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An Analysis of Dvořák's Symphony No. 6, II, Using Neo-Riemannian Transformation Techniques

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An Analysis of Dvořák's Symphony No. 6, II, Using Neo-Riemannian Transformation Techniques

by

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Abstract

Music theory is often used to analyze compositions and provide insight into the inner workings of the literature. Any new type of analysis provides a different view of the work and they can all be used to better understand the work, composer, and performance practice. This analysis uses Neo-Riemannian Transformation Theory to highlight some of the voice leading within Dvořák's Sixth Symphony. The Sixth Symphony currently has never been analyzed using Neo-Riemannian Transformation Theory. The entire second movement was analyzed using a traditional harmonic analysis and then the author selected three excerpts, containing voice leading that could be classified using Neo-Riemannian Transformation Theory. This research provides further insight into the harmonic shifts within the second movement and highlights the importance of subtle voice leading. Usually, these voice changes could be considered non-chord tones or chromatic harmony. However, this analysis categorizes them as transformations, as found within Neo-Riemannian Transformation Theory. It also looks beyond the voice leading to show how the attention to voice leading can affect the available harmonies later in the work. As a result, this thesis provides a new analysis to the current research of Dvořák's works as well as a new contribution to Neo-Riemannian research.

Key Words: Music, Dvořák, Riemann, Neo-Riemannian, Transformation Theory, Music Theory

Acknowledgements

I would like to thank my family. You have been pushed me to succeed my whole life, and encouraged me to push to the finish even when I am tired and frustrated and ready to quit. Thank you for sitting and patiently letting me explain Neo-Riemannian theory to you and for your constant support.

I would also like to thank my thesis advisor, Dr. Danny Beard for his tireless efforts to help my endeavor into music theory research. You have been a constant encouragement and a wonderful mentor in this process, from the beginning of the prospectus, the topic change, and now through the completion of my thesis. Thank you for the many hours spent in your office reviewing analyses and theory journals and for the working lunches.

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Table of Contents

List of Figures

I. Introduction

This thesis presents an analysis of excerpts from the second movement of Dvořák's Sixth Symphony using Neo-Riemannian Transformation Theory. The intent of analyzing this particular work using Neo-Riemannian theory is that the author may provide further insight into the inner workings of the movement, give musicians new information with which to dictate performance practice, and contribute to the current research regarding Neo-Riemannian theory.

Antonín Dvořák

Dvořák was a Czech composer who lived from 1841 to 1904. Throughout his lifetime he wrote many orchestral, choral, and operatic works, and although Dvořák wrote nine symphonies, this particular symphony has been chosen because of its unique position within the composer's life. The Sixth Symphony came just before many of Dvořák's better-known symphonic works but after premieres of his works across Europe in cities such as London, Vienna, and Budapest.[1] Often overshadowed by the later symphonies, the Sixth Symphony was nevertheless crafted with great musical artisanship that warrants study. Dvořák is not the only composer whose works can be analyzed using Neo-Riemannian theory, and this symphony is not the only example within Dvořák's compositions, but this movement was analyzed because it provided a wide variety of opportunities to apply Neo-Riemannian Transformation Theory. Additionally, no previous analysis of this kind has been done on this particular symphony.

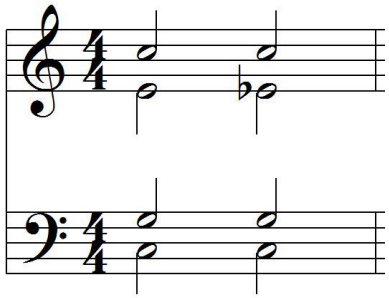
[1] Klaus Döge. "Dvořák, Antonín." *Grove Music Online*. *Oxford Music Online*. Oxford University Press, accessed April 14, 2017, http://www.oxfordmusiconline.com.lynx.lib.usm.edu/subscriber/article/grove/music/51222.

A Brief Overview of Neo-Riemannian Transformation Theory

Neo-Riemannian theory, also known as “Transformation Theory,” explores the idea that harmony can move, or transform, from one chord to another chord by only changing one pitch at a time. Neo-Riemannian Transformation Theory can be used to describe chromatic voice leading that can be found in Romantic works like those by Richard Wagner, Richard Strauss, or Gustav Mahler because it does not rely on a Roman numeral analysis, but rather an analysis of individual voice leadings and their contribution to the larger work. Within this theory, there are different ways to move the pitch called transformations.

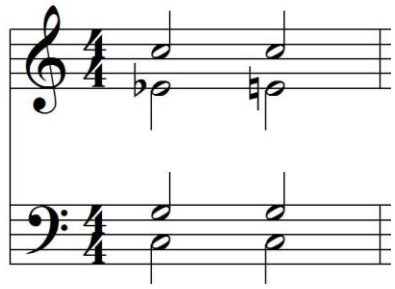
One type of transformation is a parallel transformation. A parallel transformation occurs when a major triad moves to a minor triad with the same root or vice versa. For example, a C major triad moving to a C minor triad, or a C minor triad moving to a C major triad is a parallel transformation. Two examples of parallel transformations are shown below in Figures 1.1a and 1.1b.

Figure 1.1a Parallel Transformation (C Major Triad to C Minor Triad)[2]



[2] Cohn, Richard. "Introduction to Neo-Riemannian Theory: A Survey and a Historical Perspective." *Journal of Music Theory* 42.2 (1998): 172. Print.

