

THE PROBLEM OF FORM IN GYÖRGY LIGETI'S *AUTOMNE À VARSOVIE*,
FROM *ÉTUDES POUR PIANO, PREMIER LIVRE*

by

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Department of Music

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Date August 28, 1997

THE UNIVERSITY OF BRITISH COLUMBIA
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Recital Hall
Wednesday, August 27, 1997
8:00 p.m.

DOCTORAL RECITAL*

ALEXANDRA TOWNSEND, piano

The Art of Fugue, BWV 1080

J.S. Bach
(1685-1750)

Contrapunctus 11
Canon per Augmentationem in Contrario Motu
Contrapunctus 9 alla Duodecima

Four Mazurkas, Op. 6

Frédéric Chopin
(1810-1849)

Polonaise in f sharp minor, Op. 44

- INTERMISSION -

Douze Notations pour piano

Pierre Boulez
(b. 1925)

Sonatine

Maurice Ravel
(1875-1937)

Modéré
Mouvement de Menuet
Animé

Regards sur l'enfant Jésus

Olivier Messiaen
(1908-1992)

Regard de l'Église d'amour

* In partial fulfillment of the requirements for the Doctor of Musical Arts degree with a major in Piano Performance.

THE UNIVERSITY OF BRITISH COLUMBIA

SCHOOL OF MUSIC

Recital Hall
Thursday, April 3, 1997
8:00 p.m.

DOCTORAL LECTURE / RECITAL*

ALEXANDRA TOWNSEND, piano

Piano Études Book One

Désordre
Arc-en-ciel
Automne à Varsovie

György Ligeti
(b. 1923)

* In partial fulfillment of the requirements for the Doctor of Musical Arts degree with a major in Piano performance.

ABSTRACT

The Problem of Form in György Ligeti's *Automne à Varsovie*, from *Études pour piano, premier livre*

Composed in 1985, Ligeti's first book of six piano etudes is both a challenging and intriguing addition to the pianist's repertoire. This D.M.A. thesis begins with a general survey of the piano etude genre, followed by a brief discussion of Ligeti and his compositional style as demonstrated in some of his principal works. Hemiola, fractal math, the music of Conlon Nancarrow, and the music of the Central African Republic are then discussed as influences on the etudes.

Automne à Varsovie, the final etude from the set of six, is analyzed with reference to its "lament theme," and to phrase structure, melodic organization, and the use of pitch and pitch-class space. The form is then contemplated in relation to ideas presented in writings by Jonathan Kramer and Edward T. Cone. *Automne à Varsovie* presents a formal problem: it can be perceived and understood both as a process and as a structure. Moreover, the three main divisions in the piece, where a climax is approached but then abruptly cut off, raise challenges for conventional analysis. In dealing with issues of the perception and interpretation of the etude's form, this study of *Automne à Varsovie* attempts to address the pianist's concerns in preparing a performance of this work.

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INTRODUCTION

Contemporary music poses unique problems for the performer. Lacking tonality and a traditionally organized form, what is to be projected in such a piece? It is crucial that the performer identify the specific forces at work in order to communicate the essence of the piece effectively. This paper aims to explore issues of form and aural comprehension in Ligeti's music. It will focus on *Automne à Varsovie*, etude no. 6 from his *Piano Etudes Book I* (1985), setting the work in the context of the other etudes and his output in general.

Chapter 1 provides contexts for *Automne à Varsovie*; the three subsections of the chapter provide background on the piano etude in general, on Ligeti's previous compositions, and on rhythmic influences as they relate to three etudes from the set. Chapter 2 will explore analytical considerations pertaining to *Automne à Varsovie*; its three subsections explore the use of the "lament theme" and its attendant phrase structure, the etude's melodic structure, and the use of pitch and pitch-class space. Chapter 3 will address the problem of form in the piece, and Chapter 4 will briefly explore performance issues. This study aims to present information that will be useful to a performer in preparing an informed interpretation of this work.

CHAPTER 1
CONTEXTS FOR *AUTOMNE À VARSOVIE*

A Survey of Piano Etudes

The etude became a popular genre of piano composition in the early Nineteenth Century. By definition, it is a piece combining technically difficult piano writing with unified musical structures. In its early stages, the technical aspect usually involved idiomatic piano figuration such as scale passages, broken octaves, and figures deriving from ornamental fioritura that are repeated extensively.¹ In the Twentieth Century, the standard nineteenth-century figurations are often replaced by more irregular and nondiatonic material. Some examples of figuration taken from etudes written over the past two centuries are shown in Example 1.1.

¹For a more detailed discussion on the rise of the etude see Simon Finlow's article, "The Twenty-seven Etudes and their Antecedents," in *The Cambridge Companion to Chopin*, edited by Jim Samson (Cambridge: Cambridge University Press, 1992), 50-77.

Chopin: Op. 10, No. 4

Chopin: Op. 10, No. 6

Liszt: "Chasse-neige"

Skryabin: Op. 8, No. 1

Stravinsky: Op. 7, No. 2

Bartók: Op. 8, No. 1

Example 1.1 Motivic Figuration used in Etudes

As motivic figuration became the dominant feature of etudes by the mid-Nineteenth Century, composers relied on harmony for expression and coherence. The etude remained opposed, however to "huge, Beethoven-like emotions and their

expression."² Rather, the genre exploited the mechanical resources of the instrument and the etude became a vehicle for pianists to demonstrate substantial technical ability. A good etude is one which presents sophisticated musical ideas and technical figurative work in a balanced and integrated relationship. This nineteenth-century definition is also germane to etudes written in our century. In addition, the form has often been the site of important compositional experimentation.

The following cursory survey of selected piano etudes aims to provide a general background to the etudes of Ligeti. This survey will emphasize the appearance of complex rhythmic devices such as hemiola and polyrhythm in etudes, because these features are a central part of Ligeti's etudes.

The first significant composer of piano etudes is Frédéric Chopin, who published a collection of twelve etudes in 1833 (op. 10) and another twelve etudes in 1837 (op. 25). Also, his "Trois nouvelles etudes" of 1839 appeared posthumously. Chopin's etudes are the first to be considered suitable for the concert hall and the first outstanding examples of the genre. Innovative harmonic structures and complex voice-leading are combined to unfold a unified and hierarchical form. Characteristically, surface figural activity and the deeper background structure are intimately related. For example, in op. 10 no. 6, the surface chromatic neighbour-note motion has a foreground colouristic function, but is reflected in the harmonic structure by the use of

²Oscar Bie, *History of the Pianoforte*, translated by E. E. Kellett and E. W. Naylor (London: J.A. Dent & Sons, 1899), 205; quoted in Simon Finlow, "The Twenty-seven Etudes," 59.

chromatic chords.³ Textural variety and interest is often created rhythmically by Chopin's use of hemiola. In op. 10 no. 10 (shown in Example 1.2), eighth notes are played in both hands in synchronization. However, the right-hand eighth notes are rhythmically organized into groups of two while the left-hand's eighth notes are in groups of three.⁴

Vivace assai

The image displays two systems of musical notation for Chopin's Etude op. 10, no. 10. The tempo is marked 'Vivace assai'. The first system shows the beginning of the piece with a piano (*p*) dynamic. The right-hand part features eighth notes in groups of two, while the left-hand part features eighth notes in groups of three. The second system continues this rhythmic pattern. Various articulation symbols, including accents (>) and slurs, are used throughout the score. The key signature is three flats (B-flat, E-flat, A-flat) and the time signature is 12/8.

Example 1.2 Chopin Etude op. 10, no. 10

The next important set of etudes to be considered here is Franz Liszt's twelve

³Finlow, 72-73.

⁴Denys Bouliane provides this example in "Les Six Études Pour Piano de György Ligeti," *Canadian University Music Review* 9/2 (1989), 83.

Études d'exécution transcendante (Transcendental Studies) which were written in the 1830's and revised in 1851. They present novel pianistic effects and challenging virtuosic writing intended to display the performer's power and skill at the keyboard. *Mazeppa*, for example, takes bombastic virtuosity and ostentatious display to an extreme. In a totally contrasting mood, *Ricordanza*'s dreamy *cantabile* melody suggests the influence of Chopin's nocturnes.⁵ Ten etudes have descriptive titles and some (such as *Mazeppa* and *Eroica*) carry specific programmatic associations. In *Chasse-neige*, a simple six-note melody reappears throughout the piece surrounded by various tremolo accompaniment figures and chromatic scales to suggest gusts of wind and blowing snow. Because the *Transcendental Studies* generally employ limited musical materials and often present harmonic schemes that are not well integrated, they are often judged critically. However, because of novel pianistic effects and virtuosic writing, they are important in the development of the etude.

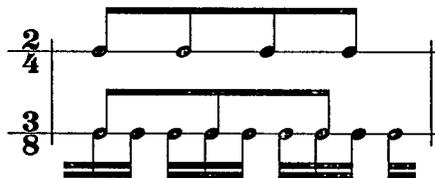
Robert Schumann's *Symphonic Études* op. 13 (1834-7), consisting of a theme and twelve variations, are an example of the variation-etude hybrid. Though ferociously difficult to play, they are of the "étude caractéristique" sort rather than the superficially virtuosic.⁶ Figuratively speaking, with each variation-etude, a unique and vividly articulated character appears on the scene to tell a completely new version of "the story" ("the theme"). The symphonic element here is "the larger scale, transformational

⁵Dolores Pesce, "Expressive Resonance in Liszt's Piano Music," in *Nineteenth-Century Piano Music*, edited by Larry R. Todd (New York: Schirmer Books, 1990), 386.

⁶Anthony Newcomb, "Schumann and the Marketplace: From Butterflies to *Hausmusik*," in *Nineteenth-Century Piano Music*, 265.

development of thematic-motivic material across a sizable span of time."⁷

Johannes Brahms' *Studies for the Piano--Variations on a Theme by Paganini* op. 35 (1862-3) are also in hybrid variation-etude form. *Book I* contains the theme and thirteen variations; *Book II* contains the theme and another fourteen variations. Their daunting physical requirements include passages in thirds, sixths, and octaves, and often involve rapid leaping across the keyboard. Variation 7 from *Book II* presents an example of polyrhythm: the right hand is marked 2/4 while the left hand is in 3/8. This awkward rhythmic situation is diagrammed in Example 1.3 below. Musically these etudes are profoundly expressive and embody an extended range of character and style.

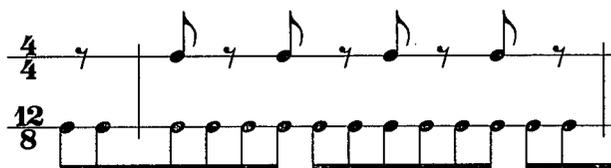


Example 1.3
Brahms *Paganini Variations* Book II, Var. 7

Alexander Skryabin wrote a number of etudes between 1887 and 1912. We can trace in them the development of his musical style from the emotional language of late Romanticism to the highly concentrated expressionism of his late works. Greatly

⁷Ibid., 265.

influenced by Chopin, his piano music often uses melodies containing irregular rhythmic groupings. Moreover, Skryabin relies extensively on chromatic harmony. His music depicts fantasy and has a quasi-improvisatory quality. At times, the lush and colouristic piano writing reminds one of Debussy. The twelve etudes of op. 8 (1894) are still in an early style but demonstrate striking rhythmic complexity. For example, etudes 2 and 4 present groupings of five notes in one hand against three in the other, as well as five against four. In etude 7, the right hand is marked 4/4 and the left hand 12/8. In addition to employing polymeter, Skryabin has the hands misaligned against each other and out-of-synchrony with the barlines. Example 1.4 below illustrates the resulting metric ambiguity.



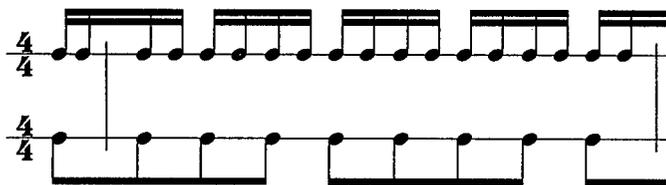
Example 1.4
Skryabin Etude op. 8, no. 7, m. 1

The three etudes of op. 65 (1911-12) are in Skryabin's late style. Here, he avoids firm tonal progressions in favour of tritone-related bass movement, at times approaching atonality. A weak metrical sense intensifies the nontonal orientation. The technically difficult first etude of the set requires that the right hand play harmonic ninths very softly and rapidly. Indisputably, Skryabin's etudes are a singular and

compelling contribution to the genre.

Karol Szymanowski also wrote a number of piano etudes. The four etudes of op. 4 (1902) and the twelve of op. 33 (1916) show the influence of Chopin, Debussy, and particularly Skryabin.

