

FREDERICK CHOPIN'S PRELUDE, OP. 28 NO. 4 IN E MINOR:
HARMONIC EXPECTATION AND VIOLATION

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CHAPTER I

INTRODUCTION

In my thesis I will examine vertical components of Chopin's Prelude in E minor, op. 28 no. 4, mm. 1-12. My approach explores the musical phenomenon referred to in music theory literature as ambiguity. Ambiguity in music exists "when what we expect does not occur, when our efforts to find specific musical norms are frustrated."¹ Given this description of ambiguity, musical analysis compares a composition to a musical syntax, which in this case is the syntax of tonal music. Syntax generates implications, while knowledge of that syntax—whether intellectual or experiential—generates expectations. When implications and expectations do not match, the result is ambiguity.

In order to identify implications, I will reduce passages from the Prelude to show the harmonic configuration. By comparing harmonic reductions to the syntax of tonal music, I will determine (and notate in my analysis) where an implication occurs and if it is violated. This reductive approach is similar to that of Heinrich Schenker's, but instead of

¹Deborah Stein, *Engaging Music* (New York: Oxford University Press, 2005), 77.

representing underlying structures in tonal music, my analysis will represent violations of implications and their role in tonal ambiguity.

An analysis of music requires one to choose the appropriate analytical technique for a given work. According to some music scholars, the application of methods used for tonal analysis to atonal or ambiguous music is impractical. For example, Leonard Meyer claimed that “it is pointless to analyze a work by Boulez in terms of techniques developed by Heinrich Schenker for the analysis of tonal music.”² Eugene Narmour finds fault in roman-numeral analysis all together, claiming that there is a “naïve associationism inherent in the roman-numeral analysis of harmonic function...”³ Also, in Charles J. Smith’s analysis of Beethoven’s *Waldstein* Sonata in C major, op. 53, he states that the labels of a roman-numeral analysis “address[es] identity rather than behavior or function, not whence it comes or whither it goes.”⁴

The dissolution of tonality during the 19th and 20th century brought about new analytical methods such as set theory, transformational theory, 12-tone analysis, chromatic theory, and motivic analysis.⁵ As a result, the exclusive use of roman-numeral

²Leonard Meyer, *Explaining Music: Essays and Explorations* (Berkeley, CA: University of California Press, 1973), 24.

³Eugene Narmour, *Beyond Schenkerism: The Need for Alternatives in Musical Analysis* (Chicago, IL: University of Chicago Press, 1977), 1.

⁴Charles J. Smith, “The Functional Extravagance of Chromatic Chords,” *Music Theory Spectrum* vol. 8 (Spring 1986): 99.

⁵Allen Forte, *The Structure of Atonal Music* (New Haven and London: Yale University Press, 1973); Rudolph Reti, *Tonality, Atonality, Pantonality: A Study of Some Trends in Twentieth-Century Music* (Westport, CT: Greenwood Press, 1978); David Lewin, *Generalized Musical Intervals and Transformations* (New York: Oxford University Press, 1987); George Perle, *Serial Composition and Atonality: An Introduction to the Music of Schoenberg, Berg, and Webern, Revised* (Berkeley, CA: University of California Press, 1991); David Kopp, *Chromatic Transformations in Nineteenth-Century Music* (Cambridge: Cambridge University Press, 2002). In *Tonality, Atonality, Pantonality*, Reti identifies a concept of an underlying tonality created by perceptual relationships between melody or counterpoint. In *Chromatic Transformations in Nineteenth-Century Music*, David Kopp develops a method of analysis that classifies chromatic relations among harmonies.

analysis had diminished in America by the end of the 20th century.

The sentiment towards functional harmonic analysis in America during the late 20th century can be reflected in a quote from an analysis of Chopin's E-minor Prelude, op 28. no. 4, by Carl Schachter, in which he suggests that his contrapuntal analysis "reveals more about the music than a harmonically oriented analysis would."⁶ Generally speaking, it was during this time that two main types of musical analysis had surfaced in the American theoretical community: one that examined atonal music—namely set theory⁷—and tonal analytical methods—namely Schenkerian analysis.⁸

As 19th-century chromaticism pushed the limits of tonality, Schenkerian analysts encountered harmonic content that exceeded the scope of their analytical system. Because it incorporates contrapuntal identification, Schenkerian analysis adapted to the advancing harmonies via a linear identification of chromatic harmonies as sequences or embellishments that conceal underlying functional harmonies.

Because of this, some scholars in the theoretical community believe that linear, contrapuntal analytical methods are more proficient than vertical methods. For example, a conversation regarding contrapuntal and harmonic analyses of Chopin's Prelude in E minor was held on the Smt-talk mailing list.⁹ Views in support of both harmonic analysis and contrapuntal analysis were suggested. Stephen Jablonsky and Donna Doyle recognize linear analysis—as opposed to a vertical analysis—as a superior approach for examining

⁶Carl Schachter, "The Prelude in E minor, Op. 28, No. 4: Autograph Sources and Interpretation," in *Chopin Studies* 2 ed. John Rink and Jim Samson (Cambridge: Cambridge University Press, 1994), 174.

⁷Allen Forte, *The Structure of Atonal Music*, 1973.

⁸Heinrich Schenker, *Free Composition* ed. Ernst Oster (New York: Longman, 1979).

⁹Society for Music Theory, "Smt-talk Archives," University of Chicago, <http://lists.societymusictheory.org/pipermail/smt-talk-societymusictheory.org> (accessed Apr. 28, 2013).

Chopin's Prelude. In response to Jablonsky, Doyle asserts her point of view: "I'm surprised (dismayed) that you [Stephen Jablonsky] want all the chords of Chopin's E minor Prelude named. Certainly you know that counterpoint counts, too!"¹⁰ Jablonsky corroborates Doyle's stance: "As others have pointed out, this is a piece about chromatic voice-leading... The intervening harmonies serve much the same purpose as the non-harmonic tones in the melody."¹¹

Dimitar Ninov and Ildar Khannanov, on the other hand, advocate for a vertical analysis of Chopin's Prelude, and in response to Doyle and Jablonsky, Khannanov presents a harmonic interpretation:

Professor Doyle is dismayed at the attempt of Professor Jablonsky to name all the chords here, with the premonition "not to forget about counterpoint." How inappropriate is this gesture here: not only that we must name each chord that we see, but also the chords and the keys which are not present in the score but implied by Chopin. And this progression is not a sliding of some abstract non-harmonic lines.... Not to hear all this harmonically means not to hear music at all.¹²

Ninov seconds this sentiment:

I agree that Chopin's Prelude in Em has a lot of chromatic motion, but this is not a reason to dismiss the vertical harmonic analysis of this piece in favor of simultaneities and/or purely linear passages. In fact, the Prelude is susceptible to a fairly easy harmonic analysis that clarifies the linear motion in the light of functional interaction."¹³

¹⁰Donna Doyle, "[Smt-talk] ABSENCE OF LEAD SHEET," Smt-talk, entry posted Apr. 18, 2013, <http://lists.societymusictheory.org/pipermail/smt-talk-societymusictheory.org/2013-April/002343.html> (accessed Apr. 28, 2013).

¹¹Stephen Jablonsky, "[Smt-talk] ABSENCE OF LEAD SHEET," Smt-talk, entry posted Apr. 18, 2013, <http://lists.societymusictheory.org/pipermail/smt-talk-societymusictheory.org/2013-April/002344.html> (accessed Apr. 28, 2013).

¹²Ildar Khannanov, "[Smt-talk] ABSENCE OF LEAD SHEET," Smt-talk, entry posted Apr. 19, 2013, <http://lists.societymusictheory.org/pipermail/smt-talk-societymusictheory.org/2013-April/002348.html> (accessed Apr. 28, 2013).

¹³Dimitar Ninov, "Chopin Prelude," Smt-talk, entry posted Apr. 20, 2013, <http://lists.societymusictheory.org/pipermail/smt-talk-societymusictheory.org/2013-April/002352.html>

The Smt-talk conversation depicts the discord between contrapuntal and harmonic analyses; to this day, neither approach goes undisputed. Regarding the analysis of Chopin's Prelude, I agree with Khannanov and Ninov because I feel that for western listeners, a harmonic analysis of Chopin's Prelude is an appropriate method for examining its ambiguous character.¹⁴ Schachter, on the other hand, explains why a harmonic analysis of the op. 28 no. 4 Prelude is problematic, stating that "the chord-by-chord successions fit most uncomfortably in this framework [harmonic analysis]; the putative inferences receive inadequate confirmation from the subsequent course of events."¹⁵

Ironically, Schachter's reasoning against roman-numeral analysis *is* my reasoning for a harmonic analysis of Chopin's Prelude. An analysis of tonally ambiguity—like that in Chopin's Prelude—that aims to uncover underlying stability will almost certainly disregard the ambiguous character of the work, which is a defining quality of Chopin's Prelude. Instead, the analysis should address the ambiguity. A linear approach examines what I feel to be a less-important component of the Prelude—stability—and a vertical harmonic analysis attempts to explicate an essential component—ambiguity.¹⁶

(accessed Apr. 28, 2013).

¹⁴Patrick McCreless, "Schenker and Chromatic Tonicization: A Reappraisal," in *Schenker Studies* ed. Hedi Seigal (Cambridge: Cambridge University Press, 1990); David Kopp, *Chromatic Transformations*, 103-134; Matthew Brown, "The Diatonic and the Chromatic in Schenker's 'Theory of Harmonic Relations,'" *Journal of Music Theory* vol. 30, no. 1 (Spring 1986). I don't suggest that Schenkerian analysis disregard chromaticism; the topic of Schenker and chromaticism has been widely discussed and supported by Patrick McCreless, David Kopp, Matthew Brown, and many other music scholars. I do not "side" with one approach or the other—both are of value; however, each method has strengths or weaknesses depending on the work pertaining to the analysis. In the case that the piece being examined is Chopin's Prelude in E minor, op. 28 no. 4, I feel that a harmonic analysis is more revealing than a linear analysis in regard to aural perception.

¹⁵Schachter, "The Prelude in E minor," 174.

¹⁶This is not to say that perception is the most important aspect of musical analysis. To quote Jean Jacques Nattiez, "one cannot grasp the import of an analysis unless one takes into account the dimensions

Because a harmonic analysis of Chopin's Prelude addresses perception, it also addresses ambiguity: functional harmony that corresponds to a tonal syntax resembles a western listener's aural perception of tonal music. It is due to a listener's exposure and familiarity with western music that they perceive functional harmony to be aesthetically pleasing. Just as tonal music complies with a western listener's perception, it complies with a functional harmonic analysis.¹⁷

This correlation between a functional harmonic analysis and aesthetic value also occurs in regard to atonality: atonal music is incompatible with functional harmonic analysis and is not recognized as a popular genre of music.¹⁸

I will utilize this correlation to examine Chopin's mastery of tonal ambiguity. Along with a harmonic analysis, I will identify harmonic implications (which create expectations) and note their outcome to determine whether Chopin fulfills or thwarts expectations. I suggest that by manipulating harmonic implications and violations, Chopin crafts the solemn pathos that is the E-minor Prelude. In chapter two I will introduce my analytical method, apply it to mm. 1-12 of Chopin's E-minor Prelude, and

of the corpus studied, the level of stylistic relevance, analytic approach, and sample size." Jean Jacques Nattiez, *Music and Discourse: Toward a Semiology of Music* (Princeton, NJ: Princeton University Press, 1990), 148.

