Harmonic Language in The Legend of Zelda: Ocarina of Time

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Abstract

This paper examines the work of Koji Kondo in the 1998 video game *The Legend of Zelda: Ocarina of Time*. Using a variety of techniques of harmonic analysis, the paper examines the commonalities between teleportation pieces and presents a model to describe their organization. Concepts are drawn from the work of three authors for the harmonic analysis. William Caplin's substitutions; Daniel Harrison's fundamental bases; and, Dmitri Tymoczko's parsimonious voice leading form the basis of the model for categorizing the teleportation pieces. In general, these pieces begin with some form of prolongation (often tonic); proceed to a subdominant function; employ a chromatically altered chord in a quasi-dominant function; and, end with a weakened cadence in the major tonic key. By examining the elements of this model in each piece, this paper explains how the teleportation pieces use unusual harmonic language and progressions while maintaining a coherent identity in the context of the game's score.

Keywords

Game, Zelda, Harmony, Analysis, Progression

Harmonic Language in
The Legend of Zelda: Ocarina of Time

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Music often fills a specific function in video games. In a 2013 interview with Carolyn Gudmundson for the website *Games Radar*, the composer Koji Kondo explains that video game music must convey an emotion appropriate to the scene (similar to music in movies), but is distinguished from other media music because it must accommodate the interactive nature of video games. Because of this, video game composers must write music that takes into consideration player input. For instance, in *The Legend of Zelda: Ocarina of Time*, Kondo’s music reflects how players perform his pieces with a controller, rather than an instrument. In this paper, I argue that the teleportation pieces in *Ocarina of Time* contain harmonic progressions that can be understood and categorized using a mixture of harmonic language from tonal and Romantic chromatic music. Kondo’s music uses alterations and substitutions to the Common Practice harmonic phrase model. Example 1 outlines the basic differences between standard harmonic progressions and those used by Kondo, which I will explain further using material from the literature about

harmonic progressions and musical examples from *Ocarina of Time*.

EXAMPLE 1. *Above* Common Practice Progressions; *below* Koji Kondo's Progressions

Tonic	Pre-dominant	Dominant	Tonic
Tonic Prolongation	Pre-dominant	Chromatically Altered	Weak cadence and major Tonic

Since Kondo's harmonic progressions adhere to the Common Practise harmonic framework, one of the main ways he creates variety is through the use of harmonic substitutions. As William Caplin notes, chords that substitute for each other often share two common tones, reflecting the similarity of their harmonic roles.¹ For example, I and VI belong to the same harmonic group (tonic) and they share scale degrees 1 and 3. In Common Practice music, harmonic progressions move between harmonic functions in a particular order: Tonic–Predominant–Dominant–Tonic.² Substitutions allow this progression to be completed in various ways, and are used to expand the harmonic language in a composition.

Using the aforementioned rule for substitution, William Caplin groups the seven diatonic chords into three categories. Tonic harmony emphasizes the first scale degree, either as the root of the chord (in I) or as the third of the chord (in VI). The

1. William Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental music of Haydn, Mozart, and Beethoven* (New York: Oxford University Press, 1998), 25.

2. *Ibid.*, 25–30.

III chord also contains scale degree 1, but is less commonly found in traditional Common Practice progressions. These chords usually begin and end the harmonic phrase model, and contribute to a sense of stability. The second category, dominant, is defined by the prominence of scale degree 7, which sounds harmonically unstable and resolves to the tonic. The most common dominant-function chord is V, which uses the leading tone as its third, but vii° can also fulfil this role. The third category, predominant, is centered on the fourth scale degree, and is used to transition from tonic to dominant. The most common predominant chords are ii and IV, but Caplin also mentions a second group, which uses a raised scale degree four. The latter functions as a leading tone to a dominant chord, chromatically enhancing the motion from tonic to dominant.³ Just as the movement from dominant to tonic is strengthened by leading tone motion, so too is the predominant to dominant progression strengthened by semitone motion. Typical examples include a $\text{vii}^\circ/\text{V}$ or V^6/V , as the semitone motion is often in the bass.⁴ Caplin presents a straightforward explanation of substitution: chords from the same harmonic group can replace each other and still fulfil their role within harmonic progressions. As noted in example 1, Kondo's use of

3. For the purposes of this paper, the harmonic functions of subdominant and predominant refer to the same category of chords. It is important to note, however, that Caplin's definition of the predominant function is restricted to those which have the V chord as their tonic center (rather than the I chord of that particular key). The music with which this paper is concerned often deviates from the Common Practice style that Caplin describes, and thus the distinction between subdominant and predominant functions becomes less useful.

