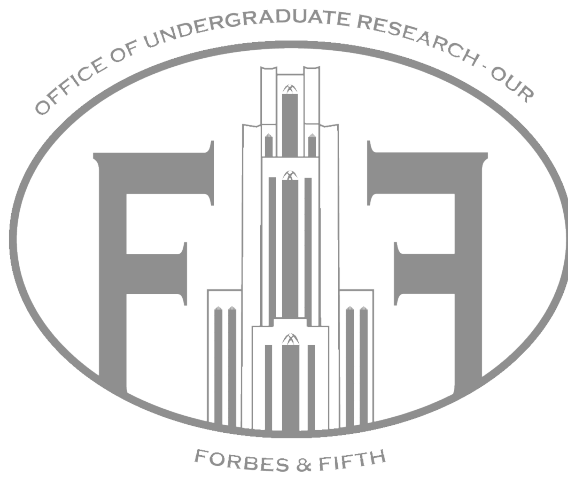


ANDREW HEAD

Andrew Head secretly hopes that he'll get to live all the possible lives there are to experience. Because that's not really possible (his engineering courses have taught him this kind of thing is infeasible), he has settled on trying to live a couple of compelling ones instead. As a computer engineering and music major at the University of Pittsburgh, he programs educational games by day and composes orchestral pieces by night. This semester is the final one of his super-senior year, after which he plans to go to West Coast to work with a start-up and then get a PhD in computer science so that he can combat world problems by calling on his arsenal of technical skills.

FORBES & FIFTH



Evolving Style in the *Super Mario Bros. 3* Soundtrack

With new graphics, levels, mini-games, and cut-scenes, *Super Mario Bros. 3* for the Nintendo Entertainment System (NES) was an exciting evolution in the Mario series from the experience of the first *Super Mario Bros.* game.^{1,2} Along with the updated gameplay and aesthetics came a new original soundtrack by Koji Kondo, composer for the first *Super Mario Bros.* game.³ This soundtrack took Mario music to a new level of vibrancy and diversity. Exploring the ways in which musical style evolved in *Super Mario Bros. 3*, in comparison to the first *Super Mario Bros.*, three main ways will be considered in which musical style developed: its attempt to emulate real musical genres, its increasing soundtrack-wide diversity, and the thematic unity it provided both within the game's music and within that of the *Super Mario Bros.* series.

Past literature on “retro” game music tends to focus on the first *Super Mario Bros.* soundtrack when considering Mario music, with understandable reason: its popularity. Matthew Belinkie, in his article “Video Game Music: Not Just Kid Stuff,” claimed that as many as 66% of college students in 1999 could hum the *Super Mario Bros.* main theme.⁴ In addition, the game's music set the precedent for “different background music for every area Mario visited,”⁵ and some researchers like Zach Whalen in “Play Along – An Approach to Videogame Music” have performed level-by-level musical analysis in search for the music's behavioral cues.⁶ This paper performs a similarly brief yet wide analysis of music in *Super Mario Bros. 3*, a game for which the music has been largely unstudied, with the intention to expose the remarkably colorful and thoughtful advancements it provided for the music of the Mario series. To do this, I will draw primarily upon track-centered analyses of *Super Mario Bros. 3* music. This paper will build on an understanding of the Nintendo Entertainment System's (NES) sound chip as documented in Karen Collins's *Game Sound*.⁷ Furthermore, the spirit of Jason Brame's *Thematic Unity Across a Video Game Series* will be called upon when considering motif and timbre-based musical unity that is both within *Super Mario Bros. 3* and shared between this game and *Super Mario Bros.*⁸

With its expanded number of game contexts, *Super Mario Bros. 3* provided the opportunity for increased stylization and thematic unity

across the diverse gameplay environments. In contrast to *Super Mario Bros.*, for which the longest looping tracks were four level themes – the rest were essentially sound effects acknowledging player death and level completion – *Super Mario Bros. 3* featured nine World Maps, chambers for fighting bosses, mini-games to fight the Hammer Bros., and more. The aesthetic diversity of these different game contexts is substantial: the color scheme and art design from the cheery Overworld gameplay to the Bowser’s lifeless World 8 lair provide diverse atmospheres where a player should feel very differently, if just from the visuals alone. The game layout of *Super Mario Bros. 3* lent itself to an increasing volume and diversity of music, offering opportunities within the larger soundtrack for commonality across these tracks.