¹⁷To a certain extent, a western listener's musical perception is isomorphic with a functional harmonic analysis. William Thompson makes a similar observation, stating that "it seems only reasonable to believe that a healthy analytical point of view is that which is most nearly isomorphic with the perceptual act." William Thomson, "Style Analysis: Or the Perils of Pigeonholes," *Journal of Music Theory* vol. 14, no. 2 (Winter 1970): 196.

¹⁸League of American Orchestras. 2010. www.americanorchestras.org. I make the claim that atonal music is unpopular in light of the 2009-2010 season orchestra repertoire report conducted by the League of American Orchestras, which compiles the repertoire from 1,920 concerts performed by 137 different orchestras. The report shows that out of the top twenty most frequently performed works, seventeen are from the 19th century. Although their chromaticism is prominent, the three 20th-century works that remain are tonal, consisting of Shostakovich's Symphony No. 5, Barber's Adagio for Strings, and Rachmaninoff's Piano Concerto No. 3. Because an orchestra's repertoire is selected to attract patrons, the selected repertoire in a given season represents what a society finds attractive. Therefore, the absence of atonal repertoire in this report shows that atonal music is unpopular.

review the relevant literature. In the final chapter, I will summarize my findings, explain their significance, and explore potential future application.

CHAPTER II

EXPECTATIONS AND VIOLATIONS

2.1 Violation Types

A problem when investigating aspects of perception is modularity, a disputed theory suggesting that modules—specialized components of the mind—process specific types of information.¹⁹ Hypothetically, modules may exist to process different types of input, such as language, vision, or music. Massimo Piccirilli, Tiziana Sciarma, and Simona Luzzi suggest that within a music module, sub-modules may exist to process tonality, meter, rhythm, intervals, and contour.²⁰ My analysis of harmonic implication and expectation assumes the plausibility of a sub-module that processes harmony.

Knowledge of a musical syntax is not innate; rather, it is developed through formal and informal exposure.²¹ Altering exposure affects knowledge of a musical syntax, and altering knowledge of a musical syntax affects expectations. Therefore,

¹⁹Jerry A. Fodor, *The Modularity of Mind* (Cambridge, MA: MIT press, 1983).

²⁰Isabelle Peretz and Max Coltheart, "Modularity of Music Processing," *Nature Neuroscience* vol. 6, no. 7 (2003): 688-691; Massimo Piccirilli, Tiziana Sciarma, and Simona Luzzi, "Modularity of Music: Evidence From a Case of Pure Amusia," *Journal of Neurology, Neurosurgery & Psychiatry* vol. 69, no. 4 (2000): 541-545.

²¹Frank Jackson, "Epiphenomenal Qualia," *The Philosophical Quarterly* vol. 32, no. 127 (1982): 127-136. An education in music theory is an example of formal exposure, while only listening to jazz is an example of informal exposure. Frank Jackson, an Australian philosopher, makes a distinction between these two types of knowledge in his famous thought experiment known as "Mary's Room." In the German language a similar distinction between types of knowledge: *wissen* (formal knowledge) and *kennen* (informal knowledge).

altering exposure affects expectations. Consider a hypothetical scenario in which a subject experiences identical events A1 and A2 in numerical order. As shown in Figure 1, the implication of event A1, Imp^1 , is based on the subject's formal and informal exposure to a musical syntax, represented as E_{F+I} .²² The implication of event A2, Imp^2 , differs from that of A1 given that the subject's current exposure— E_{F+I+A1} —includes event A1.

<u>Exposure</u>	<u>Event</u>	<u>Implication</u>
E_{F+I}	+ A1	= Imp^1
E_{F+I+A1}	+ A2	= Imp^2

Figure 1. Implication of A1 and A2

I use the progressions in Figures 2a and 2b to introduce my method of comparing implications. In Figure 2a, I^6 precedes a partial circle-of-fifths progression: $vi - ii_5^6 - V^7$. In Figure 2b, the progression $I - iii - IV - V$ outlines the tonic triad in the bass voice. Both progressions end on a dominant harmony that implies a resolution to tonic. I suggest that Figure 2a implies tonic more strongly than Figure 2b because it contains strong root movement down-by-fifth and a cadential V^7 with the leading tone in an outer voice; whereas Figure 2b contains a weaker harmonic progression, an overall descent in the upper voice from $(\hat{8}-\hat{5})$, and a cadential V triad with the leading tone in an inner voice.

Regardless of an implication's strength, events can unfold as the composer wishes, be that either to fulfill or to violate expectations. I identify several violations of

²²David Lewin, "Music Theory, Phenomenology, and Modes of Perception," *Music Perception: An Interdisciplinary Journal* vol. 3, no. 4 (1986): 327-392. When I refer to implications as "imp", I use Lewin's terminology.

harmonic expectations and how much they differ from the implication. I classify a specific type of violation and refer to it as a *shared violation*; an example is shown in Figure 3.

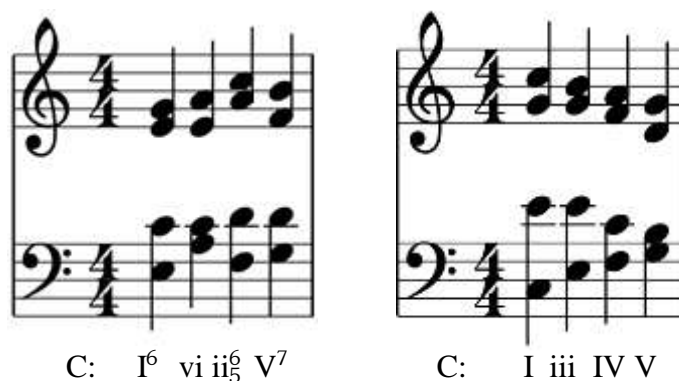


Figure 2. *a*, I⁶ - vi - ii₅⁶ - V⁷ Progression;
b, I - iii - IV - V Progression



Figure 3. Shared Violation

The first four chords in Figure 3—I⁶ - vi - ii₅⁶ - V₂⁴—are identical to the progression in Figure 2*a*. The penultimate chord—V⁷—implies a resolution to tonic in

root position, which is shown in parentheses above the staff. In this parenthetical implication, the resolution of V^7 fulfills expectations: the leading tone— B_4 —ascends by step to tonic, the chord root— G_4 —descends to E_4 , the 7^{th} — F_3 —descends to E_3 , and the inner voice D_4 descends by step. The V^4_2 in Figure 3, however, resolves to a first-inversion C-major harmony with a melodic G_4 as opposed to the parenthetical melodic C_5 . This resolution illustrates a *shared violation* because I^6 *shares* pitch content with the parenthetical implication. The violation occurs in the voicing of I^6 : B_4 descends to G_4 , violating the expectation that a leading tone in an outer voice ascends by step.

A *potential violation* is shown in Figure 4. Figures 3 and 4 are identical except for the V^7 in Figure 4 and its resolution to vi . The final chord in Figure 4— vi —violates expectations. While B_4 , F_4 , and D_3 resolve correctly by step, the chord root— G_3 —ascends to A_3 , violating the expectation of a descent-by-fifth to C_3 . Unlike the bass movement in Figure 3, where the E_3 is a chord member of the implied harmony, the ascent from G_3 to A_3 in Figure 4 creates a different harmony—the submediant. The V^7 - vi resolution illustrates a *potential violation* because vi has the *potential* to follow V^7 given that the tendency tones resolve correctly. This allows a deceptive resolution to exist among the implications following a dominant harmony (according to the syntax of functional tonality). The implication of a deceptive resolution, however, is secondary to that of an authentic resolution, thereby lowering the sense of a violated expectation, and creating less disorientation.

A lowered sense of violations occurs in events other than music. Consider a scenario in which you see dark clouds approaching. Dark clouds can imply multiple



C: I⁶ vi ii⁶₅ V⁷ vi

Figure 4. Potential Violation

events, such as rain or thunder. Of these implications, rain is expected due to it occurring often after seeing dark clouds, similar to the primary implication of a tonic resolution after V⁷. Thunder, on the other hand, can come as a surprise due to it occurring less often after seeing dark clouds, similar to the secondary implication of vi after V⁷. While a quiet thunder is slightly startling, it is not shocking given that it is a secondary implication.

An *unrelated violation* is shown in Figure 5. The first four harmonies and the parenthetical implication in Figure 5 are identical to the two previous Figures. The resolution of V⁷ to ii⁶₄ in Figure 5 violates expectations; similar to the violation in Figure 4, the bass voice—G₃—ascends to A₃, but this time neither of the tendency tones—B₄ or F₄—resolves correctly and the inner voice D₄ remains as a common tone instead of descending by step. Furthermore, unlike the vi chord, ii⁶₄ does not share any tones with the implied I⁵₃. Therefore, V⁷ - ii⁶₄ illustrates an *unrelated violation* because ii⁶₄ is *unrelated* to any significant implication of V⁷. Unlike Figures 3 and 4, this violation provides a harmonic progression that lies beyond the scope of a syntax associated with music from

the common-practice period. Among the violation types in Figures 3-5, the *unrelated violation* is the most significant due to the creation of disorientation and tonal ambiguity.



Figure 5. Unrelated Violation

2.2 Application in Chopin's Prelude

Having identified three violation types, I will analyze Chopin's E-minor Prelude, op 28. no. 4, mm. 1-12, so as to compare harmonic implications to the Prelude's events. I will classify events that differ from an implication as a shared, potential, or unrelated violation. A first-inversion E-minor chord occupies m. 1, shown in Figure 6.²³ At the end of the measure, upper-neighbor C₅ embellishes the melodic B₄. As an initial harmony, E minor lacks context but has multiple implications, though some are weak. The context

²³Throughout my analysis I often disregard the melodic quarter note at the end of each measure because of its embellishing function.

in which E minor appears—initiating the Prelude and repeating in m. 1—suggests it as the tonal center. This occurs for two reasons: the first harmony in a musical work is often tonic, and the repetition (self-reference) of a harmony asserts its presence.²⁴



Figure 6. Chopin, Prelude in E minor, op. 28, no. 4, m. 1

Of the chords that E minor (i^6) implies, B_3^4 (V_3^4) is the strongest, shown in parentheses after m. 1 in Figure 7a. Besides V_3^4 , secondary implications exist, such as a subdominant harmony, which Figure 7b shows parenthetically. Although $i^6 - iv$ is possible, its implication strength is secondary to V_3^4 , making $i^6 - iv$ a potential violation (PV in Figure 7b). Regarding hypothetical unrelated violations of i^6 , the possibilities are almost infinite. For example, the A_2^4 harmony in Figure 7c constitutes as an unrelated violation (shown as UV).