4. Caplin, *Classical form*, 23–4.

substitution often occurs near cadences, where an unconventional chromatic chord replaces the dominant-function chord. This substitution contributes to the characteristic weakening of cadences found in Kondo's works.

Expanding on harmonic function, Daniel Harrison's *Harmonic Function in Chromatic Music* details a method for analyzing chromatic music that focuses on the roles of individual pitches within a chord.⁵ To do this, Harrison distinguishes between chord labels and harmonic function. Chord labels identify specific chords within a harmonic set, identified by the pitch class used as their root. For example, in a major key, IV refers to a specific chord, one that is both built on the fourth scale degree and of major quality. Harmonic function, however, is a method of grouping chords based on their common tones and their functional roles within progressions. Harrison explains that the harmonic function of a chord is not derived from the intervallic structure of the chord, but from the organization of particular scale degrees within it. Thus, Harrison's analysis is significantly different from that of Caplin. While the latter is concerned with harmonic groupings and substitutions, the former focuses on the motion of individual notes within a chord. Harrison names each member of a root position triad from the bottom up: bases, agents, and associates (see Ex. 2).

5. Daniel Harrison, *Harmonic Function in Chromatic Music: A Renewed Dualist Theory and an Account of its Precedents* (Chicago: University of Chicago Press, 1994), 6.

EXAMPLE 2. Harrison's Bases, Agents, and Associates in scale degrees. Harrison, *Harmonic Function in Chromatic Music*, 45.

1	5	2	Associates
6	3	7	Agents
4	1	5	Bases
Subdominant	Tonic	Dominant	

Bases are indicators of harmonic function and are distinct from the root of a chord. For example, a passage with a tonic pedal tone may have a variety of roots, but the functional base of the entire passage (scale degree 1) still articulates the overall tonic function. This allows for an emphasis on individual scale degrees and their motion within progressions while still differentiating their roles within other chords.⁶ Agents, found in the middle of chords, are less ambiguous than bases with regards to their harmonic function. Since bases act “as single-note representatives of multi-note structures,” they require harmonic contexts to articulate their functions.⁷ Agents, on the other hand, signify a specific harmonic function. The scale degrees acting as agents in the tonic, subdominant, and dominant chords are unique to those functions. Thus, scale degree 3, as an agent, can only indicate tonic function (see Ex. 3).⁸ Harrison's conception of harmony is more closely tied to scale degrees (and their motion) than chord labels.

6. Ibid., 43–8.

7. Ibid., 50.

8. Ibid., 49–54.

EXAMPLE 3. Pitch class E as the agent of a tonic chord can exist only within a C Major scale.

Harrison spends comparatively little time discussing associates, but observes that they can serve as a useful reminder of the power of bases and agents in determining harmonic function. For instance, scale degree 5 as a base can indicate dominant function, but as an associate (in the tonic chord), it loses nearly all of its dominant character; instead, it completes a chord whose harmonic function has already been established.⁹ Harrison's discussion of bases, agents, and associates provides a useful framework for understanding the role of scale degrees and chord members within a harmonic progression.

Likewise, Dmitri Tymoczko's *A Geometry of Music* provides a basis for understanding the music from *Ocarina of Time*. In his book, Tymoczko states that stepwise motion is not always "maximally efficient since notes sometimes move by two semitones."¹⁰ Known as parsimonious voice leading, this method of composition reduces the distance notes must travel

9. Ibid., 55–7.

10. Dmitri Tymoczko, *A Geometry of Music: Harmony and Counterpoint in Extended Common Practice* (New York: Oxford University Press, 2011), 269.

when moving from one chord to the next. To achieve this effect, voices that move by step are chromatically altered, emphasizing the arrival chord, which resolves the temporary tension of the chromatically altered pitches.¹¹ As Tymoczko explains, parsimonious voice leading enables one to analyze chromatic chords that are difficult to label using standard theoretical names. Thus, unlike Caplin and Harrison, Tymoczko's method of analysis emphasizes the semitone motion inherent in chromatically altered chords, rather than the motion of scale degrees or their harmonic function.