Figure 1.1b Parallel Transformation (C Minor Triad to C Major Triad)



The second transformation used in this study is the relative transformation. A relative transformation occurs when a major triad moves to its relative minor or vice versa. Relative major and minor keys share the same key signature but have different tonics. An example of a relative major to relative minor relationship would be C major to A minor. Relative transformations are shown in both Figure 1.2a and 1.2b.

Figure 1.2a Relative Transformation (C Major Triad to A Minor Triad)[3]

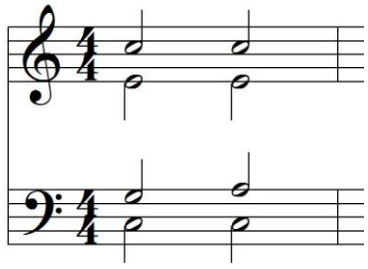
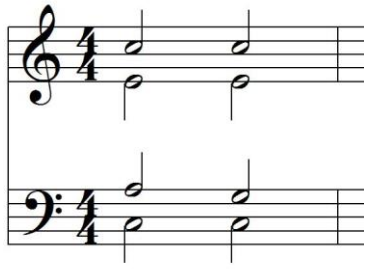


Figure 1.2b Relative Transformation (A Minor Triad to C Major Triad)



[3] Cohn, Richard. "Introduction to Neo-Riemannian Theory: A Survey and a Historical Perspective." *Journal of Music Theory* 42.2 (1998): 172. Print.

The last transformation used in this study, although there are several other types of transformations not listed here, is the leading tone exchange. In this, a major triad would move its root down a half step to become the fifth of a minor triad. A minor triad would move its fifth up a half step to become the root of a major triad. The leading tone exchange occurs when the root of the major triad moves to the fifth of the minor chord. If one were to analyze those two notes using scale degrees in the key of the major triad, then it would read as tonic moving to the leading tone. Thus, the name leading tone exchange comes from exchanging the leading tone for tonic or vice versa. Leading tone exchanges are shown in Figures 1.3a and 1.3b.

Figure 1.3a Leading Tone Exchange (C Major Triad to E Minor Triad)[4]

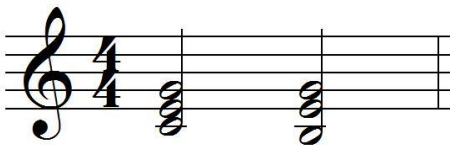
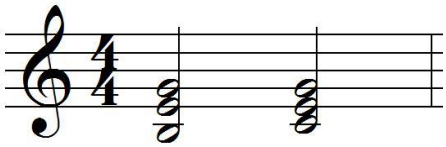


Figure 1.3b Leading Tone Exchange (E Minor Triad to C Major Triad)



Some stepwise motion is achieved by combining transformations. In the music, the chords simply shift from one to the next using stepwise motion, but in the analysis, it can be explained as a combination of several transformations. This will be explained in more detail in the analysis of this thesis.

II. Review of Literature

[4] Cohn, Richard. "Introduction to Neo-Riemannian Theory: A Survey and a Historical Perspective." *Journal of Music Theory* 42.2 (1998): 172. Print.

Neo-Riemannian theory is based on the ideas of Hugo Riemann (1849-1919.) Riemann was a musicologist, music theorist, and composer. His approach to music theory and analysis focused on the contours and movements of individual voices in a more linear fashion rather than the analyzing chords in a vertical fashion. Riemann believed that analyzing melodic voice leading as opposed to harmony was more true to the origins of harmony in polyphony. In the introduction of *Harmony Simplified*[5], he writes:

> The Theory of Harmony is that of the logically rational and technically correct connection of chords (the simultaneous sounding of several notes of different pitch). The natural laws for such connection can be indicated with certainty only if the notes of single chords be regarded not as isolated phenomena, but rather as resulting from the motions of the parts; chord successions arise from simultaneous melodic motion of several parts. The history of music teaches us that simultaneous melodic progression in several parts was practised and more and more perfected for centuries before the idea of harmony in the modern sense (chord) was even conceived. Thus harmony, in so far as it may be defined as composition in several parts (polyphony), takes root in melody. Melody is the logically rational and aesthetically satisfactory motion of a part through notes of different pitch.

Ironically, Riemann's theories were centered around the idea of dualism, the existence of undertones that mirror the overtone series. Overtones create a major triad as they ascend, whereas undertones form a minor triad as they descend.[6] Figure 2.1a shows the overtone series and Figure 2.1b shows the undertone series. Figure 2.1c shows how overlapping the two creates two mirror images that overlap at C4.

[5] Riemann, H. (1896). *Harmony simplified: or, The theory of the tonal functions of chords* (3rd ed.). London: Augener Ltd.
[6] Riemann, Hugo. "The Problem of Harmonious Dualism." *New Music Magazine* 51 (1905).