Measure 2 fulfills expectations by providing the implied V_3^4 , which coincides with an inner-voice suspension, shown in Figure 8. The E_4 from m. 1 remains in m. 2 as a non-chord tone before resolving. The suspension's resolution to the leading tone ($D\sharp_4$) is spelled enharmonically as $E\flat_4$, creating a ($\hat{7} - \flat\hat{7}$) suspension in the left-hand; this results

²⁴Being in first inversion, the implied tonic in m. 1 lacks the stability of a root position tonic. Schachter makes a similar observation, stating that “if we hear the opening chord [e^6] as representing a structural tonic, then we feel that lack of a stabilizing root underneath it.” Carl Schachter, “The Triad as a Place and Action,” *Music Theory Spectrum* vol. 17, no. 2 (Autumn 1995): 150.

in an enharmonically spelled dominant harmony that is notated as such below

the staff in Figure 8.²⁶ Upper-neighbor C₅ from m. 1 returns in m. 2 to embellish the melodic B₄. Because the C₅ in m. 1 embellishes B₄, its repetition in m. 2 has an identical function.²⁷

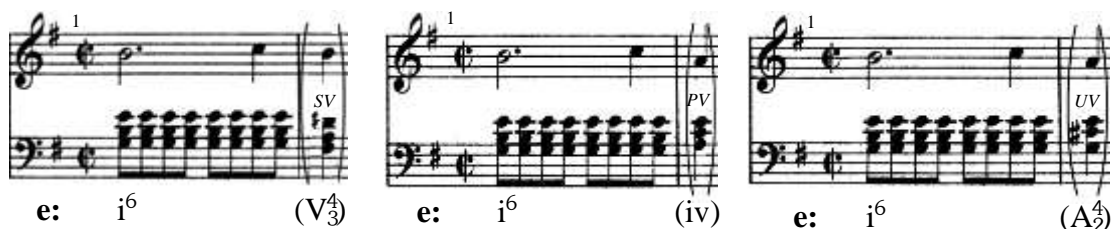


Figure 7. *a*, SV example; *b*, PV example; *c*, UV example

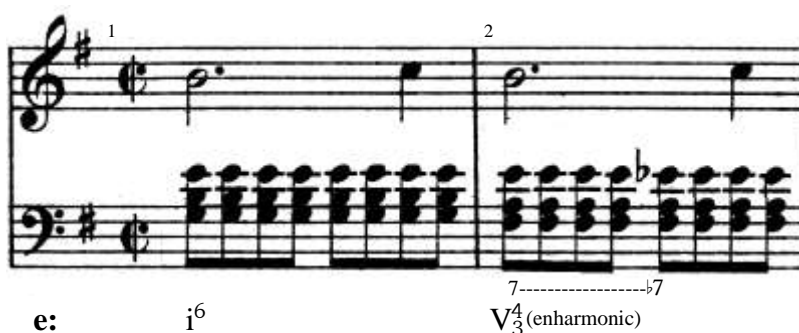


Figure 8. Chopin, Prelude in E minor, op. 28 no. 4, mm. 1-2

The enharmonic V₃⁴ in m. 2 implies a resolution to i₃⁵ in m. 3, shown parenthetically in Figure 9*a*. The implied resolution fulfills expectations: B₄ remains as the common tone while all other tones resolve by step (E_{b4} - E₄, A₃ - G₃, F₃[#] - E₃). Instead, expectations are violated in m. 3: instead of one tone remaining and three moving by step (Figure 9*a*), three tones remain and one moves by step, shown in Figure

²⁶Certain editions, such as Karl Klindworth's and the Paderewski edition, substitute D₄[#] for E_{b4}. While this enharmonic notation does not violate aural expectations, it can certainly violate visual expectations.

²⁷However, one could argue that C₅ in m. 2 is the 7th of an enharmonic vii₅^{o6} in E minor, or the b9th of the enharmonic V₃⁴. I suggest that exposure to the upper-neighbor C₅ in m. 1 predisposes a listener to C₅ as an embellishment of B₄, influencing their perception of C₅ in m. 2.

9a. The top three voices—B₄, E_b₄, and A₃—continue in m. 3 while the bass F₃[#] descends to F₃, which creates V_{3 alt}⁴.²⁸

Figure 9. a, Violation in m. 3; b, Implication in m. 3

While it violates expectations, V_{3 alt}⁴ in m. 3 retains the dominant function from the prior V₃⁴, represented by dashes below the staff in Figure 9a. V₃⁴ in m. 2 has implications secondary to i₃⁵, such as a continuation of V₃⁴. Because V_{3 alt}⁴ retains the dominant function, it is a secondary implication, making it a potential violation (labeled *PV* between the staves in Figure 9a). V₃⁴ in m. 2 doesn't imply the altered fifth in m. 3. Although the alteration can increase disorientation, it has potential to clarify the tonic E-minor for several reasons. First, the bass in mm. 1-2 descends chromatically from

²⁸Mark Levine, *The Jazz Theory Book* (Petaluma, CA: Sher Music Co. 1995). Levine uses “alt” to notate altered harmonies. So the “V_{3 alt}⁴” in Figure 9a, m. 3 represents a harmonic alteration, such as b₅, #₅, b₉, or #₉. In m. 3 the Prelude, alt refers to a b₅.

$G_3 - F\sharp_3 - F\flat_3$ and implies a continuation to E_3 in m. 3. Also, $V^4_{3\text{ alt}}$ retains components from m. 2 that define a dominant function chord—root B_4 , enharmonic leading tone $E\flat_4$, 7th of $V^7 A_3$, and tritone $A_3 - E\flat_4$ —while altering the 5th of V^7 , which is the least important chord tone of a dominant harmony. In addition, $F\flat_3$ can function as an upper leading-tone ($\flat\hat{2}$) to tonic.²⁹

$V^4_{3\text{ alt}}$ in m. 3 functions as a dominant and implies a resolution to i^5_3 , shown parenthetically in Figure 10a. Similar to the previous implication, the parenthetical resolution to i^5_3 in Figure 10a retains B_4 as a common tone while the remaining tones move by step ($E\flat_4 - E\flat_4$, $A_3 - G_3$, $F\flat_3 - E_3$). Also similar to the previous implication is its violation: instead of one tone remaining and three moving by step (Figure 10a), three tones remain and one moves by step, shown in Figure 10a. This time, however, the enharmonic leading-tone $E\flat_4$ descends to D_4 while $F\flat_3$, A_3 , and B_4 remain.

Because the leading tone is an essential component of any dominant harmony, this violation does not retain the prior dominant function. Instead, the violation is a $b^{\flat 4}_3$ chord, which the preceding $V^4_{3\text{ alt}}$ does not imply, making it an unrelated violation (*UV* in Figure 10a). As such, $b^{\flat 4}_3$ is a more significant violation than the prior, creating more disorientation via the leading tone's descent. However, $V^4_{3\text{ alt}}$ in m. 3 implies tonic less

²⁹For $F\flat_3$ to lower ambiguity, a listener must be familiar with chromaticism. Also, the violation of a strong implication will result in a greater sense of disorientation. Because the violation occurs on a downbeat—increasing the implication's strength—the sense of disorientation is more significant. Considering the average western listener, I suggest that the inverted leading-tone function of $F\flat_3$ will not significantly reduce the disorientation resulting from the violation. However, the implication strength of V^4_3 was substantially lower due to its voicing; suppose the behavior of the tenor voice in m. 1-2 was switched with that of the soprano voice, making B_4 in m. 1 descend to A_4 in m. 2. In this scenario, the implication strength would increase due to the 7th of the dominant harmony, a tendency tone, occurring in the upper voice. This raises an inquiry for further research: is the voicing of V^4_3 in m. 2 of Chopin's E-minor Prelude used to create a subtle transition from tonality to ambiguity?

strongly than V_3^4 in m. 2 because the former follows a violation that creates disorientation, muffling the unrelated violation $b_3^{\circ 4}$.

Figure 10 consists of two musical staves, labeled 'a' and 'b', each showing three measures of music. The key signature is one sharp (F#). The notation includes a treble clef and a bass clef. The bass clef contains complex chordal textures. Below the staves, harmonic labels are provided for each measure.

Staff a: Implication in m. 3

- Measure 1: i^6
- Measure 2: V_3^4 (with a dashed line labeled '7' connecting to the next measure)
- Measure 3: $V_3^4 \text{ alt}$ (labeled (i_3^5))

Staff b: Violation in m. 3

- Measure 1: i^6
- Measure 2: V_3^4 (labeled '(enharmonic)' below it, with a dashed line labeled '7' connecting to the next measure)
- Measure 3: $V_3^4 \text{ alt}$ (labeled 'PV' above it) followed by $b_3^{\circ 4}$ (labeled 'UV' above it)

Figure 10. *a*, Implication in m. 3; *b*, Violation in m. 3

While $b_3^{\circ 4}$ can potentially function as $ii_3^{\circ 4}$ of A minor, I suggest that it isn't perceived as such due to context. The subsequent harmony clarifies the function of $b_3^{\circ 4}$: A_3 of the half-diminished harmony descends to $G\#_3$, while melodic chord tone B_4 ascends to C_5 , shown in Figure 11*a*. Therefore, the final harmony in m. 3 incorporates B_4 instead of C_4 and creates $g\#_2^{\circ 4}$. This context results in a subdominant-to-dominant progression ($ii_3^{\circ 4}$ – $vii_2^{\circ 4}$) in the key of A minor, shown in Figure 11*a*.

This context allows a new interpretation of the altered dominant harmony in E minor at the end of m. 2. Along with its dominant function in E minor, $V_{3\text{alt}}^4$ can function as an enharmonic Fr^{+6} sonority in A minor, shown below the staff in Figure 11*a*.

In retrospect, the Fr^{+6} harmony implies a dominant harmony in A minor. The enharmonic $^{+6}$ interval of $\text{F}\sharp_3\text{-E}\flat_4$, however, doesn't resolve as expected: $\text{F}\sharp_3$ remains instead of descending to E_3 , and $\text{E}\flat_4$ descends to D_4 instead of ascending to $\text{E}\sharp_4$. Only from a retrospective perspective is this a violation of an augmented harmony in A minor. Because of this, I will not regard these events as violations.

Figure 11. *a*, Implication in m. 4; *b*, Violation in m. 4

The progression in m. 3— Fr^{+6} - $\text{ii}^{\circ 4}_3$ - $\text{vii}^{\circ 4}_2$ —implies a resolution to A-minor. Due to the bass voice $\text{F}\sharp_3$ in $\text{vii}^{\circ 4}_2$ the implied A-minor harmony is in second inversion—a rare, but possible scenario in which it has a cadential function leading to a cadence in A minor, shown in parentheses. In this scenario, B_4 ascends to E_4 , $\text{F}\sharp_3$ descends to E_3 , D_4 descends to C_4 , and the leading tone $\text{G}\sharp_3$ ascends to A_4 .³⁰ Chord tones E_4 , C_4 , and A_3 of the

³⁰The bass descent from $\text{F}\sharp_3$ to E_3 fulfills the prior expectation and completes the chromatic

cadential i_4^6 descend to D_4 , B_3 , and $G\sharp_3$ to create V^7 , which resolves to i_3^5 .

The $vii_2^{\circ 4}$ chord at the end of m. 3 can function as a partial resolution of the dominant harmony from the E-minor in mm. 1-2. This interpretation draws from the concept that a leading-tone chord is an extension of V: vii° is V^7 without the root pitch, and $vii^{\circ 7}$ is V^9 without the root pitch. In this sense, $vii_2^{\circ 4}$ in A minor at the end of m. 3 equates to V^9 , a dominant harmony built on E. Thus, a plausible interpretation is that a delayed resolution of the E-minor progression in mm. 1-2— $i^6 - V_3^4$ —occurs at the end of m. 3, where the $vii_2^{\circ 4}/A$ minor is a substitute for E minor.³¹

Measure 4 violates expectations, and instead of the implied i_4^6 in the key of A minor, $F\sharp_3$ descends to E_3 while $G\sharp_3$, D_4 , and B_4 remain to create V^7 in A minor, shown in Figure 11*b*. Because the implied i_4^6 had a cadential function, V^7 partially fulfills expectations. The violation's disorientation is lowered by two prior violations that specifically lead the listener away from E minor as a tonic, both of which occur during the short time span of m. 3. The type of violation also lessens the disorientation in m. 4; among chords that $vii^{\circ 7}$ at the end of m. 3 implies is a continuation of the dominant harmony, making V^7 in m. 4 a potential violation, shown in Figure 11*b*.