Kondo’s technical evolution with *Super Mario Bros. 3*’s music can be explained as an expansion of musical color. From the opening of the World 1 Map, we can hear that some drum samples are produced from the delta modulation channel instead of exclusively the noise channel, as was the case in *Super Mario Bros.*,⁹ allowing for greater definition of drum sounds, including timbale, wood block, and timpani sounds in several tracks. Synthesized instrument voices became more varied as Kondo moved beyond the “hollow” square-wave sound consistent across most of the *Super Mario Bros.* soundtrack¹⁰ with high-pitched bells (World 6 Map), nasal flutes (Underwater), and quick-attacking piano-like instrumental voices (Overworld 1). On top of this, Kondo explored greater melodic expressivity by simulating echo (World 6 Map), increasing the number of perceived voices from four to six (Overworld 2), and altering instrument articulation mid-phrase (Overworld 2). These techniques formed the basis for the enhanced musical definition of each track and are core to the following discussion.

The first way in which we can hear stylistic evolution in Kondo’s *Super Mario Bros. 3* soundtrack is its approximation of real-life genres. As Kondo himself stated, he was attempting to emulate reggae in this soundtrack;¹¹ thus it is appropriate to begin with a discussion of the World 5 Map – GROUND music, the track which most clearly suggests reggae. The piece begins with a timbale roll and two quarter-note hits before the melodic instruments enter, as shown in Figure 1, providing a tropical feeling. A mellow bass plucks out a major straight eighth-note texture at the harmonic bottom of the piece, while two low

flute-like synthesizers play chords on beats 2 and 4, as shown in Figure 2. From the use of timbales, eighth-note bass, and off-beat chords, we start to get a taste that is altogether different from the first *Super Mario Bros.*, but more importantly, that suggests reggae by emulating some of the genre’s most characteristic features.

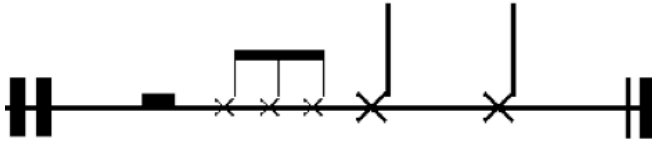


Figure 1: Timbale roll in introduction of World 5 – GROUND music.



Figure 2: Bass (bass clef) and flute harmony (treble clef) of World 5 – GROUND. Note the eighth-note bass rhythm and beat 2 and 4 harmony as reggae characteristics.

Beyond reggae, Kondo attempts in several tracks to convey the genre of jazz through thoughtful instrumentation, rhythm, and tonal content. The simplest example of this is the Slot Machine mini-game music, which features only a low-frequency bass synthesizer strumming a chromatic “walking bass” pattern, shown in Figure 3, while a high-hat hits a repetitive long short-short jazz rhythm as shown in Figure 4. The World 7 Map expands on this formula, with an identical high-hat rhythm that spans two different noise-channel-generated high-hat sounds (one longer than the other), as shown in Figure 5. The World 7 Map diverges from the Slot Machine theme in its almost exclusive use of blues scale (minor pentatonic) tones in the melody, performed on a piano-like synthesizer, as shown in Figure 6. In this way, Kondo uses tonal content, high-hat rhythm, and instrumental tropes such as the “walking bass” to convey the feeling of a real life genre that the player has likely had some exposure to prior to playing *Super Mario Bros. 3*.



Figure 3: Slot Machine chromatic bass “walking bass” pattern.

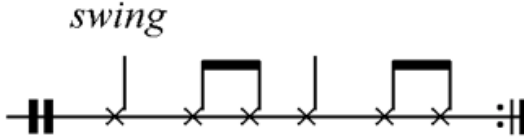


Figure 4: Slot Machine high hat “jazzy” rhythm.