Figure 2.1a The Overtone Series

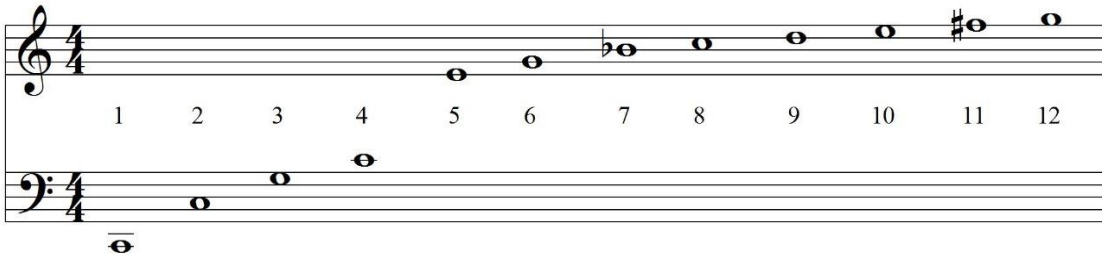


Figure 2.1b The Undertone Series

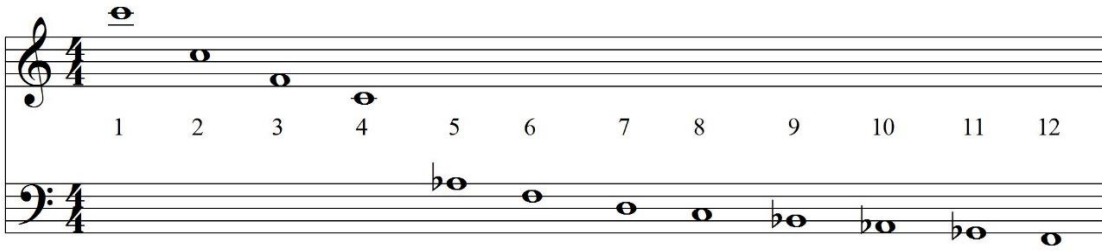
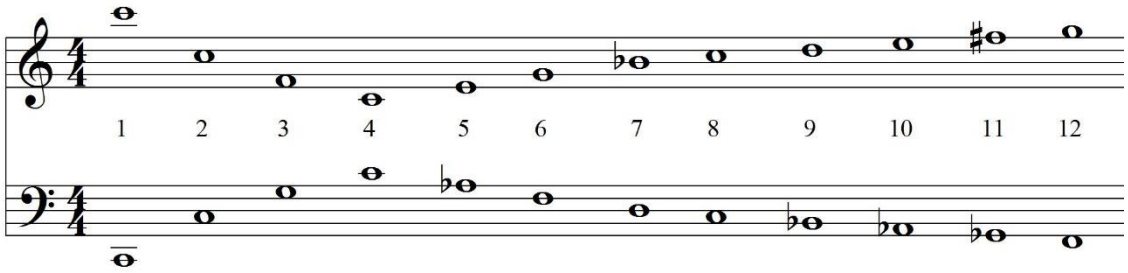


Figure 2.1c The Combination of the Overtone and Undertone Series



Today, the idea of undertones is not accepted in a majority of the academic community, but many of the theories Riemann developed using his theory of undertones have become the basis for modern day harmonic analysis.[7]

[7] Rehding, Alexander. *Hugo Riemann and the birth of modern musical thought*. Cambridge: Cambridge University Press, 2009.

Neo-Riemannian Transformation Theory then emerged in the late twentieth century to more properly explain music that functional harmonic theories could not explain. This could include music that is triadic in nature but may contain chromatic or step-wise voice leading that either provides unusual harmonic progressions or provides analytical issues that cannot be resolved using traditional Roman numerals. Neo-Riemannian theory is used to analyze music by composers such as Wagner and Liszt and more modern composers as well as some portions of Beethoven, Richard Strauss, and other nineteenth century composers[8]. To the author's best knowledge, this is the first time that anyone has used Neo-Riemannian theory to analyze Dvořák's sixth symphony.

In accordance with treating music theory as its own science, Neo-Riemannian theory also uses lattice diagrams to chart the transformations. This system, having been quite popular with nineteenth century theorists such as Hugo Riemann, then re-emerged with Neo-Riemannian theory. Figure 2.2 shows a lattice diagram originally drawn by Hugo Riemann.

[8] Cohn, Richard. "Introduction to Neo-Riemannian Theory: A Survey and a Historical Perspective." *Journal of Music Theory* 42.2 (1998): 167-79. Print.

Figure 2.2 Lattice Diagram Drawn by Hugo Riemann[9]

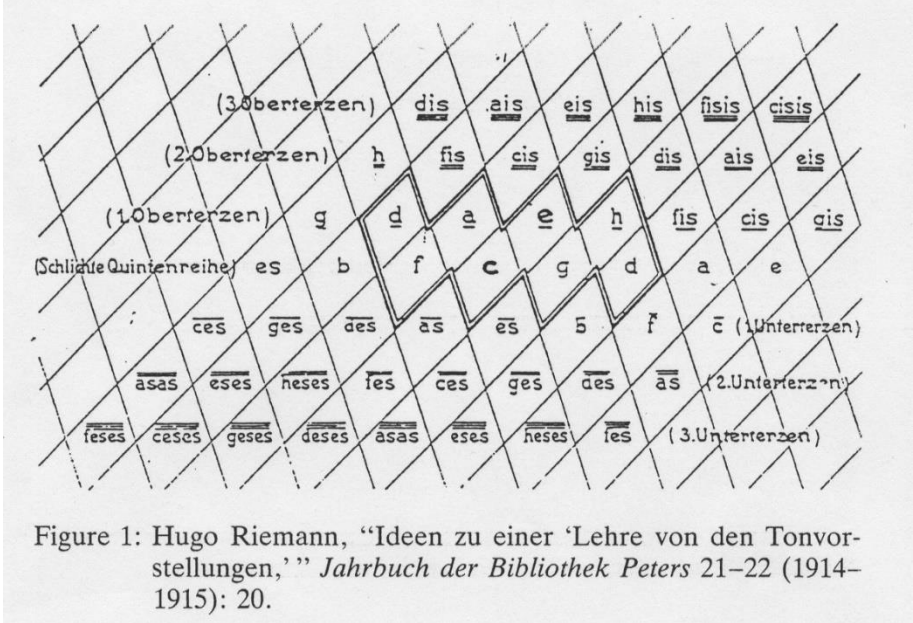


Figure 1: Hugo Riemann, "Ideen zu einer 'Lehre von den Tonvorstellungen,'" *Jahrbuch der Bibliothek Peters* 21–22 (1914–1915): 20.