Although Igor Stravinsky is known primarily for his cool and objective neoclassical piano compositions, his four etudes op. 7 (1908) are in an expressive Romantic idiom. They are particularly interesting for their rhythmic experimentation. In etude no. 1, a fairly constant rhythm of five sixteenth pulsations per quarter note beat is established. Over this, a melody moves in triplets and eighths creating the polyrhythms of 5 against 3, and 5 against 2. In etude no. 2, a basic rhythm of six sixteenth notes is set against groupings of 3, 4, then 5 notes. While etude nos. 1 and 2 largely retain a sense of regular meter, the effect of etude no. 4 is more complex. Here, right hand and left hand are synchronized in phrases of 2 or 4 quarter notes in length. However, as shown in Example 1.5, these otherwise regular rhythmic groupings are syncopated against the notated barline.



Example 1.5
Stravinsky Etude op. 7, no. 4, m. 1

Stravinsky confounds the situation by changing the length of the phrases. At the beginning of the piece they are in 4 or 2 quarter notes but, as shown in Example 1.6, phrases of different lengths then appear more and more irregularly. As a result of this organization, a sense of regular metrical pulse is never established. In the example, numbers indicate the number of quarter notes per phrase:

4 2 2 4 2 2 4 2 2 4 4 4 2 2 4 2 2 2 2 2 2 2 2 2 1 1 1 1...

Example 1.6
Use of Irregular Phrase Lengths in
Stravinsky's Etude op. 7, no. 4, mm. 1-18

Like Stravinsky's etudes, Sergey Prokofiev's *Four Etudes* op. 2 (1909), were early works and are relatively unknown today. Also like Stravinsky's, they are immensely attractive and interesting pieces deserving more attention. Prokofiev's first etude of the set presents a percussive use of the instrument reminiscent of Bartók's style of composition. Although consisting mostly of driving toccata-like figuration in various forms, a whimsical staccato melody emerges intermittently. The second etude is polymetric: the right hand is notated in 18/16, the left in 4/4. Throughout much of the etude, the right hand presents scale-like figures meandering up and down the keyboard, while the left hand punctuates with registrally widely-spaced quarter or eighth notes. The effect is subtly lyrical and appealing.

Sergey Rakhmaninov wrote seventeen *Etudes-tableaux* in two collections: op. 33 (1911) and op. 39 (1916-17). Compared to the contemporaneous etudes of

Stravinsky (1908), Debussy (1915, to be discussed below), and Skryabin's op. 65 (1911-12), they sound sentimental and old-fashioned. However, they succeed artistically in synthesizing the representation of Romantic concepts such as brooding melancholy and endless yearning with imaginative and orchestral piano writing. Emotionally, they range from conveying contemplation and introspection to aggressive propulsion and vitality.

Although Claude Debussy's *Douze études* of 1915 are often considered "compositional" studies, they still rely on principal features of the genre. The formal innovation of *Pour les 'cinq doigts' d'après Monsieur Czerny* resides in its linear organization into six sections with no overt return of material.⁸ In *Pour les sonorités opposées*, the pitch G-sharp reappears throughout but always surrounded by new harmonies and in new contexts. Here, Debussy reveals his obsession with colour and sonority over traditional harmonic movement.⁹ *Pour les arpèges composées* explores the nature of figuration, and a rich variety of pianistic figures (such as ascending runs, arabesque figures, and glissandi-like runs) acquire here a form-defining role.¹⁰ In *Pour les Accords*, the irregular rhythmic groupings of constant eighth notes causes the implied metre to resist coinciding with the notated bar line. For the performer, Debussy's etudes require a virtuosic technique as well as imaginative use of piano colour. In presenting experimentation with form and the use of sonority as a structural

⁸Richard S. Parks, *The Music of Claude Debussy* (New Haven; London: Yale University Press, 1989), 226.

⁹Ibid., 37.

¹⁰Ibid., 276.

element, Debussy's etudes indisputably lie in the Twentieth Century.

Béla Bartók's *Three Etudes* op. 18 (1918) are harsh and unsettling pieces in an extremely difficult piano idiom. The figuration of the first toccata-like etude consists of broken-octave passagework, but using sevenths and ninths instead of octaves. The harmonic language of these pieces is extremely dissonant and exhibits only minimal tonal orientation. In the third etude the notated metre changes almost every bar over the course of the first two pages: 6/8, 7/8, 6/8, 10/16, 9/16, 11/16, 7/8, 5/8, 9/16, 6/8, 15/16, 6/8, 4/8, 10/16, 11/16, 3/4, 6/8, 7/8, 11/16. Here, a dense and highly erratic surface strays well away from conventional musical idioms.

In the post World War II music era, the genre of the piano etude is often used by composers to explore radically new methods of composition. Olivier Messaien's *Mode de valeurs et d'intensités* from *Quatre études de rythme* (1949) is famous for being one of the first examples of total serialism. The piece employs series for the rhythms, dynamic levels, and attack types assigned to specific pitches. Another interesting and more recent set of etudes is John Cage's *Etudes australes* (1974-5); pitches for these pieces were derived from charts of the stars in the southern sky. George Perle's *Six Etudes* (1973-6) and *Six New Etudes* (1984) are dodecaphonic compositions in an austere emotional style. William Bolcom's *Twelve Etudes for Piano* (1966) and *Twelve New Etudes for Piano* (1986) are evocative and original pieces that demonstrate the use of both structured pitch and rhythmic systems as well as improvisatory-like writing.

To summarize briefly, Chopin established the piano etude as an important genre that provided opportunities for the performer to demonstrate virtuosity and the

composer to demonstrate artistic and compositional skill. This discussion has highlighted a particular recurring feature in many piano etudes: the use of hemiola and other more complex polyrhythms to create interesting textures and pianistic effects. As we will see, with Ligeti's first book of *Piano Etudes* (1985) this type of rhythmic innovation is pushed to a new extreme.

Aspects of György Ligeti's Musical Style

György Ligeti was born in 1923 in a territory that had been part of Hungary until the end of the first world war, when it became part of Romania. Ligeti grew up in Kolozsavar (or Cluj to Romanians), studying at the conservatory there as well as taking private lessons in Budapest. Until 1956, when he emigrated to Western Europe, Ligeti had been completely cut off from contemporary developments in Western Classical music. It has been suggested that because he came into contact with the radical experiments of the European avant garde later in his composition career, his solutions to the problems of contemporary music are unique.¹¹

Ligeti's first important and well-known work is *Atmosphères* of 1961. This piece belongs to a series of works (including *Apparitions*, *Lontano*, and *Lux Aeterna*) that have been called "static," "tone-carpet," or "textural" music. Ligeti describes *Atmosphères* and *Apparitions* as "music wholly enclosed within itself, free of tunes, in which there are separate parts but they are not discernable, music that would change through gradual transformation almost as if it changed its colour from the inside."¹² In *Atmosphères*, each of the 89 instruments has an individually written out part, but by filling out dense chromatic segments a mass of sound is heard, rather than individual voices. Colouristic effects are achieved by subtle changes in texture and use of

¹¹Jonathan W. Bernard, "Inaudible Structures, Audible Music: Ligeti's Problem, and his Solution," *Music Analysis* 6/3 (1987): 207.

¹²György Ligeti, "Ligeti-Peter Varnai," translated by Gabor J. Schabert, in *György Ligeti in Conversation* (London: Eulenberg, 1983), 33.

register. Although this "micropolyphony" often uses strictly canonic procedures, the polyphony itself is essentially inaudible. With *Atmosphères*, we first encounter an important and recurring aspect of Ligeti's approach to composition: his love of illusion.¹³

Beginning in the 1960s, Ligeti began to experiment with rhythm. *Poème Symphonique* (1962) for 100 metronomes is described by Ligeti both as a "persiflage" and the first example of "meccanico" music.¹⁴ Arising from his fascination with machines that do not work properly, meccanico music uses short rapidly repeating patterns to create a machine-like effect. As explained by Ligeti in 1981, *Poème Symphonique* involves setting a number of metronomes (ideally 100 but 30 may be used) to begin ticking at different speeds until they have all wound down and stopped.¹⁵ The idea behind the piece lies in the changing rhythmic patterns created by superimposing different time-grids upon one another.

The next important meccanico piece is *Continuum* (1968) for harpsichord solo. Here, each hand presents short, rapidly repeating patterns, such as scalar units, in a constant eighth-note pulse. Listening to the piece, however, one is not aware of surface figural activity. According to Ligeti, "the actual rhythm of the piece is a pulsation that emerges from the distribution of the notes, from the frequency of their

¹³On this subject see Lois Svard's D.M.A. dissertation, "Illusion in Selected Keyboard Works of György Ligeti" (Peabody Conservatory of Music, 1990).

¹⁴György Ligeti, "Ligeti-Josef Hausler," translated by Sarah E. Soulsby, in *György Ligeti in Conversation*, 108.

¹⁵Jane Piper Clendinning, "The Pattern-Meccanico Compositions of György Ligeti," *Perspectives of New Music* 31/1 (1993): 193.

repetitions."¹⁶ With *Continuum*, Ligeti's exploration of rhythm and acoustic illusion takes a newly defined shape.

Written in 1976, Ligeti's *Three Pieces for Two Pianos: Monument--Selbstportrait --Bewegung* take rhythmic experimentation further. In the first piece, piano I is in 4/4 time while piano II plays in 6/8. Each piano has its own series of isorhythms, which are gradually superimposed as the piece progresses. Ligeti also associates specific pitches with specific dynamic levels. A perception of spatial illusion is created; louder notes feel close and softer ones farther away. In addition to these processes, a gradually widening register takes part in the large-scale formal organization of the piece.

In recent years, Ligeti has embarked on a new style of composition.¹⁷ The Trio for Horn, Violin and Piano (1982) uses traditional forms in three movements and is dedicated to Brahms. The Piano Concerto (1985-88), in five movements, is scored for strings, percussion, and one each of flute, oboe, clarinet, bassoon, French horn, trumpet, and trombone. As demonstrated in these works, principal features of the "late style" include:

1. the use of Ligeti's characteristic "Lamento motif," a repeated, falling, chromatic scale fragment;
2. the appearance of singable melody;
3. the use of simpler harmonies, at times suggesting diatonicism;

¹⁶György, Ligeti, "Ligeti-Peter Varnai," in *György Ligeti in Conversation*, 61.

¹⁷In an interview with Istvan Szigeti ("A Budapest Interview with György Ligeti," *The New Hungarian Quarterly* 25 (1984), 205), Ligeti speaks of a stylistic change beginning with the Horn Trio (1982). This is cited in Stephen Taylor's D.M.A. dissertation, "The Lamento Motif: Metamorphosis in Ligeti's Late Style" (Cornell University, 1994).

4. further rhythmic experiments, especially with polyrhythm.¹⁸

As we will see, Ligeti's first book of *Piano Etudes* demonstrates many of these features as well.

In discussing Ligeti's output, music theorists and historians generally emphasize the development of new and distinct styles. Since *Atmosphères*, however, certain procedures have tended to recur in Ligeti's compositions. As emphasized above, Ligeti's fascination with illusion has remained significant. In addition, his sensitivity to filling out chromatic space and register has often acted as a structural factor in his works. Moreover, the rhythmic experimentation of *Poème Symphonique*, *Continuum*, and *Monument* has continued to be characteristic. With the Horn Trio, Ligeti embarked on a new and generally simpler style. This work, as well as the Piano Concerto, shares with the *Piano Etudes Book I* (1985) the use of complex illusory rhythms and the Lamento motif. These characteristics that will be discussed in detail shortly.

¹⁸Taylor discusses the features of Ligeti's late style in detail in Chapter 1 of "The Lamento Motif."

Piano Etudes Book I—Rhythmic influences

Ligeti's collection of piano etudes began with the six etudes of Book I, written in 1985. Since then he has completed a second book of eight etudes and an additional etude for a third book.¹⁹

In the liner notes to Volker Banfield's recording of the first book of etudes,²⁰ Ligeti describes the background and influences on Book I, especially regarding rhythm. Pointing out that his interest in rhythm was reflected in *Poème Symphonique* (1962), *Continuum* (1968), and *Three pieces for Two Pianos* (1976), he then mentions his ongoing fascination with illusion:

I have always had an interest in picture-puzzles, paradoxes of perception and ideas, for certain aspects of the shaping and building of form, of growth and transformation and for the distinction between various levels of abstraction in thought and language.²¹

As we will see, the Etudes are further influenced by Conlon Nancarrow's music for player piano, the hemiola principle, the music of the Central African Republic, and by fractal geometry.

Between 1950 and 1968, American-Mexican composer Conlon Nancarrow wrote thirty-seven studies for player piano. He chose to write for this mechanical instrument

¹⁹Richard Steinitz, "The Dynamics of Disorder," *The Musical Times* 137:1839 (May 1996): 7.

²⁰Ligeti, Wergo 60134; Reprinted as "On my Etudes For Piano," translated by Sid McLauchlan, in *Sonus* 9/1 (1988): 3-7.