With the harmonic framework provided by these three authors, it is now possible to expand on my categorization of the harmony in Koji Kondo's pieces. As previously noted, Kondo's harmony maintains the structure of Common Practice harmony with a few alterations. By analyzing some of the teleportation pieces from *Ocarina of Time*, I will explain how Kondo's music follows the harmonic progression noted in the lower half of example 1. Although there are some exceptions, this model describes the consistencies of the pieces in question.

The most frequently encountered pieces in *Ocarina of Time* are grouped by their function within the game. Known as warp songs (or teleportation pieces), they transport the player around the world at will, and are taught by Sheik, one of the game's most prominent secondary characters. The first of these is "Minuet of Forest" (see Ex. 4), which, as the name implies, transports the player to the heart of a large forest. Due to its melodic and harmonic elements, this eight-measure piece is best considered as two four-measure segments. The first

11. Ibid., 271–73.

EXAMPLE 4. Kondo, “Minuet of Forest,” arr. The Deku Trombonist.

E-Mixolydian

I^7 IV I^7 IV

T

5

a tempo mp

3

accel.

VI PD VII (D) I T

segment can again be divided into two melodic halves. The first half imitates a lyre (like the one Sheik carries), while the second imitates an ocarina, representing the player as they repeat after Sheik. Harmonically, the piece begins and ends with an E Major chord, but the leading tone (D-sharp) is absent at the cadence; this undermines a tonal interpretation of the piece, suggesting that a modal analysis (E Mixolydian) is preferable to a tonal one (E Major). Despite this, for ease of discussion, I will use tonal labels to analyze this work. The first half alternates between I^7 and IV, keeping scale degree 1 as a common tone between the chords. This common tone can be understood using Harrison’s fundamental bases; although it is not the root of both chords, because it is held in common, it is the fundamental base. Thus, the first four measures are a tonic

prolongation. In contrast to the large octave leaps of the first half, the second half is much more compact, using only neighbour and stepwise motion until the rising arpeggiated cadence. The second half is also harmonically contrasting, using modal mixture in mm. 5 and 6 by lowering all C's and G's. This half of the piece completes the tonic-dominant progression, using VI in a predominant function and VII as a quasi-dominant. The shift from tonic prolongation to predominant is signaled by the changes in the melody's rhythm and the bass motion, which moves downwards instead of upwards. It is important to note that the final cadence uses a lowered (rather than raised) leading tone, which weakens the motion towards the final tonic chord. In this case, the cadence is strengthened by the arrival on a tonic, but the lack of semitone motion makes this arrival somewhat inconclusive.

The second teleportation piece of interest is "Prelude of Light" (see Ex. 5). Similar to the previous piece, the opening melody, outlining a D major tonic triad, is presented once on a lyre and again (for the player) on the ocarina. This repetition can be described as a repeating basic idea in Caplin's phrase model theory.¹² The highest register of this section alternates between A and B, providing stepwise continuity between the I and IV chords. This relationship reinforces the tonic prolongation of the first four measures. In m. 5, a ii⁷ chord leads away from the tonic prolongation and into a

12. Caplin, *Classical Form*, 43–8. Indeed, it is likely that several pieces from this game could be analyzed (despite their short lengths) using Caplin's phrase models, but exploring this idea further falls outside the scope of a paper concerned with harmonic language.

EXAMPLE 5. Kondo, “Prelude of Light,” arr. BLUESCD.

The musical score is in 4/4 time, key of D major. It consists of three systems of music. The first system (measures 1-3) features a treble clef with a melody and a bass clef with chords. The second system (measures 4-6) continues the melody and chords. The third system (measures 7-8) concludes the piece. Harmonic analysis is provided below the staff, including Roman numerals and chord symbols.

Measure 1: Treble clef has a melody starting on D4. Bass clef has a chord of D major (D, F#, A). Harmonic analysis: D^+ (boxed), I, T.

Measure 2: Treble clef has a melody starting on E4. Bass clef has a chord of G major (G, B, D). Harmonic analysis: IV.

Measure 3: Treble clef has a melody starting on F#4. Bass clef has a chord of D major (D, F#, A). Harmonic analysis: I.

Measure 4: Treble clef has a melody starting on G4. Bass clef has a chord of G major (G, B, D). Harmonic analysis: IV.