In the middle section of the diagram (Figure 2.2), putting three diamonds together forms a chord. Removing the end diamond and shifting it to the opposite end of the grouping creates a transformation.

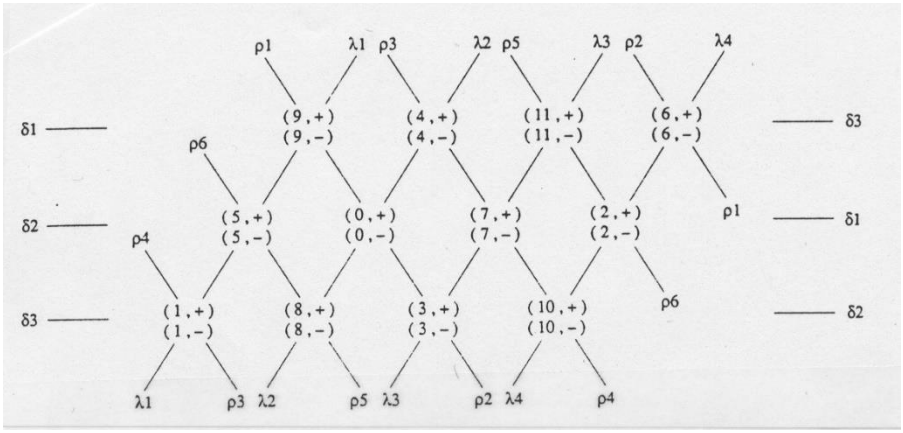
Many modern-day theorists have explored Neo-Riemannian theory, the first being David Lewin is his 1982 essay, "A Formal Theory of Generalized Tonal Functions." Lewin first introduced the idea of transformations discussed earlier, and this scientific system to transformations is supposed to mirror that of Riemann's harmonic analysis approach.[10]

Another theorist noted for his work in Neo-Riemannian theory is Brian Hyer. In the twentieth century, Brian Hyer is credited as the first to re-introduce these lattice diagrams to chart Neo-Riemannian theory. It was known as the "Table of Tonal Relations," or *Tonnetz.*[11] An

[9] Hyer, Brian. "Re-Imagining Riemann." *Journal of Music Theory* 39, no. 1 (1995): 101-38
[10] Lewin, David. "A Formal Theory of Generalized Tonal Functions." *Journal of Music Theory* 26, no. 1 (1982): 23-60. http://www.jstor.org/stable/843354.
[11] Hyer, Brian. *Tonal intuitions in Tristan und Isolde*. Ann Arbor, MI: U.M.I. Dissertation Services, 1995, 1990.

example of Hyer's lattice diagrams is shown below in Figure 2.3. The labeling is quite different than Riemann's example. However, the idea of three connected lines, like the diamonds, still form the triads.

Figure 2.3 Lattice Diagram by Brian Hyer[12]



The Neo-Riemannian approach of analyzing voice leading as it contributes to harmonic movement is applicable some sections to Dvořák's music and the author will use this analysis to demonstrate that.

III. Analysis

Within the second movement of Dvořák's sixth symphony several harmonic progressions could be considered odd according to the logic of functional harmony. These assumptions may be true but using Neo-Riemannian theory helps to explain the functionality of these progressions within the larger scope of the movement. Figure 3.1 shows such an example in measures 18-21. Upon first glance, this selection does not seem to contain the gradual shift of chords that would warrant Neo-Riemannian theory. However, upon further review, a Neo-Riemannian analysis becomes quite appropriate.

Excerpt One: Measures 18-2

[12] Hyer, Brian. "Re-Imagining Riemann." *Journal of Music Theory* 39, no. 1 (1995): 101-38.

Figure 3.1 Dvořák Symphony 6, Movement II, measures 18-21[13]