²¹György Ligeti, program notes for Wergo 60134, 8.

because at the time his rhythmic ideas were considered so complex that performers were unable or unwilling to play his music.²² His rhythmic experiments include studies in isorhythm, canon, and superimposed tempo relationships. In *Player Piano Study no. 34*, for example, three voices move at different speeds at the ratio of 9:10:11.²³ Having stumbled upon Nancarrow's music in a Paris record store in 1980,²⁴ Ligeti was inspired to write music that was as rhythmically complex but that could be performed by a single live performer.

The illusory nature of hemiola and its resemblance to aspects of African music also fascinated Ligeti. On this subject he states:

I have combined two distinct musical thought processes: the meter-dependent hemiola as used by Schumann and Chopin and the additive pulsation principle of African music. Stemming from the mensural notation of late Medieval music, the hemiola arises from the metric ambiguity posed by a measure of six beats, which can be divided into three groups of two or two groups of three. The hemiola was amongst the most popular compositional devices in the dance music of the Baroque (in the *Courante*, for example) and above all in the piano music of the 19th century.²⁵

An example of extremely complex hemiola appears in Chopin's *Fourth Ballade*. Douglas R. Hofstadter, who is yet another influence on Ligeti, discusses this example in the article "Pattern, Poetry and Power in the Music of Frédéric Chopin."²⁶ Moreover

²²Larry Rohter, "Conlon Nancarrow, On a Roll," *New York Times*, 25 October 1987, sec. II p. 38.

²³Kyle Gann, *The Music of Conlon Nancarrow* (New York: Excelsior Music, 1991), 34.

²⁴Rohter, 27.

²⁵Ligeti, *Wergo* 60134, 9.

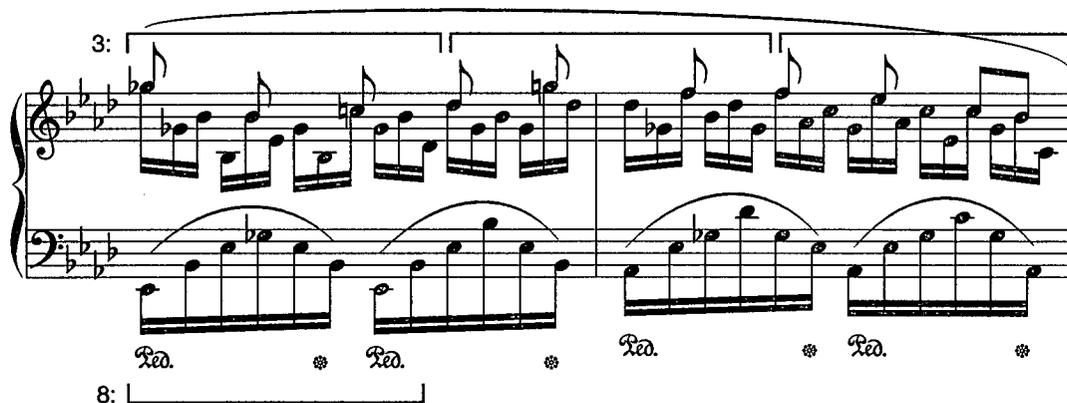
²⁶Douglas R. Hofstadter, "Pattern, Poetry and Power in the Music of Frédéric Chopin." *Metamagical Themas: Questing for the Essence of Mind and Pattern* (New

Ligeti has mentioned the piece as an inspiration for *Automne à Varsovie*, the sixth etude from Book I.²⁷

In measures 175-76 of the Ballade (shown in Example 1.7 below), the right hand plays triplets against the left hand's duplets creating a 3-against-2 rhythm. In addition, every fourth note in the right hand is emphasized as a melodic note (by upward stems), thereby creating the relationship of 4 against 3 in the right hand alone. Furthermore, 3 "big beats" in the right hand each correspond to 8 sixteenth-notes in the left hand, but the left hand itself is grouped into arpeggios of 6 sixteenths each. Consequently, 4 large pulsations in the left hand are heard against 3 in the right. These complex relationships, highlighted in Example 1.7, suggested new rhythmic possibilities to Ligeti.

York: Basic Books, 1985). This article originally appeared in *Scientific American*, April 1982. Stephen Taylor presents a detailed discussion about Hofstadter's interest in the Fourth Ballade in his dissertation "The Lamento Motif: Metamorphosis in Ligeti's Late Style," 52-55.

²⁷György Ligeti, "Polyrhythmical Aspects in my Piano Etudes," lecture given at the International Bartok Seminar and Festival, Szombathely, Hungary, 26 July 1990, quoted in Lois Svard's dissertation "Illusion in Selected Keyboard Works of Ligeti," 76.



Example 1.7 Chopin's Fourth Ballade, mm. 175-76

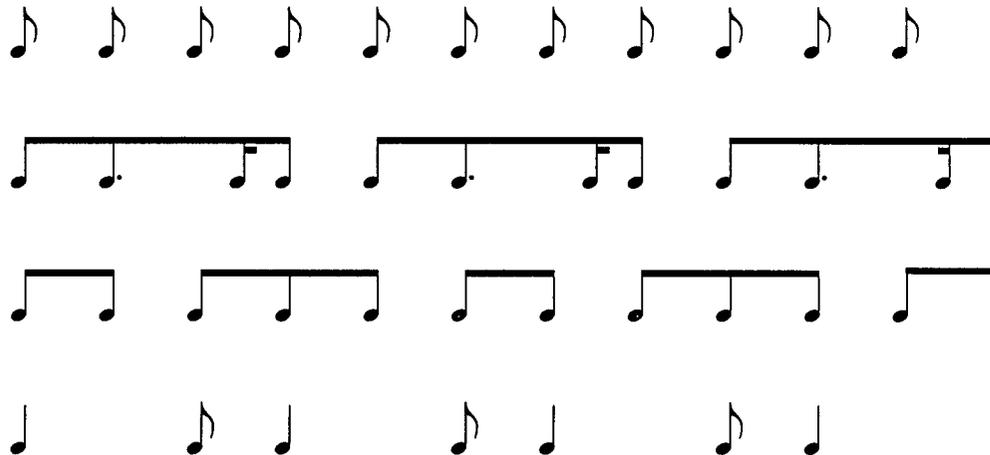
Ligeti's interest in Central African rhythms lead to his involvement with the ethnomusicologist Simha Arom. Ligeti was introduced to Arom's recordings from the Central African Republic in 1982 and met with the ethnomusicologist in 1984. He also wrote the introduction to Arom's book, *African Polyphony and Polyrhythm: Musical Structure and Methodolgy*, which extensively analyzes principles of the Pygmy peoples' music of the Central African Republic.²⁸ In connection with his etudes, Ligeti describes the peculiar qualities of this music and how it differs rhythmically from European music:

A completely different metric ambiguity is to be found in African music as well. Here,

²⁸Simha Aron, *African Polyphony and Polyrhythm: Musical Structure and Methodolgy*, translated by Martin Thom, Barbara Tuckett, and Raymond Boyd (New York: Cambridge University Press, 1991).

of course, there are no measures in the European sense of the word, but instead one finds two rhythmic levels: an underlying layer consisting of fast, even pulsations which are however not counted as such but rather felt, and a superimposed layer of occasionally symmetrical but more often asymmetrical patterns of varying length, though always whole multiples of the basic pulse This prevailing metric ambiguity produces, in theory at least, a kind of hemiola, which however does not really exist in practice: there can be no real ambiguity as there is no meter based on the bar-line, there are no accents and consequently no hierarchy of beats, only the smoothly flowing additive pulse.²⁹

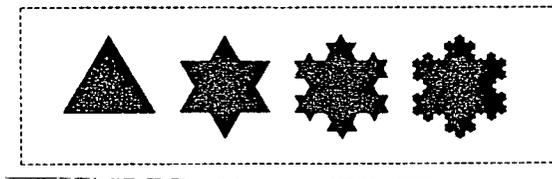
A hypothetical example of these additive rhythms appears below in Example 1.8. Later, we will examine similar procedures at work in Ligeti's etude "*Automne à Varsovie*."



Example 1.8
Additive Rhythmic Patterns Similar to those found in Central African Music

²⁹Ligeti, *Wergo* 60134, 10.

In three recent articles, Richard Steinitz has discussed the influence of mathematics and science on Ligeti's music.³⁰ Ligeti was first exposed to Benoit Mandelbrot's fractals in 1984 through the computer-generated pictures of Heinz-Otto Petigen and Peter H. Richter. Ligeti claims that these pictures have had a profound effect on his compositional procedures.³¹ Fractals exhibit the property of "self-similarity," which means that "at any level of magnification, any small portion can be viewed as a replica of the whole."³² A famous example offered by Steinitz is the Koch snowflake³³ (shown in Example 1.9 below), produced by taking an equilateral triangle and erecting smaller and smaller equilateral triangles over the middle third of each triangle's three sides.



Example 1.9 Koch Snowflake

³⁰Richard Steinitz, "Music, Maths and Chaos," *The Musical Times* 137:1837 (March 1996): 14-20; and "The Dynamics of Disorder," *The Musical Times* 137:1839 (May 1996): 7-14; and "Weeping and Wailing," *The Musical Times* 137:1842 (August 1996): 17-22 .

³¹Ligeti, "On my Piano Concerto," translated by Robert Cogan, *Sonus* 9/1 (1988): 12.

³²Steinitz, "Music, Maths and Chaos," 16.

³³This Koch Snowflake is taken from Steinitz's article, "The Dynamics of Disorder," 11.

Steinitz also discusses the influence of chaos theory, a recently popular approach to understanding forces of nature on Ligeti's music. According to Steinitz, chaos theory deals with "systems displaying *apparently* irregular or unpredictable behaviour yet which obey hidden, purely deterministic laws."³⁴ The introduction of minute inaccuracies into a simple repeated pattern can lead to a situation of disorder. As will be elaborated below, both fractals and chaos theory relate to processes at work in the Etudes. The rhythmic aspects of three particular etudes from Book I, *Désordre* (no. 1), *Arc-en-ciel* (no. 4), and *Automne à Varsovie* (no. 6), can be used to demonstrate these influences.

Désordre (Disorder) is the first etude of the set and probably the one most often analyzed.³⁵ Ligeti eloquently describes the way a listener perceives the events of this piece:

The pianist plays coordinated, even pulsations in both hands. Superimposed onto these pulsations is a gridwork of irregular accents which at times however progresses synchronously in both hands, thereby temporarily producing the impression of order. This impression slowly disintegrates as the accents in one hand begin to lag behind those in the other. In so doing, the metric relationship is gradually blurred until we reach a point where we are unable to discern which hand leads and which lags behind. A state of order is in due course restored as the two successions of accents shift closer and closer to one another, eventually falling simultaneously in the two hands, at which point the cycle begins anew.³⁶

³⁴Steinitz describes ("Music, Maths and Chaos," p.15) theories of James Gleick that appeared in *Chaos: Making a New Science* (New York, 1987), 7.

³⁵Detailed analyses of *Désordre* are provided in Bouliane in "Les Six Études Pour Piano de György Ligeti," 40-49; Svard "Illusion in Selected Keyboard Works," 79-88; and Harmuth Kinzler, "György Ligeti: Decision and Automatism in *Désordre*," *Interface* 20/2 (1991): 88-124.

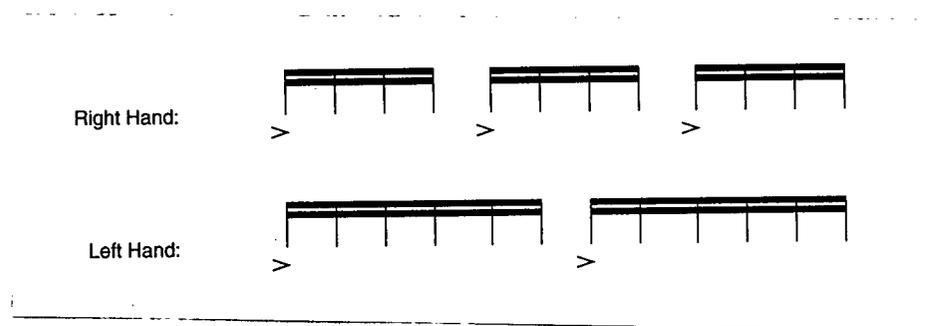
³⁶Ligeti, Wergo 60134, 12.

irregularities accrue over the ensuing phrases to produce disorder. These short phrases are then grouped into larger sections, again of different lengths in each hand: 14 measures in the right hand and 18 measures in the left. The larger phrase groupings are organized by the fourteenth-century compositional technique called isorhythm. Such a structure has two parts: the *color* which is a series of pitches, and the *talea*, a series of durations. Throughout an isorhythmic composition the *color* and *talea* are repeated in an unsynchronized fashion. In this etude, Ligeti confuses the ear further by incorporating processes of gradual alteration within each hand. The right hand's longer melodic pattern (*color*) is transposed up one pitch on the white keys each time it is repeated. Concomitantly, the left hand's is transposed down two black notes. Moreover, the *talea* (rhythmic pattern) of each hand undergoes a process of shortening until the climax of the piece. After this point, the original rhythmic pattern of the left hand resumes in both hands and the left hand pattern begins to lengthen. Richard Steinitz cites Ligeti's claim that *Désordre* is "self-similar [and is] an iterated structure based consciously on the Koch snowflake."³⁷ Just as building more triangles produced the snowflake, Ligeti's repetition of carefully constructed phrases brings about new structures; furthermore, Steinitz proposes that the piece may relate to aspects of chaos theory, for the subtle variation of a simple pattern produces unforeseen results.