The V^7 harmony in m. 4 extends the dominant functionality of the prior $vii_2^{\circ 4}$ and implies i_3^5 , shown parenthetically in figure 12*a*.³² The B_4 and D_4 descend by step, $G\sharp_3$

descent from G_3 (m. 1) to E_3 .

³¹Stefan Kostka, Dorothy Payne, and Byron Almen, *Tonal Harmony* (New York: McGraw-Hill, 2012). Kostka, Payne, and Almen acknowledge this type of secondary-dominant substitution in 19th-century music, noting that V^7/iv or $vii^{\circ 7}/iv$ can substitute for a tonic harmony.

³²In order to provide space for the parenthetical implication, Figure 12*a* slightly alters the duration of B_4 in m. 4 from a dotted-half note to a half note.

ascends to tonic, and chord root E_3 descends to chord root A_2 . Chopin violates expectations, and instead of all voices changing (as implied) only one voice descends while the others remain, shown in Figure 12*b*. The leading tone descends from $G\sharp_3 - G\sharp_3$ to create v^7 , which the prior V^7 does not imply, making v^7 an unrelated violation.

Figure 12. *a*, Implication in m. 4; *b*, Violation in m. 4

Overall, four violations occur in mm. 1-4, as labeled in Figure 13. At each violation, the strongest implication appears in parentheses above the staff. Arrows between parenthetical chords represent the continuation of the harmony. The implied chords in m. 3 are identical, whereas those in m. 4 differ by inversion.

e: i^6 V_3^4 (enharmonic) $V_3^4 \text{ alt}$

a: Fr^{+6} $ii_3^{\circ 4}$ $vii_2^{\circ 4}$ V_7^\sharp v_7^\sharp

Figure 13. *PV - UV* Pattern

Certain aspects of m. 3 repeat in m. 4: an extension of the prior dominant function, the *PV* followed by *UV*, and the irregular resolution of the leading tone in the *UV*. Figures 14a and 14b juxtapose m. 3 and m. 4 to show the repetition. In both Figures, the end of the previous measure is included to contextualize the extended dominant function. The initial statement in m. 3 is in E minor, whereas the repetition in m. 4 is in A minor.

e: V_3^4 (enharmonic) $V_3^4 \text{ alt}$ $b_3^{\circ 4}$

a: $vii_2^{\circ 4}$ V_7^\sharp v_7^\sharp

Figure 14. a, *PV - UV* in m. 2; b, *PV - UV* in m. 4

A melodic descent from B_4 - $B\flat_4$ occurs at the end of m. 4, shown in Figure 15a.³³

A $C\sharp$ fully-diminished chord supports $B\flat_4$ and suggests multiple tonal resolutions: D minor/major, F minor/major, $A\flat$ minor/major, or B minor/major.³⁴ The prior E-minor seventh chord is a diatonic harmony in two of these keys: ii^7 in D and iv^7 in B.³⁵ The chord's spelling ($C\sharp$ E G $B\flat$) implies D with $C\sharp$ functioning as $\sharp\hat{7}$.³⁶ Chopin's prior notation, however, allows for a second interpretation: in m. 2 he enharmonically spells the leading tone of E minor ($D\sharp/\sharp\hat{7}$) as $E\flat_4$. Therefore, the diminished harmony in m. 4 can be interpreted as an enharmonic spelling of vii^{o4}_3 in B minor ($A\sharp$ $C\sharp$ E G).³⁷

Figure 15. a, Implication in m. 5; b, Violation in m. 5

³³ B_4 in m. 4 implies upper-neighbor C_5 due to repetition of the embellishment in mm. 1-3. B_4 descends to $B\flat_4$ in m. 4, violating expectations. This concerns implications of melody, not harmony.

³⁴While major keys do not contain a diatonic fully-diminished seventh chord, they are still included because it is not uncommon for a major key to borrow from the parallel minor.

³⁵B major is also a possibility given that vii^{o7} can be borrowed from the parallel minor.

³⁶The diminished harmony in this case is considered a borrowed chord from the parallel D minor.

³⁷Similar to $E\flat_4$ in m. 2, Karl Klindworth notates $B\flat_4$ in m. 4 as $A\sharp_4$. This alteration in editions provides a hint as to the function of this diminished harmony. If the editor's spelling alteration of $E\flat_4$ in m. 2 implies that they interpret it as an enharmonic leading tone, then the editor's spelling alteration of $B\flat_4$ in m. 4 also implies that they interpret it as an enharmonic leading tone. Therefore, the editors interpret the last two harmonies in m. 4 as iv^7 - vii^{o4}_3 in B minor/major.

Regarding potential tonal centers in mm. 1-4, the movement of E minor through A minor to D major is the more plausible option for two reasons. First, the D major interpretation fulfills a circle-of-fifths motion (E/i - A/iv - D/ \flat VII). Also, in this D major interpretation, the E⁷ harmony in m. 4 functions as a dominant in the prior key of A minor, as well as a secondary dominant in the key of D major. This creates a pattern in which the transition between implied tonal centers occurs on a dominant chord in the former key and a secondary dominant in the later key: the transition chord in m. 2 is V₃⁴_{alt} in E minor and a Fr⁺⁶ harmony in A minor, and the transition chord in m. 4 is V⁷ in A minor and a V⁷/V in D major.³⁸

Due to the circle-of-fifths motion, and the pattern of the transition chords, the end of m. 4 suggests a D-major tonicization: v⁷ in A minor also functions as ii⁷ in D and precedes a vii^{o6}₅ harmony that implies I₃⁵, shown in Figure 15a.³⁹ In the parenthetical implication, the leading tone (C[#]₄) ascends to tonic while the remaining tones descend by step.⁴⁰

Measure 5 violates expectations: both the leading tone C[#]₄ and the melodic B \flat ₄ descend by a half step, while the tenor G₃ and bass E₃ remain to create v₃⁴, shown in Figure 15b. Because v₃⁴ is not implied by the preceding vii^{o6}₅ it is an unrelated violation. The *PV* - *UV* ordering in m. 3 and m. 4 doesn't continue in m. 5. Instead, Chopin condenses the pattern: a *UV* that lowers the leading tone on the second beats of m. 3 and

³⁸If the third key area is B minor, then the transition chord functions as V⁷/ \flat VII.

³⁹Just as vii^{o4}₂ of A minor in m. 3 can be interpreted as a substitution for the E-minor resolution in mm. 1-2, vii^{o6}₅ of D major in m. 4 can be interpreted as a substitution for the A-minor resolution in m. 3.

⁴⁰Similar to the implication of the Fr⁺⁶ m. 2, the implications of V⁷/V in m. 4 are violated in retrospect, and for that reason I do not identify these violations as such.

m. 4 now occurs on at the beginning of m. 5.

2.3 Summary

Thus far, three implied tonal centers have occurred. The initial E-minor section in mm. 1-3 spans five beats, shown in Figure 16. The section concludes in m. 3 with a *PV*. The remainder of m. 2 and the beginning of m. 3 contain the A-minor section, which spans three beats and ends with a *PV*. The D major section spans two beats in m. 4 and ends with an *UV*. A down-by-fifth relationship exists among sections, shown by arrows below the staff.

The sections in mm. 1-4 progressively decrease in duration. The A-minor section doesn't contain a tonic harmony prior to a violation, which makes its duration two beats less than the prior E-minor section. While the D-major is similar to A-minor in this respect, it lacks a *PV* and is one beat shorter than the A-minor section.

Comparing the *UV* harmonies in m. 3 and m. 4 reveals several patterns. First, the leading tone in each section descends by a half step. Also, the *UV* harmony functions as a supertonic chord (ii) in a new key ($ii^{\circ 4}_2$ /A minor in m. 3 and ii^7 /D major in m. 4). Finally, the key area in which the *UV* harmony is a subdominant is a fifth below the prior tonal area. Given these patterns, it is possible to speculate as to the function of the *UV* harmony in m. 5 (a^4_3). If the pattern continues, the *UV* harmony will function as a supertonic chord in G (a^4_3 is a perfect fifth below D). These predictions are fulfilled: a^4_3 can function as ii^4_3 /G major. It is also possible to predict the harmony that will follow a^4_3 in m. 5. In m. 3 and m. 4, a leading-tone harmony follows the supertonic chord. The pattern continues,

Figure 16. Overview of mm. 1-5

Figure 16. Overview of mm. 1-5

and a ii - vii° progression in G-major occurs in m. 5, shown in Figure 17.

The ii_3^4 - $vii_2^{\circ 4}$ in m. 5 implies I_4^6 in G major, shown parenthetically in Figure 17.⁴¹

The leading tone ($F\sharp_3$) ascends to tonic while the remaining tones descend by step.

Measure 6 violates expectations: instead of resolving to tonic, $vii_2^{\circ 4}$ remains and prolongs the dominant function, shown in 17.2. Similar events occur in m. 3 and m. 4: V_3^4 alt / E minor in m. 3 and V_7^7 / A minor in m. 4 occur instead of the implied tonic. Just as V_3^4 alt / E minor and V_7^7 / A minor, $vii_2^{\circ 4}$ / G major in m. 6 is a potential violation. This PV, however, differs from those in m. 3 and m. 4; while V_3^4 alt / E minor and V_7^7 / A minor alter the prior dominant harmony, $vii_2^{\circ 4}$ / G major is identical to the prior dominant harmony.

On the second beat of m. 6, the seventh of $vii_2^{\circ 4}$ — E_3 —descends to $D\sharp_3$ and creates an enharmonic $vii_2^{\circ 4}$ of G major, shown in Figure 17.2. The fully-diminished harmony at

⁴¹The harmonic content of m. 5 is very similar to that of m. 3. Both contain a leading-tone chord in third inversion that implies its respective tonic in second inversion. Therefore, the implied i_4^6 in m. 6 has the same cadential function as the implied i_4^6 in m. 4.

the end of m. 6 suggests that mm. 5-6 is in the key of E minor as opposed to G major, as illustrated in Figure 18. Both interpretations are shown in the harmonic analyses below the staff: the G-major interpretation is shown above the line—a progression of $ii_3^4 - vii_2^{\circ 4} - vii^{\circ 7}$ —and the E-minor interpretation is shown below the line—a progression of $iv_3^4 - ii_2^{\circ 4} - vii^{\circ 7}$.

If mm. 5-6 are interpreted as a progression in E minor, then they are the first instance in mm. 1-6 of a repeated key area. The E-minor interpretation doesn't follow the sequence; In contrast; the G-major interpretation does by continuing the established pattern: E - A - D - G—and the $ii - vii^{\circ}$ progression. Therefore, I do not interpret mm. 5-6 in the key of E minor.