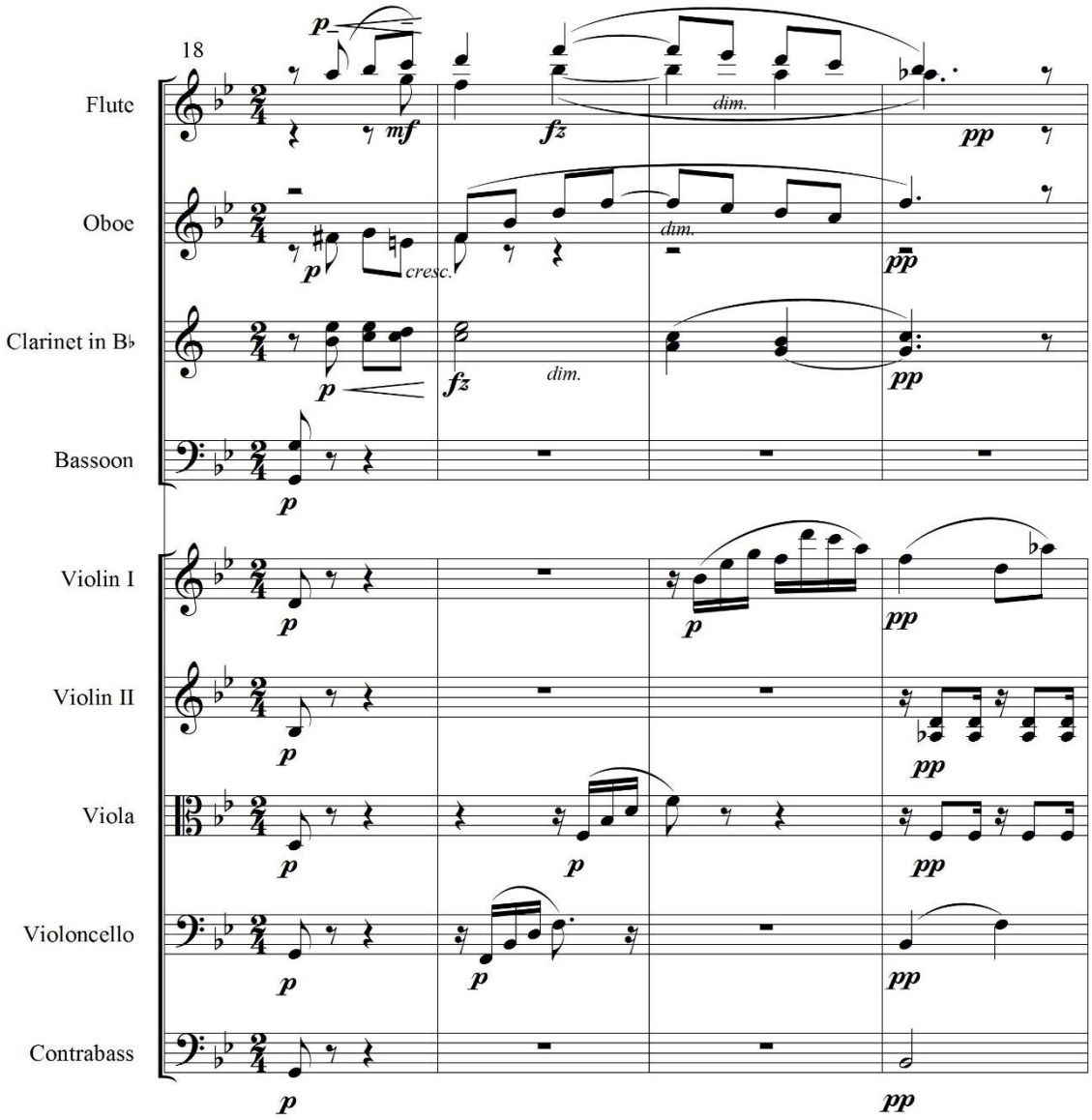


Figure 3.1a below is a reduced version of the score where all pitches are shifted to the same octave regardless of original written octave and every note is reduced to the smallest subdivision in the excerpt, sixteenth notes. Notes that have a longer duration than a sixteenth note are given as many sixteenth notes as their written value would have. This reduction reveals

[13] Dvořák, Antonín. Symphony No. 6 in D Major. New York: Edition Eulenburg, n.d.

that despite what would appear to be many moving parts, most of the notes are repeated pitches, thus sustaining the current chord and shifting one note at a time to the next chord. Upon further rhythmic reduction, this gradual shift becomes much clearer (Figure 3.1b.)

Figure 3.1a First Harmonic Reduction, Measures 19-21

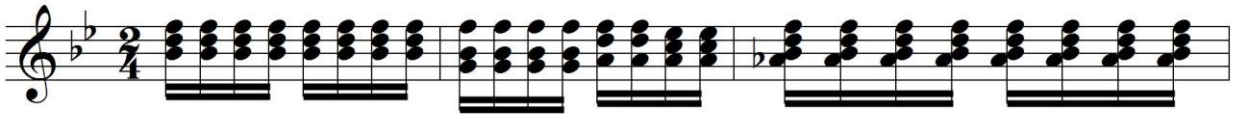
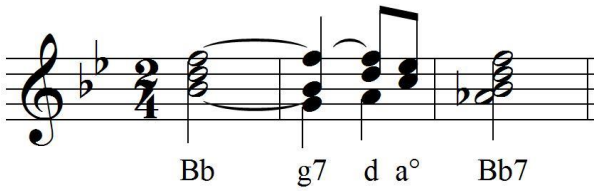


Figure 3.1b Final Reduced Score, Measures 19-21

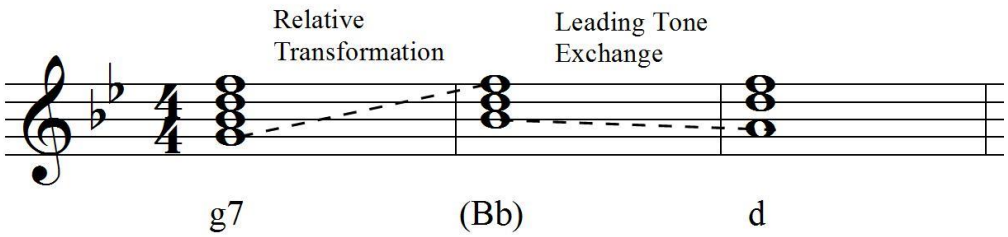


Measure 19 begins with a B-flat major triad. The addition of the G on beat one of measure 20 transforms it into a Gm7 triad. The stepwise motion occurs in the movement of the F in the B-flat major triad to a G in the G7, even though there is an octave difference between the two. The F also continues to sound so the real harmonic motion between the two is the splitting of the F into an F and a G. The transformation between these two chords is a relative transformation because it transforms from B-flat major to its relative minor, G minor.

