequent phrase; of course, in this context, avoiding a consequent statement may well be wise, given how the ostinato below the tune is unable to harmonically support the modifications inherent within an antecedent-consequent pair. Thus, with only a monophonic melody available to him, Kondo retreats from this possibility and simply offers a long, sustained tone—one of the only such tones ever included in any *Mario* composition, given how bouncy *Super Mario* soundtracks tend to be.

One further detail should retain attention here:



The rest at measure 11 deserves some targeted analysis. Certainly, one of its functions is to get *g* to mimic the rhythmic pattern applied to *e*. But the rest serves a second function, too: it sonically separates motives *f* and *g* from one another, and in doing so, marks each as an independent musical entity. With this in mind, fold in the notion explored above about how motive *f*'s metric treatment marks it as a distinct element from motive *e*. In the original “Main Theme,” these three motives are arranged such that they collectively form a catchy melody with a directed sense of harmony, their internal boundaries seamlessly joined to one another; here, these motives are emphasized one by one with their individual boundaries clearly articulated, and the result is a more awkward melody with an unclear sense of direction. As such, this treatment provides strong evidence that Kondo conceives of his *Super Mario World* theme in three parts, even though he does not always present them in a such a way as to emphasize each part's distinctive traits. Moreover, if this is the case, then it is entirely reasonable to conceive of his *Super Mario World* variations in terms of the treatment of these three motives in relation to one another; said

otherwise, measures 9-12 of the “Underground” theme strongly support the underlying the assumptions of the analytical methodology used in studying this game theme.

With this paramount point having been made, the rest of the “Underground” tune generally does what one would expect it to based on prior variants. There is one exception, in that the B section closes the tune; there is no reprise of A or any other section after B. To this end, Kondo makes one careful edit in the second statement of the B theme. Recall here that, in the “Main Theme,” B comprises an expansion of motive *e*, and the whole unit repeats with a modified ending to retransition into A’. In the “Underground” theme, the modified ending does not occur:

"Main Theme"
Section B theme

"Underground"
Section B theme
(first time identical)

Kondo eliminates the high C in the repeat so as to avoid the need to close that high point within a new section A. An exact repetition avoids the creation of a tone requiring structural resolution, allowing Kondo to loop back to the beginning without a problem. This edit also partially explains why the tune as a whole feels static, since it never reaches the same climactic high C that its sister variants strive for.¹⁴⁵

Score C-5: Athletic [score at page 162]

This variant’s closest relative is undoubtedly the “Bonus” tune (C-3), given how similar they are in character. Excepting the introductions, their form is largely the same:

Section	Measures
Introduction 1	1
Introduction 2	2 - 9
A	10 - 17

¹⁴⁵ Of course, high C’s appear in motive *g*, but these are too short and metrically offbeat to act as climactic tones.

Section	Measures
B	18 - 21
A'	22 - 25

This variant features an active and driving bass part, which begins in the second introduction and persists throughout the tune. Unlike in the “Bonus” tune, though, this bassline remains more harmonically sensitive, following the harmonic layout of the main melody, yet doing so with a bouncy texture. This allows for motive *f* to be reintroduced into the main melodic line (see measure 10), just as it appeared in the original “Main Theme.” In A’, the melody follows the motivic pattern from the parallel section in the “Main Theme,” which has not been reincorporated into any other variants thus far:

Main Theme
(F major)
m. 16-19

Athletic
(C major)
m. 22-25

The main point of interest in this variant is not the now-conventional A-B-A’; here, the introductions are much more curious. Consider this reduction of bars 1-5 (bars 6-9 repeat this, except that tonic harmony is prolonged throughout measure 9 instead of the chromatic descent):

Starting from the E⁺7 chord, it is plain that the whole sequence is a descending series of fifths (V/VI - V/ii - ii - V - I), with a chromatic retransition back to V/ii for the repetition. The very first chord is somewhat strange, but seems to be an adapted augmented sixth chord of A major which, instead of expanding outward to octave E’s (as one would expect of an augmented sixth chord) expands directly to the dominant seventh chord; in this

sense, perhaps a more appropriate name for it is an augmented *fifth* chord, given how it functions.

The sequence of fifths is notable for another reason, though. It was suggested above that “Athletic” most closely resembles the “Bonus” tune, and a close inspection of the introductory progression bears this out. The “Bonus” tune featured for its second introduction alternating I and vi parallel chords (see measures 3-6, score C-3). Here, Kondo attempts a similar overall motion in moving from V/ii (or, said otherwise, VI), and I, but instead of jumping between these two chords directly, he moves through a circle of fifths progression to reach his goal, then returns chromatically to his starting point:

VI (V/ii) → I → VI (V/ii)

The arrows here clarify the overall motion between I and vi. Although the texture in which this motion is heard differs substantially from that in the “Bonus” tune, both progressions move towards the same goal; one of them is just reached more directly than the other. There are other connections. Consider for example the bassline of the second introduction of the “Main Theme;” although the line is harmonized somewhat differently, it also shows the same overall motion as that is seen over measures 2-5 of “Athletic:”

I vi ii⁷ V^{b9} I

The motion in “Athletic” expands to cover four measures instead of one, but the underlying idea between the two second introductions is the same. Moreover, any submediant-to-tonic motion in the *Super Mario World* theme also recalls the construction of motive *f*, however, as in the “Bonus” tune, its manifestation here is not sufficiently motivic to confidently assert a relationship—multiple intervening leaps of a fifth tend to

destroy motivic connections between two pitches, after all. Still, these larger connections prompt one to conclude that Kondo is not simply writing introductions, but also creating variants on a basic harmonic idea that all serve to introduce his melodies. Thus, variation is not only an objective in the melodies/motivic themes heard, but also in the structures which surround these themes. This also handily explains why Kondo insists upon using two introductions in most pieces, since one of them acts as space to develop his I-vi-I harmonic idea in a number of textures and harmonic contexts.

Score C-6: Ghost House [score at page 164]

For all its differences—formal, harmonic, motivic, etc.—the main variational idea behind the “Ghost House” tune is remarkably simple. As more of a ‘free’ variation, that is, one that departs quite substantially from the standard variational model seen thus far, the form of the tune does not resemble that of any other. The following reduction of the piece helps clarify the overall idea of the tune (time signature halved for clarity):

The image shows a musical score reduction for 'Ghost House'. It consists of two staves of music. The first staff has five measures labeled 1 through 5. Measure 1 is labeled '(chromatic intro)'. Measures 2 through 5 show a descending series of chords. The second staff has four measures labeled 6-8, 9, 10-12, 13, and 14-16. Measures 6-8 are labeled 'Theme in B minor (3 bars)'. Measures 9 and 10-12 are labeled 'Theme in A minor (3 bars)'. Measures 13 and 14-16 are labeled 'Theme in G minor (3 bars)'. The score is written in treble clef with a key signature of one sharp (F#).

Note that the treble chromaticism (see full score) has been ignored, since its function is purely decorative (and dissonantly decorative, at that). In any case, the reduction bares all: Kondo uses a rising series of descending tritone glissandi, then interrupts each glissando with a minor statement of the main theme as the series gradually descends back to its starting point. The theme itself loses all syncopated qualities and is slowed considerably. Consider the first statement in B minor (others are exact transpositions):

The image shows a musical score reduction for the first statement of the theme in B minor. It consists of a single staff of music. The staff has six measures. The first measure is labeled 'e'. The second measure is labeled 'f'. The third measure is labeled 'g'. The fourth measure is labeled '(solo chromaticism)'. The score is written in bass clef with a key signature of one sharp (F#).

The pitches are exactly those from the main theme, minus a few decorations. Presumably, the choice of the minor mode is made to musically reflect the gloomy setting of the haunted house Mario crosses as the tune is heard; unlike in “Underground” (C-4), the minor mode does not ‘correct’ itself back to the major mode in motives *f* and *g*. Kondo also uses this technique in the next (and final) variation from the set for similar reasons.

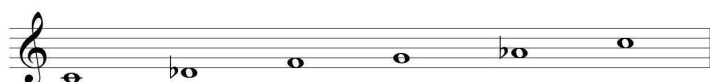
Score C-7: Fortress [score at page 167]

Fortresses are taxing levels which feature plenty of instant death traps (lava pits, collapsing walls, large sharp objects, etc.), and a major enemy hides at its end. The music is suitably lugubrious for the occasion, and is also a free setting of the “Main Theme.” The new motivic developments seen here can be classified into two categories: those that relate to motives *e*, *f* and *g*, and those that do not. I explore the connections to the first category extensively, and the latter only briefly.

Before getting into that, however, the very first bar, the first introduction of sorts,¹⁴⁶ is rather peculiar:



Although in a western tonal/jazz context, it is tempting to read this passage as an embellished tonic chord in C minor, the gesture actually corresponds to the Japanese *in* scale, a pentatonic collection. Though it takes a few different forms, the miyako-bushi scale, derived from the *in* scale and principally used in koto and shamisen music, strongly resembles the above passage:¹⁴⁷

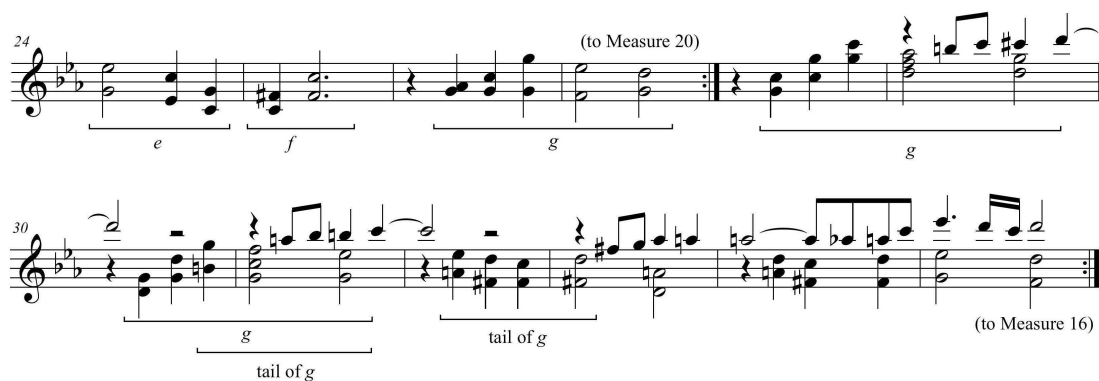


¹⁴⁶ Note that the notion of the first and second introductions does not apply cleanly to this tune.

¹⁴⁷ All information about Japanese music and the *in* scale is adapted from Linda Fujie, “East Asia/Japan,” in *Worlds of Music: An Introduction to the Music of the World's Peoples*, ed. Jeff Titon (New York: Schirmer, 1992), 321-22.

Starting from the G and playing this scale ascending while avoiding the F at every octave yields of the opening gesture from the “Fortress” tune. This is notable because there are few self-evident Japanese influences or sounds in Koji Kondo’s music. Highlighting such rare examples when they occur strikes one as good analytical practice for better understanding Kondo’s music and its relationship to his cultural milieu.

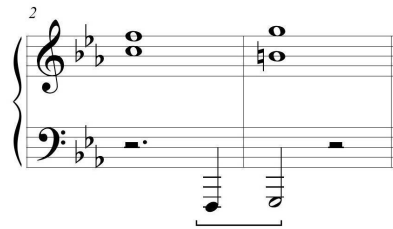
Compared to most *Super Mario World* theme tunes, the main melody is not heard all that often in the “Fortress” soundtrack. Exclusive of repetitions, the main theme is heard twice: once in F minor (measures 6-9), and once again in C minor (measures 24-27). This latter statement and its extension feature a few new variational tricks:



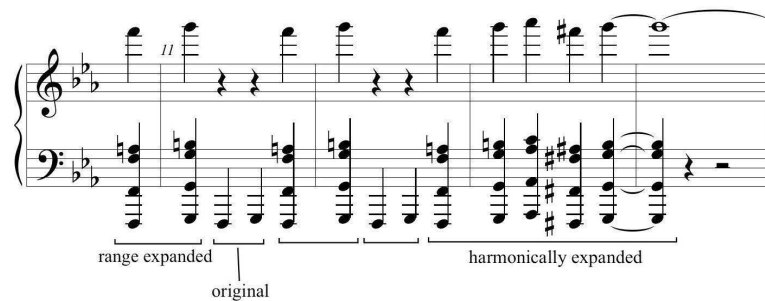
There are minor pitch adjustments made to the melody, and the rhythm has been simplified. But the most notable development is undoubtedly the expansion and development of motive *g* from measure 28 onwards. Never until this point has any section of music in any tune from *Super Mario World* developed motive *g* independently. Here, Kondo finally does just that, also adding in a chromatic counter melody.

With this motive now independently expanded, all three motives (*e*, *f*, and *g*) receive independent elaboration somewhere within the *Super Mario World* (1991) soundtrack: motive *e* is heard alone in most A’ formal sections; *f* is elaborated chromatically at the tail of the “Main Theme;” and *g* is expanded at the conclusion of the “Fortress” theme. Taken as a whole, this pattern again strongly suggests Kondo was thinking in terms of motivic development in his variational approach to *Super Mario World*’s soundtrack, and did so based on three key motivic ideas.

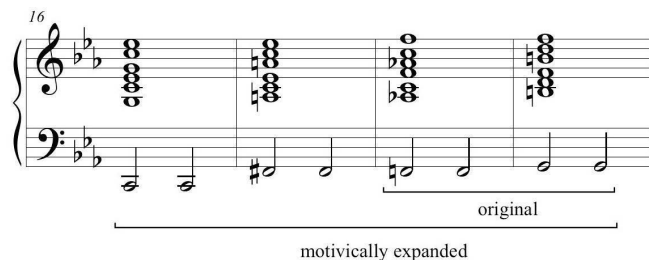
Turning now to variations unrelated to motives *e*, *f*, and *g*, one should note the gradual expansion of a small two-note motive throughout “Fortress.” Starting with this idea (repeated tones reduced; notice the bass tones):



Kondo gradually expands the motive into this at measure 11:



and then finally into this progression at the loop point (measure 16; the soprano arpeggios are reduced for clarity):



Thus, a quiet two-note idea that initially starts only as a small motive grows to become the underlying structure of entire formal sections later in the piece. This developmental pattern lends further credence to the idea discussed earlier that Kondo approaches variation in *Super Mario World* (1991) from a motivic stance. As we shall now see, this pattern also manifests itself in some other game themes.

To very briefly summarize the *Super Mario World* variations, then, Kondo appears much more flexible in his approach to reusing his theme. He also plays with his theme at a much more motivic level—sometimes using motives of as few as two notes—and experiments more freely with their form. Compared to series variations, game variations such as those of *Super Mario World* initially offer a different variational aesthetic. But is this the norm, or an exception? Only by considering more game series can this question be fully answered.

Super Mario 64 Theme (Score series D)

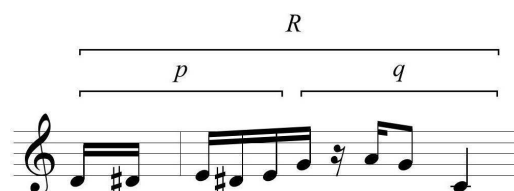
A new *Mario* game means a new musical theme. Even though this theme is not used as widely throughout *Super Mario 64* as the *Super Mario World* theme was in that game, there are still a few motivically related works to examine.

Score D-1: Main Theme [score at page 171]

This theme, conveniently named the “Main Theme” by Koji Kondo and thus the default starting point for this study, is the principal background tune heard throughout several levels of *Super Mario 64* (1996). It is written in five sections:

Section	Measures
Introduction	1 - 2
A	3 - 10
A'	11 - 18
B	19 - 26
C	27 - 34

Eight bar sections are the norm here. The main motive to pay attention to in this tune and theme group is what I call motive *R*, itself comprised of fragments *p* and *q*:

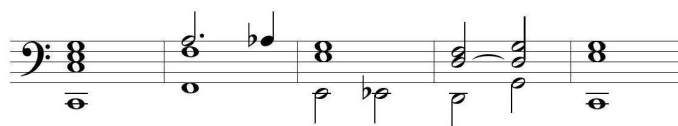


This statement is first heard at measure 3; following it, various forms of motives *p* and *q* are used to complete the A section. This section is in fact nothing more than a series of variants of *p* and *q* on different harmonies, transposed to different degrees of the scale and with changes to the final interval of a fragment:



Hence, the chromatic neighbouring figure *p* develops into other forms, whilst *q* is transposed and its ending modified, always in a slightly different but related manner. The excerpt also clarifies the relationship between measures 4 and 8: at 8, Kondo states motive *R* as it appeared in measure 4 an octave above its original range, then quasi-inverts the gestures of measure 5 at bar 9. The economy of musical motives shown in this catchy theme is rather impressive. The entire section/theme repeats, with some brass now punctuating the melody (see measures 11-18 of the full score).

At first glance, section B appears to present an entirely new musical idea: the rhythm is slowed; the accompaniments subside; the new melody moves downwards mostly conjunctly. In true *Mario* fashion, the idea is repeated slightly, modified and repeated again. Yet, this ‘new’ theme is actually derived from section A, albeit not via any combination of motives *p* and *q*. Instead the harmony of section A is recycled into quasi-melodic material. With its rhythm simplified, the harmony from measures 3-7 is:



Compare this with the melody and harmony from the B section, starting from beat 3 of measure 18:



Side by side, the two previous diagrams make evident that section B is a harmonic reduction of A, compressed in length, given a new rhythm and treated as its own musical idea. There are some changes: the bass's passing E $\flat$ from measure 5 migrates into the soprano voice (it reappears in the bass in a related gesture at measure 23), and the V chord from measure 6 is eliminated.¹⁴⁸ Yet, the overall harmonic idea closely imitates that which guided the initial settings of motives *p* and *q*. For its part, the 'variation' which develops out of this 'new' fragment is a simple eighth-note version of the same harmony (see measures 23-26).

For its part, section C is not particularly active; it idles, nonchalantly alternating between figurations of I $\flat$ ⁷ and IV $\flat$ ⁷ until it reaches V in measure 34, which leads back to measure 3. Unless one views the motion from I to IV as imitating the opening harmonic motive of measure 3 (and at some point, the motion from I to IV is simply just that), section C features no direct links to section A nor B. Rather, the main features of note here are the lack of melodic materials, since the pitches follow accompanimental rather than melodic patterns, and the mostly static treatment of music. Kondo will substantially modify this section in other variations.

Thus, the *Super Mario 64* "Main Theme" features a highly melodic opening section based around two motives, *p* and *q*. These fragments are then removed at section B, but their harmonic imprint remains. The piece 'ends' (or rather, prepares to restart) non-melodically. Overall, the piece goes from a zone of relatively high melodic

¹⁴⁸ That is, unless one wishes to argue that the melodic G of measure 20 adequately fulfills the role of a chord change rather than that of a prolonged escape tone. To my ear, the G is decorative.

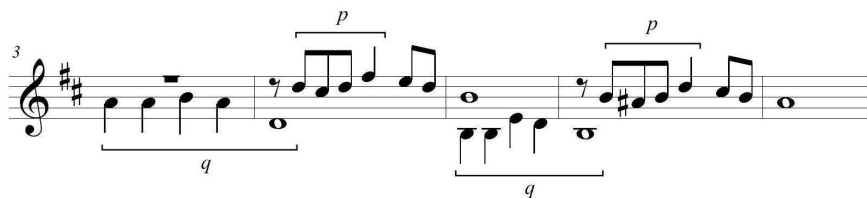
complexity to one of melodic simplicity, and finally, to one with little of anything resembling a melody.