1 2 3 4 5 6

PV *UV* *PV* *UV* *UV*

e: i^6 $V^4_3(\text{enharmonic})$ $V^4_3 \text{ alt}$ **a:** Fr^{+6} $ii^{\circ 6}_5$ $vii^{\circ 4}_2$ V^7 v^7_1 **D:** ii^7 $vii^{\circ 6}_5$ v^4_3 **G:** ii^4_3 $vii^{\circ 4}_2$ (I^6_4)

(\downarrow Perfect Fifth) (\downarrow Perfect Fifth) (\downarrow Perfect Fifth)

1 2 3 4 5 6

PV *UV* *PV* *UV* *UV* *PV*

e: i^6 $V^4_3(\text{enharmonic})$ $V^4_3 \text{ alt}$ **a:** Fr^{+6} $ii^{\circ 4}_3$ $vii^{\circ 4}_2$ V^7 v^7_1 **D:** ii^7 $vii^{\circ 6}_5$ v^4_3 **G:** ii^4_3 $vii^{\circ 4}_2$ $vii^{\circ 4}_2$

(\downarrow Perfect Fifth) (\downarrow Perfect Fifth) (\downarrow Perfect Fifth)

Figure 17 *a*, Implication in m. 6; *b*, Violation in m. 6

$G: ii_3^4$ $vii^{\circ 4}_2$ ----- $^{\circ 7}$
 $e: iv_3^4$ $ii^{\circ 4}_2$ $vii^{\circ 7}$

Figure 18. Duality in mm. 5-6

I suggest that multiple aspects of mm. 5-6 are intended to create ambiguity. The first chord in m. 6 is almost identical to the prior harmony in m. 5; this creates ambiguity by violating the expectation that a new measure contains a new harmony.⁴² Also, the implied G-major tonic in mm. 5-6 spans four beats and ends the durational pattern of implied keys: E minor/5 beats - A minor/3 beats - D major/2 beats. This prolonged duration of G major could be an intentional to increase ambiguity; when the ii - vii^o sequence arrives at G major (III), it extends the duration and takes advantage of the G-major/E-minor interpretation discrepancy.

The progression in mm. 5-6 implies G_4^6 , shown parenthetically in Figure 19a. Because a leading-tone chord in third inversion occurs at the end of m. 5 and at the end of m. 6, they imply similar harmonies. If the pattern of events from mm. 1-4 were to continue in m. 7, then the expectation of a tonic resolution will be violated and replaced with a V^7 harmony.⁴³ Chopin does exactly this and continues the pattern in m. 7 with a PV of V^7 , shown in Figure 19b.

⁴²This expectation is created by the pattern of events in mm. 1-5.

⁴³A similar scenario occurs in the A-minor section in mm. 3-4: the $vii^{\circ 4}_2$ at the end of m. 3 implies i_4^6 , and the V^7 at the beginning of m. 4 violates this expectation.

Figure 19 consists of two musical examples, (a) and (b), each showing measures 4 through 7 of a piece in G major. The notation includes a treble clef with a key signature of one sharp (F#) and a bass clef. Measures 4, 6, and 7 are marked 'PV' (Prolongation of the V function), while measure 5 is marked 'UV' (Upper Voice). Below the staff, harmonic analysis is provided for each measure. In (a), the analysis for measure 7 shows a progression from D: ii⁷ to vii^{o6}₅ to v⁴₃, which then leads to G: ii⁴₃. A dashed line connects vii^{o4}₂ to o⁴₂, which is then followed by (i⁶₄). In (b), the analysis for measure 7 shows a progression from D: ii⁷ to vii^{o6}₅ to v⁴₃, which then leads to G: ii⁴₃. A dashed line connects vii^{o4}₂ to o⁴₂, which is then followed by V⁷ (en harmonic).

Figure 19. *a*, Implication in m. 7; *b*, Violation in m. 7

The V^7 harmony in the tonicized area of G major prolongs the prior dominant function of m. 6 and lasts throughout the entirety of m. 7, as seen in Figure 20*a*. At the end of m. 7, the melodic pattern is altered: instead of the quarter note that occurs at the end of each measure in mm. 1-6, the upper neighbor B_4 is a dotted quarter note that returns to A_4 at the end of m. 7. V^7 implies a G-major tonic chord in root position, shown parenthetically in m. 8. In this parenthetical revision, the root of V^7 in the bass voice descends to the root of i_3^5 , the leading tone ($F\sharp_3$) ascends to tonic, and two upper voices descend by step.

If the pattern in mm. 1-5 continues, the leading tone will descend in m. 8 to create an *UV*. Chopin does exactly this, as shown in Figure 20*b*. $F\sharp_3$ descends to $F\sharp_3$ while all

other chord tones remain to create v^7 of G major, which is an *UV*. The G major section, therefore, spans six beats, which is the longest section thus far. Figure 21 illustrates the span of key areas in mm. 1-7.

Figure 20 consists of two musical staves, (a) and (b), showing measures 4 through 8. Each staff has a treble clef and a key signature of one sharp (F#). The bass line is a continuous eighth-note pattern. Above the staff, measures are numbered 4, 5, 6, 7, and 8. Labels *PV* and *UV* are placed above specific measures. Below the staff, chord functions are listed for each measure.

Staff (a):

- Measure 4: *PV*. Chord functions: $D: ii^7$, vii^{o6}_5 , v^4_3 .
- Measure 5: *UV*. Chord functions: $G: ii^4_3$, vii^{o4}_2 .
- Measure 6: *PV*. Chord functions: vii^{o4}_2 , V^7 .
- Measure 7: *PV*. Chord functions: V^7 .
- Measure 8: *UV*. Chord functions: (i^5_3) .

Staff (b):

- Measure 4: *PV*. Chord functions: $D: ii^7$, vii^{o6}_5 , v^4_3 .
- Measure 5: *UV*. Chord functions: $G: ii^4_3$, vii^{o4}_2 .
- Measure 6: *PV*. Chord functions: vii^{o4}_2 , V^7 .
- Measure 7: *PV*. Chord functions: V^7 .
- Measure 8: *UV*. Chord functions: v^7_3 .

Figure 20. *a*, Implication in m. 8; *b*, Violation in m. 8

The duration of the E-minor and G-major sections significantly outweighs the passage of the A-minor and D-major sections. The disorienting effect of the G-major duration in mm. 5-7 is further revealed in Figure 21. Because of the large duration of the other sections, the G-major section can be misinterpreted as a continuation of the prior E-minor area, which creates ambiguity via a discord between an E-minor interpretation and a G-major interpretation. Also, the G-minor section begins with the *UV* in m. 5, which creates disorientation via the interruption of the *PV* - *UV* pattern in mm. 3-4. The *UV* in m. 8 completes the G-major section. Given the pattern of events in mm. 1-8, one can speculate as to the function of the d^7 harmony in m. 8. When the leading tone

descends in each key area— $E\flat_4$ - D_4 in m. 3, $G\sharp_3$ - $G\flat_3$ in m. 4, and $C\sharp_4$ - $C\flat_4$ in mm. 4-5—its descent coincides with a supertonic harmony in the following key area. In the circle-of-fifths pattern, a C-major tonicization follows the G-major key area. Thereby, I speculate that V^7 of G major in m. 7 also functions as V^7/V in C major, while the d^7 harmony in m. 8 is ii^7 of C major. An enharmonic $b^{\circ 6}_5$ harmony occurs at the second beat of m. 8 and functions as $vii^{\circ 6}_5$ of C major; this continues the ii - vii° sequence and supports the C-major interpretation, which is shown in Figure 22a.⁴⁴

The ii^7 - $vii^{\circ 6}_5$ progression in m. 8 implies a C-major tonic triad in root position, shown parenthetically in m. 9 of 22a. The leading tone (B_3) ascends to tonic while the other chord tones ($G\sharp_4$, F_3 , and D_3) descend by step. In m. 9 a partial resolution occurs: while D_3 and F_3 resolve to C_3 and E_3 as expected (shown parenthetically in m. 9 of Figure 22a), $G\sharp_4$ and B_3 remain in m. 9 and create a *PV*, shown in Figure 22b.

It is not a surprise that the partial resolution in m. 9 is a deception, and expectations are violated shortly after the *PV*. The leading tone (B_3) descends and creates an *UV*; unlike prior violations, however, the soprano ($G\sharp_4$) resolves to a potential tonic (A_4). Within the context of C major, the a^6 harmony is an *UV* due to the leading tone's descent. A resolution occurs when interpreting the fully-diminished seventh harmony in m. 8 as $vii^{\circ 4}_3/A$ minor. In this scenario, m. 8 can function in the key of A minor: the initial d^7 harmony is iv^7/A minor, the $b^{\circ 6}_5$ on the first beat of m. 2 is $ii^{\circ 6}_5/A$ minor, and the fully-diminished harmony at the end of the measure is $vii^{\circ 4}_3/A$ minor.

⁴⁴Similar to $E\flat_4$ in m. 2, $G\sharp_4$ in m. 8 functions enharmonically as $A\flat_4$, the 7th in $vii^{\circ 7}/C$ (also considered the b_9 of V).

E minor 5 beats
 A minor 3 beats
 D major 2 beats
 G major 6 beats

1 2 3 4 5 6 7

e: i^6 V_3^4 (enharmonic) V_3^4 alt
 a: Fr^{+6} $ii^{\circ 4}_3$ $vii^{\circ 4}_2$ $V^7_\#$ v^7_3
 D: ii^7 $vii^{\circ 6}_5$ v^4_3
 G: ii^4_3 $vii^{\circ 4}_2$ V^7

(Perfect Fifth)
 (Perfect Fifth)
 (Perfect Fifth)

Figure 21. Overview of mm. 1-7

Figure 22. *a*, Implication in m. 9; *b*, Violation in m. 9

a

4 5 6 7 8 9

PV UV PV PV UV

D: ii⁷ vii^{o6}₅ v⁴₃

G: ii⁴₃ vii^{o4}₂-----o⁷ V⁷_‡

C: ii⁷ v⁷_‡

vii^{o6}₅ (i) (enharmonic)

b

4 5 6 7 8 9

PV UV PV PV UV PV UV

D: ii⁷ vii^{o6}₅ v⁴₃

G: ii⁴₃ vii^{o4}₂-----o⁷ V⁷_‡

C: ii⁷ v⁷_‡

vii^{o6}₅ vi⁶ (enharmonic)

a: iv⁷ ii^{o6}₅ vii^{o4}₃ i⁶

The parenthetical A-minor progression in mm. 8-9 is similar to the hypothetical E-minor progression in mm. 5-6 shown parenthetically.⁴⁵ While the A-minor resolution violates the initial sequence, it potentially fulfills an expectation by continuing the parenthetical pattern.

The A-minor sonority in m. 9 is the first resolution of a dominant function harmony in the Prelude. Not only do five implied tonal centers and nine violations occur prior to this first resolution, but the first resolution is itself a violation. Chopin disturbs musical perceptions and interchanges ambiguity with tonality: ambiguity becomes familiar in mm. 1-8, whereas the glimpse of tonality in m. 9 is atypical. Unlike much music where ambiguous sequences are secondary to tonal passages, the sequential violations in mm. 1-8 are superior, and the tonal resolution in m. 9 is inferior.