The B-flat and G both converge on A on beat 2 of measure 19. Here, I would not consider the re-addition of the D on beat two a new note within the phrase. D is a common chord tone in the previous two chords along with the D minor triad on beat two. Even though it is not physically written within the g minor triad on beat one, aurally the ear would hear it as a complete triad and thus it would not sound like a new pitch had been introduced, but rather re-

attacked. The transformation between the Gm7 and the Dm chords is a combination of two of the transformations mentioned earlier. First, the Gm7 transforms into a B-flat major triad using a relative transformation. Then, using a leading tone exchange, the B-flat moves down a half step to an A, creating the D minor triad. These two transformations are shown below in Figure 3.1c.

Figure 3.1c Transformations Between g7 and Dm Triads

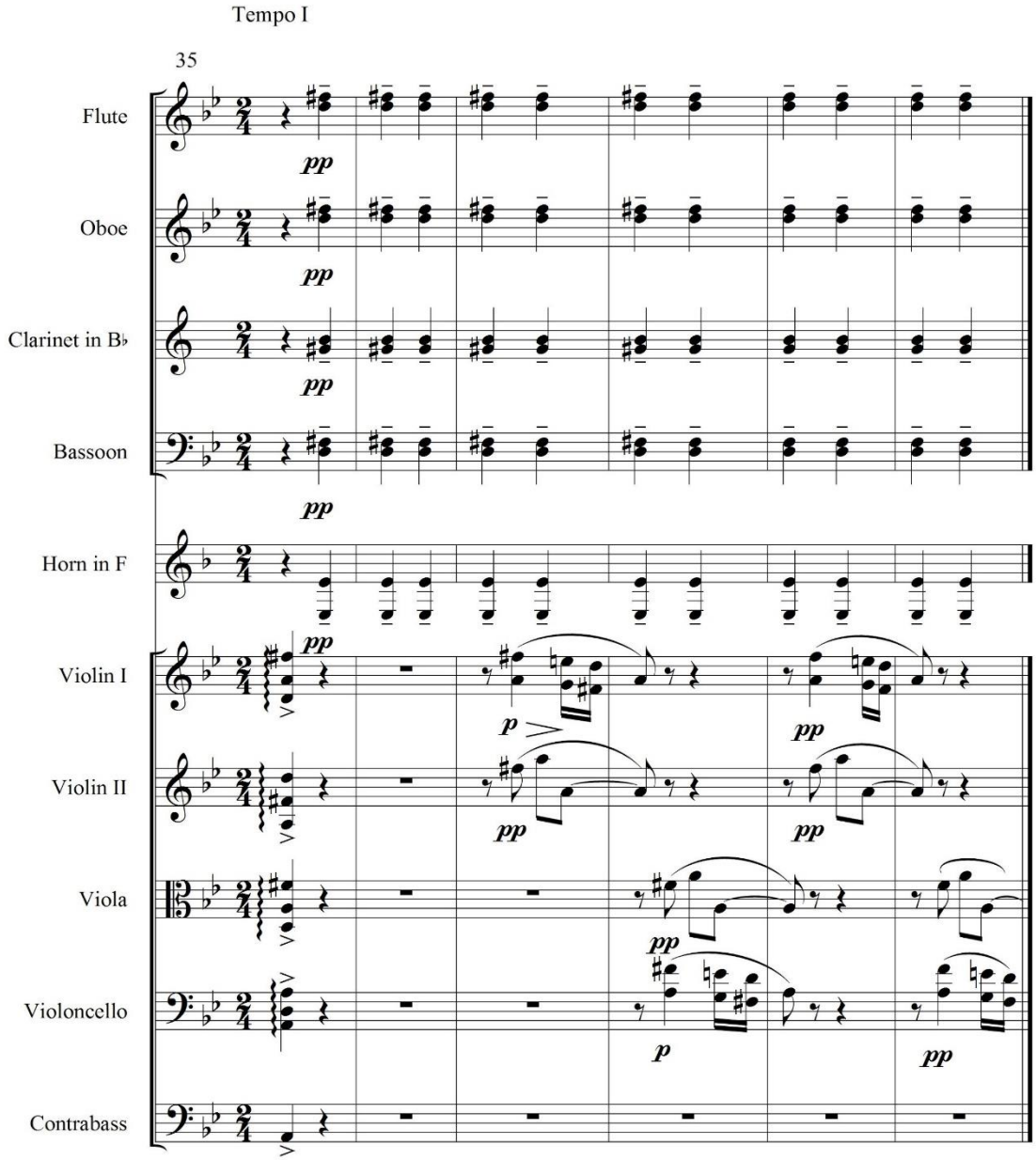


Over a larger context of the work, this phrase would seem to be a prolongation of B-flat major with some neighboring tones in between. However, Dvořák has used this voice leading to write a G and an A natural in measure 20 that encircles the A-flat he added in measure 21. By using this voice leading, he has integrated the addition of a seventh into the B-flat major triad, thus creating an unstable chord that progresses into an unstable modulatory section in the following measures.

Excerpt Two: Measures 35-40

Another opportunity to exemplify Neo-Riemannian techniques occurs in measures 35-40. Here the movement has modulated abruptly into D major. Figure 3.2 shows the full score of measures 35-40.