Score D-2: Slider [score at page 174]

In an interview with Nintendo’s global president Satoru Iwata, Kondo stated that “Slider” was written after the “Main Theme;”¹⁴⁹ thus, thinking about “Slider” as a variant upon an original is conceptually accurate. Intriguingly, Kondo chooses D major as the key of this piece, contrasting his usual preference for C major. The variant generally follows the structure of the “Main Theme” in rather close proportion, but diverges in substantially expanding section C. Also, to be clear, measure 34 overlaps elements of A’ and B:

Section	Measures
Introduction	1 - 2
A	3 - 18
A’	19 - 34
B	34 - 42
C	43 - 54

In “Slider,” motive *R* continues to play a role, but is transformed in important ways. In the original “Main Theme,” the chromatic turn *p* led to the decorated downward fifth *q*; in “Slider,” Kondo switches the order of the motives’ presentation. Hence, *q* initiates the melody, and *p* answers as a counter melody:



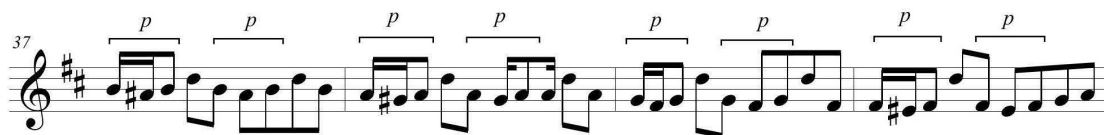
In completing his transformation, Kondo simplifies the rhythms to eighths and quarters, substitutes some tones and ends *p* with a downwards fifth just like *q*. The result is

¹⁴⁹ Iwata, “Super Mario All-Stars (2010).”

something of a quodlibet created from a single original line, both melodically simpler but contrapuntally more complex. This new motive follows the outline of the original motive *R*, eventually dabbling in octaves (measures 7-10), restarting and moving upwards (measures 11-14) and concluding with more melodic octaves (measure 15-18).

Other changes to section A bring greater complexity to the work. The bassline is now much more active within the texture, and the harmony is modified in many places to provide a greater degree of chromaticism (see, for example measures 6 and 12). Chromaticism is also continuously provided by the banjo-like accompaniment (which could be viewed as motive *p* running amok). As such, whereas in the “Main Theme” chromaticism is largely a melodic phenomenon, here chromaticism is experienced in harmonic and accompanimental contexts, and largely stripped out of the melody.

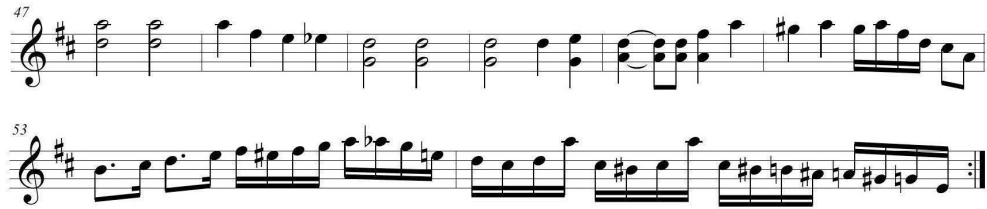
This modified texture persists into the B section, where the first melodic statement (measures 35-37) does not differ much from its form in the “Main Theme.” Yet, because the accompaniment continues as in section A, and because the melody in A was somewhat rhythmically slower, the original contrast between A and B in the “Main Theme” is mostly lost in “Slider;” rather, B appears as a natural extension of the gesture of A. On the internal repetition of B (measures 39-42), Kondo substitutes a countermelody for the quasi-chromatic descent seen in measures 35-38. This cleanly tonal countermelody has more of an upwards gesture to it, contrasting the melodic fragment immediately preceding it. For its part, motive *p* reappears in the accompaniment, following the downwards motion of the original melody in its transpositions, yet always reaching for the tonic D on the leap:



Motive *p* is heard twice on every scale step, the second time slower than the first, and the overall downwards motions guides the musical gesture.

Section C initially appears to follow the model of the “Main Theme” predecessor’s model by being somewhat unmelodic and harmonically static; given that

the melody from section B drops out, it again sounds like a collection of accompanimental textures (though there is greater continuity from section B in this tune compared to the “Main Theme”). Then, at measure 47, Kondo shifts direction by introducing a melody over the repeating harmony, extending the section and robbing it of its static character:



The melody itself is based on the material from the introduction (measures 1-2), and develops via several different processes. First, the rhythm accelerates, gradually changing from half-note motion to sixteenths. Second, melodic chromaticism is reintroduced, with the melody ending in a downwards chromatic gesture. These characteristics combine to give this part of the tune greater instability, as if the music is spinning out of control. This tension is resolved at the looping point by the re-establishment of a (comparatively) slow and controlled melody. This process maps narratively onto gameplay aspects, too. “Slider” plays when Mario descends mountain-sized slides, gradually accelerating to faster and faster speeds; one false move usually sends Mario tumbling into a bottomless pit.¹⁵⁰ Hence, while this tune is heard, the player is likely experiencing a feeling of barely controlling Mario. By the time a player hears the C section’s melody—1:03 into the tune—the player has likely reached a very fast speed and particularly challenging obstacles to avoid. Thus, the music’s motion towards losing control of itself maps onto a player’s difficulty in retaining precise control over Mario’s actions on-screen. Kondo’s music does not very often map onto specific gameplay elements in this way; he prefers to capture general rather than specific gameplay events in his music. Pointing out the few places

¹⁵⁰ In the interest of being thorough, the tune also plays as the regular background music in the level *Tick Tock Clock*, a challenging stage late in the game where one false move usually also sends the player either back to the very beginning of the stage or into another bottomless pit.

where he approaches his music in a somewhat more cinematic way underlines the few scenarios where Kondo might be more open to a narrative approach to game audio.

On the whole, “Slider” presents a substantially different experience of the musical materials of the *Super Mario 64* “Main Theme.” Although it follows the overall form and design of its precursor, many of the original textural contrasts are eliminated, and the nature of the chromaticism (mostly) changes from melodic to harmonic/accompanimental. Kondo shows considerable flexibility in developing motive *R*, simultaneously simplifying and complicating its presentation. Given this, it should perhaps come as no surprise that Kondo and Shigeru Miyamoto (director of *Mario* games and series creator) selected this track as their favourite from *Super Mario 64*.¹⁵¹

Score D-3: Snow Mountain [score at page 180]

“Snow Mountain” represents something of a middle between the “Main Theme” and “Slider.” It provides a varied approach to the main melodic materials, but the transformations and approaches seen therein stick more closely to the models of the “Main Theme” than those of “Slider;” the most adventurous move consists of the extension of section B, as seen in this formal layout:

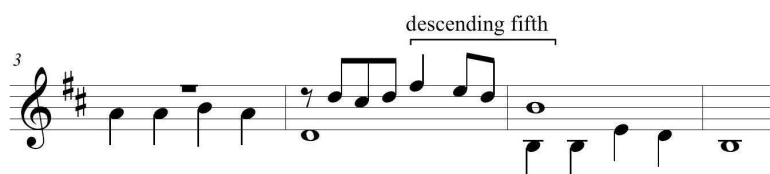
Section	Measures
Introduction	1 - 2
A	3 - 18
A'	3 - 19 (shown as a repeat in the score)
B	20 - 35
C	36 - 43

In section A, motive *R* stays fairly close to the original, but eliminates any hint of chromaticism, mostly moving in thirds:

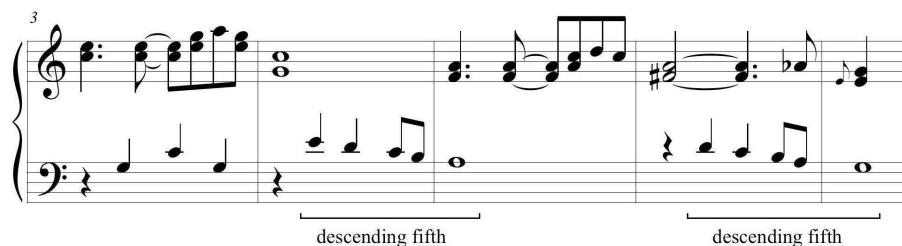
¹⁵¹ This tune appears on 25th anniversary *Mario* music collection as Kondo’s and Miyamoto’s selection from *Super Mario 64* (included as a pack-in with the *Super Mario All-Stars: Mario 25th Anniversary Edition* [2010]). Also see the discussion on selecting the musical tracks for the disc in Iwata, “Super Mario All-Stars (2010).”



The rhythm here situates itself halfway between the previous two version studied earlier; there is variety, unlike the straight quarter notes of “Slider,” but the syncopated feel of the “Main Theme” is nearly absent. One important holdover from (or, alternatively, preview of) “Slider” is the countermelody Kondo places in the tenor. In “Slider,” the extension of motive *p* outlined a fifth:



Kondo reintroduces this descending fifth in “Snow Mountain,” but situates it below the main motive (the bass has been removed in this example):

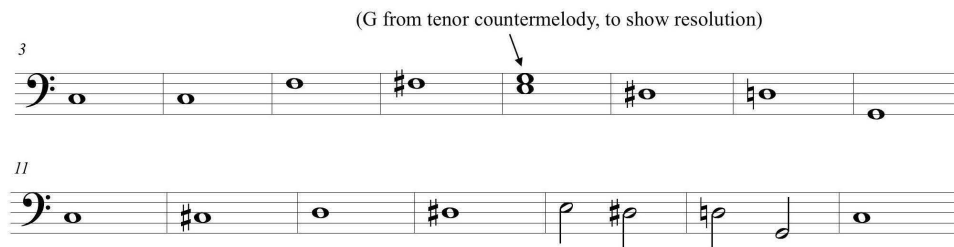


Most of the countermelody in the A section is based on this motive; otherwise it prolongs the dominant G, as seen here (brackets show descending fifths):



With the addition of a few jingle bells (not shown), these transformations give the theme a

somewhat jovial character. Meanwhile, the bassline is given the task of gently pushing chromaticism into the piece, as seen in this reduction:



The harmony does not limit itself to the chords offered by C major, unlike much of what was seen in the A section of the “Main Theme;” this reharmonization in a much more chromatic pattern (especially from measure 11) illustrates the flexibility of motive *R* to harmonic variations.

The main shift in “Snow Mountain” comes in section B, which previously featured varying degrees of chromatic sliding refashioned into a melody. Here, this chromaticism is entirely eliminated from both the melody and the bassline in favour of greater contrapuntal motion between the parts:



The counterpoint of the lower three parts stands in contrast with the irregular tone repetitions of the melody, which themselves reduce the smooth, quasi-legato feeling that section B features in both previous tunes. From measure 28, Kondo blends the melodies (soprano and countermelody) with the accompanimental textures of the A section, intensifying the contrast between the regular, metric divisions of the lower parts against the irregular soprano:



The bassline is also modified in this version to provide for stronger cadential closer at the end of section B; this is the only variant that features a root position V chord moving to a root position I (see measures 26-27, 30-31). This strong closure effectively transforms the static context of section C into more of a post-cadential expansion. The C section itself stays closer to the original's model than that of "Slider," alternating between I^b7 and IV^b7 chords; only the melody is modified, its motion prolonged over four beats instead of the original two beats (or one, if you ignore the rest):

"Main Theme" Melody m. 27-28	27
"Snow Mountain" Melody m. 36-39	36

On the whole, Kondo's general approach in this variant is to cut out melodic and accompanimental chromaticism while still retaining some of the rhythmic, syncopated elements that his chromaticism usually brings about. The result is an increase in counterpoint. The only sources of chromaticism are from the bass's motion, as well as some fleeting references to motive *p* in the introduction. The main transformation of motive *R* beyond these points is simply its appearance in thirds against the bass's harmonically chromatic motion. Section B briefly develops its own character before section A's textures return, and the C section remains static and acts more like a post-cadential closing section.

Super Mario Sunshine Theme (Score series E)

This game series features three related background tunes from levels early in *Super Mario Sunshine* (2002). As noted at the very beginning of this section, this study occasionally encounters methodological difficulties in knowing which tune in a set is the ‘original,’ and which are variations. This problem is most peculiar for this theme group. If, in other groups, one of the tunes was named the “Main Theme” by Kondo and thus might reasonably be understood as the musical starting point of the game’s soundtrack, the *Super Mario Sunshine* theme group features no such tune with this name. Consequently, the group’s tracks are addressed in the order a player *should* encounter them in normally playing the game.

Score E-1: Bianco Hills [score at page 182]

This is the background music from the first ‘action’ level of the game. One of its most peculiar features is its degree of repetitiveness, given its year of composition. Since, by 2002, Koji Kondo was no longer limited by technological considerations, given the progression of video game and computer technology, the fact that he chooses to repeat motives and fragments as much as he does speaks to the importance of repetition as a key aesthetic in the music of *Super Mario* games. In any case, the form of “Bianco Hills” is rather straightforward:

Section	Measures
Introduction	1 - 2
A	3 - 18 (2x8)
B	19 - 34
A’	35 - 42 (1x8)
C	43 - 50

Each motive from these sections warrants an examination of its features which will later be varied. To begin, the opening motive’s structure bears much resemblance to that of the *Super Mario 64* “Main Theme:”



The parallel exists in that this phrase's structure is also quasi-sentential, like its predecessor from *Super Mario 64*: a basic idea is stated (measures 3-4) and repeated (m. 5-6), and this leads to a continuation (m.7-8) and a sort of cadence (m.9-10). Some additional observations about this disjunct phrase:

- Buried within the first measure of the motive are the first three notes of the original *Super Mario Bros.* “Overworld” theme. This is of course more strongly suggestive of Kondo’s triadic melodic thinking than it is a direct reference to the “Overworld” melody, but the existence of that sequence leads one to wonder if Kondo finds new melodies by playing around with older ones until something new sticks and feels distinct.
- This is another example of how Kondo approaches continuations in his themes by transposing a fragment previously heard below the opening tones of a motive to a position above them (this was also seen and discussed earlier in the *Super Mario 64* “Main Theme”). The decoration of the F at measures 4 and 8 is very similar, but the F’s position relative to the motive at measures 3 (under, with an upwards sixth) and 7 (above, with a downwards sixth) makes it sound like this is a new idea in context, when in reality the passage is strongly related to its initial form.

The phrase then repeats (mostly) in thirds, a basic variational technique seen often before and also in derivative works from this series.

The structure of the B section follows the quasi-sentential structure of the A section. However, Kondo makes one important change on the third statement of his new motive; without this change listeners might have heard something like this (a recomposition):



Kondo instead uses a stylistically unusual harmonic shift to divert the phrase into foreign harmonic territory (the original):



The motion to the A major chord here (that is, V/ii) is unusual for Kondo. What is interesting about this, though, is that Kondo displays the influence of jazz in his oeuvre in how he resolves the chord. Instead of moving to ii (or, more likely, V/V), Kondo inserts a tritone substitution (A $\flat$), from where he easily slides back onto G (V), the goal of the entire progression. This sequential use of parallel major triads—A $^+$, A $\flat$ $^+$, G $^+$ —within which the middle triad is a tritone substitution strongly points towards Kondo's jazz influences, as discussed earlier in his biography.

Section C represents a somewhat strange closing motion. The music is simple, sparse and has no clear phrase-functional goal; it idles, seemingly waiting for something to happen. The parallel to *Super Mario 64*'s "Main Theme," which also features a C section with a similar musical character, should be noted and will be discussed again later. In any case, the eventual bass motion to E $\flat$ at measure 49 should be noted; while in this tune it simply offers an alternate voicing of the tonic-dominant motion Kondo sits on in this section, in later tunes its function will shift.

Score E-2: Ricco Harbor [score at page 184]

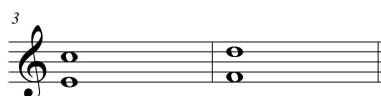
The first variation on “Bianco Hills” takes some fairly radical steps away from the original tune, switching motives from a gentle solo-like treatment towards big band-style scoring. Examining each motive in turn reveals some interesting variational choices. Given the original A section motive in “Bianco Hills,”



a conventional reduction via a stem-and-slur analysis would reveal the following structure:¹⁵²



The overall motion, then, is this:



However, Kondo’s simplification of his motive, as per measure 5-8 of “Ricco Harbor,” is:

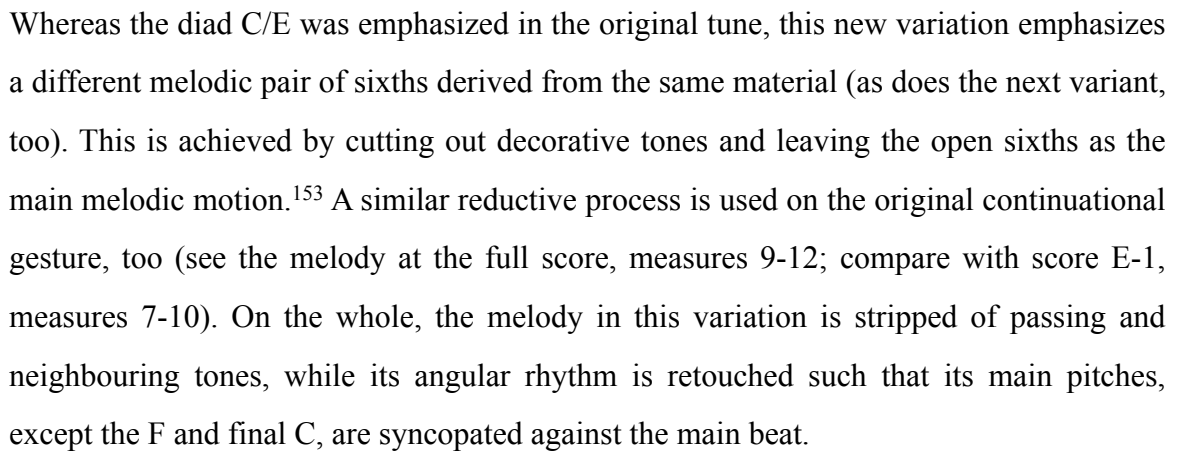


This suggests that a somewhat unusual reductive reading of the original motive is preferred:



That is:

¹⁵² Again, while reductive scores in this thesis bear some notational similarity to the techniques of Heinrich Schenker, they are not intended to communicate the full complement of Schenker’s ideas, only the relative importance of pitches via handy, well-known shortcuts offered by stem-and-slur analyses. See “A closer look at the methodology,” above.



The bass line of 'The Rose Tree' is written in 2/4 time. It begins with a single eighth note G2, followed by a dotted quarter note G2. The next measure contains a quarter note G2 and a quarter note F2. The fourth measure is a half note E2. The fifth measure consists of a quarter note D2 and a quarter note C2. The sixth measure is a half note B1. The seventh measure is a quarter note A1. The eighth measure is a quarter note G1. The final measure is a half note F1.

By contrast, section B is more clearly melodically recognizable from its original form: the melody's rhythm is slightly modified, but all of its pitches remain unchanged; also, the original harp countermelody is removed, improving the clarity of the melody. The bass keeps driving in an adapted walking-bass pattern, but the basic harmony is

- 101 -

otherwise unchanged. As in “Bianco Hills,” one statement of section A then returns. Overall, there are relatively few changes in these sections.

The second major change in this variant comes in section C. Whereas in “Bianco Hills” this section seemed to idle and not musically go anywhere, in “Ricco Harbor” section C features a melody with a clearer sense of direction. Compare “Bianco Hills:”



with “Ricco Harbor:”



In some sense, “Bianco Hills” features a C section whose melody is a reduction of that later seen in “Ricco Harbor.” This latter version also more clearly aligns the tune’s pitch-based, rhythmic and metric goals together compared to the earlier tune; said otherwise, the C section’s melody is actually somewhat melodic in “Ricco Harbor.” In this sense, this section becomes more musically complex, in that more musical elements progress together towards a common goal, even though the overall gesture remains relatively simple.

Moving on, the conclusion of the original C section in “Bianco Hills” was marked by motion to i^6 in the bass:



I flagged this E $\flat$ earlier on. This is because, in “Ricco Harbor,” while this bass motion is preserved, the E $\flat$ ’s function is modified. Instead of acting as the third of a tonic chord, this E $\flat$ is reinterpreted as the root of a dominant chord, and the melody is transposed up a major third to the fifth degree of A $\flat$ major and heard again (see measures 53-60 in the score); on the internal repetition, the simple technique of the added third above, originally

seen in section A of “Bianco Hills,” is used again. At measure 61, the music slides back into C major and cadences after a final statement of A’.