Measure 5: Treble clef has a melody starting on A4. Bass clef has a chord of B minor 7 (B, D, F, A). Harmonic analysis: ii^7 , PD.

Measure 6: Treble clef has a melody starting on B4. Bass clef has a chord of D major 7 (D, F#, A, C). Harmonic analysis: CT^7 , D.

Measure 7: Treble clef has a melody starting on C5. Bass clef has a chord of D major (D, F#, A). Harmonic analysis: I, T.

Measure 8: Treble clef has a melody starting on D5. Bass clef has a chord of D major (D, F#, A). Harmonic analysis: T.

predominant function. Defying the harmonic progressions of the Common Practice era, m. 6 does not contain a dominant function chord, but rather a common-tone seventh chord.¹³ This

13. In his article “Supplement to the Theory of Augmented-Sixth Chords,” Harrison discusses the use of such chords in tonal contexts, noting the similarity to Neapolitan chords’ use of a flattened second scale degree. This provides both a passing motion between the supertonic and tonic pitches, and a harmonic intensification similar to that of a dominant chord.

progression can be interpreted, according to Tymoczko's method of analysis, as a chord progression with maximally efficient voice leading, where each voice moves by a semitone. Therefore, it is best described as a chord which uses chromatic motion to facilitate voice leading, while creating a tension that resolves when each pitch moves down by semitone. This generates a sense of cadential arrival, despite the lack of a clear dominant chord.

The next teleportation piece the player encounters is "Serenade of Water" (see Ex. 6), which transports the player to a large lake. Repeating the same melody from mm. 1–2 in mm. 3–4, this passage outlines the tonic triad of D minor. An absence of B-flats and the prominent use of B-naturals in mm. 2 and 4 suggest that a modal (rather than tonal) approach is appropriate. Despite this, for the purposes of comparison with Kondo's other teleportation pieces, I will use a tonal analysis. While the melodic line suggests D Dorian, the harmonic progression alternates between i and IV, creating a familiar tonic prolongation while illustrating Harrison's concept of functional bases. The first four measures alternate between i and IV, using D as a common tone in the lowest voice. This voicing illustrates how a functional base can act across multiple chord labels. Here, the functional base serves to reinforce the tonic prolongation of the first four measures. In m. 5, the pattern is broken to introduce a series of rising chords, ending with a harmonic substitution. Rather than concluding with a V–I cadence, Kondo substitutes VII for V. This progression (from IV to VI to VII to I) can be understood using Tymoczko's voice leading analysis. Rather than employing a standard harmonic progression for the final

cadence, Kondo uses the tension and release created by efficient voice leading. The chord in m. 5 (VI) is created from subtle changes to the previous chord: a chromatic lowering of B to B-flat and a stepwise motion from G to F. Likewise, the return to root position chords (in m. 7) resolves the instability of the second inversion chords (mm. 3–5). This pattern of second inversion chords has ramifications for the VII chord, however, as a raised leading tone would create a dissonant augmented second (between B-flat and C-sharp). Although this chromatic alteration weakens the final cadence, the stepwise voice leading leads smoothly into the final tonic chord.

EXAMPLE 6. Kondo, “Serenade of Water,” arr. Dude Guy.

D-Dorian

i IV⁶₄ i IV⁶₄ VI⁶₄ VII⁶₄ T PD D I T

The addition of B-flats also prevents semitone motion from mm. 5 to 6, as demonstrated in example 7. This reduction of the lower part demonstrates how the B-flat from the middle voice moves upwards by tone, thus avoiding the semitone

movement expected from a dominant (or applied) chord. Given this fact, combined with the lack of leading tone in m. 6, the B-flats can be interpreted as chromatic alterations to aid with voice leading rather than a move towards a more tonal progression. Finally, since the Dorian mode so closely resembles the minor mode, it is not unreasonable to describe the final cadence as a *tièrece de Picardie*, which also adds a sense of finality to the progression.

EXAMPLE 7. Reduction of Kondo, “Serenade of Water,” mm. 5–7.