Figure 3.2 Dvořák Symphony 6, Movement II, measures 35-40[14]

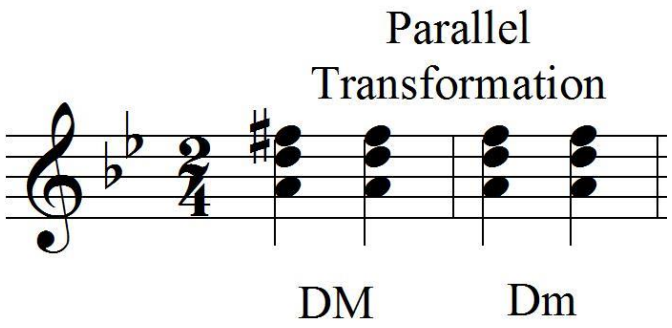


This excerpt begins on a D major triad and it sustains until measure 39 when the F-sharp become an F-natural. The D major triad then becomes a D minor triad. The melody in the violin also shifts from outlining a D major chord to a D minor chord. This would be considered a

[14] Dvořák, Antonín. Symphony No. 6 in D Major. New York: Edition Eulenburg, n.d.

parallel transformation because it is the major triad transforming to its parallel minor. Figure 3.2c shows the parallel transformation between measures 38 and 39.

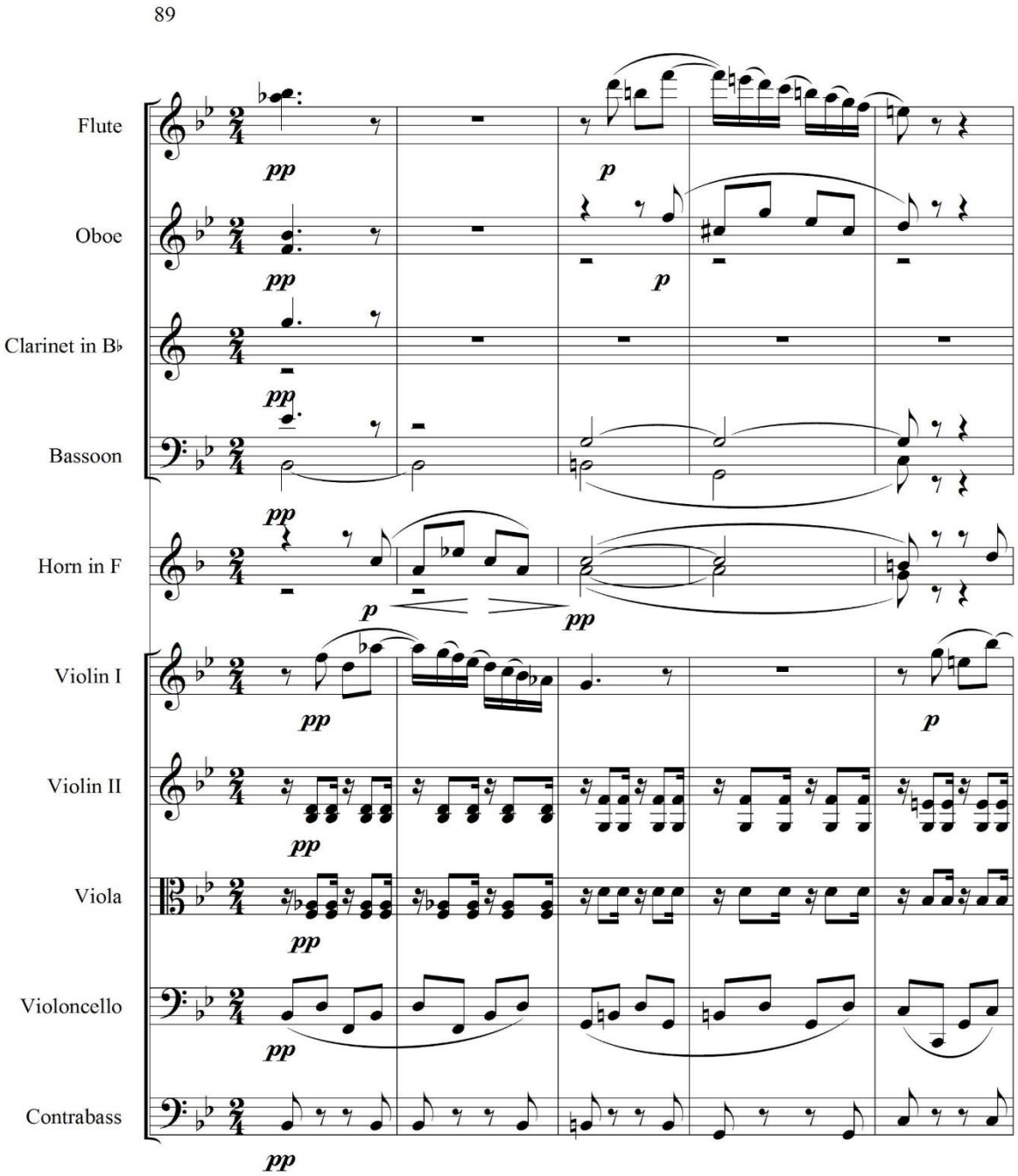
Figure 3.2a Parallel Transformation, measures 38-39



Excerpt Three: Measures 89-93

One last example of a Neo-Riemannian transformation is found within measures 89-93. This excerpt begins on a B-flat7 chord and ends on C7. Figure 3.3 below shows the excerpt in full score.