Overall, this variation retrogrades the relative complexities of its three constituent motives, as compared with the original tune. Whereas in “Bianco Hills” the most complex motive was that of section A, here this motive is stripped down to its bare essentials, and section C’s motive’s complexity goes from idle seat-warming to a driving, major portion of the piece. Because section B is left essentially the same, the variational model applied here simplifies the most complex element and complicates the simplest.

Score E-3: Gelato Beach [score at page 188]

The final piece from the *Super Mario Sunshine* series closely follows the model given by “Ricco Harbor;” in fact, taken as a whole, it seems that the ‘original’ “Bianco Hills” might compositionally have been created as a variation on one of the other two themes, given how it departs more freely from their models. In any case, the form of “Gelato Beach” is identical to that of “Ricco Harbor:”

Section	Measures
Introduction	1 - 4
A	5 - 20
B	21 - 36
A’	37 - 44
C	45 - 68
A’	69 - 76

The style of this variant approximates that of calypso. Most of the changes seen here are instrumental and decorative, as opposed to structural or melodic: the chromaticism and driving bassline of “Ricco Harbor” are eliminated; the incisive timbres of big band brass and plucked banjo make way for steel drums and a mellow bass guitar; an assortment of pseudo-unpitched cowbells and soft drums are added into the mix; and slow glissandi and lazy suspensions decorate the harmony. Overall, the character of the music is much more relaxed.

The harmony of section A is perhaps the only element which changes substantially from both prior settings of the tune. Here, the harmony simply alternates between I and inversions of V. By comparison, in both “Bianco Hills” and “Ricco Harbor,” the harmony V was absent throughout most of the A section. This modification considerably simplifies the harmony. A few countermelodies occasionally decorate the interplay of the bass harmony and melody at phrase endings, but, excepting measures 61-68, these are all fairly short interpolations (see measures 11-12, 21 and 35-36). The rest of the piece mirrors “Ricco Harbor,” excepting the fact that the adrenaline is turned off. A change of character is the key idea applied to this variation.

To summarize, the element that Kondo preserves in the *Super Mario Sunshine* game series group is the form and organization of the motives generally, and the arranging of the B section most specifically. Other elements—motivic, melodic, harmonic, timbral, decorative, rhythmic—are much more freely modified. There are also some simple yet narrow links between Kondo’s approach in this theme and that witnessed in the *Super Mario 64* theme group, to be explored a bit further in the next section. With this in mind, an analysis of the wider trends that a survey of Kondo’s variations brings out can now lead us to some conclusions about his compositional approach to variational technique.

V. Generalized Musical Interactions and Transformations: Trends in Mario’s Music

“To attempt a synthesis of the principles at work in the variation forms is a hazardous task, for the many kinds of variations, by their very diversity, seem to preclude common laws. Nevertheless, this study would be incomplete without at least a preliminary search for basic formulas.” – Robert Nelson, *The Technique of Variation*¹⁵⁴

This study now faces the same challenge that Robert Nelson confronted near the end of his book on variational technique up to the early 20th century: how to succinctly categorize, analogize and distinguish musical trends in variations in the search for some guiding aesthetics of general applicability. As stated much earlier in the Introduction, this

¹⁵⁴ Robert Nelson, *The Technique of Variation: A Study of the Instrumental Variation from Antonio De Cabezón to Max Reger* (Berkeley: University of California Press, 1948), 121.

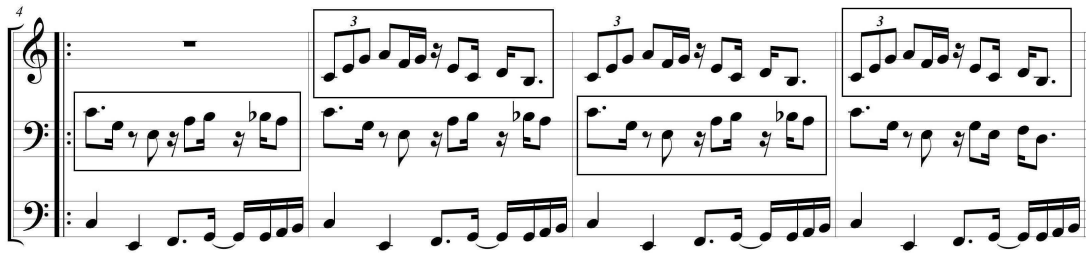
study argues that Koji Kondo purposefully varies his themes, and that informal rules may be abstracted from his existing works about how a theme will be varied, given its gaming context. To this end, this section is structured in three parts. First, the defining trends of series theme variations are traced. Second, game theme variations' key features are similarly identified. Both parts re-examine key examples from the repertoire and the first even (briefly) draws links to additional *Mario* tunes not analyzed thus far in support of the main argument. Third, a synthesis of the trends from the first two parts articulates a general aesthetic of Kondo's variational technique, and situates this aesthetic within models of variations offered by Nelson, with some definitional assistance provided by Schoenberg.

Defining series themes

In considering the scores of series A, the *Super Mario Bros. Theme* variations, and series B, the *Underground Theme* variations, as a whole, the defining trend which unites the approach to the variations is the melodic rigidity of the main motives therein. As was repeatedly alluded to earlier, the melody of the *Super Mario Bros. Theme* / the "Overworld" theme is held quasi-sacrosanct by Kondo in his variations. Specifically, the pitches and their rhythmic durations¹⁵⁵ (which, to be clear, exist separately from the rhythm, which is occasionally modified) are preserved as other musical elements (harmony, accompaniments, etc.) around the main theme change. Several examples bear this out. Consider first the "Super Mario Bros. Remix" (A-5, p.139). As was noted earlier, relative to the original, the harmony is modified and a new countermelody is added; but, if one follows the original "Overworld" melody all the way through the tune, one notes it remains unchanged. The "Music Box" (A-4, p.138) tune, despite modifications to the rhythm and register, also preserves the original pitches and pitch durations of the original track, even though the music begins in section B. The more complex tunes preserve pitch and rhythmic durations too. In *Super Mario 64*'s "Title Screen" (A-6, p.142), although the

¹⁵⁵ By rhythmic durations, I mean that the note value of an original tone is retained, even if the surface disguises this choice. Some longer notes may be rearticulated, their rhythms subdivided or some rests substituted, but collectively these tones/rests amount to the same rhythmic value as the original tone.

first A section (A') features interpolations of percussion between the repeating statements of the melody, the A section's melody does not change; to be clear, the *phrase-level form* of the melody changes, but its pitches and their rhythmic durations do not. "Obstacle Course" (A-7, p.145) operates similarly, though the ostinatos used in some parts of the piece obscure the original tune. The melody is still there, intact, if one goes hunting for it:



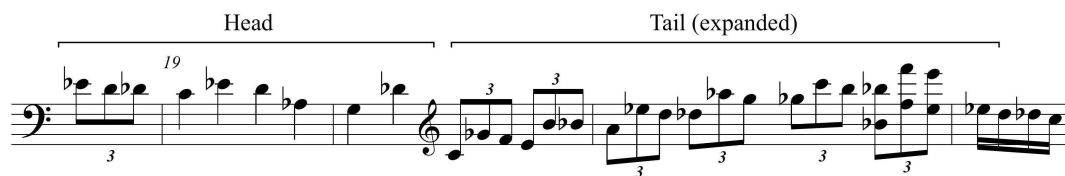
Contextually new musical events occur *around* the original melody, but the original melody itself is still there, untouched. The preservation of pitches and pitch durations also applies to the *Underground* variations, though much more stringently to motive *a* than motive *b* (we shall return to motive *b* shortly). To begin, note that motive *a*'s most distant transformation, seen in "Cave Dungeon" (B-4, p.150), is still very close to the original:



This is as far as Kondo dares stray from the original form of motive *a*; the octave leaps are suppressed, the first note is elongated and the last one embellished and also elongated. Of course, as the full analysis of this tune showed, it is true that many elements of the piece are derived from the original motive C-A-B. Still, strictly in terms of leitmotivic melodic elements within the *Underground* series as a whole, this is the most distant relative to be found—not that this strange cousin sticks around for all that long, since the above motive in its original form appears only a few measures after the above statement. In any case, however, if this is the most distantly related form of the motive to be found in Kondo's oeuvre, then this is strong evidence that Kondo prefers to leave his motives melodically untouched. Admittedly, the above example does not fit in perfectly with the

rule enunciated earlier that pitches and pitch durations are always left untouched; at worst, though, “Cave Dungeon” temporarily bends the rule instead of outright breaking it.

There is a situation in which Kondo seems entirely willing to bend this rule much further, though; fortunately, it is possible to generalize these exceptions into a rule too. The rule is: when Kondo modifies a motive from a series theme, he only changes its tail and preserves its head. Several examples illustrate this rule handily, most of which involve the treatment of motive *b* in the *Underground* series. Consider motive *b* from the “Shadow Mario Theme” (B-6, p.153):



Or even that same motive in “Delfino Airstrip” (B-5, p.152):



Admittedly, where the dividing line between the ‘head’ and ‘tail’ of this motive rests varies a bit, but the underlying principle remains the same: if *b* does not appear in its original form, it is initiated conventionally but ends differently. In the “Shadow Mario Theme,” above, the tail’s intervallic pattern is extended, allowing for the dramatic chromatic descent. In “Delfino Airstrip,” as discussed in the analysis, motive *b* bridges motive *a* to a ragtime melody, and as such gradually adopts ragtime characteristics. Other examples also apply the head/tail rule, though their transformations are much simpler. In “Into the Tunnels!” (B-3, p.149), the echoing tones that prolong both motives *a* and *b* occur at the tail. In “Cave Dungeon” (B-4, p.150), Kondo stretches the final tritone leap in motive *b* into a perfect fifth, preserving the contour of the gesture but modifying a few pitches near the end (specifically, B $\flat$ becomes B $\sharp$; see measure 30). Finally, in “Game

Over” (A-2, p.136) from the *Super Mario Bros. Theme* series, Kondo preserves the head of his “Overworld” theme but modifies the tail for effect:



All told, the main motives in series themes do not change very much in variations in which they are included. Such rigidity reflects what I name Kondo’s *essential element* in each of his series themes. To define this term, the essential element is a musical event which is shielded from variation within the framework of a ‘theme and variations’ approach; it is an unchanging, constant musical feature common to all variants of a series theme. In the *Super Mario Bros. Theme* series, the essential element is the melody proper. In the *Underground* series theme, the essential element is motive *a*, C-A-B $\flat$ (usually though not necessarily in octaves). The notion of the essential element also applies to other series themes from the *Super Mario* games series not studied in detail in Section IV, but for which quick analyses now act as a proof of concept. Consider first the “Star Theme” (F-2, p.191), which plays in early *Mario* games whenever Mario picks up a power star and temporarily gains invincibility:



The musical idea here is simple: ii⁷ and I⁷ chords alternate under a repetitive melody. This progression, ii^X-I^X, is the essential element from the *Star Theme* series, always present in every variation even as other features are added or deleted. Let us quickly consider two variants on this theme from *Super Mario 64* (1996), “Powerful Mario” (F-3, p.192) and “Metal Mario” (F-4, p.194).¹⁵⁶ Both tunes feature entirely different melodies (the melody

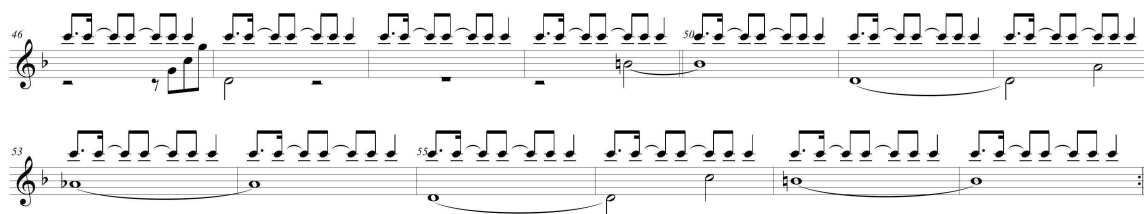
¹⁵⁶ To be clear, there are several other “Star Theme” variants in the *Super Mario* series; the above two most succinctly illustrate the main point I make here.

in “Powerful Mario” leaps around a lot; that in “Metal Mario” is mostly chromatic), yet both tunes are built over the same repeating ii^X-I^X motive, ii^9-I^9 in “Powerful Mario” and ii^7-I^7 in “Metal Mario.”

Another series theme that illustrates the notion of the essential element is the *Underwater/Waltz* series from the NES *Mario* games, in which the main melodic tones act as the essential element. Consider the melody of the original “Underwater” tune from *Super Mario Bros.* (1985) (score F-5, p.195, starting at measure 5); compare it with the melody of the *Super Mario Bros.: The Lost Levels* (1986)¹⁵⁷ “Title Screen” tune (F-6, p. 196, from measure 4) and that of the *Super Mario Bros. 2* (1988) “Title Screen” (F-7, p. 197, from measure 6; it is a more active texture, but the main melodic tones are nonetheless preserved). Except for a small modification at the very end of *The Lost Levels* “Title Screen” tune (and the head/tail rule, applied to the melody as a whole, easily accounts for this), the melodic pitches and their durations are the same in all tunes, even though the texture, introductions, registers and harmonies change around them. Overall, these consistently unchanged musical events across many *Mario* series themes lend strong credence to the theory of Kondo’s essential element in his series themes, and the essential element itself helps us understand why it is Kondo varies his tunes the way he does.

There is another use for the notion of the essential element in understanding Kondo’s approach to variation in series themes. Simply said: by deliberately ignoring the essential element from a given variant, this immediately exposes the loci of variational activity. As an analytical tool for drawing attention to the musical details in series themes that do change, this process succinctly shows how different the music that surrounds the essential element is from one variation to the next. Consider, for example, section A3 of “Cave Dungeon” (B-4, p.150) without the essential element of the *Underground* series:

¹⁵⁷ This game was released for the Nintendo Entertainment System in Japan only. It eventually appeared elsewhere as part of the *Super Mario All-Stars* (1993) compilation.



Now, consider the opening of the “Shadow Mario Theme” (B-6, p.153), similarly edited:



These two examples feature very different music, with relatively little in common. What is surprising though is that *exactly the same motive* is inserted into both tunes by Kondo. Absent this motive, it is immediately clear just how different the two variants are from one another, a fact too easily minimized when the essential element is heard in the music or seen on the score. Repeating this exercise in selective deletion throughout all series themes yields a surprising conclusion: most variations’ ‘other’ musical events are actually quite different from one variant to another. Thus, the true site of variational activity in Kondo’s series themes exists outside the main element which directs listeners’ attention.

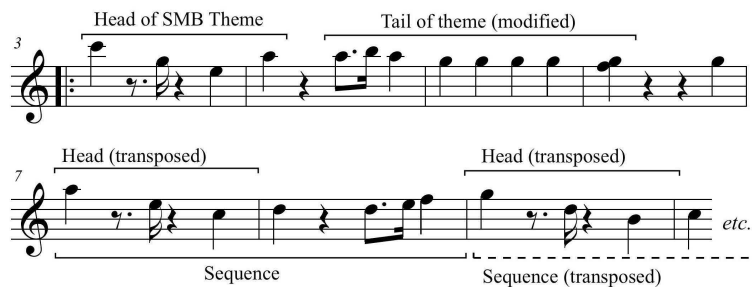
The validity of the two main points made in this section thus far—that of the essential element, and the conditions under which a protected element may be modified—is further reified by examining some counterexamples from the canon of *Mario* music—that is, counterexamples written by composers other than Koji Kondo. These offer good contrasts for showing how the music of *Super Mario* games *could* be varied by Kondo, but he chooses not to pursue such possibilities.

As previously mentioned, although Kondo is the *main* composer of the *Mario* series, others have occasionally contributed music to the games too. Some of these tunes are based on the motives studied in detail earlier. Consider for example the melody of the

“Bonus” tune (F-8, p.198) from the remake of *Super Mario Bros.* in *Super Mario All-Stars* (1993):



Super Mario All-Stars’ game credits recognize both Koji Kondo and Soyo Oka¹⁵⁸ for their musical contributions, though the game does not make explicit which tunes were composed by which artist. The above composition is almost certainly the work of Oka, though, given the treatment of the “Overworld” theme, as this analysis shows:



This tune violates the rule of the essential element as it applies to the *Super Mario Bros. Theme* series. This is because the main tune, cardinally sacrosanct, is both a) abridged and b) turned into a measure-long repeating motive that is gradually transposed downwards. This splicing of a motive in order to transform a smaller fragment into a repeating pattern is uncharacteristic of the approach and aesthetic found in Kondo’s series variations. This is not the work of Koji Kondo.

Here is another example from *Super Mario All-Stars* (1993), the “Game Select Screen” tune (F-9, p.199; one accompanimental line in the score on the next page has been omitted for clarity):

¹⁵⁸ According to an online interview with Ms. Oka, she was employed by Nintendo between 1987 and 1995, writing music for games like *Pilotwings* and *Super Mario Kart*. See Rocketbaby [online moniker], “Rocketbaby’s Interview with Soyo Oka,” Rocketbaby.net, 1999, accessed October 11, 2011, http://rocketbaby.net/interviews_soyo_oka.html.



While the first two measures melodically follow Kondo's model, the last two do not; this is not a tail modification, since the previous phrase ended at measure 2. Rather, this is a transposition of the motive from measure 1, which then leads to an alternative conclusion. Again, this is uncharacteristic of Kondo's style. Kondo, in general, harmonically moves in fifths or semitones and varies the metrically accented chord inversions; here, the harmonic progression advances stepwise and is formulaically arpeggiated throughout. The conclusion is obvious: this is likely also the work of Soyo Oka.

A final and highly relevant counterexample comes from *Super Mario Galaxy* (2007), where composer Mahito Yokota (a close collaborator of Kondo's on *Mario* games since *Super Mario Galaxy*) wrote the tune "Shadow Comet" (F-10, p.200).¹⁵⁹ Although very interesting in how it combines the *Super Mario Bros. Theme* and *Underground* themes together in quodlibet, the piece deletes motives from both tunes (motive *b* of the "Underground" theme, section B of the "Overworld" theme) and changes several pitches. This passage in particular is very much a departure from Kondo's style:



¹⁵⁹ See Satoru Iwata, "Super Mario All-Stars Vol. 1 The Music," Iwata Asks, 2010, accessed August 3, 2011, http://us.wii.com/iwata_asks/super-mario-all-stars/vol1_page1.jsp. Yokota is known to be the composer of this tune because he is credited as such on the *Super Mario Galaxy* official soundtrack CD released by Nintendo as a promo item for the game.

Kondo does not break down and transpose his opening measure from the “Overworld” theme in this way; he strives for the completion of the full motive before moving on. That is not to suggest that Yokota writes bad *Mario* music, far from it; it is just not *Mario* music in the style of Kondo. That the rules developed in this section allow an analyst to draw conclusions on the authorship of some *Mario* tunes based only on the stylistic details of the variational approach to a theme speaks to the consistency of musical thought that has engaged Kondo over the years in his approach to his *Super Mario* variations.

One question remains to be answered about Kondo’s approach to series themes, then: why? Why does Kondo refuse to modify his themes’ melodies and motives in any substantial way? The answer is likely closely related to Michael Nitsche’s observations about the musical crossover between *Star Wars* films and video games. Nitsche, as discussed earlier, argues that the reintroduction of the *Star Wars* movie soundtrack into a *Star Wars* video game “provides a unifying element between the film and the game.”¹⁶⁰ Said otherwise, a sound, which a player has previously imprinted with leitmotivic meaning (perhaps by watching a film), can be reused in other contexts to motivate a pre-established response or reflex by the player. If this, as Nitsche reasonably claims, can occur from a film towards a game, then it is also possible for games to develop their own leitmotifs and signify upon them other games. Such is Kondo’s aim for his game music. Thus, one reason why he reuses some themes from game to game is that these musical themes hold brand value; the themes communicate something about the fun, energy and gameplay contexts associated with playing a *Mario* game. Bringing forth these reactions and continuing to build on them requires connecting new *Mario* games to the *Mario* brand as a whole. In terms of sound, Kondo accomplishes this by repeating certain key musical themes across the *Mario* series. If Kondo were to stray too far from his musical models, the tunes may not be recognizable to players. Indeed, sometimes years can go by between successive instalments in the *Mario* series, which means some tunes might not be fresh in players’ minds, assuming that players play *Mario* on any kind of regular basis at all. In these cases, if the music were more complexly varied or its variational links to

¹⁶⁰ Michael Nitsche, *Video Game Spaces: Image, Play, and Structure in 3D Game Worlds* (Cambridge, MA: MIT Press, 2008), 133.