Arc-en-ciel (Rainbow) is written in a style completely contrasting that of *Désordre*. Whereas *Désordre*'s relentless eighth-note pulse creates forward propulsion, *Arc-en-ciel*'s gentle flow suggests Romantic character pieces, the sound

³⁷Steinitz, "The Dynamics of Disorder," 8.

patterns of Fauré, and even jazz.³⁸ Major and minor chords with added sevenths and ninths form bitonal combinations that suggest the colours of a rainbow. The principal rhythmic device explored here is hemiola. Marked $\frac{3}{4}$ ($\frac{2}{4}$), the right hand at the opening is organized as three groupings of four sixteenth notes, while the left hand plays two groupings of six sixteenths per bar. Accents set off the opposing meters.³⁹ This procedure is illustrated in Example 1.11.



Example 1.11 Hemiola in *Arc-en-Ciel*

While in *Désordre* a constant eighth-note pulse is maintained throughout, the basic rhythmic organization of *Arc-en-ciel* is often varied. The right hand, in particular, later projects groupings of 3, 5 and 6 notes instead of the initial 4 sixteenth notes per beat. Moreover, Ligeti instructs the player to use rubato and has marked numerous tempo variations. The hemiola effects, rubato markings, and emotive style confirm that

³⁸Denys Bouliane mentions these influences in "Les Six Études Pour Piano de György Ligeti," 52.

³⁹Note that these accents will be realized as gentle stresses within the slow tempo and soft dynamic at the beginning of this etude.

Ligeti's keyboard models include Chopin and Schumann, quintessential Romantic composers.⁴⁰

Automne à Varsovie (Autumn in Warsaw) is the sixth etude of the set and clearly demonstrates the influences of Romantic hemiola, additive rhythms of Central African music, and the music of Nancarrow. The etude begins with a constant sixteenth-note pulse that continues, with one exception, throughout the piece. In the foreground, melodic lines superimposed over the sixteenth-note figures progress at various rates (at five sixteenths notes per melody note at the beginning, and later at three, four, and more). When several simultaneous melodic lines progress at different rates, the effect is like the superimposed rhythmic grids first used in *Poème Symphonique*. Ligeti claims that his exposure to the music of Subsaharan Africa suggested extending the traditional hemiola proportion (of three versus two) to more unpredictable ratios such as 5:3, 7:5, and even 7:5:3.⁴¹ Example 1.12 illustrates such rhythmic patterns: the right hand moves in groups of 4 or 2 and the left hand has voices moving at rates of 3, 5, and 7 sixteenth notes. Interestingly, the performer is not required to consciously control four separate tempos at once. Rather, she is able to control these rhythmic complexities by carefully distributing accents to melodic notes while playing constant sixteenth notes.

⁴⁰See György Ligeti, "Ligeti-Peter Varnai," in *György Ligeti in Conversation*, 23.

⁴¹Ligeti, *Wergo* 60134, 10.



Example 1.12 *Automne à Varsovie*, mm. 79-81

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In three very dense passages in the piece, each leading to a climax that ends a section in the piece, Ligeti superimposes three or four voices moving at different rates. The first of these three passages begins with two voices moving at rates of 3 and 5 sixteenth notes, then another voice is added moving at the rate of 7 sixteenths. A fourth voice emerges from the accompaniment, moving initially at the rate of 3 sixteenth notes, but subsequently stretching out to a rate of 4 and onwards until it presents a group of 11 sixteenth notes. While this first dense passage exhibits a process of expansion, the second and third passages under examination illustrate a process of contraction. Both begin with three voices moving at 3, 4, and 5 sixteenth pulsations per melody note. One voice subsequently drops out and the remaining two accelerate until they are both moving every sixteenth note. These events are summarized in Example 1.13.

These three very dense sections are highly reminiscent of Nancarrow's canons, especially the acceleration studies (numbers 8, 21, 22, 23, 27, 28, 29, 30).⁴² By experimenting with both arithmetical and geometric (proportional) acceleration and deceleration, Nancarrow creates paradoxical effects. (For example, a fast voice will decelerate to become the slow while the slow accelerates to become the fast.) Whereas Nancarrow punched holes on his player piano rolls to achieve these effects, Ligeti creates similar tempo canons in this etude using only one live performer.

In his discussion of this etude, Richard Steinitz states that the interest of this piece lies in "the relationship between the continuous semiquavers and the polymetric canonic entries of the melody." In addition, he calls the dense climactic areas just described "mensural canons."⁴³ Ligeti himself has described this etude as a fugue.⁴⁴ It is necessary to clarify these terms to understand how rhythmic devices shape the piece. To digress briefly, the term "canon" literally means "rule" or "law." In the Medieval and Renaissance periods it was an instruction for realizing a polyphonic composition from a single written voice.⁴⁵ Often only the initial melody (called the *dux*) would be notated and the successive voice (called the *comes*) followed at specified

⁴²See Kyle Gann, *The Music of Conlon Nancarrow* (New York: Excelsior Music, 1991).

⁴³Steinitz, "The Dynamics of Disorder," 13-14.

⁴⁴This piece is called a fugue by Bouliane in "Les Six Études Pour Piano de György Ligeti," 54; by Lois Svard in "Illusion in selected keyboard works of György Ligeti," 97-98; and by Stephen Taylor in "The lamento motif: Metamorphosis in Ligeti's Late Style." In a lecture given in Hungary in 1990, Ligeti used this term to describe the piece.

⁴⁵*The New Harvard Dictionary of Music*, 1986 ed., s.v. "Canon."

intervals of pitch and time. In the Fifteenth Century, the mensuration canon became very popular. In this type, the same tune is sung contemporaneously by different parts, each in different mensurations (here, a concept similar to time signatures). Although the *comes* could modify the *dux* by minor changes in accidentals (a free canon), the term canon implies a strict and rigorous counterpoint, not loose imitation.⁴⁶ Moreover the term canon signifies the application of these strict rules to a specific segmented area of the piece and two or more voices in that area. Throughout *Automne à Varsovie*, the main melody appears at different transpositional levels and moves at different rates of speed, which sometimes overlap. Since the term "canon" describes this idea, Ligeti is to some degree employing canonic technique. However, these "polymetric canonic entries" (Steinitz's term) are only presented in strict canonic fashion within a discrete section once in the piece (mm. 99-102). Generally speaking, the initial melodic prototype (the lament theme) appears at the beginning of the first two sections, but then becomes more and more radically altered. Hence the entire piece does not present strict canonic technique in terms of pitch. It would be more accurate to describe the counterpoint appearing throughout the piece as "imitative" but also "variational" or "transmutative."

Another type of imitative writing takes place in the three dense areas reminiscent of Nancarrow's studies (those illustrated in Example 1.13). These sections present

⁴⁶Sarah Fuller states that "Because the most common rule produced two lines identical in rhythm and intervals, the term canon has come to signify absolutely strict imitation between two or more parts." See Fuller, *The European Musical Heritage 800-1750* (New York: McGraw-Hill, 1987), 183.

strict mensuration canons to the extent that the voices move strictly at their assigned tempo until acceleration or deceleration begins. However, the pitch content of each voice, while often presenting descending chromatic lines, is not identical from voice to voice. Therefore these sections are strict mensuration canons but only partial pitch canons. All the same, in this study, these passages will be referred to as "mensuration canons."

While this piece clearly employs canonic devices, they are applied in a unique and individual manner and the piece is really not accurately described as a "fugue" (as Ligeti has done.) In the *Harvard Dictionary of Music* "fugue" is defined as "the most fully developed procedure of imitative counterpoint, in which the theme is stated successively in all voices of the polyphonic texture, tonally established, continuously expanded, opposed, and reestablished."⁴⁷ A fugue then, is a musical form employing imitative devices within specific contexts and according to certain rules. In *Automne* Ligeti employs many fugal devices, but they are not used conventionally. For example, because the lamento theme appears moving at faster and slower speeds, one could say that Ligeti employs the concept of augmentation and diminution. However, the traditional two-to-one or four-to-one relationships do not occur. Moreover, because the piece moves at such a brisk tempo, the listener does not perceive these relationships in a manner comparable to a Bach fugue.⁴⁸ Another feature of the piece that contradicts Ligeti's use of the term is its lack of distinct expositions and episodes, which are

⁴⁷ *The New Harvard Dictionary of Music*, 1986 ed., s.v. "Fugue."

⁴⁸ Svard presents a similar observation in "Illusion in Selected Keyboard Works," 98.

standard formal components of fugues. Nevertheless, "fugue" is a more useful term than "canon." Whereas "canon" implies strict usage, "fugue" suggests a somewhat freer, more varied and variable form that employs a selection of imitative devices. Typical of Ligeti, here he is borrowing traditional concepts but applies them freely to serve his needs.⁴⁹

In summary, some of the principal influences on Ligeti's composition are evident in these three etudes from Book I. *Désordre* demonstrates similarities to fractals, while *Arc-en-ciel* explores and extends the traditional Romantic hemiola. In *Automne à Varsovie*, the hemiola concept is combined with principles of African rhythm in a way reminiscent of Nancarrow's compositions. In an individual fashion, each etude explores the idea of rhythmic illusion that is central to Ligeti's musical aesthetic.

⁴⁹Ligeti's interest in music of the past is discussed by Jane Piper Clenndinning in "Contrapuntal techniques in the music of György Ligeti." (Ph.D. dissertation, Yale University, 1989), and Jeffrey Bossin, "György Ligeti's New Lyricism and the Aesthetic of Currentness: The Berlin Festival's Retrospective of the Composer's Career," *Current Musicology* 37/38 (1984).

CHAPTER 2

AUTOMNE À VARSOVIE: ANALYTICAL CONSIDERATIONS

Lament Theme and Phrase Organization

The most readily distinguishable feature of *Automne à Varsovie* is its profusion of descending chromatic lines. Example 2.1 shows the melody that begins in m. 2, using durations that are all multiples of five sixteenths.

8 A B

♪ durations: 5 5 5 10 5 5 5 5 10

8 C *

10 5 5 5 5 5 5 5 10 5 10

Example 2.1 Lament Theme

According to Steinitz, this "lament theme," which appears in a number of Ligeti's recent pieces, exhibits the following basic characteristics:

1. It is a three-phase melody of which the third is longer in duration (see the labels A, B and C on Example 2.1);
2. Each phrase mainly descends in semitones, but with occasional upward leaps;

A further prototype for Ligeti's lament theme lies in Romanian funeral laments.⁵ *Automne à Varsovie* is dedicated "to my Polish friends," and it "embodies anxieties stemming from the political unrest in Poland during the early 1980s (hence the Chopinesque character of its arpeggiated figurations)."⁶ *Automne à Varsovie* combines melodies traditionally associated with grief and suffering with specific writing techniques of the etude genre. In combining the lament with a genre perfected by Chopin, the greatest Polish composer in history, Ligeti has captured his feelings of sympathy for the Polish people.

The rhythmic and phrase organization of the entire piece is diagrammed in Examples 2.3, 2.4, and 2.5. The piece has been divided into three sections according to the dense "mensuration canons" which each lead to a climax after which the piece re-begins softly. In the examples, numbers represent how many sixteenth pulsations separate consecutive melody notes, and semi-colons indicate the end of a phrase. The letters A, B, and C identify the three phrases of the initial lament model (shown in Example 2.1). Complete (three-phrase) statements that are closely related to the initial model appear highlighted in the examples, and the unhighlighted segments indicate that the initial gradually breaks down. Ellipses appear in the mensuration canon passages where a particular value (such as 3 or 4) continues unchanged for an extended period of time.

⁵Bouliane, "Les Six Études pour piano," 53; Bossin, "György Ligeti's New Lyricism," 237.

⁶Steinitz, "The Dynamics of Disorder," 13.

