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AN ANALYTICAL STUDY OF TWENTIETH-CENTURY CADENTIAL TECHNIQUES

by

Rhenda Ronfeldt Pease

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Master of Music

Western Michigan University
Kalamazoo, Michigan
December 1978

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1978

ACKNOWLEDGEMENTS

In writing this paper I have received much appreciated guidance and encouragement from my main advisor, Dr. Robert Ricci who suggested this topic, and advisors Dr. Joan Boucher and Professor Ramon Zupko. Their endless patience and encouragement have been an inspiration to me and has made this task an enjoyable and enlightening experience. I say in all sincerity that we students at Western Michigan University are truly fortunate to have such excellent and motivating teachers as these people.

Rhenda Ronfeldt Pease

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Preface

The purpose of this paper is to devise a codification of twentieth-century cadential techniques used by some of the major representative composers. It is because Debussy had such a profound impace upon twentieth-century music - because of his innovations and influences upon this century's composition - that he is included in this paper. His music will serve as the beginning step away from traditional cadence procedures. Twentieth-century compositions which are non-tonal and basically tonal will be studied for their non-traditional cadential procedures. Traditional procedures refer to those classical clichés which one expects to hear at cadence points, such as: IV-V-I; V-VI; IV-I; and V-I. Most, if not all of these harmonic progressions will be found in the compositions studied, but the cadence progressions will contain at least one unorthodox element, giving the cadence a distinctive twentieth-century flavor. Final cadences and also the strongest cadences within the works will receive primary attention. In this paper, at least one keyboard work plus an ensemble work will be analyzed for each composer (excluding a keyboard piece by Stravinsky, since there are few) in order to compare cadential techniques in various media. Charts of cadential devices and summaries of compositional techniques are provided within the chapters to give a condensed overview of

techniques employed by each composer. Of the seven composers, Debussy, Ives, Schoenberg, Poulenc, Bartok, Stravinsky, and Hindemith, Schoenberg provides the most contrasting procedures used, although all share many common cadential practices. The comprehensive chart at the end of the paper lists the cadential procedures and the number of times used by each composer and allows the reader to compare cadential findings. It should be pointed out that an element of subjectivity exists in an analytic study as this. As explained in the section on Ives, the specific interpretation and performance of a work can affect and effect cadential feeling. It is interesting to note that cadential features are similar among the differing styles of composition.

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CLAUDE DEBUSSY (1862-1918)

Introduction

The innovative music of Claude Debussy (1862-1918) truly revolutionized Western music. His music, while sounding tonal, often is not grounded in a specific key; ironically, phrases and sections composed of dissonant textures will often incorporate a feeling of center through the use of melodic reiteration, pedal point, or ostinatos. Debussy succeeded in disintegrating tonality and in emancipating dissonance, rhythm, and meter. The tonal or harmonic and rhythmic ambiguity of his music is the result of the freeing of all aspects of music from the dependence upon tonal motion. Vinton states that melodic tonality rather than harmonic tonality is elevated in importance and color often takes the place of tonal motion.[1] Vinton also says, "There is a rhythm of color change and this shift in color organizes the formal aspect of the music."[2] Chords are treated as color entities rather than functional movement. The term "floating harmonic color"[3] has been used to describe the rhythmically and harmonically

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[1]Vinton, John. Dictionary of Contemporary Music, p. 23. New York: E. P. Cutton and Co., Inc., c. 1974.

[2]ibid.

[3]Harder, Paul. Bridge to 20th Century Music, p. 133. Allyn and Bacon, 1970.

free nature of Debussy's music. His use of parallelism destroys harmonic hierarchies and undermines the principles of tonality - of tonal root progressions. Parallelism gives the music a rootless feeling. Another device exploited by Debussy in his piano works is the profuse use of the damper pedal which through the piling-up of overtones creates a rich harmonic veil of sound. Besides the use of parallel chords and the piano's damper pedal, other devices used by Debussy are: the use of 1) sequences of second inversion chords - weaker in tonal implications; 2) chains of seventh, ninth and eleventh chords; 3) whole-tone scales and chords made of whole-tone patterns; 4) augmented and diminished intervals used melodically and harmonically - exploitation of the tritone; 5) pedal points with non-traditional sonorities above; 6) the focusing upon pedal points, ostinato patterns and repeated tones in chords and melodies to establish a tonal center; 7) indifference to the resolution of dissonance; and 8) the use of many rhythmic, tempo, texture, and color fluctuations. Modulations seem to occur in the form of a spontaneous, shifting to a new tonal sphere or pitch level. Tonic-dominant relationships which may result are unorthodox and obscured by the other simultaneous sonorities. There are no functional progressive harmonies approaching cadences to prepare the listener for a definite caesura. Of the cadential techniques used by Debussy, elision is the major one. Even though the three pieces chosen

for study are turn-of-the-century works - "Fetes" (1899), L'isle joyeuse (1904), and "Ce qu'a vu le vent d'ouest" (1909-10) - they contain many of the intra-phrase and cadential devices to be consistently employed in twentieth-century composition. It is important to remember Debussy's basic concept of the function of music - to be sensuously sonorous. Free, spontaneous rhythms and harmonies are used solely for sound's sake and to create a harmonically rich, often elusive musical fabric. This concept of music is thoroughly infused into Debussy's works.