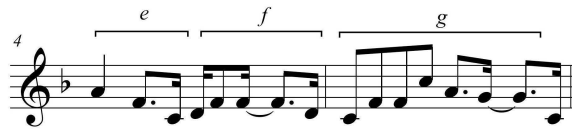
previous works obscured, the musical connections that series themes specifically serve in a *Mario* game would be lost on many players. Therefore, Kondo plays it safe, preferring to change what surrounds his well-known motives instead of modifying the motives themselves. This consistent approach builds these themes' signalling and communicative capacities; inconsistency would confuse the brand, so to speak. Insofar as music in games serves to enhance the gaming experience¹⁶¹ as opposed to purely musical purposes, it makes sense that Kondo prioritizes a tune's established narrative functions over his own artistic desires and eccentricities in reusing these themes, thus keeping them straightforward and easily recognizable.

Defining game themes

The diversity of styles and approaches to variation seen in score series C, D and E may initially seem to preclude any notion of wider trends existing within the sets. Yet, there are two important parameters to note. The first is motive, and how Kondo treats his motives in his game themes. The second is form. Once established, there is, of course, much interplay between motive and form to discuss as well.

Kondo's approach to melody in his game themes comes across as more motivically inclined than his series themes. By this, I mean that game themes generally feature shorter bits of music as the basic building blocks of longer themes. This is most obvious within the *Super Mario World* series, where fragments *e*, *f* and *g*, each self-contained within the first melodic phrase of the "Main Theme" (C-1, p.156), become the generators of most of the game's soundtrack. Whereas, in the *Super Mario Bros. Theme* "Overworld" theme (A-1, p.134), each formal section features distinct motives, the *Super Mario World* "Main Theme" (C-1) repeats fragments/motives across formal sections. Thus, the approach is much more developmental, nudging towards organicism and musical unity as important compositional paradigms. Small bits, like fragment *e*:

¹⁶¹ Sean Zehnder and Scott Lipscomb, "The Role of Music in Video Games," in *Playing Video Games: Motives, Responses, and Consequences*, ed. Peter Vorderer and Jennings Bryant (Mahwah, NJ: Erlbaum, 2006), 241.



are expanded into full sections, such as, in this case, section B of the “Main Theme” (and most B sections in other tunes, too):



Recall that each fragment develops its own section somewhere in *Super Mario World*’s score (for motive *f*, it is section C of the “Main Theme;” for motive *g*, it is in the latter portion of “Fortress.”). A similar developmental approach is seen in *Super Mario 64*’s “Main Theme” (D-1, p.171): fragment *p*, the chromatic turn, becomes the main building block of the entire A section of the tune (from measure 4, after the initial statement of *p* and *q*):

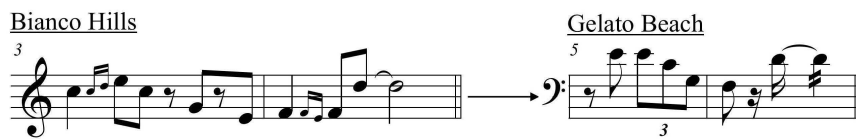


Most of this section presents varying forms of *p*; statements of *q* develop themselves, too, but the emphasis rests on *p*. Another example of this process is the main components of the “Bianco Hills” (E-1, p.182) A section, in that the opening stepwise span of a third becomes leaps of sixths, and that is only what happens in the first two bars of section A:

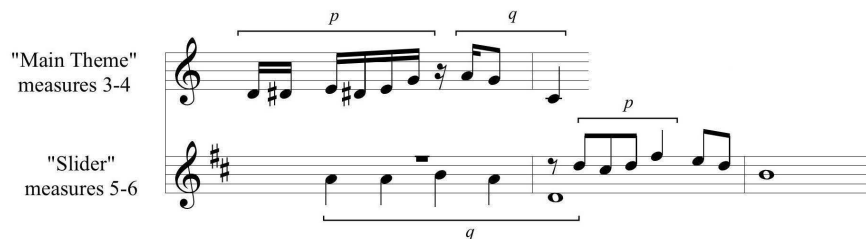


This kind of analysis readily extends itself through to measure 18, and even farther than that if other related transformations are included in analyzing section B. Admittedly, this organicism, obvious in the *Super Mario World* series, is somewhat less prevalent in the *Super Mario 64* and *Super Mario Sunshine* series, but the difference is one of degree rather than kind. In all instances, Kondo takes a small motive and stretches it in many different directions so as to compose the remaining portion of the complete melody. This developmental approach differentiates itself from the frequent contrasts seen between formal sections in score series A and B, where the motive from section A is unequivocally different from that of sections B, C, etc.

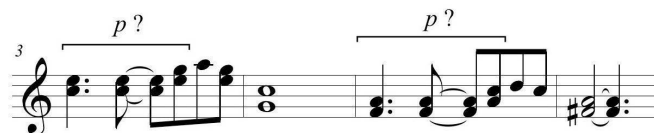
There is also much more flexibility of motive from one variant to another in game themes. Consider the transformation of the main motive from the A section of “Bianco Hills” (E-1) with its parallel motive from “Gelato Beach” (E-3, p.188):



Side by side, it is easy to see the underlying structure which unites these two motives, and the rhythmic and decorative transformations required for one to become the other. Still, even this relatively small musical change is a much bigger step than those seen in the ever-constant series themes. Kondo goes even further with other game themes, such as when he reverses motives *p* and *q* in “Slider” (D-2, p.174), putting the chromatic turn in *after* the main melodic gesture:



or when he entirely eliminates the chromatic turn in the opening motive from “Snow Mountain” (D-3, p.180):



This kind of macro-level motivic play is what fundamentally characterizes Kondo’s game theme variations; these melodies are approached much more flexibly than in series themes, their lesser and underexplored features teased out in different textures and contexts. This does not necessarily imply complex transformations; if anything tunes like “Underground” (C-4, p.161) and parts of “Snow Mountain” (D-3, p.180) and “Ricco Harbor” (E-2, p.184) are simplifications of more complex materials (when focusing strictly on the melody, that is). What’s interesting, though, is that this process of transformation and expansion of motives is not limited only to melodies. Recall for instance in the *Super Mario World* soundtrack the expansion of the harmonic material from the second introduction of the “Main Theme” (C-1, p.156) into a more refined musical idiom in “Athletic” that held its own musical interest (see the analysis of C-5 in Section IV, p.80). This transformation in particular is indicative of Kondo’s disposition towards playing with all musical ideas on the page, not just the ‘important’ ones; if anything, the second introduction in the “Main Theme” (C-1) was designed to be as musically *unimportant* as possible in its original form, given its roles as a transition between two melodic ideas and as a loop point. Another example of the notion that every idea on the page has a potential for development is seen in the two-note motive F-G of “Fortress” (C-7, p.167), which gradually expands to become the main motive driving the tune as a whole. This gradual expansion into other motives is strongly suggestive of Schoenberg’s “developing variations,” a topic to which we will return shortly.

While we are on the topic of “Fortress,” it is worth considering how it and its sister free-from variation, the “Ghost House” tune (C-6, p.164), fit into the mould being elaborate above. These tunes push the boundaries of motivic development and harmonic experimentation further than they normally lie; they show how Kondo is willing to substantially depart from the model of his “Main Theme” (C-1, p.156) in composing variations in the *Super Mario World* series. “Fortress” especially throws all caution to the

wind, combining a Japanese introduction with the aforementioned two-note motive, only occasionally bringing back the main *Super Mario World* melody. These tunes support the notion that motive, on the whole, is much freer in game series, because they are the most extreme examples of how motive is used in ways not seen anywhere else.

Still, there is some regularity of though identifiable in Kondo's transformations. One such trend is the preservation of a formal design common to most variants of a game series.¹⁶² Said otherwise, phrases which appeared in the order "ABC" tend to reappear in the next variant in the order "ABC" as well. In comparing the forms of the tunes in the *Super Mario 64* series (score series D), all tunes follow the form ABC. It is true that in "Slider" (D-2, p.174) section C is expanded to twice its original size, but the formal plan itself remains fundamentally unchanged despite this expansion. The *Super Mario Sunshine* series follows a similar model, though more loosely; whereas the original form of "Bianco Hills" (E-1, p.182) was ABAC, "Ricco Harbor" (E-2, p.184) and "Gelato Beach" (E-3, p.188) both expand section C and add an extra statement of A. Largely speaking, the original form is preserved, then added to. Really, Kondo's consistency of musical organization is sometimes surprising, especially when comparing game themes to one another. Consider, for example, the construction of *Super Mario 64*'s "Main Theme" (D-1, p.171) and *Super Mario Sunshine*'s "Bianco Hills" (E-1). In the A section of both themes, a motive is stated, developed and on the repetition pushed towards a new goal using largely the same techniques:

Super Mario 64
"Main Theme"
measures 3-10

"Bianco Hills"
measures 3-10

MT

Goals moves up,
compared to m.3

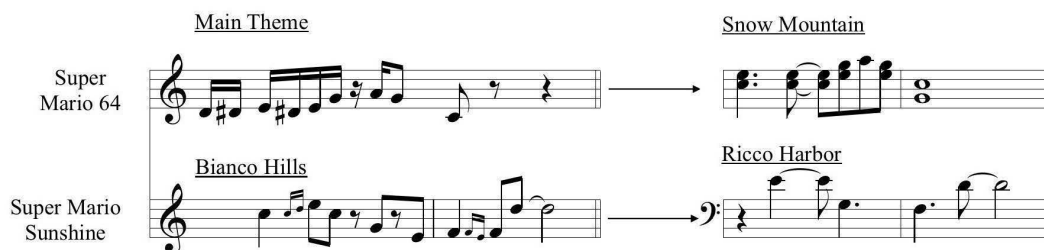
Measure 4, one octave higher

BH

6th descending
instead of ascending

¹⁶² The formal designs of "Underground" (C-3), "Ghost House" (C-6) and "Fortress" (C-7) admittedly undermine much of the argument I am about to make here. I simply remind the reader here that trends need not uniformly apply to *every* tune in order for them to be trends. I deliberately use the term 'trend' here instead of rule.

Following this passage, a distinctly less melodic B section appears in both tunes; section C, for its part, idles in both. Even though the tunes are very different from one another on their respective surfaces, they clearly originate from the same ideological mould. These commonalities necessarily extend into the variations which are derived from the tunes, too. Notice how both “Snow Mountain” (D-3, p.180) and “Ricco Harbor” (E-2, p.184) feature opening themes that strip the original motives of their decorative tones:



Though not quite carried out to the same extent in “Snow Mountain” as in “Ricco Harbor” (there is still some fat that could be cut, if Kondo really wanted to take a knife to it), the reductive approach to variation common to both transformations stands out. Kondo of course re-decorates the accompaniments of these two tunes very differently from one another, but the process of their melodic derivation from their respective original theme is suspiciously similar. Overall, these examples show how Kondo’s compositions in various *Mario* games follow similar formal archetypes and developmental patterns; there is a something of a common ideology at the core of these disparate works.

Having noted these characteristics, the question of why Kondo follows these patterns comes back. Indeed, why does Kondo take a freer approach in his variations on game themes? Unlike the series themes, which hold important *Super Mario* branding associations, game themes hold no leitmotivic connections at the moment they are first heard by a player; someone who has never played *Super Mario World* (1991) should normally never have encountered its “Main Theme.” The same goes for the game themes of *Super Mario 64* and *Super Mario Sunshine*. Because these tunes are only featured in one particular *Mario* game and thus lack close connections to the *Super Mario* series as a whole, more distant musical relationships may be tested without impairing the music’s

functions. Basically, when Kondo tries to preserve a theme throughout a game, it is variety, as opposed to consistency, which must stand as the guiding principle, lest players find the music too repetitive. Hence, character variations composed to match specific virtual environments—recall the creepy “Ghost House” (C-6, p.164) overtones and the jingle bells of “Snowy Mountain” (D-3, p.180)—become the prevalent tool by which Kondo can hold players’ aural interest and expand the immersive potential of the game and simultaneously accomplish his own artistic goals by re-using the same musical idea throughout. Said otherwise, game theme variations serve *musical* purposes within gameplay, as opposed to series themes’ signalling and branding capacities. Kondo is thus free to push his musical options further. The breadth of his motivic play in these themes handily illustrates the many possibilities he imagines.

Synthesizing Kondo’s aesthetic

In the end, how does one make sense of these rules and models, and what do they all mean? One way to answer this question is to situate the trends identified above within wider variational and music-theoretical thought. The ideas of Robert Nelson, a scholar who dedicated much of his research to variation techniques, alongside those of Arnold Schoenberg (whose work Nelson expanded upon) offer particularly apt ways of drawing clear distinctions between series themes and game themes using terms ingrained in wider musical theoretical practice. Of course, in doing so, one must recall that the variation sets that Nelson and Schoenberg study (that is, those of Beethoven, Brahms, Mozart, etc.) differ in some fundamental ways from those of the *Super Mario* video game series, most notably in that traditional variations are conceived of and composed as a definite and ordered set, whereas *Mario* variations remain open-ended; more could be added at any time, and who knows if there was ever any expectation by Kondo in 1985 that a theme he wrote would be re-worked time and time again. These scholars’ general archetypes of variation are useful here only if one is willing to accept that some of the more refined details they propose may not fully align with the those observed in the *Mario* variations due to the distinctly different contexts those variations operate in.

To jump right in, series theme variations, with their unchanging essential elements, most cleanly resemble what Nelson terms *cantus firmus variations*. Nelson writes:

In the *cantus firmus* plan, the successive variations adhere closely to the melodic subject while creating for it new figural and harmonic settings. As a rule, the subject is presented literally; occasionally it receives an incidental embellishment.¹⁶³

Strict adherence to a musical subject is *exactly* Kondo's approach to series themes, where "from variation to variation, [the theme] [...] is surrounded by fresh figural counterpoints"¹⁶⁴ and harmonies. Certainly, the kinds of contrapuntal devices used from variant to variant in *Super Mario* series variations are very different from those that Nelson's term implies, which likely approximate something closer to the masses of Josquin than they do video game music for most readers. Yet, as Nelson also points out, the term *cantus firmus variations* "has the advantage of naming definitely the constructive principle involved, the retention of the literal melodic subject."¹⁶⁵ The term absolutely reflects what is going on in Kondo's series themes: an essential element is preserved, and other features around this element change and provide variety. Given all this, I feel rather comfortable claiming that Kondo's approach to varying series themes indeed constitutes a modern Renaissance of variational technique.

What then to make of game themes? Unlike series themes, which generally retain a similar character from variation to variation as part of their signalling functions, game themes undergo a wide variety of changes of musical character. To this effect, quickly recall "Ricco Harbor" (E-2, p.184) and "Gelato Beach" (E-3, p.188); the first is driving

¹⁶³ Nelson, *Technique of Variation*, 10. Emphasis in original. To give an idea of the scope of his variational thought, aside from the *cantus firmus* and character variations (see below) discussed here, Nelson's other variational categories from his book (alongside his examples of representative works) are: Renaissance and baroque variations (Pachelbel's aria variations; J.S. Bach's *Vom Himmel hoch de kmm' ich her*, BWV 769); baroque basso ostinato variations (J.S. Bach's *Passacaglia in C-*, BWV 582); nineteenth century basso ostinato variations (the *Finale* from Brahms' *Variations on a Theme by Joseph Haydn*, Op.56); ornamental variations (Haydn's *Variations in F minor*, Hob. XVII:6); and free-form variations (Franck's *Variations symphoniques*). See Chapter 1 for additional details and examples.

¹⁶⁴ van den Burren in *Ibid.*, 11. The term "figural counterpoints" should of course be given something of a liberal interpretation in the context of *Mario* variations.

¹⁶⁵ Nelson, *Technique of Variation*, 11.

and energetic, the second, relaxed and mellow; or, compare *Super Mario World*'s "Underground" theme (C-4, p.161) to the "Athletic" theme (C-5, p.162): the first is uncertain and develops slowly, the other races ahead. These tunes represent different gameplay conditions using similar musical materials; wide changes of character ought be expected in order for these tunes to achieve their intended goals. Nelson's description of *character variations* seems especially fitting here, in that "separate [variants] of the character variation [set] frequently alter the expression, or 'character', of the theme profoundly."¹⁶⁶ But it is Nelson's explanation of *how* such character variations are built which seems particularly appropriate in describing the *Super Mario* game theme variations:

[W]e find here, for the first time, an emphasis upon the development of motive *from the theme*. The character variation is thus not only more dramatic [...], but also more organically constructed as well."¹⁶⁷

A developmental method working in tandem with sharp changes of musical character is spot-on Kondo's approach to varying game themes, right down to the construction of the original theme to be varied. Clarifying the nature of the term 'development' here is useful. Schoenberg defines "developing variation" as consisting of "repeated phrases, motive and other structural ingredients of themes only in varied forms"¹⁶⁸ which, taken as a whole, produce "all the thematic formulations which provide for fluence, contrasts, variety, logic and unity, on one hand, and character, mood, expression, and every needed differentiation, on the other hand—thus elaborating the *idea* of the piece."¹⁶⁹ While perhaps not uniformly applicable at the level of an entire piece in many *Super Mario* variations, Schoenberg's idea of development nonetheless resonates with the approaches seen in many game variations. This is especially true of the *Super Mario World* series,

¹⁶⁶ Ibid., 5. Nelson uses the term "members" (as in "variational set members") instead of "variants," but the terms are functionally the same here.

¹⁶⁷ Ibid., 6. My emphasis.

¹⁶⁸ Arnold Schoenberg, *Style and Idea: Selected Writings of Arnold Schoenberg*, ed. Leonard Stein, trans. Leo Black (Berkeley, CA: University of California Press, 2010), 129.

¹⁶⁹ Arnold Schoenberg, *The Musical Idea and the Logic, Technique, and Art of its Presentation*, ed. Patricia Carpenter and Severine Neff (New York: Columbia University Press, 1995), 366 (Emphasis in original).

where fragments *e*, *f* and *g* lay at very foundations of the entire pieces they generate. To a lesser extent, this is also true of motives *p* and *q* in the *Super Mario 64* series, and of the recurring thirds/sixths in the *Super Mario Sunshine* series. In sum, small, self-sufficient bits of music¹⁷⁰ repeatedly accumulate to form a longer motive, and these motives expand into larger chunks of music; by contrast, series themes seek to preserve large chunks of pre-established music. The *process* that Schoenberg alludes to is active within game theme variational development, even if the extent to which that process is carried out is often limited by game tunes' short durations. Thus, game themes, aside from varying in character, also align in music theoretical thought in the way they are generated bit by bit.

One final observation from Nelson is equally applicable to both series and game theme variations, and seems to succinctly summarize Kondo's entire variational aesthetic. Discussing how melody and form interact in many classical variations, Nelson concludes that:

The melodic subject and the harmonico-structural frame are complementary phenomena: alterations of the melodic subject are balanced by the relatively close adherence to the harmonico-structural frame; conversely, the literal retention of the melodic subject is offset by harmonic departures within the harmonico-structural frame, as well as by figural or contrapuntal involvement of the supporting voices."¹⁷¹

This quote applies exceptionally neatly to the difference between Kondo's approach to variation in the series themes versus game themes. In the most general terms, in series themes, the melodic subject is preserved, while the harmonies and form change (recall "Title Screen" (A-6, p.142), "Obstacle Course" (A-7, p.145), "Shadow Mario Theme" (B-6, p.153), and "Cave Dungeon" (B-4, p.150) in particular); in game themes, the form and harmony of a given original theme are more tightly preserved while melodic and decorative elements shift more substantially (compare the *Super Mario 64* "Main Theme" (D-1, p.171) to "Slider" (D-2, p.174), and "Bianco Hills" (E-1, p.182) to "Ricco

¹⁷⁰ I am indebted to Roger Sessions for his use of the term 'self-sufficient' in the context of motives. See Roger Sessions, *The Musical Experience of Composer, Performer, Listener* (New York: Atheneum, 1965), 44.