Phrase Structure
Example 2.3 First Section, mm. 1-55

RH A5 5 5 10 ;B5 5 5 5 10 ;C10 5 5 5
LH
m: (2)

RH 5 5 5 5 10 5 10 ;A5 5 5 10 ;B5
LH
m. (7)

RH 5 5 5 10 ;C10 5 5 5 5 5 5 5 10
LH
m. (11)

RH 5 15 ;A5 5 5 10 ;B5 5 5 5 10
LH A3 3 3 9 ;B3 3 3 3 4 ;
m. (16)

RH ;C10 5 5 5 10 5 5 5 ; A3 3 3 3 3 6
LH C3 3 3 3 6 9 ;A5 5 5 5
m. (21) (25)

RH 9 ;B3 3 3 3 3 3 ;C3 3 6 3 3 3 6 3 3 3 3 ;A3
LH 10 ;B5 5 5 5 5 5 5 5 5 5 5 5 5 10 ;
m. (26)

RH 3 3 3 6 ;B3 3 3 3 6 3 6 3 3 3 3 3 3 3 3 3 3
LH ?C5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
m. (30)

RH 3 3 3 3 3 7 ;5 5 5 5 5 5 5 5 5 5 5 5
LH 5 5 10 ;3 3 6 ;3 3 3 3 3 3 3 3 6 ;3 3 3 6
m. (35)

RH 5 10 ;5 5 5 5 5 6 ;5 5 5 5 5 5
;3 3 3 ;3 3 3 3 3 3 3 3 7 ;3 3 3 3 3 3 3 3 3 3
m. (40) (43)

RH 5 5 5...
LH 3 3 3 3 3...
7 7...
LH 3 3 3... 4 4 5 5 6 6 6 6 6 6
(mm. 43-55: 'mensuration canon' section leading to 1st major climax)

LH 7 7 7 8 8 11

Example 2.4 Second Section, mm. 55-97

RH A5 5 5 10 ;B5 5 5 5 10 ;C10 5 5 5
 LH A5 5 5 10 ;B5 5 5 5 10 ;C10 5 5 5
 m. (55)

RH 10 5 5 5 5 ; (accomp grouped in 5's) 5 5 5 5...
 LH 10 5 5 5 5 ; A7 7 7 14
 m. (60) (62)

RH 5...(melody emerges from accomp) 5 5 5
 LH ;B7 7 7 7 14 ;C14 7 7 7
 m. (65) (67)

RH 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
 LH 14 7 7 7 7 7 7 7 7 7 7 7 7 7 7
 m. (69) (73)

RH 5 5 5 5 3 3 3 3 2 3 3 3 3 3 3 3 6 4 4 4 4
 LH B4 4 4 4 8 ;C8 4 4 4 4 4 4 4 4 3 3 3 3 3 3
 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
 m. (74) (76) (77) 5 5 5 5 5 5

RH 4 4 2 2 2 2 2 2 2 2 8 12 ;3 3 3 3 3 3 3 3 3 3
 LH 3 3 3 3 3 3 3 3 3 3 3 3 3 3 ;
 7 7 7 7 7 7 7 7 7 7 7 7 7 7
 m. (79) (82) 5 5 5 5 5 5 5 5 5 5 5 5 5 5

RH 3 3 3 3 3 3 ;3 3 3 3 3 3 3 3 ;3 3 ;
 LH 7 7 ;
 m. (84) (85) (87) 5 5 5 5 ;

RH 3 3 3 3 3 3 3 3 3 3 3 3.....3 3 2 2 2 2 2 2 2 2 2 2 2 2
 4 4 4 4 4 4 4 4 4 4 4 4.....4 4 4 3 3 3 3 2 2 2 2 2
 m. (87) 5 5.....5 5 5 5.
 (mm.87-98: 'mensuration canon' section leading to 2nd major climax)

RH 2 2 2 2 2 2 111111
 LH 2 2 2 2 2 2 111111
 (97)

A close examination of Examples 2.3, 2.4, and 2.5 reveals a highly organized phrase structure. In the first section of the piece, the basic three-phrase melodic pattern is established at the start and repeated twice. The third appearance (beginning m. 18) has a truncated third phrase and is imitated by the left hand in faster note values (moving every 3 pulsations). At m. 25 a fourth phrase grouping (moving in 5's) begins in the left hand (no longer the top voice). Its phrase C begins significantly higher than phrase B both began and ended, thereby minimizing its reference to A and B. From m. 25 until the beginning of the mensuration canon section (m. 43), the basic three-phrase pattern exhibits "development" in both rhythmic and melodic parameters. Rhythmically, the three-phrase grouping is not strictly maintained; while some phrases are significantly extended, others consist of as few as three notes. Melodically, the initial octave-doubling with occasional seventh-doubling is modified in various ways. Melodic lines appear as harmonic three-note formations spanning octaves or sevenths. Then, melodic strands appear in single notes (without octave doubling), which are sometimes reinforced with dyads and triads (instead of the initial octaves and major sevenths). Furthermore, the predominantly stepwise descending motion of the melodic lines in the first 25 measures is often replaced by ascending and leaping movement.⁷ Throughout the initial "expository" section (mm. 1-24) and the ensuing "developmental" section (mm. 25-43), the melodic note durations of 5 and 3 sixteenths are presented. With the mensuration canon beginning in m. 44, a voice appears moving in groups of 7 sixteenth

⁷Observations about melodic organization appear here as they relate to the rhythmic configurations; the second subsection of Chapter 2 will deal with melody in further detail.

notes. As stated above, in this mensuration canon, one of the voices, which begins moving every three sixteenth notes, gradually stretches out to 11 sixteenth notes. The overall form of section 1 involves three definite presentations of the three-phrase model, followed by a more loosely organized section, and concluding with a mensuration canon.

The second section begins with a strange, "dead" or "frozen" section where the accompaniment has dropped out and both hands present the three-phrase lament very quietly in extremely high and low registers. (Note that the instance of both RH and LH carrying the theme at exactly the same time here is considered one occurrence.) After this standstill, the accompaniment resumes and a lament theme begins moving at the rate of seven pulsations per melody note. Its C phrase is significantly extended. At m. 73, another lament theme is superimposed over it, moving first at the rate of 4 pulsations, then accelerating to 3. This melody is also extended; the whole section ends fortissimo in m. 85. A brief transitional section follows, preparing for the mensuration canon beginning in m. 87 and leading to the second major climax. In section 2, "developmental" procedures take place while the lament themes are still in progress. By m. 73, the voice moving in 7's feels quite removed from the lament model. In m. 77, this voice splits into two; its new component is marked with a new slur and moves in 5's. In light of the interesting extensions of the lament themes (which initially begin in m. 62 and m. 73), it is clear that the latter part of the expository first section blends into the developmental second one.

In summary, section 2 presents the lament theme three times in rhythmic values

of 5, 7 and 4 sixteenths notes (whereas sections 1 relied only on 5's). The "developmental" material then emerges out of the extended lament themes. Whereas the mensuration canon of section 1 consists of three voices, one of which decelerates, the mensuration canon of section 2 presents three voices of which one drops out and the two that remain gradually accelerate to become single sixteenth notes.

The third section of the piece is structurally freer than the preceding sections. In contrast to the predominantly descending motion at the start of sections 1 and 2, it begins with ascending lines. Over a background of reiterated single notes, three voices enter in strict canonic fashion. (The first voice progresses every 7 pulsations; the second voice enters with the fourth note of the initial melody, and progresses every five pulsations; the third voice enters with the fourth note of the second melody, and progresses every four pulsations.) Instead of the regular statements of the lament theme that were heard at the beginning of sections 1 and 2, a sense of "telescoping" or "stretto" is created with melodies entering in a layered fashion. Until m. 112, there is no one single dominant voice; rather they are superimposed to create a dense web of contrapuntal lines. At m. 105, an interesting phrase-elision occurs (indicated with a box in Example 2.5), disrupting any semblance of regular rhythmic values. At m. 112, where the final mensuration canon begins, a modified two-phrase version of the lament theme (a descending line) finally appears. Its second phrase actually melts into one of the two final remaining voices. While accelerating in a stepped fashion, these voices gradually run into the lowest region of the piano in descending chromatic lines. By the end of the piece, it is as if the lament theme has been extended into one long

descending and accelerating motion.

This discussion of the lament theme and phrase structure calls for some preliminary observations on the form of the piece. As summarized in Example 2.6 below, the first two sections present thematic material followed by more fragmentary treatment of this material, leading eventually to a mensuration canon. While the first two sections are somewhat similar to each other, the shorter third section simply builds to the final climax with no clear thematic presentation. This organization of *Automne à Varsovie* suggests labelling the form of the piece A A' Coda.

Section 1 (mm. 1-55)

- A**
 - a. 3X Lament theme in 5's
 - b. more fragmentary, developmental
 - c. mensuration canon; decelerating motion in 1 voice; remaining two voices moving to outer extreme registers

Section 2 (mm. 55-97)

- A'**
 - a. 3X Lament theme in 5's ("dead" section with no accompaniment), then 7's, 4's; this section becomes developmental, blending into b;
 - b. more fragmentary, developmental
 - c. mensuration canon; acceleration in 2 voices which move to outer extreme registers

Section 3 (mm. 98-121)

- Coda**
 - a. telescoping effect building to
 - b. partial statement of lament theme which is also beginning of mensuration canon; acceleration in 2 voices which become on descending chromatic line

Example 2.6
Formal Organization

Melodic Organization

To develop a better understanding of Ligeti's treatment of pitch-relations in this etude, the following specific characteristics of his melodic lines will be discussed. The inclination to fill out chromatic segments characterizes the lament themes as well as the more developmental sections and the mensuration canon sections. The lament theme (Example 2.1) is characterized by descending chromatic motion, but within phrases, a melody will sometimes "fold out" and also present ascending motion within a basically descending phrase. Furthermore, unexpected upward leaps serve to fill out a register and often connect one phrase to the next. Throughout this discussion dealing with melody, two concepts will be emphasized: first, ascending and contrary motion are often just as important as the descending motions that appear to predominate; second, the presentation of complete chromatic segments is analogous to that of Ligeti's earlier works such as *Atmosphères*.

The top lines of the first three lament themes are shown in Example 2.7. In the first (mm. 1-9), the E \flat accompaniment background is provided in brackets (and labelled "acc.").⁸ The upper voice of each melodic phrase (ignoring here the lower octave of the melody), plus its accompaniment, fills in a particular chromatic segment, shown as a harmonic interval below each melody.⁹ The first phrase descends from

⁸ Please notice that the clef used here is different from the original in Ligeti's score and the pitches are positioned on the staff an octave lower than heard.

⁹The first melodic gesture, (F \flat 6, D6, D \flat 6, C6), for instance, fills in the chromatic segment between C6 and F \flat 6 when the accompanimental E \flat 6 is taken into account.

mm. 1-9, RH
(1st theme-statement)

acc.

mm. 10-17, RH
(2nd theme-statement)

acc.

F-sharp is present in a lower octave

mm. 18-24, RH
(3rd theme-statement)

Example 2.7 First 3 Lament Themes

F \flat 6 to C \sharp 6. The second starts back at F \flat 6, and descends one semitone further to B \sharp 5. The third phrase begins higher on F \sharp 6, and fills out a segment reaching down to A \flat 5; its aberrant descent is characterized by momentary contour ascents by step or

The accompanimental D's in the second theme-statement (mm. 10-17) play a similar role in the accruing chromatic collections. The first and second theme-statements can be seen, that is, to integrate accompaniment and melodic structure (semitone versus whole-tone steps) in a carefully controlled manner.

leap (shown with arrows), after which descending motion resumes, usually continuing from where it left off. As outlined in the earlier discussion of the defining characteristics of the lament theme, the momentary upward deflections are typically signalled with a harmonic major seventh instead of octave doubling.

Although the analysis presented here deals primarily with the upper voice of the melodic phrases, Ligeti's choice of major sevenths for more expressive moments requires some commentary. These major sevenths have an interesting effect on Ligeti's consistent presentation of chromatic pitch space. The initial octave doubling created a situation where two segments of pitch space an octave apart are filled-out concurrently. For example, the first phrase of the first theme-statement contains all the pitches between F \flat 6 and C6, as well as the pitches between F \flat 5 and C5. In the third phrase of the first lament theme, however, the first major seventh (F6 and G \flat 5) serves to disrupt the regular presentation of pitch space. Specifically, G \flat 5 is a "wrong" pitch; the lower voice of this phrase contains all the notes from a segment spanning G \flat 5 down to A \flat 4 *except* for F5. As a *pitch-class*, however, G \flat 5 can be viewed as extending the range of the melody (in either octave) upward from F to G \flat .¹⁰

Another exception to the consistent filling out of pitch space appears in the third phrase of the second theme-statement, where F \sharp 6 does not appear; it is provided, however, in another octave. Thus, although Ligeti undoubtedly is concerned with chromatic space in a particular register, he sometimes seems to conflate the distinction between pitch and pitch-class space. Generally speaking, however, if a pitch is skipped

¹⁰Pitch and pitch-class will be explored further in the third subsection of Chapter 2.

on the way down (and is not provided by the accompaniment), a later leap upwards will ensure that the missed note is heard. This occurs, for instance, in the third phrase of the third theme-statement, at the asterisk. Here the B \flat 6 appears after a leap to correct its earlier omission when the C \sharp 7 moved directly to B \flat 6. The form of the lament theme, then, is largely governed by the principle of filling in chromatic segments, while Ligeti prevents monotony by mixing conjunct descending motion with temporary omissions and compensating contour changes.