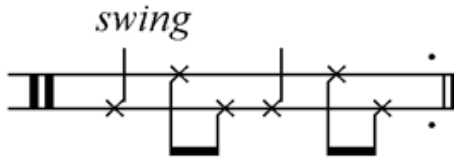


Figure 5: World 7 high hat “jazzy” rhythm. Top line represents a high hat sample that is longer than the bottom line.



Figure 6: World 7 Map melody and doubling. Note the almost exclusive use of “blues notes” from the C-minor pentatonic scale

The music of *Super Mario Bros. 3* can be seen as increasingly colorful in style not only from its approach toward more realistic representation of established genres, but also in the increasing diversity between different tracks of the game’s music. By surveying stylistic trends across the soundtrack, we find a number of prominent groupings of tracks into styles, each of which sports its own instrumental, tempo, rhythmic, and melodic trends. For example, a “Bell Ambiance” style (World 6 Map, King’s Chamber) features sparse percussion content, lei-

surely tempo, a primary bell melody with a simple contour and simulated echo, and sparse harmonic filler; in contrast, the “Overworld Mario” style (World 1 Map, Overworld 1, Overworld 2, Hammer Bros.) features syncopated melodies, playful, constant drum samples taken mostly from a standard drum kit, and almost always a secondary harmonizing line at consonant pitches beneath the melody. By looking at the soundtrack as a whole, there is incredible diversity in the instrumentation, tempo, rhythm, and contour of the styles.

An apt example of the diversity of individual tracks within the *Super Mario Bros. 3* soundtrack is with the Bowser Battle track, an unexpected fusion of instrumental sounds and rhythms unheard elsewhere in the game. The primary source of rhythm within this track is an ostinato on wood blocks of multiple pitches, providing a Latin-like percussive feel. Though a mellow bass provides the lowest harmonic content of most tracks in the game, Kondo instead opts for a harsh-attack slap-bass for Bowser’s music, which skirts up and down an octave hitting the fifth of the scale in between, providing a relentless source of intensity. An additional synthesizer identical in timbre to the bass plays, on select off beats, a perfect fifth above the bass, reminiscent of rock’s power chords. Finally, a mellow synthesizer provides the melody for three measures of the loop, contrasting with the harsh sound of all other voices. The Bowser Battle music becomes not only an odd amalgam of instrumental voices from different worlds, but also becomes an example of the huge contrast a single track can have in relation to all others within the *Super Mario Bros. 3* soundtrack with a unique combination of instrumental sounds and a strange assignment of harmonic material to voices.

With the increasing diversity of *Super Mario Bros. 3*’s music and the larger volume of tracks, thematic unity develops across track groups that share similar musical features, something that could not have been done to the same extent in the first *Super Mario Bros.* with its limited musical contexts and instrumental diversity. As an example, *Super Mario Bros. 3* has two dungeon levels, Fortress and Airship, which share not only bleak atmospheres, but also a “Dungeon” style of music with common motifs and instrumentation that implicitly tie the two environments together. The main melodies of each track begin with a wide-leaping upward appoggiatura that resolves downward by a half step, as shown in Figure 7, uniting both tracks with an off-putting, chro-

matic motif. Meanwhile, both tracks make use of silence, with melodic material ceasing completely at the end of each Fortress phrase. At the end of the last phrase of the Airship loop, the void fills in each case with menacing timpani rhythms, the only percussion sound for either track. In this way, we hear a hopeless, common “Dungeon” style arise from the motifs and instruments of each track.

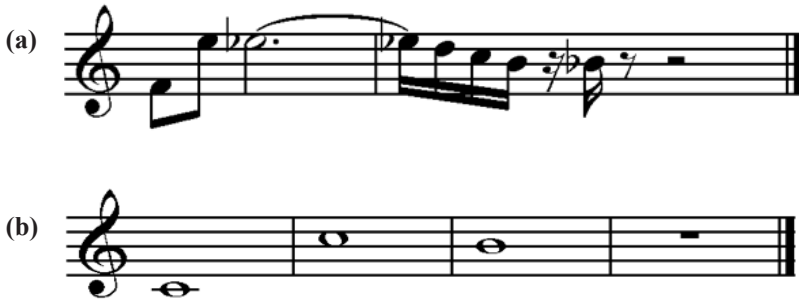


Figure 7: Motifs from (a) Fortress (adapted with permission from Philip Kim’s *Super Mario Brothers 3: Transcriptions/Arrangements for the Piano*¹²); and (b) Airship. Note the upward appoggiatura and descending half step as a “Dungeon” motif.