¹⁷¹ Nelson, *Technique of Variation*, 124. The original is entirely italicized; this is a *really* important point for Nelson.

Harbor” (E-2, p.184)). Which side of the fence Kondo comes down on seems to be predetermined by the role that the music has to play, and this model aptly characterizes what the conceptually mutually exclusive options on both sides are.

What all this actually shows, of course, is that Koji Kondo is following in some well-worn paths in his approach to variation. Kondo’s variational innovations do not exist at the musical level; rather, it is how Kondo divides his techniques between series themes and game themes which makes his variations stand out. To the extent that his series themes and game themes circumspectly fall into divergent, well-established categories of variational thought, this confirms what this study set out to prove: Koji Kondo does not simply vary his themes, he varies them purposefully.

Conclusion

This study set out with several goals in mind: to show that video game music could be analytically interesting; to demonstrate the usefulness of scores as analytical tools for understanding game music; and most of all, to demystify composer Koji Kondo and his compositional technique in the music of the *Super Mario* video game series.

In serving these goals, Section I analyzed the context of the music of *Super Mario* video games by outlining the basic gaming principles of the series, and by studying Koji Kondo and the process of creating video game music, not only as an abstract art but also in relationship to players’ experiences of video games as mediated by music. Section II surveyed existing literature in the area of video game music; the main finding was that most literature on this topic did not analyze game music in any detail, and only a few studies in the literature used scores as the basis for musical analysis. Section III outlined some contextual and methodological considerations for game music analysis, based on the literature and findings of Sections I and II, especially when one does so in the context of grouping tunes into sets in which they do not naturally exist. Section IV presented a thorough analysis of 26 works from the *Super Mario* musical canon, endeavouring to cover recurring and/or peculiar stylistic details from within the variations. These 26 works divided into two series themes, that is, themes which recur across several games in the

series, and three game themes, that is, themes that recur within a single game only. Finally, in section V, the main trends of the analysis and the differentiating factors between variation technique in series themes and game themes were identified, relating relevant variational literature to the proposed model. Overall, the study offers the very first in-depth look at a substantial amount of repertoire from the video game music canon, and identifies several important trends from within that canon; indeed, it was confirmed that, in the *Super Mario* video games series' music, Koji Kondo reserves some variational techniques for his series themes, and others for his game themes. More generally, this illustrates the importance of variational technique in the contemporary video game music repertoire and as a topic of continuing relevance in music theory today.

In the end, the music of *Super Mario* reveals greater complexity and depth of thought when put under the microscope. While, as a whole, the music as a whole could be generally described as a collection of simply-voiced melodies over root position major chords in 4/4 meter featuring a high degree of repetition, this hardly encapsulates neither the variety nor the complexity of the variational transformations seen: textures are thickened or thinned; chromaticism is increased; motives are simplified, expanded, extended, sewn into quodlibets, repeated in a new pattern, and much more. The musical transformations paint a surprisingly sharp picture of Koji Kondo, a man whose principal mission is to balance writing music that enhances the gaming experience with that of writing music that satisfies his personal artistic aims. In negotiating this line, Kondo maintains a surprising degree of consistency in his musical thought throughout the decades. This study's most important finding is the clear delineation of compositional approaches between melodies varied repeatedly across many games in the *Mario* series as a whole versus those recycled only within the context of one particular game. Series themes feature an essential element which Kondo refuses to modify in varying his tunes, and are generally written in larger chunks of music; games themes, however, are constructed using short fragments which developmentally expand into phrases and then short tunes. The music of *Mario* is far from randomly composed; rather, it upholds technique and attention to detail as important musical values.

Of course, much more remains to be said about Koji Kondo, about the music of *Super Mario*, about video game music's niche challenges. This study offers but a preliminary sketch of what a complete rendering of these topics have to offer. Altogether, in its methodological groundings and research findings, it makes an important contribution to the craft of game music analysis. As it turns out, good analysis of video game music is a little bit like composing variations: take something familiar and well-known to theorists, like music analytical techniques, and mix this with just enough new material, like the music of *Super Mario*, to create a new variant with its own challenges, puzzles and intricacies.

Or, in other words, just follow Koji Kondo's approach.

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Appendix of Scores

Editorial Note

The scores used throughout the analytical study were developed and edited by the author of the thesis. In general, publicly available MIDI transcriptions game tunes from the *Video Game Music Archive* (www.vgmusic.com) were used as the basis of a score. MIDI transcriptions were converted to notation using *Finale 2011*, and then edited to reduce the texture to a two- or three-staff layout, with all tones, rhythms, time signatures, etc. checked against the original game soundtrack. For some scores, few edits were required. Other scores required substantial editing, or even some partial transcriptions in order for the score to accurately reflect the elements of original tune. Any errors that were identified in the original MIDI file were corrected in these scores; still, any faults which may remain are entirely the responsibility of the author. Where known, the name (or online moniker) of the person who originally transcribed the game tune for MIDI is noted on the score. In some cases when a MIDI transcription was not available from the Video Game Music Archive, the author transcribed the work; he is credited as such on the score on those occasions.

Some considerations to keep in mind:

- Percussion parts in the original tune are left out of the score entirely, unless there is some important analytical reason to maintain its inclusion. In general, the percussive elements of the music considered in the study were repetitive and added little to an analysis of primarily pitch-based variations.
- Scores were edited with the clarity of pitch- and rhythm-based musical ideas on the page as the main objective. Hence, some octave doublings from the original tune are left out, as are changes of timbre, dynamics, articulation, etc., unless their inclusion is important to grasping the main musical idea at play.
- These scores are not designed as adaptations suitable for performance. On the contrary, they are often impractical for this purpose.

No ownership is assumed or implied by the author over any of the music presented in the appendix. All music was composed by Koji Kondo, unless otherwise noted, and all copyrights for the music in this appendix are held by Nintendo. The author specifically invokes fair dealing as per section 29.4(2) of the Canadian *Copyright Act* (RSC 1985, c C-42) allowing for the reproduction of copyrighted works for the purposes of an academic examination, as these scores are required to allow for a full and thorough evaluation and examination of this thesis. It is further expected that the forthcoming fair dealing exemption for the purpose of education at section 29 of the *Copyright Act* will, once enacted, provide additional fair dealing protections for the reproduction of these works in this context (as per Bill C-11, *An Act to Amend the Copyright Act*, 1st Sess, 41st Parl, 2011, cl 21).

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A-1 *Super Mario Bros.*: Overworld

MIDI encoded by Steve1

The musical score is written for piano in 4/4 time, featuring a key signature of one flat (B-flat major or D minor). It consists of five systems of two staves each (treble and bass clef). The first system (measures 1-4) includes a treble staff with eighth-note chords and a bass staff with a steady eighth-note accompaniment. The second system (measures 5-7) introduces a triplet of eighth notes in the treble staff. The third system (measures 8-10) continues the accompaniment with some rests in the treble. The fourth system (measures 11-13) features a more active treble staff with eighth-note chords. The fifth system (measures 14-17) shows a change in the bass line, with the treble staff returning to a more chordal texture. Measure numbers 5, 8, 11, and 14 are indicated at the start of their respective systems.

18

Measures 18-21. Treble clef: 18 (E4-G4-A4), 19 (E4-G4-A4), 20 (E4-G4-A4), 21 (E4-G4-A4). Bass clef: 18 (E3-G3-A3), 19 (E3-G3-A3), 20 (E3-G3-A3), 21 (E3-G3-A3). Triplets are marked in measures 19 and 21.

22

Measures 22-25. Treble clef: 22 (E4-G4-A4), 23 (E4-G4-A4), 24 (E4-G4-A4), 25 (E4-G4-A4). Bass clef: 22 (E3-G3-A3), 23 (E3-G3-A3), 24 (E3-G3-A3), 25 (E3-G3-A3). Triplets are marked in measures 23 and 25.

26

Measures 26-29. Treble clef: 26 (E4-G4-A4), 27 (E4-G4-A4), 28 (E4-G4-A4), 29 (E4-G4-A4). Bass clef: 26 (E3-G3-A3), 27 (E3-G3-A3), 28 (E3-G3-A3), 29 (E3-G3-A3). Triplets are marked in measures 27 and 29.

30

Measures 30-33. Treble clef: 30 (E4-G4-A4), 31 (E4-G4-A4), 32 (E4-G4-A4), 33 (E4-G4-A4). Bass clef: 30 (E3-G3-A3), 31 (E3-G3-A3), 32 (E3-G3-A3), 33 (E3-G3-A3). Triplets are marked in measures 31 and 33.

34

Measures 34-37. Treble clef: 34 (E4-G4-A4), 35 (E4-G4-A4), 36 (E4-G4-A4), 37 (E4-G4-A4). Bass clef: 34 (E3-G3-A3), 35 (E3-G3-A3), 36 (E3-G3-A3), 37 (E3-G3-A3). Triplets are marked in measures 35 and 37.

A-2 *Super Mario Bros.*: Game Over

MIDI encoded by John Engelmann

Handwritten musical score for 'The Rose Tree'. The score is written on two staves, Treble and Bass, in 3/4 time. The melody is in the Treble staff, and the bass line is in the Bass staff. The key signature has one flat (B-flat). The score includes a 'ritardando' marking and a '3' indicating a triplet. The piece ends with a double bar line.

A-3 *Super Mario Bros. 2: Subspace*

MIDI encoded by Steve1

The image displays a musical score for the track "Subspace" from Super Mario Bros. 2. The score is written for piano in common time (C) and features a key signature of one flat (B-flat major or D minor). The first system contains measures 1 through 3. Measure 1 begins with a treble clef and a bass clef. The treble staff has a sequence of eighth notes: G4, A4, Bb4, A4, G4, F4, E4, D4. The bass staff has a sequence of eighth notes: D3, C3, Bb2, C3, D3, E3, F3, G3. Measure 2 continues the treble staff with eighth notes: E4, D4, C4, Bb3, A3, G3, F3, E3. The bass staff has eighth notes: A2, G2, F2, E2, D2, C2, Bb1, A1. Measure 3 features a treble staff with a triplet of eighth notes: G4, A4, Bb4, followed by a quarter rest. The bass staff has a triplet of eighth notes: D3, C3, Bb2, followed by a quarter rest. The second system contains measures 4 through 6. Measure 4 starts with a box containing the number 4 in the top left corner. The treble staff has a sequence of eighth notes: G4, A4, Bb4, A4, G4, F4, E4, D4. The bass staff has eighth notes: D3, C3, Bb2, C3, D3, E3, F3, G3. Measure 5 continues the treble staff with eighth notes: E4, D4, C4, Bb3, A3, G3, F3, E3. The bass staff has eighth notes: A2, G2, F2, E2, D2, C2, Bb1, A1. Measure 6 features a treble staff with a triplet of eighth notes: G4, A4, Bb4, followed by a quarter rest. The bass staff has a triplet of eighth notes: D3, C3, Bb2, followed by a quarter rest. The score concludes with a double bar line.

A-4 *Super Mario Bros. 3*: Music Box

Transcribed by G. Laroche

Structural beaming

Melody

Accomp.

(3+3+2) X 2

3+3+1+2+5+2

8^{va}-----,

3

8

(3+3+2) X 2

2+3+3

3+3+2

Metric beaming

Melody

Accomp.

8^{va}-----,

3

8

A-5 *Super Mario World: Super Mario Bros. Remix*

Special World theme MIDI encoded by JILost

Special World motives

SMB theme

Bass

timbre: brass

4 8

7 8

timbre: steel drums

10 8

(A-5)

13

8

16

8

timbre: brass

19

8

3

22

8

timbre: steel drums

3

25 8

3

3

3

29 8

3

3

3

timbre: brass

33 8

3

36 8

3

3

3

timbre: steel drums

A-6 *Super Mario 64*: Title Screen

MIDI encoded by Tyler Prevost

(+Heavy percussion throughout;
blank measures are percussion interludes)

Melody

Jingle

Bassline

6

10

15

18

21

25

29

(A-6)

32

Measures 32-34 of a musical score. The score is written for three staves: Treble, Middle, and Bass. The key signature has one sharp (F#). The time signature is 4/4. Measure 32: Treble staff has a quarter note G4, eighth note A4, quarter note B4, eighth note A4, quarter note G4, eighth note F#4, quarter note E4, eighth note D4. Middle staff has a continuous eighth-note chordal accompaniment. Bass staff has a half note G2, quarter note A2, eighth note B2, quarter note C3. Measure 33: Treble staff has a triplet of eighth notes G4, A4, B4, quarter note C5, quarter note B4, quarter note A4, quarter note G4. Middle staff continues the eighth-note accompaniment. Bass staff has a half note G2, quarter note A2, eighth note B2, quarter note C3. Measure 34: Treble staff has a quarter note G4, eighth note A4, quarter note B4, eighth note A4, quarter note G4, eighth note F#4, quarter note E4, eighth note D4. Middle staff continues the eighth-note accompaniment. Bass staff has a half note G2, quarter note A2, eighth note B2, quarter note C3.

35

Measures 35-37 of a musical score. The score is written for three staves: Treble, Middle, and Bass. The key signature has one sharp (F#). The time signature is 4/4. Measure 35: Treble staff has a triplet of eighth notes G4, A4, B4, quarter note C5, quarter note B4, quarter note A4, quarter note G4. Middle staff has a continuous eighth-note chordal accompaniment. Bass staff has a half note G2, quarter note A2, eighth note B2, quarter note C3. Measure 36: Treble staff has a quarter note G4, eighth note A4, quarter note B4, eighth note A4, quarter note G4, eighth note F#4, quarter note E4, eighth note D4. Middle staff continues the eighth-note accompaniment. Bass staff has a half note G2, quarter note A2, eighth note B2, quarter note C3. Measure 37: Treble staff has a triplet of eighth notes G4, A4, B4, quarter note C5, quarter note B4, quarter note A4, quarter note G4. Middle staff continues the eighth-note accompaniment. Bass staff has a half note G2, quarter note A2, eighth note B2, quarter note C3.

A-7 *Super Mario Sunshine*: Obstacle Course

MIDI encoded by SevenChaos

+ vocal percussion throughout

Doo-wop female vocals

Doo-wop male vocals

Doo-wop bass

The first system of the musical score is in 4/4 time. It features three staves: a top staff for female vocals, a middle staff for male vocals, and a bottom staff for bass. The female vocal staff has a whole rest followed by a half note chord of G4 and B4. The male vocal staff has a rhythmic pattern of eighth notes: G4, A4, B4, G4, F#4, E4, D4, C4. The bass staff has a similar rhythmic pattern: G3, A3, B3, G3, F#3, E3, D3, C3. A repeat sign is at the end of the system.

5

The second system continues the musical score. It features three staves. The female vocal staff has a triplet of eighth notes: G4, A4, B4, followed by a quarter rest. The male vocal staff has a rhythmic pattern of eighth notes: G4, A4, B4, G4, F#4, E4, D4, C4. The bass staff has a similar rhythmic pattern: G3, A3, B3, G3, F#3, E3, D3, C3.

8

The third system continues the musical score. It features three staves. The female vocal staff has a whole rest followed by a half note chord of G4 and B4. The male vocal staff has a rhythmic pattern of eighth notes: G4, A4, B4, G4, F#4, E4, D4, C4. The bass staff has a similar rhythmic pattern: G3, A3, B3, G3, F#3, E3, D3, C3.

11

The fourth system continues the musical score. It features three staves. The female vocal staff has a whole rest followed by a half note chord of G4 and B4. The male vocal staff has a rhythmic pattern of eighth notes: G4, A4, B4, G4, F#4, E4, D4, C4. The bass staff has a similar rhythmic pattern: G3, A3, B3, G3, F#3, E3, D3, C3.

14

The fifth system continues the musical score. It features three staves. The female vocal staff has a whole rest followed by a half note chord of G4 and B4. The male vocal staff has a rhythmic pattern of eighth notes: G4, A4, B4, G4, F#4, E4, D4, C4. The bass staff has a similar rhythmic pattern: G3, A3, B3, G3, F#3, E3, D3, C3.

(A-7)

18



System 18: Treble and bass staves. Treble staff has a whole rest, a half rest, and a triplet of eighth notes. Bass staff has a continuous eighth-note pattern.

22



System 22: Treble staff has a triplet of eighth notes and a half rest. Bass staff has a continuous eighth-note pattern with triplets at the end.

26



System 26: Treble staff has a half rest and a triplet of eighth notes. Bass staff has a continuous eighth-note pattern with triplets.

31



System 31: Treble staff has a half note, a half rest, and a half note. Bass staff has a continuous eighth-note pattern with triplets.

35



System 35: Treble staff has a half rest and a half note. Bass staff has a continuous eighth-note pattern with triplets.

B-1 *Super Mario Bros.*: Underground

Transcribed by G. Laroche



*Editorial note: unlike most *Mario* tunes, there is no accompanying percussion here.

B-2 *Super Mario Bros. 3*: Underground

MIDI encoded by Erik

Melody

Rock Beat

3

5

7

The musical score is presented in four systems. Each system consists of two staves: a top staff for the melody and a bottom staff for the rock beat. The melody is written in bass clef with a key signature of two flats (B-flat and E-flat) and a common time signature (C). The rock beat is written in a simplified notation with eighth and sixteenth notes. The first system shows the initial measures with rests for the melody. The second system, starting at measure 3, introduces the melody. The third system, starting at measure 5, continues the melody and includes a triplet in the final measure. The fourth system, starting at measure 7, features more complex melodic patterns with triplets and ends with a double bar line.

B-3 *Super Mario Sunshine*: Into the Tunnels!

Transcribed by G. Laroche

Quiet
hi-hat

Melody

8

The musical score is written for a single instrument, likely a piano or guitar, in 2/4 time and B-flat major. It consists of two systems of music. The first system has six measures. The second system begins with a measure rest (indicated by a box with the number 8) and continues with seven measures. The notation includes a quiet hi-hat pattern in the top staff, a melody in the right hand, and a bass line in the left hand. The melody is composed of eighth and sixteenth notes, often beamed together. The bass line features a steady eighth-note pattern with occasional triplets. The score ends with a double bar line.

B-4 *Super Mario 64*: Cave Dungeon

MIDI anonymously encoded
Partial transcription by G. Laroche

Claves/
Cntrmel.

Melody

Bass

rit.

a tempo

+ percussion

8

15

21

26

30

35

40

44

to measure 34

49

54

to measure 7

B-5 *Super Mario Sunshine*: Delfino Airstrip

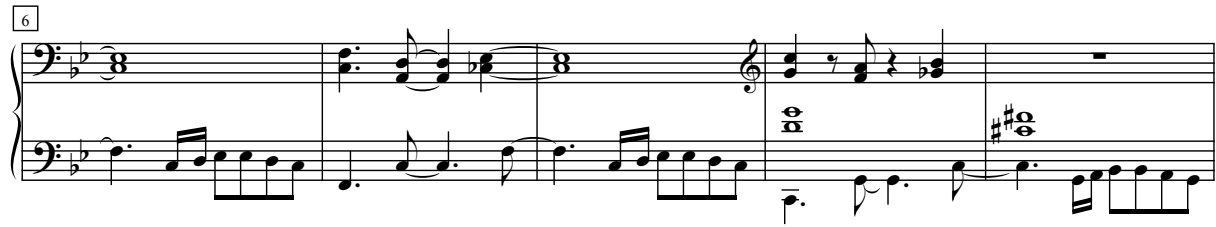
MIDI encoded by Paper Luigi

Melody

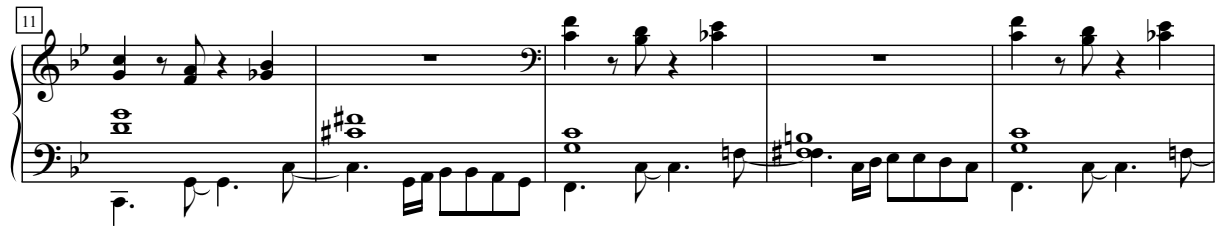
Accomp./
Bass



6



11



16



20



25



B-6 *Super Mario Sunshine*: Shadow Mario Theme

MIDI anonymously encoded

Jingle

Melody

Bass

f

3

J.