Our next concern is whether this principle holds in the more fragmentary, "developmental" areas and the "mensuration canon" sections. Examples 2.8a and 2.8b illustrate two rather fragmentary phrases from section 1 of the etude. Though Example 2.8a (mm. 37-40) involves two voices that meander considerably, both voices fill in their own chromatic space dutifully. The omissions and compensating leaps in the two lines are not synchronized, so that an attractive counterpoint emerges through their interaction. Moreover, the overlapping chromatic segment, between E5 and G5, is heard at the beginning of the lower line, and the end of the upper one. While Example 2.8a is predominantly descending, Example 2.8b demonstrates a "folding out" or "wedging" shape, since the chromatic segment expands above and below as it proceeds. Once again, Ligeti manipulates the distinction between *pitch* and *pitch-class* when he places the missing G \sharp in a "wrong" octave.

(upper voice)

(lower voice)

Example 2.8a mm. 37-40 Right Hand

G is present in lower octaves

Example 2.8b mm. 41-42 Right Hand

Example 2.9, shows that similar procedures are at work in the final mensuration canon.¹¹ The example presents a thick chromatic segment that accrues over a quite extensive span. An asterisk marks every melodic skip and an arrow points to the

¹¹Please note again the change of clef.

missing note recovered shortly thereafter.¹²

mm. 113-118, LH

8

Example 2.9 mm. 113-118 Left Hand

The tendency to fill in chromatic space, as demonstrated in Examples 2.7 through 2.9, is not new to Ligeti's compositions. In *Atmosphères*, for example, the individual instrumental parts present large chromatic segments and the constantly shifting movement and gradual processive change form the fabric of the piece. In *Automne à Varsovie*, Ligeti has adopted aspects of his micropolyphony from the 1950's and 1960's. By presenting the process of filling in registers in one voice and by using a transparent piano texture, he has made the procedure clearly audible.

The "folding out" tendency is not only presented linearly (Example 2.8b, mm. 41-42 above) but also vertically (or simultaneously), as in mm. 91- 93 shown in Example 2.10a. (Here the ascending and descending lines both typify the

¹²One pitch is missing: D \flat 3 at the first asterisk, for which I have no suitable explanation. It does appear in other octaves but not convincingly nearby.

characteristic omit-and-compensate melodic shaping.) From m. 93 onwards (Example 2.10b), the melody continues with chordal clusters that expand outwards or are simply rearranged internally in terms of their intervallic content. This "internal shifting" procedure particularly recalls *Atmosphères*, where timbre is changed by internal rearrangements of instruments and pitches. Because these trichords and tetrachords on the piano are dense, the listener may not always perceive each voice behaving individually but rather hear conglomerations of notes subjected to internal reorganization.

Example 2.10a mm. 91-93 Right Hand

Example 2.10b mm. 93-95 Right Hand

Another type of melodic variation is illustrated in Example 2.11. Within this

lament theme-statement from section 2 of the piece, the outer voices descend while an internal one (shown with larger note heads) ascends. This is the first instance in the piece of systematic upward movement, and it leads eventually to the third section of the piece where upward movement predominates.



Example 2.11 mm. 62-70 Left Hand

Example 2.12 illustrates how alternatives to descending chromatic motion appear not only within phrases, but also connecting one to the next. This example, taken from the developmental part of section 1, highlights the use of a harmonic minor second appearing at the end of the phrase and after a leap. This minor second originates from the harmonic major sevenths appearing after leaps in the initial lament-theme model (see Example 2.1), which have been transformed into a minor second. The final melodic entity of the phrase ($A_{\flat}-B_{\flat}$, circled in the example), functions as a kind of transition to the top melodic note of the next phrase appearing in a high register.



Example 2.12 mm. 28-30 Right Hand

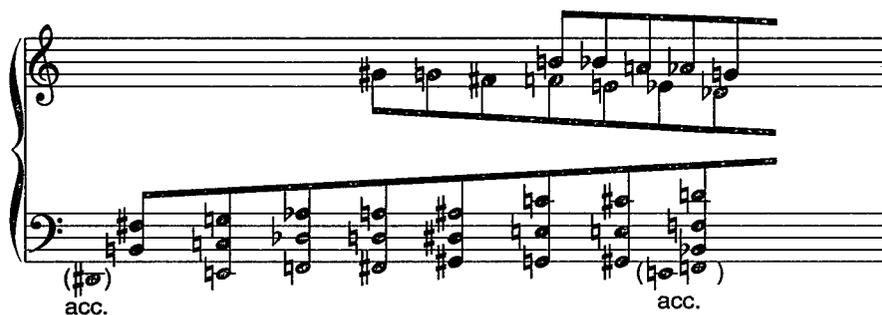
A similar event takes place in m. 86, at the end of a short transitional phrase that connects several extended lament themes to the second mensuration canon. As shown in Example 2.13, a $B\flat$ followed by a $B\sharp$ - $F\sharp$ dyad mediates a significant jump in register and connects the developmental material to the start of the mensuration canon. The role of the ic1 dyad of Example 2.12 has been replaced by ic6 ($B\sharp$ - $F\sharp$) and preceded by an additional note ($B\flat$) as part of the melodic transition. In summary, Examples 2.12 and 2.13 illustrate instances of leaps presented at the end of a phrase instead of within a phrase (as in the original lament theme), and show that the initial major seventh harmonic interval is sometimes rendered as a minor second or even as a tritone. These observations provide further support for using the term “development” to describe these sections.



Example 2.13 mm. 85-87 Right Hand

Example 2.14 shows the importance that ascending motion acquires by the third section of the piece. Here, two ascending lines predominate over two descending ones. One of the ascending lines appears as a repeated-note accompanimental figuration (shown in brackets in Example 2.14), while the other (consisting of three voices¹³) is one of the three melodies. Together these ascending lines create a strong impression of *ascending* linear movement. These lines are perceived as predominating over the descending melodic lines unfolding above because one of the ascending lines is enriched by parallel fifths, and because both appear in a strong low register of the piano.

¹³Notice that these three voices are considered *one* melodic entity because they move at the same speed and in exact parallel motion. In this passage, the listener perceives four melodic entities in total.



Example 2.14 mm. 99-102

The preceding examples indicate that although *Automne à Varsovie* appears to consist primarily of incessantly repeating *descending* lines, Ligeti often employs other types of motion to create expectations or subtleties in texture and register. Moreover, Ligeti groups together melodies that fill out a specific chromatic space to organize and shape his melodic material.

Pitch space and Pitch-class space

Having analyzed the use of the lament theme and melodic structure in detail, we will now explore pitch organization on a larger scale, and consider possible relations to procedures of tonal music. Before proceeding, the relation between melody and accompaniment in this piece demands commentary because it relates to our perception and understanding of pitch coherence. We generally assume that in a homophonic texture, vertical accompaniment (harmony) and horizontal melody often operate in a coordinated effort to present tonality. Ligeti sets up clear melodies over accompanimental figuration, but then blurs these distinctions, and concomitantly avoids establishing tonal centers.

The piece opens with a repeating E_b that is clearly an accompaniment figure having a secondary role in the texture and presentation of material. The lament melody appearing in m. 2 is instantly perceived as fulfilling a forefront role. But the melody-accompaniment distinction is not always rigidly upheld. Example 2.15, taken from the first mensuration canon section at m. 43, illustrates how the traditional separation of melody versus accompaniment is challenged. While two and then three melodic lines move at different speeds in the right hand, the left hand plays a benign figure of two E's an octave apart followed by a rest. After only two bars, the upper E becomes a melody itself and begins its own descent. This subtle change in function is also accompanied by a slight rhythmic change as the left hand replaces the sixteenth-rest with an entry (see m.45).

Example 2.15 mm. 43-45
Upper Left Hand Accompaniment becoming Melody.

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Ligeti makes the relationship between melody and accompaniment a fluid one. As soon as one voice is assumed to fulfill a subsidiary accompanimental role, it may change its course and move to the melodic foreground of the texture. The piece, then, appears to consist primarily of strands of melody, and should therefore be conceived as essentially contrapuntal. In Ligeti's particular brand of counterpoint, however, strands may gravitate from a background subsidiary role (as repeating accompanimental figuration, for example), to a principal melodic one. Moreover, Ligeti's chromatic melodic lines appear in dense contrapuntal configurations. This situation contributes to the fact that no tonal regions are clearly established or maintained. Ligeti's thoughts on pitch organization in his Chamber Concerto of 1969-70 are relevant here:

The musical language of this work, as is the case in all my compositions since the middle sixties, is neither tonal nor atonal. There are no tonal centres, nor are there any harmonic combinations or progressions which can be functionally analyzed; on

the other hand the twelve notes of the chromatic scale are not treated as notes of equal importance, as in atonal and serial music. There are specific predominant arrangements of intervals which determine the course of the music and the development of the form.¹⁴

While there is no tonality to speak of in *Automne à Varsovie*, the use of pitches and pitch-classes as structural features will now be examined to see how Ligeti organizes and manipulates them.

Some aspects of the etude's use of pitches (meaning, for instance, a specific note such as F4) and pitch-classes (which implies F in any octave) have already been discussed briefly. Specifically, it was observed that while Ligeti often conscientiously fills out a particular registral space, he sometimes misses out a single pitch, but another member of that pitch class may appear in a different octave (see, for instance, Example 2.7). This indicates that while Ligeti is primarily working with a specific register, he will also rely on octave equivalency to complete pitch-class aggregates (or to "fill" segments of the aggregate).

Example 2.16 illustrates Ligeti's use of pitch-class space in the first twelve measures of the piece. Each circled note indicates the first appearance of that pitch-class in the piece. Most of these events occur in the right hand, as the lament theme proceeds. In m. 9 the "accompanimental" E \flat 's shift down to D at precisely the moment when the right introduces Ab, the penultimate addition to the accruing pitch class aggregate (after a grouping of three sixteenth notes instead of the previous four).

¹⁴György Ligeti, liner notes on LP DECCA-headline 12 (1976), quoted in Miguel A. Roig-Francoli, "Harmonic and Formal Processes in Ligeti's Net-Structure Compositions," *Music Theory Spectrum* 17/2 (1995), 255.

Finally, at m. 11, after another truncated unit of three pulsations, the D jumps down to G and this striking moment marks the completion of the first aggregate. Obviously the accompaniment and the melody are both important in the formation of the aggregate; indeed, it is the pitch-class aggregate that helps integrate the accompaniment with the melody.

In addition, Example 2.16 illustrates an instance where analysis of the use of pitch-class space helps to explain the ordering of events. In relatively transparent textures such as mm. 1-12, tracing the gradual appearance of every pitch-class seems justified because the procedure is audible, and the analysis suggests why the G in m.11 is perceived as important. In very dense places, such as the mensuration canons, however, such an analysis does not appear to be useful. In these passages, many pitch classes appear in a short span of time as a result of the particular compositional processes at work. The listener perceives this material as a uniform, chromatically saturated surface.

ÉTUDE No. 6: «AUTOMNE A VARSOVIE», dédiée à mes amis Polonais György Ligeti 1985

$\text{♩} = 144$ Presto cantabile, molto ritmico e flessibile

Piano

sempre legato *Die Melodie stets deutlich hervorheben*

pp *(pp)*

sempre con ped.

NB. # und b gelten für den ganzen Takt.

molto cantabile

mp *(pp)* *mp* *pp*

Example 2.16 mm. 1-12 Use of Pitch-class

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In general, although this piece eschews the establishment and confirmation of tonal centers, certain pitches are emphasized as more prominent than others through various means. For example, a pitch class might be emphasized through the use of contrasting textures and clearly delineated melodic phrases or by sheer repetition. An examination of some of these pitch classes might reveal a higher level of pitch-class organization.

How pitch-class coherence operates in the etude can be observed at the middleground level of organization. Example 2.17 which presents a middleground pitch reduction of measures 1 through 36. On the two upper staves, the reduction interprets the first and last notes of each phrase (shown as an eighth-note pair on the upper staves) as more important than notes appearing within a phrase. Notes not appearing at the beginning or ending of a phrase (such as within a phrase or as part of the accompaniment), but which are still interpreted as having an important structural role, appear unstemmed and with smaller note heads on the upper two staves. The lower staff is a further analytical reduction, presenting beamed notes as a middleground reduction of the upper two staves.¹⁵ According to this reduction, while the foreground presents descending chromatic lines, the middleground consists of ascending chromatic lines.