Kondo takes this across-track thematic unity to a larger scale with the “Water” style, definable through its simple instrumentation and melodic contour. The “Water” style is found in tracks that accompany the Underwater level and the World 3 and World 4 Maps, playing in the background to levels and maps which feature a great deal of water. In contrast to the melody of Fortress (see Figure 7) or Overworld 1 (see Figure 9), the music of the “Water” theme has slow melodic movement, often by quarter notes or half notes, as exhibited in Figure 8. The leisurely feel of these tracks is enhanced by the lead flute-like synthesizer with its slow attack and high range which leaves much of the middle frequency spectrum between it and the mellow bass open. Percussion is limited to high hats, kicks, and in the case of Underwater, a wood block sound. “Water” style music therefore represents thematic unity across three songs in the soundtrack with similar laidback “watery” atmosphere, conveyed through uniquely slow melodic contour.



Figure 8: “Water” style melodies for: (a) Underwater level; (b) World 3 Map; and (c) World 4 Map. Note the slow and occasionally chromatic contour of these melodies as an indication of “Water” environments.

Kondo takes thematic unity beyond the within-game level, as we can hear echoes of the original *Super Mario Bros.* in *Super Mario Bros. 3*. An apt example of this is the Overworld music of both games: the Overworld music of the first game and the Overworld 1 and 2 themes of the third game share several defining similarities. The melodies of each track, shown in Figure 9, are major, with energetic syncopation on the eighth-note level. Furthermore, the orchestration of each Overworld theme is the same, the melody always harmonized with a second voice

emulating the melody at consonant intervals, with a mellow bass below these two voices. Percussion plays an important role in each of these pieces, especially Overworld of *Super Mario Bros.* and Overworld 1 of *Super Mario Bros. 3*, where it contributes a consistent groove. In this way, one hears overarching melodic and rhythmic traits that unite the music of the first and the third games of the *Super Mario Bros.* series in similar gameplay contexts.



Figure 9: Melodies of (a) *Super Mario Bros.* Overworld; (b) *Super Mario Bros. 3* Overworld 1; and (c) *Super Mario Bros. 3* Overworld 2. Each of these melodies shares a major, syncopated, eighth-note resolution contour.

Another way that Kondo provides thematic unity between the first and third *Super Mario Bros.* games is direct reuse of melodic content. The Underworld music of *Super Mario Bros. 3* is exactly the same as in *Super Mario Bros.*, with the additional tweaks of removing octave doubling, adding a standard drum kit percussion accompaniment, and setting the melody to a punchier synthesizer voice. The Credits music borrows the Ending theme from *Super Mario Bros.*, appending an extra phrase to the original melody before transitioning into a more cheery, active main loop. Finally, the Invincible Star music, aside from changing the main voice from a square-wave sound to more of a piano-like timbre, is a nearly exact transcription of the music from *Super Mario Bros.* In this not-so-subtle way, *Super Mario Bros. 3* begins to develop the idea of what to expect of certain game contexts such as Underworld and Invincible Star, providing a sense of unity across tracks of both Mario games through repeated melody.

The music of *Super Mario Bros. 3* is exceptional in its stylistic realism, diversification, and unification of game contexts between itself and its series predecessor, *Super Mario Bros.* Through the increasing instrumental variety as well as special attention to melody and contour, Kondo provided a soundtrack that was increasingly vibrant and one that established recognizable tropes across the whole soundtrack. It seems surprising that with its additional stylistic care, the themes of *Super Mario Bros. 3* did not become the ones that 66% of college students can hum today, or at least not ones that scholars cared to survey students about. Papers could be written on that consideration alone. *Super Mario Bros. 3* represents a major step in the evolution of Mario music, for in its size and diversity, it created a more vibrant and thoughtful aural world for players who were already familiar with the music of the original *Super Mario Bros.*