M.

B.

f *p* *f* *p*

*All melody notes except chromatic slides are tripled at the octave below (ex: C4/C3/C2).

5

J.

M.

B.

f *p* *f* *p*

7

J.

M.

B.

f *p* *f* *p*

(B-6)

9

J. 

M. 

B. 

11

J. 

B. 

13

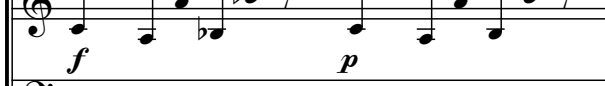
J. 

B. 

15

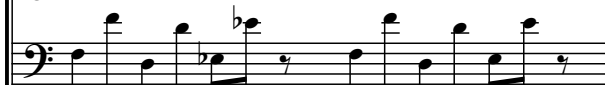
J. 

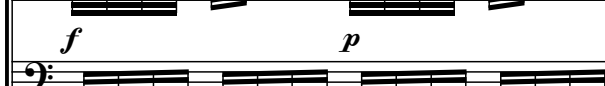
M. 

B. 

17

J. 

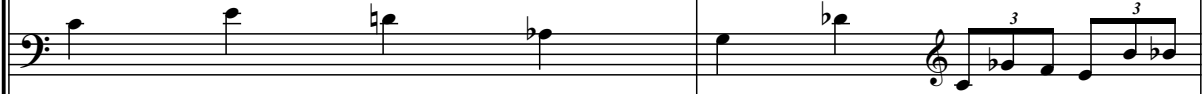
M. 

B. 

(B-6)

19

J. 

M. 

B. 

21

J. 

M. 

B. 

23

M. 

B. 

25

B. 

27

B. 

29

B. 

C-1 *Super Mario World*: Main Theme

MIDI encoded by Seven Chaos

The musical score is written for piano in 4/4 time, featuring a key signature of one flat (B-flat). It is divided into four systems, each containing three staves (treble, middle, and bass clef). The first system begins with a treble clef staff playing a melody of eighth and sixteenth notes, while the middle and bass staves provide harmonic support. The second system, starting at measure 4, introduces a dense texture with the treble staff playing a rapid sequence of chords, each marked with a '6' (likely indicating a sixteenth note). The middle and bass staves continue the melodic and harmonic lines. The third system, starting at measure 7, maintains this complex texture. The fourth system, starting at measure 10, concludes the piece with a final chord in the treble staff and a sustained bass line. The score is marked with measure numbers 4, 7, and 10 at the beginning of their respective systems.

13

16

19

21

C-2 *Super Mario World: Underwater*

MIDI encoded by Erik

Glock/Flute
accomp.

Main
reduction

8

4

8

7

8

10 ⁸

13 ⁸

15 ⁸

C-3 *Super Mario World: Bonus*

MIDI encoded by Tony Thai



The musical score is written for piano in 4/4 time, featuring a key signature of one flat (B-flat). It consists of five systems of staves, each with a treble and bass clef. The first system begins with a series of chords in the right hand and a simple eighth-note melody in the left hand. The second system, starting at measure 6, introduces a more complex melody in the right hand while the left hand continues with chords. The third system, starting at measure 10, features a melody in the right hand with accents and a more active bass line. The fourth system, starting at measure 15, continues the melodic development in the right hand. The fifth system, starting at measure 19, concludes the piece with a final melodic phrase in the right hand and a steady bass line. The score is marked with measure numbers 6, 10, 15, and 19 at the beginning of their respective systems.

C-4 *Super Mario World*: Underground

MIDI encoded by The Ultimate Koopa

E. Guitar

Dry
Timpani

6

11

16

21

26

30

This musical score is for a piece featuring an Electric Guitar and Dry Timpani. The key signature has three flats (B-flat, E-flat, A-flat), and the time signature is common time (C). The score is divided into systems, with measure numbers 6, 11, 16, 21, 26, and 30 marked at the beginning of their respective systems. The Electric Guitar part is written on a single staff, while the Dry Timpani part is written on a grand staff (two staves). The guitar part is mostly silent, with notes appearing in measures 11, 16, 21, 26, and 30. The timpani part is more active, featuring a complex rhythmic pattern of eighth and sixteenth notes, often beamed together, with some measures containing rests. The notation includes various musical symbols such as clefs, key signatures, time signatures, notes, rests, and dynamic markings.

C-5 *Super Mario World: Athletic*

MIDI encoded by The Ultimate Koopa

4

7

10

14

Musical score for measures 14-17. The treble clef staff contains a melody with eighth and sixteenth notes, including a triplet. The bass clef staff features a steady eighth-note accompaniment with block chords.

18

Musical score for measures 18-21. The treble clef staff has a melody with eighth notes and rests. The bass clef staff continues the eighth-note accompaniment with block chords.

22

Musical score for measures 22-25. The treble clef staff features a more complex melody with sixteenth notes and a final triplet. The bass clef staff continues the eighth-note accompaniment with block chords.

C-6 *Super Mario World*: Ghost House

MIDI encoded by Quietust

8 *simile*

The musical score is written for piano in 4/4 time. It consists of six measures, each containing an 8-measure system. Measures 1, 3, 4, and 5 feature a complex, rapid chordal texture in the right hand, while the left hand plays a simple, sustained bass line. Measures 2 and 6 feature a more melodic right hand with a 'simile' (similime) marking, indicating a rapid, continuous melodic line. The key signature is one flat (B-flat major or D minor).

*The middle tones are most prominent throughout

2

3 *simile*

4 *simile*

5 *simile*

6

7 ⁸

8 ⁸

9 ⁸ *simile*

10 ⁸

11 ⁸

12 ⁸

(C-6)

13 *simile*

Musical notation for measures 13-14. Measure 13: Treble clef has a complex chordal texture with many accidentals. Bass clef has a long note with a slur. Measure 14: Treble clef continues the complex texture. Bass clef has a long note with a slur.

14

Musical notation for measures 14-15. Measure 14: Treble clef continues the complex texture. Bass clef has a long note with a slur. Measure 15: Treble clef continues the complex texture. Bass clef has a long note with a slur.

15

Musical notation for measures 15-16. Measure 15: Treble clef continues the complex texture. Bass clef has a long note with a slur. Measure 16: Treble clef continues the complex texture. Bass clef has a long note with a slur.

16

Musical notation for measures 16-17. Measure 16: Treble clef continues the complex texture. Bass clef has a long note with a slur. Measure 17: Treble clef continues the complex texture. Bass clef has a long note with a slur.

C-7 *Super Mario World*: Fortress

MIDI encoded by Erik

Treb./Mel.

Accomp.

Bass/Mel.

Measures 1-3 of the 'Fortress' track. The Treble staff has a whole rest in measure 1, a whole note C4 in measure 2, and a whole rest in measure 3. The Accompaniment staff features a 5-measure rest in measure 1, followed by a 5-measure rest in measure 2, and then a continuous eighth-note arpeggiated pattern in measure 3. The Bass staff has a whole rest in measure 1, a whole note C2 in measure 2, and a whole rest in measure 3.

4

Measures 4-6. The Treble staff has whole rests. The Accompaniment staff continues the eighth-note arpeggiated pattern. The Bass staff has a whole rest in measure 4, a whole note C2 in measure 5, and a half note D2 in measure 6.

7

Measures 7-9. The Treble staff has whole rests. The Accompaniment staff continues the eighth-note arpeggiated pattern. The Bass staff has a half note C2 in measure 7, a half note D2 in measure 8, and a half note E2 in measure 9.

10

Measures 10-13. The Treble staff has whole rests. The Accompaniment staff continues the eighth-note arpeggiated pattern. The Bass staff has a half note C2 in measure 10, a half note D2 in measure 11, a half note E2 in measure 12, and a half note F2 in measure 13.

(C-7)

15

Measures 15-16 of a musical score in C major, 7/8 time. Measure 15 features a treble clef with a whole rest and a bass clef with a half note G2, a half note F2, and a half note E2. Measure 16 features a treble clef with a whole rest and a bass clef with a half note D2, a half note C2, and a half note B1. The bass line in measure 16 includes a triplet of eighth notes (G2, F2, E2) and a triplet of eighth notes (D2, C2, B1).

16

Measures 17-18 of a musical score in C major, 7/8 time. Measure 17 features a treble clef with a whole rest and a bass clef with a half note G2, a half note F2, and a half note E2. Measure 18 features a treble clef with a whole rest and a bass clef with a half note D2, a half note C2, and a half note B1. The bass line in measure 18 includes a triplet of eighth notes (G2, F2, E2) and a triplet of eighth notes (D2, C2, B1).

18

Measures 19-20 of a musical score in C major, 7/8 time. Measure 19 features a treble clef with a whole rest and a bass clef with a half note G2, a half note F2, and a half note E2. Measure 20 features a treble clef with a whole rest and a bass clef with a half note D2, a half note C2, and a half note B1. The bass line in measure 20 includes a triplet of eighth notes (G2, F2, E2) and a triplet of eighth notes (D2, C2, B1).

20

Measures 21-22 of a musical score in C major, 7/8 time. Measure 21 features a treble clef with a whole rest and a bass clef with a half note G2, a half note F2, and a half note E2. Measure 22 features a treble clef with a whole rest and a bass clef with a half note D2, a half note C2, and a half note B1. The bass line in measure 22 includes a triplet of eighth notes (G2, F2, E2) and a triplet of eighth notes (D2, C2, B1).

(C-7)

22

Measures 22-23 of a musical score. The key signature has two flats (B-flat and E-flat). The melody in the treble clef consists of whole rests in both measures. The piano accompaniment in the grand staff features a continuous eighth-note pattern in the right hand, with sixteenth-note triplets marked with a '6' and a slur. The left hand plays a simple eighth-note bass line.

24

Measures 24-25 of a musical score. The key signature has two flats. The melody in the treble clef consists of half notes and a dotted half note. The piano accompaniment continues with the same eighth-note pattern and triplet figures in the right hand, and a steady eighth-note bass line in the left hand.

26

first time to Measure 20

Measures 26-27 of a musical score. The key signature has two flats. The melody in the treble clef consists of quarter notes and half notes. The piano accompaniment continues with the same eighth-note pattern and triplet figures in the right hand, and a steady eighth-note bass line in the left hand. A repeat sign is present at the end of measure 27.

28

Measures 28-29 of a musical score. The key signature has two flats. The melody in the treble clef consists of quarter notes and half notes. The piano accompaniment continues with the same eighth-note pattern and triplet figures in the right hand, and a steady eighth-note bass line in the left hand.

(C-7)

30

Measures 30-31 of a musical score. The score is in 3/4 time and features a key signature of two flats (B-flat and E-flat). The right hand (treble clef) plays a series of chords, mostly triads, with some grace notes. The left hand (bass clef) plays a continuous eighth-note pattern. The piece concludes with a double bar line.

32

Measures 32-33 of a musical score. The score is in 3/4 time and features a key signature of two flats (B-flat and E-flat). The right hand (treble clef) plays a series of chords, mostly triads, with some grace notes. The left hand (bass clef) plays a continuous eighth-note pattern. The piece concludes with a double bar line.

34

to Measure 16

Measures 34-35 of a musical score. The score is in 3/4 time and features a key signature of two flats (B-flat and E-flat). The right hand (treble clef) plays a series of chords, mostly triads, with some grace notes. The left hand (bass clef) plays a continuous eighth-note pattern. The piece concludes with a double bar line.

D-1 *Super Mario 64*: Main Theme

MIDI encoded by Paper Luigi
Partial transcription by G. Laroche

Brass

E. Guitar

Jingle

Bass Guitar

4

7

(D-1)

11

Measures 11-13 of a musical score. Measure 11 features a vocal line with a half note G4 and a half note F#4, and a piano accompaniment with eighth notes in the right hand and quarter notes in the left hand. Measure 12 continues the vocal line with a half note E4 and a half note D4, with the piano accompaniment moving to quarter notes. Measure 13 shows the vocal line with a whole note chord of G4 and F#4, while the piano accompaniment consists of quarter notes.

14

Measures 14-17 of a musical score. Measure 14 has a vocal line with a half note G4 and a half note F#4, and a piano accompaniment with eighth notes in the right hand and quarter notes in the left hand. Measure 15 continues the vocal line with a half note E4 and a half note D4, with the piano accompaniment moving to quarter notes. Measure 16 shows the vocal line with a whole note chord of G4 and F#4, while the piano accompaniment consists of quarter notes. Measure 17 continues the vocal line with a half note G4 and a half note F#4, with the piano accompaniment moving to eighth notes in the right hand and quarter notes in the left hand.

18

Measures 18-22 of a musical score. Measure 18 has a vocal line with a half note G4 and a half note F#4, and a piano accompaniment with eighth notes in the right hand and quarter notes in the left hand. Measure 19 continues the vocal line with a half note E4 and a half note D4, with the piano accompaniment moving to quarter notes. Measure 20 shows the vocal line with a whole note chord of G4 and F#4, while the piano accompaniment consists of quarter notes. Measure 21 continues the vocal line with a half note G4 and a half note F#4, with the piano accompaniment moving to eighth notes in the right hand and quarter notes in the left hand. Measure 22 shows the vocal line with a whole note chord of G4 and F#4, while the piano accompaniment consists of quarter notes.

(D-1)

23

28

32

D-2 *Super Mario 64*: Slider

MIDI encoded by Tyler Prevost

Counter melody

Main Melody

Banjo

Piano

Bassline

8

5

8

11

8

14

8

17

8

(D-2)

20

Measures 20-22 of a musical score in D major. The score is written for five staves. The first staff (treble clef) contains a melody with eighth and quarter notes. The second staff (treble clef) contains a bass line with quarter notes. The third staff (treble clef) contains a continuous eighth-note accompaniment. The fourth staff (treble clef) contains a bass line with eighth notes and rests. The fifth staff (bass clef) contains a bass line with quarter notes.

23

Measures 23-25 of a musical score in D major. The score is written for five staves. The first staff (treble clef) contains a melody with quarter and eighth notes, including a phrase with a dotted quarter note. The second staff (treble clef) contains a bass line with quarter notes. The third staff (treble clef) contains a continuous eighth-note accompaniment. The fourth staff (treble clef) contains a bass line with eighth notes and rests. The fifth staff (bass clef) contains a bass line with quarter notes.

26

Measures 26-28 of a musical score in D major. The score is written for five staves. The first staff (treble clef) contains a melody with quarter and eighth notes. The second staff (treble clef) contains a bass line with quarter notes. The third staff (treble clef) contains a continuous eighth-note accompaniment. The fourth staff (treble clef) contains a bass line with eighth notes and rests. The fifth staff (bass clef) contains a bass line with quarter notes.

(D-2)

29

Measures 29-31 of a musical score in D major. The score consists of five staves. The first staff has a treble clef and a key signature of two sharps (F# and C#). It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The second staff has a treble clef and a key signature of two sharps. It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The third staff has a treble clef and a key signature of two sharps. It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The fourth staff has a treble clef and a key signature of two sharps. It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The fifth staff has a bass clef and a key signature of two sharps. It begins with a whole note G2, followed by a half note A2, and then a quarter note B2.

32

Measures 32-34 of a musical score in D major. The score consists of five staves. The first staff has a treble clef and a key signature of two sharps (F# and C#). It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The second staff has a treble clef and a key signature of two sharps. It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The third staff has a treble clef and a key signature of two sharps. It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The fourth staff has a treble clef and a key signature of two sharps. It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The fifth staff has a bass clef and a key signature of two sharps. It begins with a whole note G2, followed by a half note A2, and then a quarter note B2.

35

Measures 35-39 of a musical score in D major. The score consists of five staves. The first staff has a treble clef and a key signature of two sharps (F# and C#). It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The second staff has a treble clef and a key signature of two sharps. It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The third staff has a treble clef and a key signature of two sharps. It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The fourth staff has a treble clef and a key signature of two sharps. It begins with a whole note G4, followed by a half note A4, and then a quarter note B4. The fifth staff has a bass clef and a key signature of two sharps. It begins with a whole note G2, followed by a half note A2, and then a quarter note B2.

(D-2)

40



System 40: This system contains four measures. The first staff (treble clef) has whole notes: D4, E4, F#4, G4, A4, B4, C5, and a whole rest. The second staff (treble clef) has whole rests for the first three measures, followed by a sixteenth-note triplet in the fourth measure. The third staff (treble clef) has eighth-note pairs: D4-E4, F#4-G4, A4-B4, C5-D5, E4-D4, C4-B3, A3-G2, and F#2. The fourth staff (treble clef) has eighth-note pairs: D4-E4, F#4-G4, A4-B4, C5-D5, E4-D4, C4-B3, A3-G2, and F#2. The fifth staff (bass clef) has eighth notes: D3, E3, F#3, G3, A3, B3, C4, and D4.

44



System 44: This system contains three measures. The first staff (treble clef) has whole rests. The second staff (treble clef) has eighth-note pairs: D4-E4, F#4-G4, A4-B4, C5-D5, E4-D4, C4-B3, A3-G2, and F#2. The third staff (treble clef) has eighth-note pairs: D4-E4, F#4-G4, A4-B4, C5-D5, E4-D4, C4-B3, A3-G2, and F#2. The fourth staff (treble clef) has eighth-note pairs: D4-E4, F#4-G4, A4-B4, C5-D5, E4-D4, C4-B3, A3-G2, and F#2. The fifth staff (bass clef) has eighth notes: D3, E3, F#3, G3, A3, B3, C4, and D4.

47



System 47: This system contains five measures. The first staff (treble clef) has whole notes: D4, E4, F#4, G4, A4, B4, C5, and a whole rest. The second staff (treble clef) has eighth-note pairs: D4-E4, F#4-G4, A4-B4, C5-D5, E4-D4, C4-B3, A3-G2, and F#2. The third staff (treble clef) has eighth-note pairs: D4-E4, F#4-G4, A4-B4, C5-D5, E4-D4, C4-B3, A3-G2, and F#2. The fourth staff (treble clef) has eighth-note pairs: D4-E4, F#4-G4, A4-B4, C5-D5, E4-D4, C4-B3, A3-G2, and F#2. The fifth staff (bass clef) has eighth notes: D3, E3, F#3, G3, A3, B3, C4, and D4.

52

(D-2)

The musical score is written for a piano in D major (two sharps) and 4/4 time. It begins at measure 52, indicated by a box containing the number 52. The score is written for a piano and features a complex melodic line in the right hand and a steady bass line in the left hand. The right hand consists of five staves, with the top staff being a grand staff (treble and alto clefs) and the bottom three staves being individual treble clefs. The left hand consists of a single bass staff. The music is characterized by a steady eighth-note bass line and a more complex, flowing melodic line in the right hand. The piece concludes with a double bar line and repeat dots.

D-3 *Super Mario 64*: Snow Mountain

MIDI anonymously encoded
Partial transcription by G. Laroche

Melody

Accomp.