In measures 1 through 24, which present the first three lament theme statements, the ascending lines mostly appear in a fixed register (except at the

¹⁵I use the term "middleground" in a sense analogous to Schenker's; note that here however, the middleground reduction no longer has to do with the prolongation of tonal centers.

asterisks), and take part in a gradual upward expansion of register. Note that at m. 24, which marks the end of this expository part of the first section of the piece, the ascending lines drop down one or two octaves (C7 drops to C5; A#4 drops to Bb3); these events are indicated with slurs in the analytical reduction. The rule that if a note is missed it will appear shortly thereafter, which was demonstrated in the lament theme (see Example 2.9 for instance), also applies over longer time spans. Sometimes, both pitches of the harmonic seventh (such as at the asterisks) are required to complete a chromatic ascending line. For example, at the first asterisk, A#5 and G#6 appear simultaneously and are followed by G#6 (which was missed out when F#6 moved directly to A#5-G#6).

Measures 25-36, which are part of the developmental material, also present ascending chromatic lines. Moreover, mm. 25-36 prominently feature the pitch-class G, shown in the reduction by larger, unstemmed, hollow notes. As illustrated in Example 2.16, pitch-class G was important in the first twelve measures of the piece because its appearance marked the completion of the first aggregate; here G functions as a sort of focal pitch also. Listening to this section of the piece, each new phrase sounds like it has been prepared somehow and therefore its first pitch is "the right one." This graph suggests that deeper-level ascending lines may contribute to this perception. While the validity of this middleground graph may be questioned (on the grounds that the notes I have interpreted as "structural" may be considered disputably so), it suggests origins for the perception that pitch levels at the beginnings of phrases are "correct" in this section.

mm. 1-24

mm. 25-36

Example 2.17
 Middleground reduction of mm. 1-36

Turning now to the entire etude with a concern for pitches appearing in specific octaves, it becomes clear that Ligeti's sensitivity to register contributes to a sense of form. At the beginning of the piece, melodic lines gradually rise until measure 25. A

major descent (in one long phrase) appears from measures 30 to 36, but otherwise, melodic lines meander through the middle register throughout this developmental section. Measure 43, marking the start of the first mensuration canon, begins in a relatively high register. Here, the melodic lines first descend then separate to high and low extremes, marking the end of the first section of the piece. After the striking "dead" section (m. 55, at the beginning of the second section of the piece), the music is situated high on the keyboard for a large-scale descent. Measures 85-86 mediate between the *fortissimo* left-hand chord of m. 85 and the high beginning of the second mensuration canon in m. 87. In the passage beginning in m. 91, which is similar to the end of section one, the hands separate in two voices moving to outer extremes by the end of section two. The main process of the second section, then, is the extended phrase that moves from a high register downwards (mm. 62-85): this event appears to provide contrast and balance for the low beginning of the third section. Section three (m. 98) begins with accompanimental D#2's which clearly refer to the E^b's (over four octaves) that opened the piece, but are now condensed into a single repeating pitch. Section three proceeds with ascending motion that leads up to the final lament theme (m. 112). This ascent is balanced by the final descent into the lowest region of the keyboard. The preceding discussion has described the use of *pitch*, in general terms, but has emphasized that particular registers have been chosen, and that large scale gestures are employed in specific regions of the keyboard. By contrasting high with low and associating large gestures with extended sections, Ligeti demonstrates his use of mass movement to articulate form. The carefully balanced placement of events

evokes a physical sense of shape in sound.

In summary, *Automne à Varsovie's* form is supported by pitch-class, pitch, and registral structures. Pitch-class analysis revealed an interesting use of aggregate completion, but also that the foreground is frequently saturated with every pitch class in a short span of time, while on a higher level of analysis, ascending chromatic lines can be traced in the first 36 measures of the piece. In addition, an examination of pitches appearing in particular registers helps to explain the perception of large-scale continuity.

CHAPTER 3

AUTOMNE À VARSOVIE: FORM

In many ways, this study has been leading to the following discussion of form and how it is perceived in this piece. In Chapter 2, a formal outline of A A' Coda was proposed. These divisions are suggested by the phrase structure: the A sections each begin with the lament theme, lead to a more "developmental" area, and are followed by a mensuration canon. The third and shorter section, characterized here as a Coda, presents a summary and reinterpretation of former events. The A A' Coda divisions seem to be reinforced by textural changes. Both A and A' finish with loud climaxes and are abruptly followed by a soft section in a new texture which appears to "re-begin" from nothing.

A closer look at the piece, however, reveals several matters unresolved by this analysis. In addition to the three main climaxes, four other places in the piece present dense crescendos that halt abruptly, and quietly "re-begin." While Steinitz draws our attention to the same three principal accelerating crescendos (our mensuration canons), suggesting that the piece is in three sections,¹ Stephen Taylor presents a different formal arrangement:

1)	mm. 1-24	Exposition
2a)	mm. 25-36	Episode 1a
2b)	mm. 37-54	Episode 1b

¹Richard Steinitz, "The Dynamics of Disorder," 13.

- | | | |
|----|------------|---|
| 3) | mm. 55-85 | Re-exposition |
| 4) | mm. 85-97 | Episode 2 |
| 5) | mm. 98-122 | Recapitulation (Episode 3) ² |

Taylor's Re-exposition begins where my A' begins and his Recapitulation begins where my Coda begins. But by contrast with my formal plan, he calls the piece a "tempo fugue" and applies fugue terminology to his formal divisions. Although my three divisions are corroborated by Taylor, he views the piece as consisting of six roughly equal parts rather than only three. James Guthrie, in another dissertation on the *Etudes*, divides the piece into three sections as follows:

- | | |
|----|-------------------------|
| 1) | mm. 1-29 |
| 2) | mm. 30-61 |
| 3) | mm. 62-122 ³ |

Guthrie's divisions at m. 30 and m. 62 do not correspond with division points in Taylor's formal analysis or mine. The fact that Taylor's, Guthrie's, and my formal groupings are quite different suggests ambivalence about how formal divisions in the etude are supported structurally. The middleground graph presented earlier (Example 2.17) will now be re-considered for a clearer understanding of this issue.

It was shown earlier that on the surface, *Automne à Varsovie* is made up largely of descending chromatic lines. These lines are organized into groups, usually of three phrases. Additionally, as Example 2.17 illustrates, ascending chromatic lines connect one group of phrases to the next from a more middleground perspective. Measures 1-

²Stephen Taylor, "The Lamento Motif," 76.

³James Guthrie, "'Etudes pour piano-premier livre' by György Ligeti and 'The Song of Glory,' an Original Opera in One Act" (D.M.A. dissertation, Louisiana State University, 1989), 93.

24 are governed by an ascent from E \flat 6 to C7 which continues into measures 25-36. This second area also presents G as a recurring pitch-class at emphasized places (such as at beginnings and endings of phrases). Within this whole passage, however, it is not possible to identify a single point of arrival. Rather, the various lines just keep moving; one line might replace another, but they all seem to be of equal importance. Therefore, while surface events fit into a middleground level of organization, the middleground linearity does not appear to hold deeper-level implications.⁴

The formal outline of A A' Coda, then, is primarily a description of surface events or changes in the piece. Because the piece eschews systematic compositional frameworks such as tonality, atonality, or dodecaphony in favour of extremely dense and complex pitch networks, analysis of the piece can result in differing formal interpretations. As a result of the constant circling through chromatic space and the avoidance of referential systems of pitch organization, a deeper background level of structure does not appear to operate. Although *Automne à Varsovie* does present a three-part structure, it is arguably not a hierarchical one. *Hierarchical* form describes the realization of deeper fulfilment (in the realm of pitch relations for instance) as events take place on various levels. For example, when a cadence marks a large formal division in a tonal piece, the listener perceives a more profound sense of closure than

⁴The lack of background structural organization in Ligeti's music is described by Miguel Roig-Francoli in his discussion of Ligeti's Second String Quartet: "Thus, while stepwise voice leading is one of the elements which Ligeti uses to achieve foreground- and even, in some cases, middleground-pitch coherence, the absence both of unequivocal goals and of any kind of background stability precludes the idea of goal-directed linearity at the structural level." (Roig-Francoli, "Harmonic and Formal Processes in Ligeti's Net-Structure Compositions," 254.)

when that cadence took place on a local level at the end of a phrase. In *Automne à Varsovie*, by contrast, while the listener perceives that the piece is leading somewhere, that "somewhere" is never stabilized; events remain on only one level and therefore are never able to "step up" to a new one and fulfil longer-term goals at deeper levels.

An alternative way of explaining the illusory nature of this piece's form is to view it as a *process*. In *Webster's Ninth New Collegiate Dictionary*, "process" is defined as "a natural phenomenon marked by gradual changes that lead toward a particular result," or "a continuous operation or treatment."⁵ (Of these two alternatives, the former is more goal-oriented than the latter.) In general terms, a sense of evolving process is created by Ligeti's employment of additive rhythms which preclude the perception of regular down-beats. A specific example of a process is the registral expansion shown in Example 2.17. The tightly organized and recurring lament theme is also employed as a process in the sense of the second definition just cited. It should be noted, indeed, that the rhythmic and melodic patterns that make up the lament theme quickly break down and are replaced by very similar material (descending chromatic lines) used in an apparently unsystematic fashion. One hears the processive manipulation of the lament idea, but without any systematic direction or goal. Nevertheless we can still describe *Automne* as "process-like" because of its gradually transforming nature. Moreover, the three main points of breaking off, which prove analytically problematic when the piece is viewed as a structure, seem to be better explained as resulting from a process, one that is perhaps obsessive rather than goal-directed. In the mensuration canons begun

⁵*Webster's Ninth New Collegiate Dictionary*, 1987 edition., s.v. "Process."

just before these moments (m. 55, m. 97, and m. 122 which is the end of the piece), processes are introduced which "run out," forcing their material to come to a halt. In the first and second instances, the widening of registral gap between the hands causes the material to approach extremes on the keyboard. By contrast with this contrary motion, at the end of the piece both hands actually run off the lower end of the keyboard in parallel, and it is almost as if the physical limitation of the instrument has forced the process to stop. Moreover, in the second and third mensuration canons, rhythmic acceleration to single sixteenth notes leads to the exhaustion of a rhythmic process that is subtractive rather than additive. Also, all three mensuration canons crescendo, creating the perception that at some point the piano will not be able to sound any louder, so that the material must be cut off rather than concluded. Therefore, as a process-like organism, the piece employs patterns of growth which, by their nature and because of the limitations of the piano, inevitably reach exhaustion or are forced to break off.

To reiterate, the *Automne à Varsovie* is both a *structure* (because of its tripartite A' Coda organization) and a *process*. The points of breaking-off, however, are better explained if the piece is viewed according to the latter interpretation. Nevertheless, from an analytical perspective, the presence of these moments demands further consideration. Their function is not entirely clear and their effectiveness in the piece as a whole is questionable (at least so far as they suggest structural expectations). They create the perception of abrupt lurching and discontinuity which radically disrupts the previously gradually transforming nature of the piece. Also, they may be perceived as

weak structurally because, as was stated above, they appear not to be supported by hierarchical pitch organization. That is, they cause us to expect a *structural* arrival (with its concomitant sense of resolution), but do not deliver one; instead they break off abruptly, only to be followed by another way of beginning the same sort of *process*. To respond to this situation, the form of *Automne à Varsovie* will now be examined in relation to ideas presented by Jonathan Kramer and Edward T. Cone.

In *The Time of Music*, Jonathan Kramer explores ways of understanding the experience of time in twentieth-century music. The main thrust of the book is his distinction between opposites of linearity and nonlinearity. Linear time in music is defined as "the temporal continuum created by a succession of events in which earlier events imply later ones and later ones are consequences of earlier ones."⁶ Nonlinear events do not develop from earlier ones; nonlinear pieces do not exhibit "a cause-effect relationship between successive events."⁷ Kramer outlines several varieties of time that mediate between these extremes. By contrast, "nondirected linearity" identifies the presence of some kind of continuity but a lack of defined goals. In this type of piece, linearity operates on a middleground level but not a deeper background one. *Automne à Varsovie* fits into this category. As demonstrated, linearity operates only on a low level of organization (within the lament theme itself) or on a middleground level (as in Example 2.17); but otherwise, on the larger scale, Ligeti's musical time is of

⁶Jonathan D. Kramer, *The Time of Music* (New York: Schirmer Books, 1988), 20.

⁷Roig-Francoli, "Harmonic and Formal Processes in Ligeti's Net-Structure Compositions," 253. Roig-Francoli briefly discusses the value of applying Kramer's term "nondirected linearity" to Ligeti's music.

a non-teleological nature. Teleology in music suggests the appearance of goals that have been "explicitly established by either such contextual means as previous reiteration or emphasis, or by a priori references to 'neotonal' procedures."⁸ Here, while one lament theme leads to the next, it is not readily possible to identify clear connections or references between early appearances of the theme and the numerous later ones that would be analogous to the return of a particular tonal region.