Figure 3.3 Dvořák Symphony 6, Movement II, measures 89-93[15]

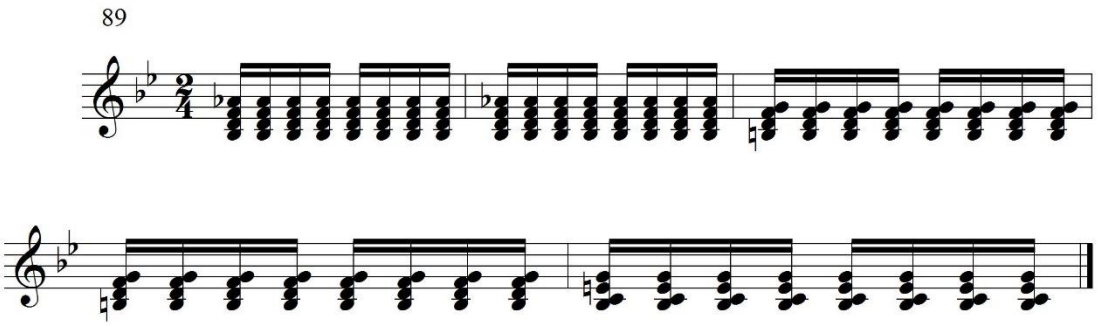


Upon first glance, this excerpt appears to contain many moving lines but upon reduction, it only has three different chords. The moving lines in both Violin I and Flute I are simply a scalar pattern. Figure 3.3a shows the first reduction of the excerpt. Please note that in the

[15] Dvořák, Antonín. Symphony No. 6 in D Major. New York: Edition Eulenburg, n.d.

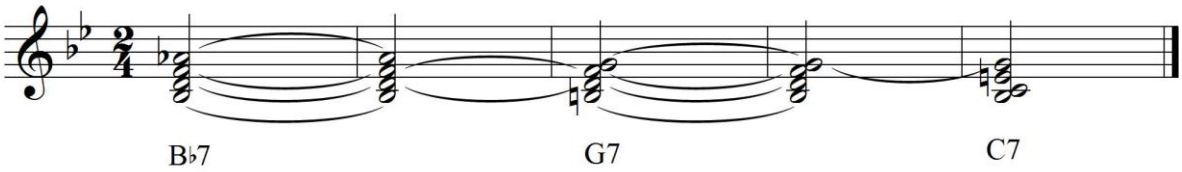
reduction the moving lines in Violin I and Flute I have been removed to better show harmonic motion.

Figure 3.3a First Reduction, measures 89-93



Measure 89 begins with a B-flat7 chord and sustains until measure 91. In measure 91, the chord shifts to a G7 chord. F and D are both common tones with the A-flat moving down a half step to G and the B-flat moving up a half step to B-natural. Then, the G becomes the only common tone between the G7 in measure 92 and the C7 in measure 93. The B-natural moves down a half step to B-flat, the F moves down a half step to E-natural, and the D moves down a whole step to C. These harmonic motions are clearer in the final reduction shown in Figure 3.3b.

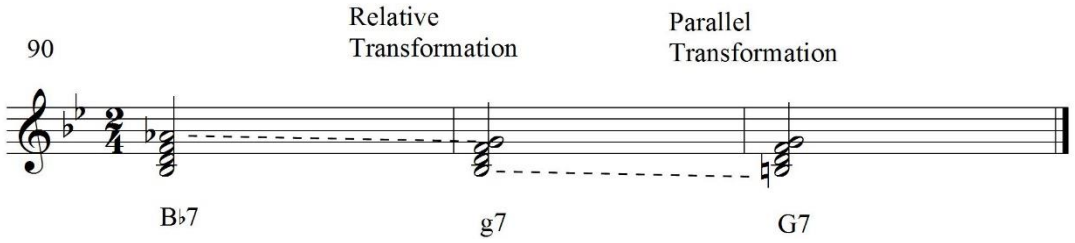
Figure 3.3b Final Reduction, measures 89-91



The harmonic motion between the G7 chord and the C7 chord would not be considered any form of a Neo-Riemannian transformation. However, movement from the B-flat7 to the G7

is a combination of two transformations. The first transformation is a relative transformation as the F moves to G, moving the B-flat 7 to a G7. Then a parallel transformation occurs as the B-flat moves to B-natural, making the Gm7 a G7. These two transformations are shown in Figure 3.3c below.

Figure 3.3c Neo-Riemannian Transformations, measures 90-91



Although these shifts between chords may seem simple, they make a difference in the larger context of the work. A B-natural in measure 90 would seem quite unusual because it would transform the chord from a major-minor seventh chord into a fully diminished seventh chord. However, by shifting one voice at a time, the transition sounds quite natural to the ear. The A-flat acting as seventh in measure 90 leads to the G which becomes the root of the g7 in measure 91. Then the chromatic voice leading of the B-flat to a B-natural between measures 91 and 92 naturally shifts to a G7.

The last three excerpts have contained four examples of how a Neo-Riemannian analysis can be applied to Dvořák's *Symphony 6*. These are not the only examples within the movement or the entire symphony but they provided examples of three different Neo-Riemannian transformations along with a combination of two of them. This research proves that Neo-Riemannian Transformation Theory is still valid, still applicable, and still growing. The author hopes that this research can be used expand Neo-Riemannian Theory to other composers, like Dvořák, but also to more contemporary music as well. These analyses provide insight into the

inner workings of the movement, specifically subtle voice leadings that drive the harmonic movement, and can shape the instruction of conductors and the performance of musicians.

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