Figure 23a compiles my analysis of mm. 1-9. A sequence of violations is illustrated above the staff. The E-minor section in mm. 1-3 contains the first statement of the *PV - UV* pattern, shown above m. 3. The second statement occurs in m. 4, which is the end of the A-minor section. Because the D-major section ends prematurely in m. 5, a statement of *PV - UV* doesn't occur, and only *UV* of the pattern is present in m. 5. The G-major key area in mm. 5-7 contains a *PV*. The *UV* in m. 5 from the D-major section and the *PV* in m. 6 from the G-major section create an altered statement of *PV - UV*; as shown by the double connected arrow above the staff in mm. 5-6, *UV - PV* alters the *PV - UV* pattern via reversal. In mm. 7-8 of the G-major key area, the original statement

⁴⁵The hypothetical E-minor progression in mm. 5-6 is shown in Figure 18. While mm. 1-5 can be interpreted as containing instances of this hypothetical progression (iv - vii°), I don't speculate as to whether this is the case or not.

of *PV - UV* pattern returns. The sequence repeats in m. 9 of the C-major section, shown above the staff.

The harmonic analysis below the staff labels the implied tonal centers of mm. 1-9. Just as in prior Figures, the arrows connecting tonal areas show the circle-of-fifths pattern, which concludes at the A-minor section in mm. 8-9. This coincides with other digressions: the first fulfilled resolution occurs in m. 9, which is accompanied by the first instance of an expressive melodic line.

The ii - vii° pattern in mm. 1-9 is extracted in Figure 23*b*. The lines reference where each chord appears in the Prelude. While Figure 23*b* is scarce, it is important to note that much of the content not shown in Figure 23*b* are repeated harmonies; the harmonic content in mm. 1-9 isn't as dense as it may seem. The empty space in Figure 23*b* brings to light the contrast in duration between implied tonal centers. Significant gaps occur in the E-minor section and the G-major key area. As previously mentioned, the G-major section's duration creates ambiguity because its harmonic content can be interpreted in E-minor.

If the predominant functioning supertonic harmonies in Figure 23*b* are removed, then a chromatic descent occurs among the vii° harmonies. Figure 24*a* illustrates this to reveal the chromatic pattern of the leading-tone chords. The harmonic analysis illustrates how the descent of fully-diminished leading-tone chords tonicize keys in a circle-of-fifths pattern.

Figure 23. *a*, Overview of mm. 1-9; *b*, Reduction of mm. 1-9

Figure 23a: Overview of mm. 1-9

The top staff shows the musical notation for measures 1 through 9. The bottom staff shows the harmonic analysis for each measure, with arrows indicating the progression of chords and the relationship between them (Perfect Fifth, etc.).

Figure 23b: Reduction of mm. 1-9

The bottom staff shows the reduction of the harmonic analysis for measures 1 through 9. The chords are listed in a simplified format, with the key signature and the chord quality indicated.

Figure 23a: Harmonic Analysis

Measures 1-9:

- Measure 1: $e: i^6$
- Measure 2: $V^4_3(\text{enharmonic})$
- Measure 3: $a: Fr+^6$
- Measure 4: $ii^{\circ 4}_3$
- Measure 5: $vii^{\circ 4}_2$
- Measure 6: V^7
- Measure 7: v^7_3
- Measure 8: $D: ii^7$
- Measure 9: $vii^{\circ 6}_5$

Figure 23b: Reduction of mm. 1-9

Measures 1-9:

- Measure 1: $e: i^6$
- Measure 2: V^4_3
- Measure 3: $a: ii^4_3$
- Measure 4: $vii^{\circ 4}_2$
- Measure 5: $D: ii^7$
- Measure 6: $vii^{\circ 6}_5$
- Measure 7: $G: ii^4_3$
- Measure 8: $vii^{\circ 4}_2$
- Measure 9: $C: ii^7$

Figure 23. *a*, Overview of mm. 1-9; *b*, Reduction of mm. 1-9

Figure 24. *a*, Summary of mm. 1-9 (2);
b, Summary of mm. 1-9 (3)

Because $\text{vii}^{\text{o}4}_3$ in m. 8 has a function in both C-major and A-minor, I suggest a different interpretation exists for mm. 3-9. In this new interpretation, $\text{vii}^{\text{o}4}_2/\text{A-minor}$ in m. 3 is prolonged to m. 8, where it is respelled as $\text{vii}^{\text{o}4}_3/\text{A-minor}$. Figure 24*b* illustrates this interpretation by removing the chords between $\text{vii}^{\text{o}4}_2$ in m. 3 and $\text{vii}^{\text{o}4}_3$ in m. 8 to reveal movement of pitches into different registers, as indicated by the diagonal lines. The soprano B_4 moves to alto B_3 , alto D_3 moves to bass D_3 , tenor G^\sharp_3 moves to soprano G^\sharp_4 , and bass F_3 remains as tenor F_3 . Figure 24.2 reveals an underlying progression:

$\text{i}^6 - \text{V}^4_3 - \text{vii}^{\text{o}4}_2 \frac{4}{3}/\text{iv} - \text{iv}^6$. As previously mentioned, a secondary dominant— $\text{V}^7/(\text{x})$ or $\text{vii}^{\text{o}7}/(\text{x})$ —can substitute for a diatonic harmony. In this scenario, $\text{vii}^{\text{o}4}_2 \frac{4}{3}/\text{iv}$ can substitute for the tonic E-minor.⁴⁶

⁴⁶The leading-tone chord of A-minor can be considered a V^7 harmony with an omitted bass. Since

Figure 25*a* distinguishes the ii - vii° pattern in mm. 3-8. The fulfillment of the sequence requires a violation of the vii° harmony; if vii° were to resolve to tonic, the ii - vii° sequence ends (this occurs in m. 9). It is possible, however, for the harmonic sequence to imply its continuation. Therefore, two implications can exist. The first is an implied tonic—ii - vii° - (i)—and the second is an implied sequential repetition—ii - vii° - (ii - vii°). Because the former implication violates the later, and vice versa, ambiguity occurs. When the implied sequential repetition occurs, however, ambiguity can decrease due to an expectation being fulfilled.

a: ii^{ø4}₃ vii^{ø4}₂ **D:** ii⁷ vii^{ø6}₅ **G:** ii⁴₃ vii^{ø4}₂ **C:** ii⁷ vii^{ø6}₅

f⁷ B⁴₃ e⁷ A⁴₃ e^{b7} A⁴₃ d⁷ G⁷
 (E^b: ii⁷ V⁴₃ D: ii⁷ V⁴₃ D^b: ii⁷ V⁴₃ C: ii⁷ V⁴₃)

Figure 25. *a*, ii - vii° Sequence; *b*, Jazz Sequence

V⁷/A-minor is E⁷, vii° can substitute for the E-minor tonic.

A similar harmonic scenario occurs in jazz and can be seen excerpt from Lou Donaldson's tune, "Cookin'", shown in Figure 24b. The initial $f^7 - B\flat_3^4$ functions as $ii^7 - V_3^4$ of $E\flat$ and imply a tonic resolution. An e^7 harmony violates this implication. An A_3^4 chord follows e^7 , resulting in a $ii^7 - V_3^4$ of D, which is a repetition of the prior harmonic progression in $E\flat$. This process continues, creating a $ii^7 - V_3^4$ progression in $D\flat$ then in C. Just as the sequence in the Prelude, a sequence of violations occurs in "Cookin'".

I speculate that the fulfillment of a violation sequence decreases the disorientation resulting from violations of harmonic implications within the sequence. Most often in the jazz context, the $ii - V$ sequence ends by resolving to tonic.⁴⁷ This doesn't occur in the Prelude: while a tonic resolution ends the sequence in m. 9, it is not the tonic that the final $ii - vii^\circ$ implies. In addition to the surface harmonic violations, this creates a second level of violations. The surface level is the violation of tonal implications in mm. 1-9, which I interpreted as a $PV - UV$ pattern. The second violation-level occurs in m. 9 and contradicts the implication of the prior $ii - vii^\circ$ sequence. Figure 25 contains mm. 8-9 and illustrates both of these levels.

The surface-level violation concerning harmonic implication is shown between the staves. The second-level violation concerning sequential implication is shown above. The parenthetical roman numerals to the left of Figure 26 provide context for the sequence. The first-inversion A-minor harmony in m. 9 is both a first and second level violation that also fulfills a tonic implication.⁴⁸ This creates a significant conflict for the

⁴⁷While not as common, the $ii - V$ progression in jazz can be interpreted instead as a $i - IV_{alt}$ progression.

⁴⁸This is not to say that the resolution to tonic isn't a violation itself. It is possible to interpret the resolution as such given that mm. 1-8 develop a pattern that doesn't consist of resolutions. Other potential

(G: $ii^{\frac{4}{2}}_3$ $vii^{\frac{4}{2}}_2$) C: ii^7

$vii^{\frac{6}{5}}_5$

vi^6

2nd level violation (sequential)

UV

PV UV

Surface level violation (harmonic)

(enharmonic)

C: ii^7

[a: iv^7 $ii^{\frac{6}{5}}_5$ $vii^{\frac{4}{3}}_3$ i^6]

Figure 26. Multiple Violation Levels

listener where two violations coincide with the familiar progression from mm. 1-9.

Chopin toys with perception, and in mm. 1-8 the confirmation of a tonal resolution is withheld and replaced with a sequence of violations; then, in m. 9 the sequential implication is withheld and replaced with tonality.

It isn't shocking that the A-minor tonality in m. 9 doesn't continue to m. 10.

Instead, the A-minor harmony progresses to B^7 , shown in Figure 26. C_3 descends to chord root B_2 , E_3 suspends in m. 10 before descending to $D\sharp_3$, A_3 remains, and A_4 descends a minor third to $F\sharp_4$.⁴⁹ B^7 can either function as V^7/V in A minor or V^7 in E

violations exist in m. 9, such as the expressive melodic line and the melodic suspension.

⁴⁹ Note the similarities between the suspensions in m. 10 and m. 2. Also, note the leap in the melody; other than the embellishment Figure in m. 9, stepwise motion has restricted the melody thus far. This brings attention to the leap from A_4 to $F\sharp_4$. I suggest that attention is drawn to this moment for good reason: the second level of violation concerning repetition thwarts expectation of a $ii - vii^{\circ}$ progression tonicizing F in m. 10. In this scenario, the stepwise melodic descent in mm. 1-9 continues to G_4 . The tonal resolution to A-minor, however, thwarts expectations and withholds the melodic G_4 . The melodic leap in mm. 9-10 draws attention to the missing G_4 .

minor. In the later, the tonicized A-minor in m. 9 can have a second function as iv^6/E minor.

Because A-minor hasn't had a strong establishment as tonic, the B^7 in m. 10 functions as V^7/E minor. The $iv^6 - V^7$ progression in E-minor implies i_3^5 on the second beat of m. 10, shown parenthetically in Figure 27a. Chord root B_2 descends to chord root E_2 , leading tone $D\sharp_3$ ascends to tonic E_3 , and upper voices A_3 and $F\sharp_4$ descend to G_3 and E_4 , respectively. Chopin violates expectations and instead of tonic, V^7 progresses to $ii^{\emptyset 4}_3$, which is an unrelated violation, shown in Figure 27b. The $ii^{\emptyset 4}_3$ harmony implies a dominant chord of E minor.