The apparent contradiction that the surface tripartite form lacks of background structural support, can now be reinterpreted. By recognizing the "nondirected linearity" of this piece, we can accept that the three-part form is not supported by background pitch organization; it does not need to be, for it is not directed toward a structural goal. In fact, this apparent incongruity assists in maintaining interest as the piece progresses in time. An expectation for points of arrival is set up and then thwarted: these occurrences become part of the listening experience and therefore part of the substance of the piece. As described earlier, the piece feels like it is leading somewhere but remains on only one level. This situation could lead to a negative view of the piece. However, one way of understanding the piece is simply to accept this nondirected linearity as a "different" way of composing, perhaps unique to music lacking tonal or other regularly employed pitch-organizational systems.

Another clue to how a listener encounters this piece in time lies in the central "frozen" or "dead" section. At m. 55, the mensuration canon that has crescendoed to

⁸Roig-Francoli" also discusses the "non-teleological" nature of Ligeti's time in "Harmonic and Formal Processes," 253-256.

fortissimo suddenly reverts to a quiet lament theme played by both hands in extreme registers (five octaves plus a tritone apart). The seven bars that follow lack the pulsating accompaniment and forward drive that propels the rest of the piece forward. This section exhibits near-total stasis: it is as if time has been suspended. Compared to the active surfaces of the rest of the piece, this area is akin to Kramer's totally nonlinear "moment."⁹ Although not an implied goal in the piece, these bars function as total contrast to the music heard before and after. In summary, Kramer's ideas suggest that dividing the piece into three sections, though perfectly plausible, does less for our understanding of it than does recognizing its nondirected linearity and central contrasting moment.

Edward T. Cone's writings about the aesthetic perception of art will take this line of inquiry further. In the Postlude to *Musical Form and Musical Performance*, he outlines two modes of perception: "synoptic comprehension" and "immediate apprehension."¹⁰ In the synoptic (or synchronic) mode, a piece of music is examined atemporally and approached as a whole. Conversely, in the mode of immediate (or diachronic) apprehension, one experiences the work's emerging form on a moment-to-moment temporal basis. While the synoptic view requires a conceptual recognition of unity and structure, immediate apprehension is somewhat like appreciating a starry sky.

⁹Kramer, *The Time of Music*, 54-57. Note, however, that this is not a true "moment" because the lament theme has a foreground "directional nature" and therefore does not exhibit total stasis.

¹⁰Edward T. Cone, "Postlude: On Two Modes of Esthetic Perception," in *Musical Form and Musical Performance* (New York: W. W. Norton and Company Inc., 1968), 88-98.

Because it stretches on indefinitely and cannot be seen all at once, we cannot appreciate its synoptic unity; instead we can only enjoy the specific arrangement of stars that is available within the scope of our gaze.

Automne à Varsovie can be understood from both viewpoints. Its lack of hierarchical structure at first suggests that immediate apprehension is more relevant: for how can we appreciate formal unity if the piece has no hierarchical background structure? A listener will enjoy the piece on a moment-to-moment basis as the ever-repeating melodic lines are varied texturally, dynamically, and rhythmically. Analogous to the ever-extending starry sky, when the etude begins with the repeated E \flat 's spanning four octaves, it is as if they were already present beforehand. Likewise, at the end of the piece, chromatic lines descend into the lowest register of the keyboard as if they could continue on forever were it not for the "frame" of the end of the keyboard. In this respect, the piece is more like Cone's artistic "surface" than his artistic "object." The nature of the beginning and end of the piece suggests that what we hear is "a cross-section of an indefinitely extending continuum."¹¹ In support of this description and of a diachronic interpretation, Ligeti has described his earlier tone-carpet music as "music that gives the impression that it could stream on continuously, as if it had no beginning and no end; what we hear is actually a section of something that has eternally begun and that will continue to sound for ever."¹²

Conversely, the piece can also respond to synoptic comprehension, for while the

¹¹Ibid., 95.

¹²Ligeti, "Ligeti-Varnai," in *Ligeti in Conversation*, 84.

three-part form is not supported by hierarchical structures, it nevertheless exists as part of the listening experience. Specifically, the E \flat 's that open the piece (behind the descending melodic lines at the surface) return in the third section as D \sharp 's in a low register (behind ascending lines). As discussed in Chapter 2, Ligeti deliberately exploits register to shape and balance large sections of music. Furthermore, the unique central "moment" (mm. 55-61) functions as a point of focus for the entire piece: it disrupts what might be perceived as a homogenous surface or plane of sound, throwing the A A' Coda form into relief and thus reinforcing synoptic perspective of the work.

An intriguing way of understanding how a composition responds to both synchronic and diachronic interpretations is put forth in Cone's "Three Ways to Read a Detective Story."¹³ Here, Cone develops the idea that a listener will respond to a piece differently according to the particular stage of her familiarity with it. Cone distinguishes three "Readings" of a detective story and then transfers these principles to "Hearings" of a piece of music.

Cone's First Reading is experiential, as the reader follows the plot and discovers what happens. The mode of "immediate apprehension" governs this first encounter with the story. The Second Reading (which may actually be the third or fourth reading for the Second Reader has reached an advanced stage of familiarity with the story) involves "synoptic comprehension" as the reader analyzes the form and organization of

¹³Cone, "Three Ways of Reading a Detective Story--Or a Brahms Intermezzo," in *Music: A View from Delft* (Chicago and London: The University of Chicago Press, 1989), 77-93.

the story. The Second Reader's emotional participation in the plot is limited in favour of objective contemplation of the work as a whole. The Third Reading, the ideal one for Cone, contains elements of both the First and Second:

Although it cannot avoid attending to the overall pattern investigated by synoptic analysis, it will allow itself to recognize that pattern only as a gradually emerging one, and it will concentrate on the strategies of concealment and disclosure by which the author controls the process.¹⁴

While attentive to the actual form of the story (Second-Reading analysis), the Third Reader perceives the work temporally and enjoys the sheer pleasure of following the plot (First-Reading apprehension). The Third Reading combines both the immediate and the synoptic modes of perception, and suggests an appropriate stance for the performer, who must always strive to project a carefully prepared and studied performance as a fresh experience in time.

Cone's distinction between different Readings helps to clarify the contradictory ways of hearing *Automne à Varsovie*. On a first listening (or listenings), we hear the piece more as a process. We experience descending chromatic lines heard in interesting rhythmic configurations. As the music grows to a climactic moment, we anticipate a point of arrival but this desire is frustrated. These moments may be perceived as weak because they have more to do with the nature of the process reaching exhaustion and of the limitations of the piano, than with more fundamental and deeply-rooted musical goals. The Second-Hearing analysis of the piece reveals that the piece is in tripartite form. The first two sections present the lament theme three

¹⁴Ibid, 81.

times, followed by developmental material and a mensuration canon; the third section is somewhat like a Coda. This tripartite structure, however, is not hierarchical, which explains why the cutting-off moments might be perceived as weak. By the Third Hearing, we are intellectually aware of the structure, but concomitantly, we experience the transformational nature of the piece as a process. The listener's perception of arbitrary divisions, plus the analytical awareness that the formal divisions are not supported structurally has finally matured. Listening to the piece at this stage, we know and accept that climaxes will be approached and then cut off. As Cone says in connection with the issue of hearing the same piece again, "suspense here means, not wondering what will happen, but waiting for what we know must happen. It affords us not only agony but also pleasure, or perhaps the two in an inextricably paradoxical marriage."¹⁵ Moreover, by the Third Hearing, we accept that the piece is in a sense *about* the terminal nature of Ligeti's processes, which provide the only deeper interest in the piece. Lacking a background hierarchical structure and presenting limited musical materials, the only profound and implicative "events" of the piece are the main three disruptive moments. At these points, it is as if the process has suddenly been obliterated only to begin again in a new guise.

To summarize, because the middleground pitch linearity is not supported at a background hierarchical level, we can therefore label the temporal flow of the piece

¹⁵Cone, "Inside the Picture, Problems of Performance," *Musical Form and Musical Performance*, 54.

“nondirected linearity.” Furthermore, the piece can be classified as both a process (through “immediate apprehension”) and a formal structure (through “synoptic analysis”). The way it is heard is affected by the extent of the listener's familiarity with the piece. The moments where the piece stops might seem arbitrary until the listener has become accustomed to them and no longer finds them incongruous. In addition, the listener's response to this formal problem might be affected by the performer's approach to the issue, a matter that will be examined briefly in the next chapter.

CHAPTER 4

AUTOMNE À VARSOVIE: PERFORMANCE CONSIDERATIONS

The difficulties encountered in studying and analyzing *Automne à Varsovie* also affect the pianist who is preparing a performance of this piece. In this brief final chapter, the performer's options in dealing with the complex formal nature of *Automne à Varsovie* will be examined; interpretive suggestions for this unusual and challenging piece will then be presented.

After reflecting on the analytical issues surrounding the piece, the performer must decide whether to project the piece as a process or as a tripartite structure (or possibly as both, somehow). As a structure, the three corresponding mensuration canon sections would need to be treated as leading to similarly crucial junctions. The performer would emphasize interruption at these structurally dividing moments. The other climaxes would need to be downplayed. On the other hand, if projected as a "process" piece, the performer would focus less on the two structural divisions, and not allow any of the climaxes to take precedence. While either option can be realized convincingly, the performer must be wary of allowing the disruptive moments to have a negative effect on the listener. If a performance of *Automne à Varsovie* causes the listener to perceive that the piece has ended at these moments, she will conclude that these gestures are arbitrary, and that the interest of the piece is not sustained throughout. The first of these breaking off points is followed by the cold and empty

“moment” which requires the performer to totally reorientate her focus. Following this, and again at the beginning of the third section of the piece, the performer must ensure that surface motion resumes immediately, creating a sense of rejuvenation and rebirth.

Another difficulty the performer must overcome is to avoid monotony resulting from the piece's limited musical materials and its process-like nature. The pianist must search constantly for new colours, dynamic nuances, and textural differentiation to create extensive surface interest and variety. This precept also informs decisions regarding which of the melodic lines should be brought out. While the descending lines are predictable and easily perceived, the ascending or irregularly constructed lines provide welcome contrast and often need to be placed at the forefront of activity. An example of this situation occurs from m. 26 onwards, where the left hand melody moves in a disjunct fashion below regular descending right hand melodies. The realization of dynamic markings also needs to be assessed imaginatively. For example, the *pianissimo* area of page 3 (mm. 24-30) could be hazy and floating while the *pp* area of page 8 (mm. 87-90) could be more etched and rhythmically jazzy. Finally, the most crucial section of the piece is the static “moment” of measures 55 to 61, which must be utterly cold and objective, but still intense. A clue to the particular sound quality required here can be found in the Lamento movement of Ligeti's Horn Trio. At the climax of that piece (m. 77), the piano drops out leaving the violin sustaining B7 and the horn B \flat 1. Throughout the rest of the piece (the Coda), violin and horn present a lamento theme extremely softly in parallel motion six octaves and a minor second apart. The tone colour of this section has a profoundly introspective, disengaged, and

atmospheric quality. Because *Automne à Varsovie*'s central section is so similar, we can speculate that Ligeti has a similar sound and overall effect in mind.

Such observations underscore the performance challenges posed by *Automne à Varsovie* and suggest the kind of issues and options the performer ought to contemplate. Just as understanding the form of the piece requires extensive analytical contemplation, the performer must also explore alternative ways of communicating the piece's essence and meaning, using the full range of rhythmic, dynamic, and timbral possibilities available to her imagination.

CONCLUSION

This document has explored the influences on Ligeti's *Piano Etudes* and his unique approach to the etude genre.

Close examination of *Automne à Varsovie* has revealed that illusion, one of Ligeti's ongoing preoccupations, is created here in different ways. The effect of several voices moving at different rates of sixteenth-note pulsations creates the illusion of different tempos operating concurrently. Ligeti presents a background pulse and foreground melody at the start, then frequently obscures their opposing roles. Descending lines accumulate on the surface, while at the same time ascending lines expand the register on a more middleground level. Finally, the piece can be perceived as both a structure and a process. This is all in keeping with the complex and illusory nature of such pieces as *Atmosphères*, *Continuum*, and *Monument* from *Three Pieces for Two Pianos*. Moreover, *Automne* demonstrates features of Ligeti's late style and is closely aligned with the Horn Trio and Piano Concerto.

The piece confronts the performer with a difficulty commonly encountered in contemporary music: basic assumptions pertaining to the form of the composition are challenged. Here, an analytical perplexity affects the performer's interpretation. Only by exploring the nature of the formal problems and by making decisions about what to project, will the performer succeed in presenting an interesting and convincing version of this problematic but compelling piece.

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