"Ce qu'a vu le vent d'ouest"

In the quasi-tonal music of Debussy, one already gets a preview of cadential techniques used by later composers. Listening to Debussy, one feels swept up in the continuous motion and almost beguiled by the harmonic opulence; one is not sure ff and when the music actually cadences. Often, a very smooth transition from one phrase to the next is executed through use of elision. In the piano prelude, "Ce qu'a vu le vent d'ouest" 1909-10, the cadences at O!J (Mm.18-19) and [ill (Mm.46-47) illustrate Debussy's use of a chromatic ascending line of parallel major triads appraoching an elided cadence on a full chord. Example OKI shows in sixteenth-note notation, major, arpeggiated, root-position triads ascending toward the seven-voiced $F^{\#}$ chord with diminished 5th (M.19). Example llB I also uses a sequence of chromatic parallel major, root-position triads ascending toward an elided $o^{\#}$ major i chord (M.47). This technique of parallelism, used extensively by Debussy, directly abandons the concept of traditional harmony. Classical harmony allowed for parallel sixth chords in sequence, but never root-position triads which result in parallel 5ths and the lack of classical root movement. The chords do not function according to traditional harmonic root progressions and thus is created the desired harmonic vagueness. The phrases surrounding examples D!J and [ill employ pedal points

which indicate the basic tonality of each section; yet each section's tonality is blurred by the parallelism of the major traids. The diminished 5th in the elided cadence chord of [J!I followed by the whole-tone scale actually colors the basic $F^{\#}$ tonality. In [I[I, the $o^{\#}$ tonality is obscured by the sequence of seventh chords. The basic tonalities do exist, but they are juxtaposed and superimposed with tones and chords outside of those tonalities. Four other factors influencing a cadence in examples [J]] and [!]] are: 1) rhythmic emphasis placed on the elided chord; 2) the crescendo; 3) the accelerando up to the chord; and 4) the shift in texture at the chord which helps indicate a new phrase or section. The chromatic ascent to each chord is heard in sixteenth notes, but the cadence chord is given a longer time value, ([J!I - a double-dotted quarter note and [!]] - a dotted quarter note). The crescendo and accelerando at the chord and the dynamic, pitch and agogic accent on each cadence chord gives the feeling of 'arriving', even though continuous fast-moving notes proceed ahead. Debussy's music is very sectional, with one section or phrase group often eliding into the next. Cadences occur spontaneously and very often, in this prelude, on a heavily-voiced chord. Change in texture from one section to another is evident and this helps to clarify the cadence points. The ffnal cadence in this prelude is largely rhythmic in nature, coupled with a new sonority on the final chord - a major chord

with added 6th. Example [!!] shows eighth and thirty-second notes (the trill figure in the left hand), moving to heavily-accented longer note values on the major 2nd octaves. The augmented intervals arising between these chords - $0^{\#}$ to $A^{\#}$ and $c^{\#}$ to G - create a tonal ambiguity even though the $r^{\#}$ "tonic" is present. The syncopation of the cadence chords and the tremolo in the left hand add agitation which is abruptly halted on the dynamically-accented final staccato, eighth-note, $F^{\#}$ major sixth chord. [!!] is a coloristic cadence employing the trill figures, the tremolo and the added $o^{\#}$ in the final percusive sonority. It is clear that the piece is rooted in $F^{\#}$, using an $F^{\#}$ minor key signature, beginning in a quasi-minor mode and sounding $F^{\#}$ major within and at the end of the piece. This energetic music is ah,ays in a state of flux due to the forward-driving, lively rhythms used and the sudden shifts in tonal levels. It is apparent that Debussy uses elements of tonality, but uses them in unorthodox ways.