Cntrmel./
Bass

*countermelody slightly varied on repetition [not shown]

5

10

15

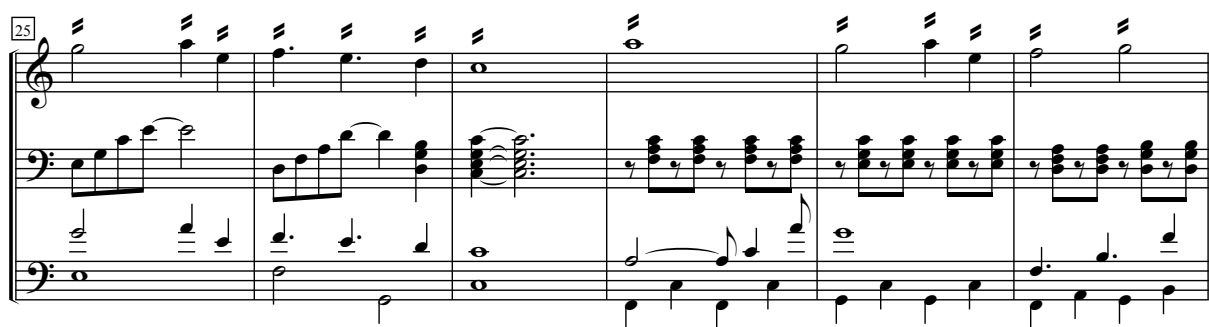
non metric, irregular repetitions

20



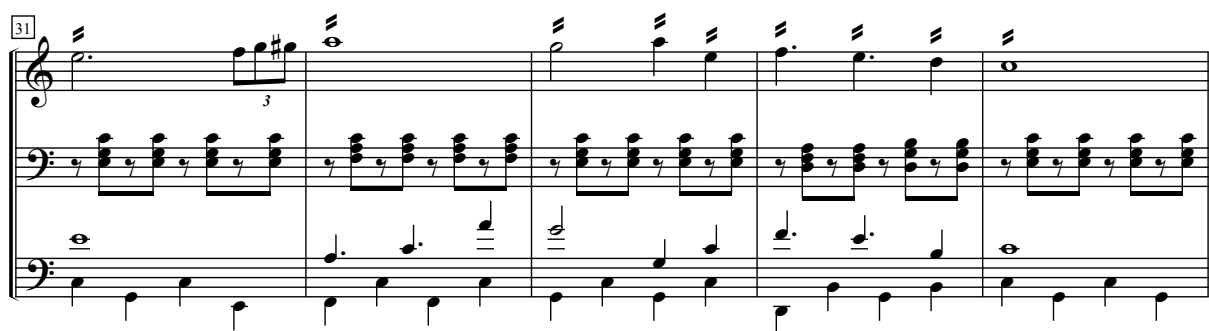
System 20: Treble clef staff with a key signature of one sharp (F#). The melody consists of eighth and quarter notes, with a triplet of eighth notes marked with a '3' in the fourth measure. The bass staff features a continuous eighth-note accompaniment. The grand staff includes a low bass line with occasional whole notes and rests.

25



System 25: Treble clef staff with a key signature of one sharp (F#). The melody continues with eighth and quarter notes. The bass staff has a steady eighth-note accompaniment. The grand staff includes a low bass line with whole notes and rests.

31



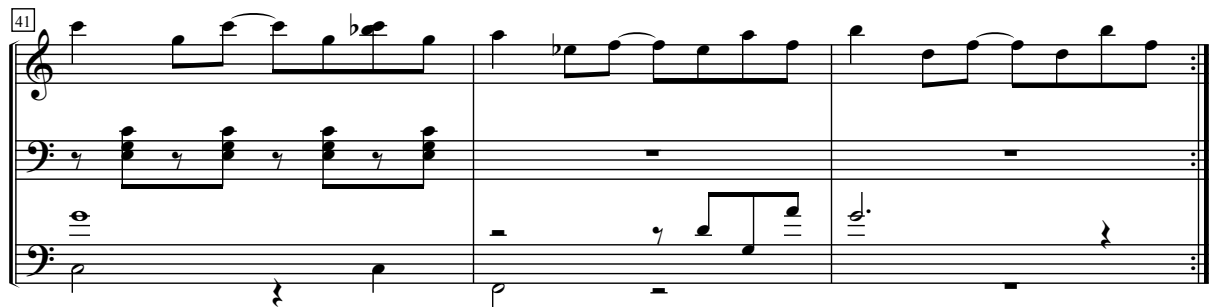
System 31: Treble clef staff with a key signature of one sharp (F#). The melody includes a triplet of eighth notes marked with a '3'. The bass staff has a steady eighth-note accompaniment. The grand staff includes a low bass line with whole notes and rests.

36



System 36: Treble clef staff with a key signature of one sharp (F#). The melody continues with eighth and quarter notes, including a flat (Bb) in the second measure. The bass staff has a steady eighth-note accompaniment. The grand staff includes a low bass line with whole notes and rests.

41



System 41: Treble clef staff with a key signature of one sharp (F#). The melody continues with eighth and quarter notes, including a flat (Bb) in the second measure. The bass staff has a steady eighth-note accompaniment. The grand staff includes a low bass line with whole notes and rests. The system ends with a double bar line.

E-1 *Super Mario Sunshine*: Bianco Hills

MIDI encoded by Shannon Mason

Accomp.

Melody

Bassoon/
String Bass

The first system of the musical score for 'Bianco Hills' consists of three staves. The top staff, labeled 'Accomp.', is a grand staff with two treble clefs and a common time signature, containing whole rests. The middle staff, labeled 'Melody', is a single treble clef staff in common time, starting with a measure rest, followed by eighth and quarter notes, and ending with a half note. The bottom staff, labeled 'Bassoon/ String Bass', is a single bass clef staff in common time, starting with a measure rest, followed by eighth and quarter notes, and ending with a half note. A repeat sign is placed after the first measure of the melody and bassoon parts.

7

The second system of the musical score for 'Bianco Hills' consists of three staves. The top staff, labeled 'Accomp.', is a grand staff with two treble clefs and a common time signature, containing whole rests. The middle staff, labeled 'Melody', is a single treble clef staff in common time, starting with a measure rest, followed by eighth and quarter notes, and ending with a half note. The bottom staff, labeled 'Bassoon/ String Bass', is a single bass clef staff in common time, starting with a measure rest, followed by eighth and quarter notes, and ending with a half note. A repeat sign is placed after the first measure of the melody and bassoon parts.

12

(brings out the lower tone)

The third system of the musical score for 'Bianco Hills' consists of three staves. The top staff, labeled 'Accomp.', is a grand staff with two treble clefs and a common time signature, containing whole rests. The middle staff, labeled 'Melody', is a single treble clef staff in common time, starting with a measure rest, followed by eighth and quarter notes, and ending with a half note. The bottom staff, labeled 'Bassoon/ String Bass', is a single bass clef staff in common time, starting with a measure rest, followed by eighth and quarter notes, and ending with a half note. A repeat sign is placed after the first measure of the melody and bassoon parts. A text annotation '(brings out the lower tone)' is placed above the melody staff in the fifth measure.

17

The fourth system of the musical score for 'Bianco Hills' consists of three staves. The top staff, labeled 'Accomp.', is a grand staff with two treble clefs and a common time signature, containing whole rests. The middle staff, labeled 'Melody', is a single treble clef staff in common time, starting with a measure rest, followed by eighth and quarter notes, and ending with a half note. The bottom staff, labeled 'Bassoon/ String Bass', is a single bass clef staff in common time, starting with a measure rest, followed by eighth and quarter notes, and ending with a half note. A repeat sign is placed after the first measure of the melody and bassoon parts.

23

29

34

39

(brings out the lower tone)

44

E-2 *Super Mario Sunshine*: Ricco Harbor

MIDI encoded by Dave Phaneuf

Accomp.

Melody

Cntrmel./
Bass

5

(doubled at octave below)

10

14

The musical score is written for three parts: Accompaniment (Accomp.), Melody, and Contramelody/Bass (Cntrmel./Bass). The time signature is 4/4. The key signature has one flat (Bb). The score is divided into measures by bar lines. Measure numbers 5, 10, and 14 are indicated in boxes at the start of their respective systems. The score ends with a double bar line and a repeat sign.

19

System 19: Treble clef contains a series of eighth-note chords (dyads) with a grace note. Bass clef contains a melodic line with eighth notes and a half note. A grand staff system with three staves.

23

System 23: Treble clef continues the eighth-note chord pattern. Bass clef continues the melodic line. A grand staff system with three staves.

28

System 28: Treble clef continues the eighth-note chord pattern. Bass clef continues the melodic line. A grand staff system with three staves.

33

System 33: Treble clef continues the eighth-note chord pattern. Bass clef continues the melodic line. A grand staff system with three staves.

(E-2)

38

System 1 (Measures 38-42): Treble clef contains chords. Bass clef contains a melodic line with eighth notes and a half note.

43

System 2 (Measures 43-46): Treble clef contains chords. Bass clef contains a melodic line with eighth notes and a half note.

47

System 3 (Measures 47-51): Treble clef contains chords. Bass clef contains a melodic line with eighth notes and a half note.

52

System 4 (Measures 52-56): Treble clef contains chords. Bass clef contains a melodic line with eighth notes and a half note.

(E-2)

57

62

67

72

E-3 *Super Mario Sunshine*: Gelato Beach

Transcribed by G. Laroche

Harmony

Melody

Bass

The first system of the musical score for 'Gelato Beach' is in 2/4 time. It features three staves: Harmony (treble clef), Melody (bass clef), and Bass (bass clef). The Harmony staff begins with a 4-measure rest labeled '(perc. intro)' and then contains a series of eighth and sixteenth notes. The Melody staff starts with a 4-measure rest, followed by a series of eighth and sixteenth notes, with a 'steel drums' annotation above the first measure. The Bass staff also begins with a 4-measure rest, followed by a series of eighth and sixteenth notes. The system concludes with a 4-measure rest in the Harmony staff and a series of eighth and sixteenth notes in the Melody and Bass staves.

13

The second system of the musical score for 'Gelato Beach' continues from the first system. It features three staves: Harmony (treble clef), Melody (bass clef), and Bass (bass clef). The Harmony staff contains a series of eighth and sixteenth notes, with a 3-measure rest in the final measure. The Melody staff contains a series of eighth and sixteenth notes, with a 3-measure rest in the final measure. The Bass staff contains a series of eighth and sixteenth notes, with a 3-measure rest in the final measure. The system concludes with a 3-measure rest in the Harmony staff and a series of eighth and sixteenth notes in the Melody and Bass staves.

22

The third system of the musical score for 'Gelato Beach' continues from the second system. It features three staves: Harmony (treble clef), Melody (treble clef), and Bass (bass clef). The Harmony staff contains a series of eighth and sixteenth notes, with a 3-measure rest in the final measure. The Melody staff contains a series of eighth and sixteenth notes, with a 3-measure rest in the final measure. The Bass staff contains a series of eighth and sixteenth notes, with a 3-measure rest in the final measure. The system concludes with a 3-measure rest in the Harmony staff and a series of eighth and sixteenth notes in the Melody and Bass staves.

32

The fourth system of the musical score for 'Gelato Beach' continues from the third system. It features three staves: Harmony (treble clef), Melody (treble clef), and Bass (bass clef). The Harmony staff contains a series of eighth and sixteenth notes, with a 3-measure rest in the final measure. The Melody staff contains a series of eighth and sixteenth notes, with a 3-measure rest in the final measure. The Bass staff contains a series of eighth and sixteenth notes, with a 3-measure rest in the final measure. The system concludes with a 3-measure rest in the Harmony staff and a series of eighth and sixteenth notes in the Melody and Bass staves.

42

brass

51

59

69

steel drums

F-1 *Super Mario World*: Special World

MIDI encoded by JILost

Bell
ostinato

Melody

Bass

The first system of the musical score for 'Special World' consists of three staves. The top staff, labeled 'Bell ostinato', features a continuous eighth-note melody in G major. The middle staff, labeled 'Melody', contains a more complex eighth-note pattern with some rests. The bottom staff, labeled 'Bass', provides a steady eighth-note accompaniment. The system spans two measures.

3

The second system of the musical score continues the three-staff arrangement. It begins with a measure rest marked with a '3' in a box, indicating a triplet or a specific measure count. The musical notation for the Bell ostinato, Melody, and Bass parts continues across two measures.

5

The third system of the musical score continues the three-staff arrangement. It begins with a measure rest marked with a '5' in a box. The musical notation for the Bell ostinato, Melody, and Bass parts continues across two measures, concluding with double bar lines.

F-2 *Super Mario Bros.*: Star Theme

MIDI encoded by Anthony Bouchereau



F-3 *Super Mario 64: Powerful Mario*

MIDI encoded by Blitz Lunar

Melody

Jingle

Cntrmel./
Bass

The first system of the musical score consists of three staves. The top staff, labeled 'Melody', is in treble clef and contains a continuous eighth-note melody. The middle staff, labeled 'Jingle', is in treble clef and contains a continuous sixteenth-note accompaniment. The bottom staff, labeled 'Cntrmel./Bass', is in bass clef and contains a continuous eighth-note melody.

3

The second system of the musical score consists of three staves. The top staff, labeled 'Melody', is in treble clef and contains a continuous eighth-note melody. The middle staff, labeled 'Jingle', is in treble clef and contains a continuous sixteenth-note accompaniment. The bottom staff, labeled 'Cntrmel./Bass', is in bass clef and contains a continuous eighth-note melody.

5

The third system of the musical score consists of three staves. The top staff, labeled 'Melody', is in treble clef and contains a continuous eighth-note melody. The middle staff, labeled 'Jingle', is in treble clef and contains a continuous sixteenth-note accompaniment. The bottom staff, labeled 'Cntrmel./Bass', is in bass clef and contains a continuous eighth-note melody.

7

The fourth system of the musical score consists of three staves. The top staff, labeled 'Melody', is in treble clef and contains a continuous eighth-note melody. The middle staff, labeled 'Jingle', is in treble clef and contains a continuous sixteenth-note accompaniment. The bottom staff, labeled 'Cntrmel./Bass', is in bass clef and contains a continuous eighth-note melody.

9

System 9: Treble clef has a whole rest. Middle staff has a continuous eighth-note accompaniment. Bass staff has a melodic line with eighth and quarter notes.

11

System 11: Treble clef has a whole rest. Middle staff has a continuous eighth-note accompaniment. Bass staff has a melodic line with eighth and quarter notes.

13

System 13: Treble clef has a melodic line with eighth and quarter notes. Middle staff has a continuous eighth-note accompaniment. Bass staff has a melodic line with eighth and quarter notes. The system ends with a double bar line and repeat dots.

F-4 *Super Mario 64*: Metal Mario

MIDI encoded anonymously

Melody

Jingle 1

Jingle 2

Bassline

+ percussion

6

10

14

(percussion drops out for two measures)

F-5 *Super Mario Bros.: Underwater*

MIDI encoded by Bingo101

The musical score is written for piano in 3/4 time. It consists of five systems of two staves each (treble and bass clef). The key signature has one sharp (F#), indicating D major or B minor. The melody is primarily in the treble clef, while the bass clef provides a steady accompaniment. The piece concludes with a double bar line and repeat dots in both staves of the final system.

System 1:
Treble: D4 quarter, F#4 quarter, E4 quarter, D4 quarter, C#4 quarter, B3 quarter, A3 quarter, G3 quarter, F#3 quarter, E3 quarter, D3 quarter, C3 quarter.
Bass: D3 quarter, F#3 quarter, E3 quarter, D3 quarter, C#3 quarter, B2 quarter, A2 quarter, G2 quarter, F#2 quarter, E2 quarter, D2 quarter, C2 quarter.

System 2:
Treble: G3 quarter, F#3 quarter, E3 quarter, D3 quarter, C#3 quarter, B2 quarter, A2 quarter, G2 quarter, F#2 quarter, E2 quarter, D2 quarter, C2 quarter.
Bass: D3 quarter, F#3 quarter, E3 quarter, D3 quarter, C#3 quarter, B2 quarter, A2 quarter, G2 quarter, F#2 quarter, E2 quarter, D2 quarter, C2 quarter.

System 3:
Treble: G3 quarter, F#3 quarter, E3 quarter, D3 quarter, C#3 quarter, B2 quarter, A2 quarter, G2 quarter, F#2 quarter, E2 quarter, D2 quarter, C2 quarter.
Bass: D3 quarter, F#3 quarter, E3 quarter, D3 quarter, C#3 quarter, B2 quarter, A2 quarter, G2 quarter, F#2 quarter, E2 quarter, D2 quarter, C2 quarter.

System 4:
Treble: G3 quarter, F#3 quarter, E3 quarter, D3 quarter, C#3 quarter, B2 quarter, A2 quarter, G2 quarter, F#2 quarter, E2 quarter, D2 quarter, C2 quarter.
Bass: D3 quarter, F#3 quarter, E3 quarter, D3 quarter, C#3 quarter, B2 quarter, A2 quarter, G2 quarter, F#2 quarter, E2 quarter, D2 quarter, C2 quarter.

System 5:
Treble: G3 quarter, F#3 quarter, E3 quarter, D3 quarter, C#3 quarter, B2 quarter, A2 quarter, G2 quarter, F#2 quarter, E2 quarter, D2 quarter, C2 quarter.
Bass: D3 quarter, F#3 quarter, E3 quarter, D3 quarter, C#3 quarter, B2 quarter, A2 quarter, G2 quarter, F#2 quarter, E2 quarter, D2 quarter, C2 quarter.

F-6 *Super Mario Bros.: The Lost Levels*: Title Screen

Transcribed by G. Laroche

The musical score for 'The Rose Tree' is presented in three parts: Melody, Accompaniment, and Bass. The key signature is one sharp (F#), and the time signature is 4/4. The melody is a simple, repetitive tune. The accompaniment features a continuous eighth-note pattern in the right hand and a bass line in the left hand. The bass line starts with a low note and then moves up to support the melody. The score is divided into three measures, with the final measure ending with a double bar line and a repeat sign.

4

9

This block contains measures 9 through 14 of the musical score. Measure 9 features a treble staff with a half note G4, a bass staff with a half note G2, and a middle staff with a half note G3. Measure 10 has a treble staff with a half note A4, a bass staff with a half note A2, and a middle staff with a half note A3. Measure 11 shows a treble staff with a half note B4, a bass staff with a half note B2, and a middle staff with a half note B3. Measure 12 has a treble staff with a half note C5, a bass staff with a half note C2, and a middle staff with a half note C4. Measure 13 features a treble staff with a half note D5, a bass staff with a half note D2, and a middle staff with a half note D4. Measure 14 has a treble staff with a half note E5, a bass staff with a half note E2, and a middle staff with a half note E4. The key signature remains one sharp (F#), and the time signature is 4/4.

15

Example 15-15

Measures 1-6

21

F-7 *Super Mario Bros. 2*: Title Screen

MIDI encoded anonymously

The musical score is written for piano in 3/4 time. It consists of six systems of two staves each. The key signature is one sharp (F#), and the tempo is marked 'Allegretto' (though the tempo marking itself is not explicitly written, the note values suggest a moderate pace). The melody is primarily in the right hand, featuring eighth and sixteenth notes, often beamed together. The left hand provides a steady accompaniment with quarter and eighth notes. The piece concludes with a double bar line at the end of the sixth system.

F-8 *Super Mario All-Stars: Super Mario Bros.: Bonus*

(also doubled two
octaves below)

MIDI encoded by Shannon Mason

Main melody

Jingle accomp.

Bassline

5

10

F-9 *Super Mario All-Stars*: Game Select Screen

MIDI encoded by Gigasoft

The musical score is presented in two systems, each with three staves. The first system is labeled with a measure number '8' at the beginning. The staves are labeled on the left: 'Quiet bells' (top staff, treble clef), 'Main Melody' (middle staff, treble clef), and 'Bassline' (bottom staff, bass clef). The time signature is common time (C). The 'Quiet bells' staff features a sequence of chords. The 'Main Melody' staff contains a melodic line with various intervals and accidentals. The 'Bassline' staff provides a steady, rhythmic accompaniment. The second system begins with a measure number '3' in a box. It continues the musical themes from the first system, with the 'Main Melody' staff showing more complex rhythmic patterns and the 'Bassline' staff maintaining its consistent pace. The score concludes with double bar lines and repeat signs at the end of each staff in the second system.

F-10 *Super Mario Galaxy*: Shadow Comet

Composed by Mahito Yokota
Transcribed by G. Laroche

Harmony/
Cntrmel.