The final teleportation piece to be analyzed is “Requiem of Spirit” (see Ex. 8). As expected, the piece begins with a tonic prolongation. This time, it uses passing chords between i and i^6 . At the end of m. 2, the melody shifts from the highest voice to an inner voice, and is accompanied by a $ii^{\phi 7}$ chord, acting as a neighbour to the tonic. Rather than behaving as a predominant chord, as indicated in the model (see Ex. 1), this $ii^{\phi 7}$ returns to tonic harmony. With the addition of an inner voice to fill in the missing chord tones, mm. 3–4 are a repetition of mm. 1–2. It is only in m. 4 that the $ii^{\phi 7}$ occupies a predominant role. A cadential dominant is expected in m. 5, but is replaced by iv , omitting the dominant function entirely. This plagal cadence ($iv-i$) still provides a sense of harmonic resolution by the use of common tones in the lowest voice, but is ultimately an unsatisfying conclusion, particularly given their inverted positions. The final resolution of the piece occurs

on the second half of m. 6, where E, an appoggiatura, resolves to an F-sharp, ending this piece in the parallel key of D major. This melodic cadence contrasts with the other cadences seen thus far, which have mostly been harmonic. Similar to the previous piece, the *tièrce de Picardie* contributes to the sense of completion in the second half of m. 6. Therefore, while the dominant function is absent from the harmonic progression, the piece still achieves both a melodic and harmonic conclusion.

EXAMPLE 8. Kondo “Requiem of Spirit,” arr. The Deku Trombonist.

The musical score is for a piano accompaniment of "Requiem of Spirit" by Kondo, arranged by The Deku Trombonist. It is in D major and 4/4 time. The score is divided into two systems. The first system contains measures 1 through 6, and the second system contains measures 7 through 10. The music features a melodic line in the right hand and a harmonic line in the left hand. A *mf* (mezzo-forte) dynamic marking is present in measure 1, and a *rit.* (ritardando) marking is present in measure 8. The harmonic analysis below the staves identifies the chords and their functions.

Harmonic Analysis:

- Measure 1:** Chord i^6 (D major, 6th inversion), Function T (Tonic).
- Measure 2:** Chord ii (E minor, root position).
- Measure 3:** Chord i^6 (D major, 6th inversion).
- Measure 4:** Chord $ii^{\circ 7}$ (E minor, 7th inversion).
- Measure 5:** Chord i (D major, root position).
- Measure 6:** Chord ii (E minor, root position).
- Measure 7:** Chord i^6 (D major, 6th inversion).
- Measure 8:** Chord $ii^{\circ 7}$ (E minor, 7th inversion).
- Measure 9:** Chord iv^6_4 (G major, 6th inversion, 4th position).
- Measure 10:** Chord i^6_4 (D major, 6th inversion, 4th position), followed by a final chord I^6_4 (D major, 6th inversion, 4th position).

Additional labels include "D-" in a box at the start of the first system, "PD" (Piano Duet) under measures 7-9, and "T" (Tonic) under measure 10.

As demonstrated above, specific compositional trends can be identified in the works of Koji Kondo using the harmonic theories of Harrison, Caplin, and Tymoczko. Each piece starts with a tonic prolongation that alternates between some variation of I and IV, and can be explained using

Harrison's notion of fundamental bases. Other chords can be understood, using Caplin's notion of substitutions, as expanding and decorating traditional harmonic progressions or creating parsimonious voice leading. Tymoczko's chromatic theory can be used to analyze pieces like "Prelude of Light," which contain a chromatically altered chords and efficient voice leading to increase tension when approaching a cadence. All of these analytical methods are useful when studying the music from *Ocarina of Time* and point towards a general formula that describes most pieces from this game. Elements from this pattern are often changed or omitted, but most pieces follow the outline shown below:

1. A tonic prolongation (usually between I and IV)
2. A subdominant-function chord at the end of the tonic prolongation
3. A chromatically altered chord (usually near the expected Dominant-function of a phrase)
4. A weakened cadence that tends to end with a major tonic chord

As noted, these elements are not rigid; rather, they change based on the requirements of each piece. Since the melodic portion of these pieces is performed by the player on a controller, their composition must reflect the limitations inherent to the medium. Indeed, each piece begins with a tonic prolongation, has a relatively small melodic range outlining a tonic triad, and uses some form of basic idea repetition akin to phrase models. As such, the complexities of Kondo's works are mostly present in the harmonic organization. Many other

factors, which lie beyond the scope of this paper, can be considered when analyzing video game music. Specifically, a study of phrase structure and its relationship to interactive scenarios would complement the conclusions of this research. This essay, however, has shown how a few compositional choices allow for unorthodox progressions that sound harmonically satisfying.

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