L'isle joueuse

This piano work written in 1904, opens improvasationally as Debussy directs: Quasi una cadenza, and is centered around an A major tonality while using whole-tone and diminished scale patterns and tonal shifts throughout the piece to veil the predominantly 'A' tonality. The first melodic idea as shown in

example uses a diminished scale pattern on c#, that is, alternating whole and half steps, to produce an exotic sound outside the domain of A major. This returning melodic and rhythmic motive is approached by a long trill with a quarter rest and quarter note (E) on the 'dominant'. The two-measure introduction pauses momentarily before proceeding to the main phrase. Many cadences in this work are maneuvered by use of a pause just before the new phrase. The two-measure introduction, Mm.7-8, does not seem to have its own ending - it just disappears into the new phrase. The term quasi-elision is used for $\overline{12AI}$ because there is a slight break before the main melodic/rhythmic motive at $\overline{12AI.}$ and yet the non-ending of Mm.7-8, that is, the quality of dissolving into the new phrase at M.9, gives an elided effect. The V-I progression gives it an authentic cadential sound. Example illustrates cadencing by elision. The whole-tone scale which is found throughout the work is seen approaching the upbeat to the new phrase. The use of whole-tone scale patterns is another way in which Debussy helps to annihilate tonality. Lacking the three fundamental intervals of traditional harmony, the perfect 5th and 4th, and the leading-tone, and being composed of only major 2nd intervals, the whole-tone scale lacks a feeling of centralization or "tonicization". The whole-tone pattern evolves into a chromatic conclusion while driving forward to the new phrase, which is the same motive beginning at the A

tonality is preserved or stabilized as the melody and ostinato pattern sound at [g[l. The ostinato bass figure, using the tonic and dominant pitches repeatedly, strengthens the A as center. The cadence at the A6 chord is elided, but it is approached with aritardando chromatic line and a slight pause before sounding the downbeat. This type of elided cadence is less smooth than those in the prelude previously discussed. It is curious that a tempo change, whether accelerando or ritardando, initiates a feeling of expectation on the listener's part. Following a tempo change at Cg[} one expects to hear a resolution of sorts. It is this tempo change which makes a chord sound like an arrival point. Examples 11rI and [1QJ are also examples of a slight pause before the new phrase. One phrase abruptly ends and the new one begins. The motivic idea found at [1El is reiterated here. The texture change and the shift from a purely harmonic treatment (Mm.62-63) to a melodic one (M.64) is evident. As the material changes along with texture, and often tempo, the appearance of a new phrase or section is achieved. Example [gQ] is a sharp contrast from what preceded. One cannot miss the cadence at M.67, again being elided and involving the pause, shift in tempo, and change in texture and melodic content. One could argue that the cadence is on the last beat of M.66, on a type of dominant harmony with a diminished scale figure above. It is not until one hears the A major chord on beat 1 of M.67

that one feels a resolution or an arrival of the preceding idea. This writer favors an interpretation of a cadential elision at example - The final section of the work (Mm.244-255) ends improvisationally as one long sweep to the final cadence. Debussy uses the main melodic motive here (M.244) as at the beginning, but adds a whole-tone pattern underneath. The last four measures (Mm.252-255) make up the actual cadence on the tonic tonality. The eight previous measures set up the desired agitation and crescendo. Cadence [ID, is made of the elements of 1) color - the tremolo effect; 2) the wide range - 7 octaves; 3) texture change and 4) rests producing a disjunct rhythm. The coloristic tremolo is heard nowhere else in the piece. The added $D^{\#}$ in the A major chord adds still more color and a bit of ambiguity. The eighth rests provide a pause and an anticipation of a resolution. The resolution exploits the outer limits of the piano's range, sounding the highest A followed by a sweep down to the lowest A and concluding abruptly on a staccato eighth note.

"Fetes"

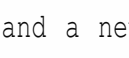
Debussy's Nocturne, "Fetes". first written in 1896 for violin and orchestra and then re-written for orchestra in 1899, was first performed in December of 1900. This orchestral score is very typical in many respects of many orchestral scores written earlier by other composers. The instrumental choices and their

respective registers are traditional. The use of melody and the alternation between orchestral color are two main factors determining cadence. The cadences in "Fetes" are elusive and present a predicament as to where to actually place the cadence point. It is only after one hears the change in orchestral color, texture, dynamics, and/or rhythmic or melodic material, that one realizes that a new phrase has begun. The previous phrase seems to dissolve into the new phrase; thus, an interpretation of elided cadences seems most applicable in "Fetes". Example 13AI illustrates a typical dialogue between sections and the shift in color to achieve an elided cadence. Debussy's harmonic progression is smooth, sounding an F major chord to an F diminished and then a D^{b} minor chord as the lower strings take over. This abrupt ending of one orchestral color and the beginning of another is realized as a type of elided cadence due to the: 1) shift in color; and 2) contrast of dynamics. The new phrase begins pianissimo after the previous phrase applied a crescendo to a fortissimo. The harmonic progression is smooth from an F major chord to F diminished, (which is the $o^{b}{}_{7}$ chord without root), to the $o^{b}{}_{9}$ where the lower strings resume the same homophonic rhythmic pattern, but at a pianissimo level. Example []Kl also shows a new melodic phrase beginning with a different orchestral color and dynamic level after several measures of rest are heard in the woodwinds. The shift in color of the melodic