Melody

Bass

This system contains the first two measures of the piece. The top staff, labeled 'Harmony/Cntrmel.', is in treble clef with a common time signature. It features a whole rest in measure 1 and a half note chord (Bb2, D3) in measure 2, which is tied to the next measure. The middle staff, labeled 'Melody', is in treble clef with a common time signature and contains a continuous eighth-note melody: E4, F#4, G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6, C7, D7, E7, F#7, G7, A7, B7, C8, D8, E8, F#8, G8, A8, B8, C9, D9, E9, F#9, G9, A9, B9, C10, D10, E10, F#10, G10, A10, B10, C11, D11, E11, F#11, G11, A11, B11, C12, D12, E12, F#12, G12, A12, B12, C13, D13, E13, F#13, G13, A13, B13, C14, D14, E14, F#14, G14, A14, B14, C15, D15, E15, F#15, G15, A15, B15, C16, D16, E16, F#16, G16, A16, B16, C17, D17, E17, F#17, G17, A17, B17, C18, D18, E18, F#18, G18, A18, B18, C19, D19, E19, F#19, G19, A19, B19, C20, D20, E20, F#20, G20, A20, B20, C21, D21, E21, F#21, G21, A21, B21, C22, D22, E22, F#22, G22, A22, B22, C23, D23, E23, F#23, G23, A23, B23, C24, D24, E24, F#24, G24, A24, B24, C25, D25, E25, F#25, G25, A25, B25, C26, D26, E26, F#26, G26, A26, B26, C27, D27, E27, F#27, G27, A27, B27, C28, D28, E28, F#28, G28, A28, B28, C29, D29, E29, F#29, G29, A29, B29, C30, D30, E30, F#30, G30, A30, B30, C31, D31, E31, F#31, G31, A31, B31, C32, D32, E32, F#32, G32, A32, B32, C33, D33, E33, F#33, G33, A33, B33, C34, D34, E34, F#34, G34, A34, B34, C35, D35, E35, F#35, G35, A35, B35, C36, D36, E36, F#36, G36, A36, B36, C37, D37, E37, F#37, G37, A37, B37, C38, D38, E38, F#38, G38, A38, B38, C39, D39, E39, F#39, G39, A39, B39, C40, D40, E40, F#40, G40, A40, B40, C41, D41, E41, F#41, G41, A41, B41, C42, D42, E42, F#42, G42, A42, B42, C43, D43, E43, F#43, G43, A43, B43, C44, D44, E44, F#44, G44, A44, B44, C45, D45, E45, F#45, G45, A45, B45, C46, D46, E46, F#46, G46, A46, B46, C47, D47, E47, F#47, G47, A47, B47, C48, D48, E48, F#48, G48, A48, B48, C49, D49, E49, F#49, G49, A49, B49, C50, D50, E50, F#50, G50, A50, B50, C51, D51, E51, F#51, G51, A51, B51, C52, D52, E52, F#52, G52, A52, B52, C53, D53, E53, F#53, G53, A53, B53, C54, D54, E54, F#54, G54, A54, B54, C55, D55, E55, F#55, G55, A55, B55, C56, D56, E56, F#56, G56, A56, B56, C57, D57, E57, F#57, G57, A57, B57, C58, D58, E58, F#58, G58, A58, B58, C59, D59, E59, F#59, G59, A59, B59, C60, D60, E60, F#60, G60, A60, B60, C61, D61, E61, F#61, G61, A61, B61, C62, D62, E62, F#62, G62, A62, B62, C63, D63, E63, F#63, G63, A63, B63, C64, D64, E64, F#64, G64, A64, B64, C65, D65, E65, F#65, G65, A65, B65, C66, D66, E66, F#66, G66, A66, B66, C67, D67, E67, F#67, G67, A67, B67, C68, D68, E68, F#68, G68, A68, B68, C69, D69, E69, F#69, G69, A69, B69, C70, D70, E70, F#70, G70, A70, B70, C71, D71, E71, F#71, G71, A71, B71, C72, D72, E72, F#72, G72, A72, B72, C73, D73, E73, F#73, G73, A73, B73, C74, D74, E74, F#74, G74, A74, B74, C75, D75, E75, F#75, G75, A75, B75, C76, D76, E76, F#76, G76, A76, B76, C77, D77, E77, F#77, G77, A77, B77, C78, D78, E78, F#78, G78, A78, B78, C79, D79, E79, F#79, G79, A79, B79, C80, D80, E80, F#80, G80, A80, B80, C81, D81, E81, F#81, G81, A81, B81, C82, D82, E82, F#82, G82, A82, B82, C83, D83, E83, F#83, G83, A83, B83, C84, D84, E84, F#84, G84, A84, B84, C85, D85, E85, F#85, G85, A85, B85, C86, D86, E86, F#86, G86, A86, B86, C87, D87, E87, F#87, G87, A87, B87, C88, D88, E88, F#88, G88, A88, B88, C89, D89, E89, F#89, G89, A89, B89, C90, D90, E90, F#90, G90, A90, B90, C91, D91, E91, F#91, G91, A91, B91, C92, D92, E92, F#92, G92, A92, B92, C93, D93, E93, F#93, G93, A93, B93, C94, D94, E94, F#94, G94, A94, B94, C95, D95, E95, F#95, G95, A95, B95, C96, D96, E96, F#96, G96, A96, B96, C97, D97, E97, F#97, G97, A97, B97, C98, D98, E98, F#98, G98, A98, B98, C99, D99, E99, F#99, G99, A99, B99, C100, D100, E100, F#100, G100, A100, B100, C101, D101, E101, F#101, G101, A101, B101, C102, D102, E102, F#102, G102, A102, B102, C103, D103, E103, F#103, G103, A103, B103, C104, D104, E104, F#104, G104, A104, B104, C105, D105, E105, F#105, G105, A105, B105, C106, D106, E106, F#106, G106, A106, B106, C107, D107, E107, F#107, G107, A107, B107, C108, D108, E108, F#108, G108, A108, B108, C109, D109, E109, F#109, G109, A109, B109, C110, D110, E110, F#110, G110, A110, B110, C111, D111, E111, F#111, G111, A111, B111, C112, D112, E112, F#112, G112, A112, B112, C113, D113, E113, F#113, G113, A113, B113, C114, D114, E114, F#114, G114, A114, B114, C115, D115, E115, F#115, G115, A115, B115, C116, D116, E116, F#116, G116, A116, B116, C117, D117, E117, F#117, G117, A117, B117, C118, D118, E118, F#118, G118, A118, B118, C119, D119, E119, F#119, G119, A119, B119, C120, D120, E120, F#120, G120, A120, B120, C121, D121, E121, F#121, G121, A121, B121, C122, D122, E122, F#122, G122, A122, B122, C123, D123, E123, F#123, G123, A123, B123, C124, D124, E124, F#124, G124, A124, B124, C125, D125, E125, F#125, G125, A125, B125, C126, D126, E126, F#126, G126, A126, B126, C127, D127, E127, F#127, G127, A127, B127, C128, D128, E128, F#128, G128, A128, B128, C129, D129, E129, F#129, G129, A129, B129, C130, D130, E130, F#130, G130, A130, B130, C131, D131, E131, F#131, G131, A131, B131, C132, D132, E132, F#132, G132, A132, B132, C133, D133, E133, F#133, G133, A133, B133, C134, D134, E134, F#134, G134, A134, B134, C135, D135, E135, F#135, G135, A135, B135, C136, D136, E136, F#136, G136, A136, B136, C137, D137, E137, F#137, G137, A137, B137, C138, D138, E138, F#138, G138, A138, B138, C139, D139, E139, F#139, G139, A139, B139, C140, D140, E140, F#140, G140, A140, B140, C141, D141, E141, F#141, G141, A141, B141, C142, D142, E142, F#142, G142, A142, B142, C143, D143, E143, F#143, G143, A143, B143, C144, D144, E144, F#144, G144, A144, B144, C145, D145, E145, F#145, G145, A145, B145, C146, D146, E146, F#146, G146, A146, B146, C147, D147, E147, F#147, G147, A147, B147, C148, D148, E148, F#148, G148, A148, B148, C149, D149, E149, F#149, G149, A149, B149, C150, D150, E150, F#150, G150, A150, B150, C151, D151, E151, F#151, G151, A151, B151, C152, D152, E152, F#152, G152, A152, B152, C153, D153, E153, F#153, G153, A153, B153, C154, D154, E154, F#154, G154, A154, B154, C155, D155, E155, F#155, G155, A155, B155, C156, D156, E156, F#156, G156, A156, B156, C157, D157, E157, F#157, G157, A157, B157, C158, D158, E158, F#158, G158, A158, B158, C159, D159, E159, F#159, G159, A159, B159, C160, D160, E160, F#160, G160, A160, B160, C161, D161, E161, F#161, G161, A161, B161, C162, D162, E162, F#162, G162, A162, B162, C163, D163, E163, F#163, G163, A163, B163, C164, D164, E164, F#164, G164, A164, B164, C165, D165, E165, F#165, G165, A165, B165, C166, D166, E166, F#166, G166, A166, B166, C167, D167, E167, F#167, G167, A167, B167, C168, D168, E168, F#168, G168, A168, B168, C169, D169, E169, F#169, G169, A169, B169, C170, D170, E170, F#170, G170, A170, B170, C171, D171, E171, F#171, G171, A171, B171, C172, D172, E172, F#172, G172, A172, B172, C173, D173, E173, F#173, G173, A173, B173, C174, D174, E174, F#174, G174, A174, B174, C175, D175, E175, F#175, G175, A175, B175, C176, D176, E176, F#176, G176, A176, B176, C177, D177, E177, F#177, G177, A177, B177, C178, D178, E178, F#178, G178, A178, B178, C179, D179, E179, F#179, G179, A179, B179, C180, D180, E180, F#180, G180, A180, B180, C181, D181, E181, F#181, G181, A181, B181, C182, D182, E182, F#182, G182, A182, B182, C183, D183, E183, F#183, G183, A183, B183, C184, D184, E184, F#184, G184, A184, B184, C185, D185, E185, F#185, G185, A185, B185, C186, D186, E186, F#186, G186, A186, B186, C187, D187, E187, F#187, G187, A187, B187, C188, D188, E188, F#188, G188, A188, B188, C189, D189, E189, F#189, G189, A189, B189, C190, D190, E190, F#190, G190, A190, B190, C191, D191, E191, F#191, G191, A191, B191, C192, D192, E192, F#192, G192, A192, B192, C193, D193, E193, F#193, G193, A193, B193, C194, D194, E194, F#194, G194, A194, B194, C195, D195, E195, F#195, G195, A195, B195, C196, D196, E196, F#196, G196, A196, B196, C197, D197, E197, F#197, G197, A197, B197, C198, D198, E198, F#198, G198, A198, B198, C199, D199, E199, F#199, G199, A199, B199, C200, D200, E200, F#200, G200, A200, B200, C201, D201, E201, F#201, G201, A201, B201, C202, D202, E202, F#202, G202, A202, B202, C203, D203, E203, F#203, G203, A203, B203, C204, D204, E204, F#204, G204, A204, B204, C205, D205, E205, F#205, G205, A205, B205, C206, D206, E206, F#206, G206, A206, B206, C207, D207, E207, F#207, G207, A207, B207, C208, D208, E208, F#208, G208, A208, B208, C209, D209, E209, F#209, G209, A209, B209, C210, D210, E210, F#210, G210, A210, B210, C211, D211, E211, F#211, G211, A211, B211, C212, D212, E212, F#212, G212, A212, B212, C213, D213, E213, F#213, G213, A213, B213, C214, D214, E214, F#214, G214, A214, B214, C215, D215, E215, F#215, G215, A215, B215, C216, D216, E216, F#216, G216, A216, B216, C217, D217, E217, F#217, G217, A217, B217, C218, D218, E218, F#218, G218, A218, B218, C219, D219, E219, F#219, G219, A219, B219, C220, D220, E220, F#220, G220, A220, B220, C221, D221, E221, F#221, G221, A221, B221, C222, D222, E222, F#222, G222, A222, B222, C223, D223, E223, F#223, G223, A223, B223, C224, D224, E224, F#224, G224, A224, B224, C225, D225, E225, F#225, G225, A225, B225, C226, D226, E226, F#226, G226, A226, B226, C227, D227, E227, F#227, G227, A227, B227, C228, D228, E228, F#228, G228, A228, B228, C229, D229, E229, F#229, G229, A229, B229, C230, D230, E230, F#230, G230, A230, B230, C231, D231, E231, F#231, G231, A231, B231, C232, D232, E232, F#232, G232, A232, B232, C233, D233, E233, F#233, G233, A233, B233, C234, D234, E234, F#234, G234, A234, B234, C235, D235, E235, F#235, G235, A235, B235, C236, D236, E236, F#236, G236, A236, B236, C237, D237, E237, F#237, G237, A237, B237, C238, D238, E238, F#238, G238, A238, B238, C239, D239, E239, F#239, G239, A239, B239, C240, D240, E240, F#240, G240, A240, B240, C241, D241, E241, F#241, G241, A241, B241, C242, D242, E242, F#242, G242, A242, B242, C243, D243, E243, F#243, G243, A243, B243, C244, D244, E244, F#244, G244, A244, B244, C245, D245, E245, F#245, G245, A245, B245, C246, D246, E246, F#246, G246, A246, B246, C247, D247, E247, F#247, G247, A247, B247, C248, D248, E248, F#248, G248, A248, B248, C249, D249, E249, F#249, G249, A249, B249, C250, D250, E250, F#250, G250, A250, B250, C251, D251, E251, F#251, G251, A251, B251, C252, D252, E252, F#252, G252, A252, B252, C253, D253, E253, F#253, G253, A253, B253, C254, D254, E254, F#254, G254, A254, B254, C255, D255, E255, F#255, G255, A255, B255, C256, D256, E256, F#256, G256, A256, B256, C257, D257, E257, F#257, G257, A257, B257, C258, D258, E258, F#258, G258, A258, B258, C259, D259, E259, F#259, G259, A259, B259, C260, D260, E260, F#260, G260, A260, B260, C261, D261, E261, F#261, G261, A261, B261, C262, D262, E262, F#262, G262, A262, B262, C263, D263, E263, F#263, G263, A263, B263, C264, D264, E264, F#264, G264, A264, B264, C265, D265, E265, F#265, G265, A265, B265, C266, D266, E266, F#266, G266, A266, B266, C267, D267, E267, F#267, G267, A267, B267, C268, D268, E268, F#268, G268, A268, B268, C269, D269, E269, F#269, G269, A269, B269, C270, D270, E270, F#270, G270, A270, B270, C271, D271, E271, F#271, G271, A271, B271, C272, D272, E272, F#272, G272, A272, B272, C273, D273, E273, F#273, G273, A273, B273, C274, D274, E274, F#274, G274, A274, B274, C275, D275, E275, F#275, G275, A275, B275, C276, D276, E276, F#276, G276, A276, B276, C277, D277, E277, F#277, G277, A277, B277, C278, D278, E278, F#278, G278, A278, B278, C279, D279, E279, F#279, G279, A279, B279, C280, D280, E280, F#280, G280, A280, B280, C281, D281, E281, F#281, G281, A281, B281, C282, D282, E282, F#282, G282, A282, B282, C283, D283, E283, F#283, G283, A283, B283, C284, D284, E284, F#284, G284, A284, B284, C285, D285, E285, F#285, G285, A285, B285, C286, D286, E286, F#286, G286, A286, B286, C287, D287, E287, F#287, G287, A287, B287, C288, D288, E288, F#288, G288, A288, B288, C289, D289, E289, F#289, G289, A289, B289, C290, D290, E290, F#290, G290, A290, B290, C291, D291, E291, F#291, G291, A291, B291, C292, D292, E292, F#292, G292, A292, B292, C293, D293, E293, F#293, G293, A293, B293, C294, D294, E294, F#294, G294, A294, B294, C295, D295, E295, F#295, G295, A295, B295, C296, D296, E296, F#296, G296, A296, B296, C297, D297, E297, F#297, G297, A297, B297, C298, D298, E298, F#298, G298, A298, B298, C299, D299, E299, F#299, G299, A299, B299, C300, D300, E300, F#300, G300, A300, B300, C301, D301, E301, F#301, G301, A301, B301, C302, D302, E302, F#302, G302, A302, B302, C303, D303, E303, F#303, G303, A303, B303, C304, D304, E304, F#304, G304, A304, B304, C305, D305, E305, F#305, G305, A305, B305, C306, D306, E306, F#306, G306, A306, B306, C307, D307, E307, F#307, G307, A307, B307, C308, D308, E308, F#308, G308, A308, B308, C309, D309, E309, F#309, G309, A309, B309, C310, D310, E310, F#310, G310, A310, B310, C311, D311, E311, F#311, G311, A311, B311, C312, D312, E312, F#312, G312, A312, B312, C313, D313, E313, F#313, G313, A313, B313, C314, D314, E314, F#314, G314, A314, B314, C315, D315, E315, F#315, G315, A315, B315, C316, D316, E316, F#316, G316, A316, B316, C317, D317, E317, F#317, G317, A317, B317, C318, D318, E318, F#318, G318, A318, B318, C319, D319, E319, F#319, G319, A319, B319, C320, D320, E320, F#320, G320, A320, B320, C321, D321, E321, F#321, G321, A321, B321, C322, D322, E322, F#322, G322, A322, B322, C323, D323, E323, F#323, G323, A323, B323, C324, D324, E324, F#324, G324, A324, B324, C325, D325, E325, F#325, G325, A325, B325, C326, D326, E326, F#326, G326, A326, B326, C327, D327, E327, F#327, G327, A327, B327, C328, D328, E328, F#328, G328, A328, B328, C329, D329, E329, F#329, G329, A329, B329, C330, D330, E330, F#330, G330, A330, B330, C331, D331, E331, F#331, G331, A331, B331, C332, D332, E332, F#332, G332, A332, B332, C333, D333, E333, F#333, G333, A333, B333, C334, D334, E334, F#334, G334, A334, B334, C335, D335, E335, F#335, G335, A335, B335, C336, D336, E336, F#336, G336, A336, B336, C337, D337, E337, F#337, G337, A337, B337, C338, D338, E338, F#338, G338, A338, B338, C339, D339, E339, F#339, G339, A339, B339, C340, D340, E340, F#340, G340, A340, B340, C341, D341, E341, F#341, G341, A341, B341, C342, D342, E342, F#342, G342, A342, B342, C343, D343, E343, F#343, G343, A343, B343, C344, D344, E344, F#344, G344, A344, B344, C345, D345, E345, F#345, G345, A345, B345, C346, D346, E346, F#346, G346, A346, B346, C347, D347, E347, F#347, G347, A347, B347, C348, D348, E348, F#348, G348, A348, B348, C349, D349, E349, F#349, G349, A349, B349, C350, D350, E350, F#350, G350, A350, B350, C351, D351, E351, F#351, G351, A351, B351, C352, D352, E352, F#352, G352, A352, B352, C353, D353, E353, F#353, G353, A353, B353, C354, D354, E354, F#354, G354, A354, B354, C355, D355, E355, F#355, G355, A355, B355, C356, D356, E356, F#356, G356, A356, B356, C357, D357, E357, F#357, G357, A357, B357, C358, D358, E358, F#358, G358, A358, B358, C359, D359, E359, F#359, G359, A359, B359, C360, D360, E360,

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17

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(F-10)

23

Musical score for measures 23-25. Measure 23: Treble clef has a whole rest; middle and bass staves have eighth-note chords. Measure 24: Treble clef has a triplet of eighth notes (G4, A4, Bb4); middle and bass staves have eighth-note chords. Measure 25: Treble clef has a triplet of eighth notes (A4, Bb4, C5); middle and bass staves have eighth-note chords. The key signature has one flat (Bb).

26

Musical score for measures 26-29. Measure 26: Treble clef has a whole note chord (F4, Ab4, C5); middle and bass staves have eighth-note chords. Measure 27: Treble clef has a whole note chord (G4, Bb4, D5); middle and bass staves have eighth-note chords. Measure 28: Treble clef has a whole note chord (Ab4, C5, Eb5); middle and bass staves have eighth-note chords. Measure 29: Treble clef has a whole note chord (Bb4, D5, F5); middle and bass staves have eighth-note chords. The key signature has one flat (Bb).