V^7 in m. 11 fulfills this expectation and creates a $ii^{\emptyset 4}_3 - V^7$ progression that continues the subdominant-to-dominant sequence from mm. 3-9.⁵⁰ Similar to m. 10, V^7 in m. 11 precedes a $ii^{\emptyset 4}_3$ harmony that creates an *UV*. The V^7 harmony returns in m. 12 and for the first time, the left-hand repetition ends. A melodic passage in the right hand outlines the dominant harmony and resembles the expressive style in m. 9. $D\sharp_4$ —the leading tone—begins the second beat and ascends to $F\sharp_4$, which in turn ascends to $D\sharp_5$. While the $\natural 7$ is unexpected, it continues the $\sharp 7 - \natural 7$ violations from the sequence in mm. 3-9. A stepwise descent of $D\sharp_5 - C_5 - B_4$ completes m. 12, which marks the end of the antecedent.

⁵⁰ While $ii^{\emptyset 4}_3 - V^7$ in mm. 10-11 differs from the $ii - vii^\circ$ sequence, V^7 shares functionality with vii° , which makes it an acceptable substitution.

Figure 27. *a*, Implication in m. 10; *b*, Violation in m. 10

Example (a): Implication in m. 10

Measures 8, 9, and 10 are shown. The bass staff contains chords labeled *UV* (m. 8), *PV* (m. 9), and *UV* (m. 10). The treble staff contains notes.

Chord symbols below the staff:

C: ii^7 (m. 8) $vii^{\circ 6}_5$ (m. 9, enharmonic) vi^6 (m. 10)

A: iv^7 (m. 8) $ii^{\circ 6}_5$ (m. 9) $vii^{\circ 4}_3$ (m. 9) i^6 (m. 10) $V^7_{4-----\#3}/V$ (m. 10) (V)

Example (b): Violation in m. 10

Measures 8, 9, and 10 are shown. The bass staff contains chords labeled *UV* (m. 8), *PV* (m. 9), *UV* (m. 9), and *UV* (m. 10). The treble staff contains notes.

Chord symbols below the staff:

C: ii^7 (m. 8) $vii^{\circ 6}_5$ (m. 9, enharmonic) vi^6 (m. 10)

A: iv^7 (m. 8) $ii^{\circ 6}_5$ (m. 9) $vii^{\circ 4}_3$ (m. 9) i^6 (m. 10) $V^7_{4-----\#3}/V$ (m. 10) $f^{\# \circ 4}_3$ (m. 10)

E: $ii^{\circ 4}_3$ (m. 10)

Figure 27. *a*, Implication in m. 10; *b*, Violation in m. 10

2.4 Other Interpretations

This harmonic analysis of the antecedent from Chopin's Prelude in E minor, op. 28 no. 4, does not focus on tonality; rather, it represents a lack of tonality and an overwhelming presence of ambiguity in the antecedent. While other analyses of this Prelude present similar views, they do not have similar opinions concerning the benefit of using harmonic analysis. Given that the complete Prelude in E minor is a tonal work, much of the theoretical literature about it utilizes Schenkerian analyses. I will examine Schenkerian analyses by Carl Schachter, Heinrich Schenker, and Justin London to place my analysis within the context of Schenkerian literature.⁵¹

In "The Prelude in E minor, Op. 28, No. 4: Autograph Sources and Interpretation", Schachter uses two autograph sources to support his interpretation.⁵² Within mm. 1-12 he identifies an underlying contrapuntal pattern, drawing from a previous analysis in another article, titled "Schenker's Counterpoint."⁵³

Schachter interprets the left-hand of the antecedent phrase as using "the familiar and age-old technique of parallel 6/3 chords, here elaborated almost beyond recognition by suspensions, chromatic inflections and anticipations."⁵⁴ He claims that "a conjunct passing motion in 6/3s fills the space between the opening i⁶ and the iv⁶ of bar

⁵¹Eric Clarke, "The Semiotics of Expression in Musical Performance," *Contemporary Music Review* vol. 17, part 2 (1998): 87-102; Allen Forte and Stephen Gilbert, *Introduction to Schenkerian Analysis: Instructor's Manual* (New York: W.W. Norton and Co.) 98. Other Schenkerian interpretations by Clarke and Forte aren't considered because they correspond to Schachter's and Schenker's analysis.

⁵²Carl Schachter, "The Prelude in E Minor, Op. 28, No. 4: Autograph Sources and Interpretation," in *Chopin Studies 2*, ed. John Rink and Jim Samson. (New York: Cambridge University Press, 1994), 161-182.

⁵³Carl Schachter, "Schenker's Counterpoint," *The Musical Times* vol. 129 no. 1748 (1988): 524-529.

⁵⁴Carl Schachter, "The Prelude in E minor," 171.

9....Meanwhile the right hand is also moving down, but at a slower rate and with sounds that make dissonances (4/3 formations) against all of the left hand's 6/3s except the beginning tonic and the goal iv."⁵⁵ Schachter's depiction of this contrapuntal pattern from *Chopin Studies 2* is shown in figure 28.

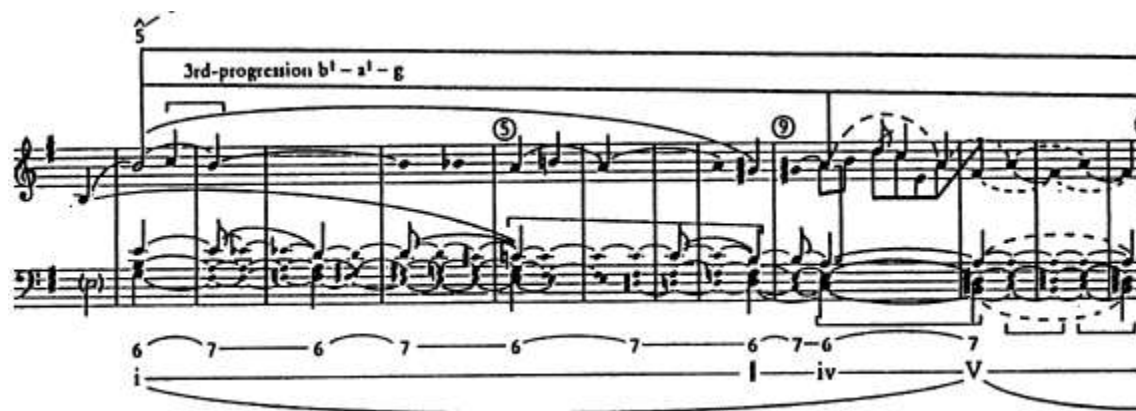


Figure 28. Schachter's Analysis

Schachter reduces mm. 1-9 to show the progression $i^6 - iv^6$ connected by descending $\frac{6}{3}$ harmonies that are ornamented by 7-6 suspensions. The remaining harmonies are labeled as chromatic inflections and anticipations. Schachter depicts this analysis and removes all content unrelated to his contrapuntal sequence, which is illustrated by comparing mm. 1-8 from the score to figure 28.

Schachter's contrapuntal interpretation of the antecedent section in mm. 1-12 provides a potential underlying structure, and while it may represent an age-old voice-leading technique hidden within Chopin's ambiguity, it does not reflect the listener's overwhelming sense of disorientation. Schachter's analysis is valid—that in mm. 1-12, Chopin embellishes parallel $\frac{6}{3}$ chords—then perceptions of a general structure should

⁵⁵ Ibid., 171.

occur. I would argue that the excessive chromaticism Chopin uses to embellish the parallel harmonies accounts for the perceived ambiguity. But chromaticism that functions as ornamentation doesn't often create ambiguity; rather, I suggest that tonal ambiguity requires the presence of tonality, and without a sense of tonality, tonal ambiguity is equivalent to atonality.⁵⁶

This is an issue regarding Schachter's analysis of the antecedent phrase: to interpret these harmonies as not having a function is to disregard their acoustic property. In order to properly analyze these harmonies, I would argue that it is essential to observe the tonal ambiguity they create, and the creation of tonal ambiguity requires a sense of tonality to make the music ambiguous.

A second concern of Schachter's analysis of the antecedent phrase is the descent that begins with a first-inversion E-minor harmony in m. 1 and ends with a B dominant-seventh harmony in m. 12. Between these chords in mm. 2-11 is a stepwise descent in each voice.⁵⁷ Because of this, various chords and chord alterations occur as the voices descend by step. Naturally, this results in numerous anticipations, suspensions, and parallel chords. Perceiving the harmonic content in this light, Schachter's parallel $\frac{6}{3}$ harmonies and suspensions are among other possible parallel harmonies embellished by suspensions.

⁵⁶I find the antecedent from Chopin's Prelude to be tonally ambiguous, and not atonal. To provide a contrast, compare mm. 1-12 from Chopin's Prelude Op. 28 No. 4 (tonal ambiguity) with Schoenberg's Opus 11 No. 1 (atonality).

⁵⁷The descending steps are mostly a half step with the exceptions being B₃-A₃ in mm. 1-2 and m. 9, D₃ - C₂ in mm. 8-9, and A₄ - F₄ in mm. 10-11.

An influential interpretation for Schachter is apparent when comparing his analysis to Heinrich Schenker's analysis of the same Prelude in *Harmony*.⁵⁸ Schenker interprets a movement from tonic in m. 1, through the subdominant in m. 5, to the dominant harmony in m. 10. His analysis is reproduced in figure 29. Similar to Schachter's analysis, Schenker states that "all individual phenomenon within the broad deployment of scale-steps...represent passing chords..."⁵⁹



Figure 29. Schenker's Analysis

⁵⁸Heinrich Schenker, ed. Oswald Jones, trans. Elisabeth Mann Borgese, *Harmony* (Chicago, IL: The University of Chicago Press, 1972). In *Schenker's Counterpoint*, Schachter mentions Schenker's analysis of the E-minor Prelude and claims that when "Schenker analyzed this passage [antecedent of op 28 no 4] in *Harmony*...he did not get it quite right..." Schachter then notes that instead of identifying a structural IV chord in bar 9, Schenker identified it in bar 5.

⁵⁹Heinrich Schenker, *Harmony*, 148.

Justin London and Ronald Rodman review Schenker's and Schachter's analysis and reject their interpretation.⁶⁰ This rejection concerns the fundamental structure as opposed to the local harmonic content.⁶¹ London and Rodman do, however, pay closer attention to the sonorities in the antecedent phrase. Instead of the underlying diatonic progression— $i^6 - iv^6 - V^7$ —presented by Schachter and Schenker, London and Rodman observe an ambiguous underlying progression, shown in reproduction of their analysis in Figure 30.

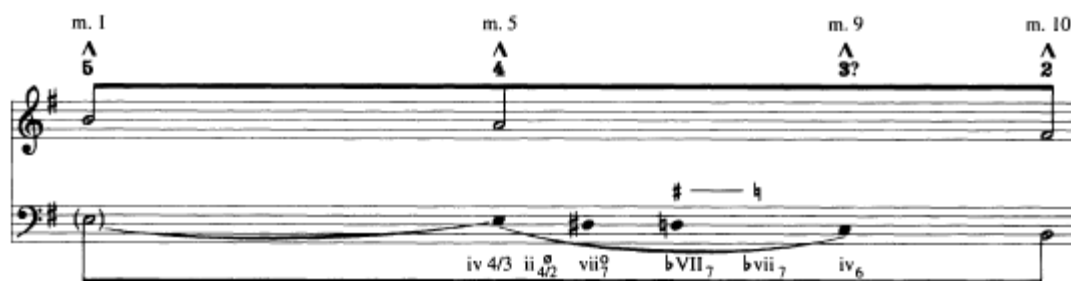


Figure 30. London's and Rodman's Analysis

While they observe the harmonic progression in mm. 7-8— $vii^{o7} - bVII^7 - bvi^7$ —London and Rodman do not acknowledge its strange character, stating that “scale degree $\hat{4}$ is given various forms of harmonic support [in mm. 5-9]— $iv\ 4/3$ and $ii\ 4/2$ in m. 5; $ii\ 4/2$ and $vii\ 7$ in m. 6; and $V\ 7/III$ [reference to $bVII^7$ in figure 29] in m. 7, and ‘ vii^7 ’ [reference to bvi^7 in figure 29] in m. 8, completing the prolongation of the subdominant

⁶⁰Justin London and Ronald Rodman, “Musical Genre and Schenkerian Analysis,” *Journal of Music Theory* vol. 42, no. 1 (Spring 1998), 101-124.

⁶¹London and Rodman reject Schenker's and Schachter's interpretation that a complete $\hat{5}$ or $\hat{3}$ line occurs; instead, they identify—given the structure of a “true Prelude”—an incomplete *Urlinie* that doesn't contain $\hat{3}$. According to London and Rodman, the fundamental structure is ambiguous.

with the iv6 in m. 9.”⁶² It is strange, however, for a Schenkerian interpretation to interpret the function of $\flat VII^7$ and $\flat vii^7$ to be harmonic support that prolongs $\hat{4}$ because of the missing leading tone. But instead of identifying the unusual harmonic events, London and Rodman classify them as “various forms of harmonic support.”⁶³

Some non-Schenkerian approaches propose theoretical concepts and interpretations that are similar to mine. Examples of such analyses are those by Richard S. Parks, Mark Schmukler, and Dmitri Tymoczko.⁶⁴ While their approaches are similar regarding harmony, the results of their analyses differ from my own.

Richard Parks creates a suitable context for his analysis by presenting the concepts of Gerald Abraham that examine Chopin’s tendency to experiment with altered harmonies and to use excessive ornamentation.⁶⁵ The article begins with Parks quoting Abraham’s concept of Chopin’s ambiguity:

Abraham cited passages...in which the main constituent is the fully diminished seventh chord, stating that only the initial and last seventh chords in the succession can be related to a key; thus, in his words, ‘there has been a temporary suspension of the principle of tonality....Chopin thinks in terms of more advanced, chromatically complicated harmony and [employs] the free weaving in of passing notes, ornaments, and even ornaments-to-ornament.’⁶⁶

Abraham’s and Parks’s assessment of Chopin’s style from 1939 resembles Schachter’s interpretation of the Prelude. Parks’s analysis of Chopin’s Prelude, however, pays more

⁶²Ibid., 102.

⁶³Ibid., 102.

⁶⁴Other analyses of Chopin’s Prelude are not reviewed because they do not focus on the harmony in mm. 1-12. See Kofi Agawu, “Concepts of Closure and Chopin’s Opus 28,” *Music Theory Spectrum* vol. 9 (Spring 1987) 1-17; Charles J. Smith, “On Hearing the Chopin Preludes as a Coherent Set: A Survey of Some Possible Structural Models for Op. 28,” *In Theory Only* vol. 1, no. 4 (July 1975): 5-16.

⁶⁵Gerald Abraham, *Chopin’s Musical Style* (London 1938).

⁶⁶Richard S. Parks, “Voice Leading and Chromatic Harmony in the Music of Chopin,” *Journal of Music Theory* vol. 20 no. 2 (1976): 190.

attention to the chromaticism, while Schachter focuses on the linear motion and underlying structural harmonies. While it seems that Parks attempts to interpret Chopin's ambiguity, his analysis—shown in Figure 31—suggests otherwise. For example, as Parks's analysis develops through level *a* - *b* - *c* in Figure 31, the introduction of new chromatic harmonies are presented without stems to show their lack of function. In level *c*, Parks illustrates his interpretation of the entire antecedent phrase—mm. 1-12. In the entirety of mm. 1-9 in level *c*, all but six pitches are without function. Parks's analysis is surprisingly more general and reductive than Schachter's analysis. He identifies the underlying progression i^6 - V^7 and overlooks the subdominant harmony that Schachter observes in m. 9.

In contrast to the linear analyses reviewed thus far, Dmitri Tymoczko interprets the Prelude from a vertical perspective:

Sometimes it is implied that the harmonic content of the opening phrase [Chopin's Prelude, mm. 1-12] is insignificant—a long chromatic series of passing tones from the 'structural' opening chord to the 'structural' dominant that closes the phrase. By contrast I interpret the piece as a four-voice texture exemplifying one of the most basic progressions in all of tonal music—the descending-fifths sequence, albeit freely embellished by chromatic passing tones.⁶⁷

While Tymoczko's harmonic approach is strikingly similar to my own, the outcome is slightly different: because he focuses on the descending-fifths sequence between V^7 harmonies as opposed to dominant-functioning harmonies (as I do), Tymoczko is left

⁶⁷Dmitri Tymoczko, *A Geometry of Music: Harmony and Counterpoint in the Extended Common Practice* (Oxford, UK: Oxford University Press, 2011), 287.

A

B

C

Figure 31. Parks's Analysis

with an interpretation that contradicts his descending-fifths hypothesis, which is reproduced in Figure 32.⁶⁸

Figure 32 displays a musical score with two systems of staves. The first system contains 14 measures, and the second system contains 5 measures. Below each staff, Roman numerals and chord symbols are provided for each measure, representing Tymoczko's analysis of the harmony.

System 1 (14 measures):

- c: i⁶ V³ a: F¹₃ ii⁶₃ vii⁶₂ V⁷ G: vi⁷ ct⁶₇ ii⁶₃ vii⁶₂ vii⁶₂ V⁷ a: iv⁷ ii⁶₃ vii⁶₃ i⁶ c: V⁷

System 2 (5 measures):

- c: i⁶ V³ a: V⁷ G: ii⁶₃ V⁷ a: vii⁶₃

Figure 32. Tymoczko's Analysis

The descending-fifths sequence that Tymoczko mentioned in the previous quote does not match Figure 32. Tymoczko suggests that the sequence occurs via an alteration of V⁷ where the 3rd and 7th of the dominant harmony descend a half-step and the 5th descends a whole step to create a new V⁷ a fifth below the previous V⁷. While this approach correctly depicts the beginning of Figure 32, where B⁴₃ in m. 2 is altered to create E⁷ in m. 4, the subsequent event does not follow the suggested pattern, and the E⁷ harmony in m. 4 is not altered to create A⁷, but D⁷ in m. 6.

⁶⁸Maciej Golab, *Chopins Harmonik: Chromatik in ihrer Beziehung zur Tonalität* (Köln: Bela Verlag, 1995); Dimitar Ninov, "Chopin Prelude," Smt-talk, entry posted Apr. 20, 2013, <http://lists.societymusictheory.org/pipermail/smt-talk-societymusictheory.org/2013-April/002352.html> (accessed Apr. 28, 2013). Tymoczko points out that his interpretation of Chopin's Prelude in E minor, op. 28 no. 4, is similar to Golab's. Dimitar Ninov's analysis also resembles Tymoczko's interpretation; however, Ninov's findings are a closer resemblance to my own analysis than Tymoczko's.

Tymoczko makes two observations that explain the contradiction between Figure 32 and the descending-fifth sequence. First, he claims that of the sequential events, “it is possible to eliminate one or more chords, lowering multiple notes by semitone at the same time.”⁶⁹ This new concept makes an exception for the previous contradiction in Figure 32: the missing A^7 in the descending-fifth pattern— $B_3^4 - E^7 - (A^7) - D^7$ —is the result of a harmony being removed from the sequence.

Second, Tymoczko explains that because any note from a $vii^{\circ 7}$ harmony can be lowered to create V^7 , there are three possibilities beyond the descending-fifth sequence from Figure 33. This observation is presented in an illustration that is reproduced in Figure 33. The (c) section in Figure 33 represents the descending-fifth sequence in mm. 1-4 from the Prelude: the 3rd and 7th of F^7 (A_4 and $E\flat_5$, respectively) descend a half step to $A\flat_5$ and D_5 while the 5th of F^7 (C_5) descends to $B\flat_4$, creating $B\flat^7$.⁷⁰

While Tymoczko’s findings are similar to my own, our analytical approaches diverge: his interpretation focuses on theoretical precision, and my interpretation centers on the the perception of ambiguity; regardless, both approaches are valid.

⁶⁹Dmitri Tymoczko, *Geometry of Music Harmony*, 288.

⁷⁰The $F^7 - B\flat^7$ in Figure 32(c) is comparable to the $B_3^4 - E^7$ in mm. 2-4 of the Prelude. The other three possibilities in Figure 32 represent the ability of $vii^{\circ 7}$ to transform into four different V^7 harmonies with just one tone being lowered: lowering the 3rd and root of $f^{\circ 7}$ creates E^7 (Figure 32(a) sequence descending by semitone from $F^7 - E^7$); lowering only the 3rd of $f^{\circ 7}$ creates G^7 (Figure 32(b) sequence ascending by a major second $F^7 - G^7$); and lowering the 7th of $f^{\circ 7}$ creates $D\flat^7$ (Figure 32(d) sequence descending by a major third $F^7 - D\flat^7$).

(a) (b)

F⁷ f[°] E⁷ e[°] F⁷ f[°] G⁷ e[°]

(c) (d)

F⁷ f[°] B^b7 e[°] F⁷ f[°] D^b7 e[°]

Figure 33. Tymoczko's Four Sequences

CHAPTER 3

CONCLUSION

In this thesis, an intention of mine was to provide the reader with tools such that they can comprehend and internalize the underlying structure of Chopin's E-minor Prelude, op. 28 no. 4. I argue that this goal has been achieved for several reasons: by revealing the ii - vii° sequence in mm. 1-12, exposing the descending-fifth pattern, uncovering the *potential violation - unrelated violation* pattern, and most importantly, providing the reader with an aural perception of how Chopin manipulates harmonic implication and violations.

I also intended to develop an analytical method that interprets vertical harmonies, tonal ambiguity, harmonic implications, and harmonic violations. Achieving this, my thesis presents a means to examine perceptions of ambiguous music. This method has future use concerning the analysis of ambiguous music and music perception. In this scenario, my approach can be developed to better accommodate chromatic works.

Among the reviewed literature, a preference for linear methods of analysis instead of a vertical method is apparent. I have shown that a vertical analysis of harmonic content is also a valuable analytical method when studying ambiguous music, and its

combination with linear analyses can provide a greater understanding of tonally ambiguous music. Given that this approach exposes an underlying pattern in Chopin's Prelude, I suggest that it can apply to other ambiguous works and provide similar results.

In addition to providing a unique analysis of a famous Chopin Prelude, this thesis offers a novel interpretation of Chopin's style, focusing on his utilization of harmonic violations and perceptual manipulation. A comprehension of transitional composers—those who influenced avante-garde styles, such as Chopin—is invaluable, and because the Prelude in E minor exemplifies his compositional innovation and his avante-garde chromaticism, this thesis reinforces the endeavor to research great transitional composers like Chopin. By examining Chopin's use of harmonic expectation and violation, I suggest that this analytical method can provide an understanding of reasoning and inspiration that underlies a mysterious work.

The findings in this thesis reveal that Chopin was truly a master of composition, and an innovator in regard to creativity and abstract thought. I hope that my findings help to development analytical methods and further musical comprehension.

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