element serves as an aural aid in recognizing the appearance of a new phrase, even though the new phrase began several measures before the solo line entered. The percussive homophonic string part sets the background for the contrasting linear legato lines in the woodwinds. The contrast of melodic material versus percussive rhythmic chordal material prevails throughout "Fetes". Examples !][I and (10 illustrates this point. Again, a very abrupt dissolution of one phrase occurs (M.15 and M.19), as the new phrase with a thickened texture and new melodic color appears. The cadence at [1[J is only effected by the crescendo and abrupt change of texture and melodic color. This type of sliding into a new phrase is interpreted as an elision because the accompaniment voices maintain the same rhythmic patterns from one phrase to the next, and mainly because of the overlapping of the completion of one phrase and beginning of the next. Cadence (M.19) also elided, sounds a new tonal level, up a half step from M.18. Example ill] best shows the contrast between percussive homophonic sections and melodic, accompanied sections. A change from piano to forte and a change in texture and color signal a new phrase. The cadence is manipulated by dynamic nuance and by a space of rests in the strings and woodwinds which start the new phrase. Although the flutes' lines elide with the woodwinds and strings, the element of cadence here is the thinning of texture and use of rests, coupled with new color and dynamics at the new phrase

beginning. Example adds the element of melody to signal a new phrase. At M.54 the percussive string part changes to a light touch to accompany the new oboe line. The clarinets and bassoons have dropped out giving way to new color and new effects of the next phrase. One does not realize that an elided cadence has occurred at M.54 until the oboe's melodic- line is sounded. Even though new articulation, color and dynamics arises at M.54, the new melodic material is needed to secure a feeling of the new phrase. A characteristic of the oboe melody is the marked change in rhythm, which contrasts greatly with what came before. Many of the rhythms function as ostinatos. In example QQ], one can see the shift of function and color within the string section. The strings serve as a percussive foundation for what is happening above. They play a forte pizzicato in eighth notes with accents on the beat and with -the parts divided to,form chord structures. At the end of M. 101 of example 11[J, there is an eighth rest for the strings, the term 'arco' to designate a return to bowing, and the beginning of a new phrase. The percussive phrase ends on a $G^{\#}$ tonality, the dominant of the next contrasting phrase. A type of authentic elided cadence results. The new phrase is a soft, expressive legato unison melody. Again, a very rapid cadence has occurred signaled only by eighth rests on the last beat of M.101. In all of Debussy's music, cadences can usually be discerned only after they have occurred, because

one phrase moves into the next so quickly that one needs to hear the new material or change in color, texture, rhythm, melody or dynamics. There are no traditional harmonic progressions to prepare one for a caesura. Example QI! shows another surprisingly abrupt cadence, one which is not elided but affected by rests. The change from full orchestra playing fortissimo on ostinato rhythmic patterns to a triple piano in the harps and strings is an unexpected change in color, texture, dynamics and meter. Example ill] presents an ambivalence as to what beat to call the cadence point. The tamborine provides a bridge to the new phrase. The rests in the woodwind section help to pinpoint M.155 as the cadence point on beat 1. The full orchestra at rehearsal 13 initiates the new phrase. In previous measures, there was dialogue between the woodwinds and brass on the rhythmic figure: with pizzicato accompaniment in the strings. The woodwinds played a more sustained, legato melodic line. At M.156 the full orchestra joins in on a martial rhythm as the upper strings sound the prominent first melodic motive of the piece, now in the dorian mode. The unity of motion, style, and attack is apparent here. One hears this as a part in itself - in its unity of purpose. At M210, example 00 again is viewed a cadence executed by means of 1) elision; 2) dynamics; 3) meter; 4) instrumental change = colorshift; and 5) texture change. The woodwinds overlap the cadence while lower strings and percussion

rest, and violins continue on into the next phrase without pause or change of material. The melody which emanates out of the cadence is the aural aid again in realizing that an elision has occurred and a new phrase has begun. The final cadence  is simply a thinning-out of instruments, a reduction in volume and content and a profuse use of rests producing a disjunct rhythm. The 'cellos and basses quickly progress chromatically in eighth note triplets as muted cornets and trumpets sound sustained notes on an E major sonority, the V of A, for several measures. The brass drop out, leaving the timpani and cymbal to add an eighth note here and there above the strings which gain increased rests. The cadence is basically V-I (a disjunct V-I harmonic progress), but is not heard as such in a traditional manner due to the separation of V and I by rests. The repetitious sounding of the tonic A chord for the last six measures - an elongation of the cadence not previously seen in this work - is relieved by the syncopation; in other words, by the placement of the chord on different beats from measure to measure. The final A octave is as abrupt in its appearance and dissolution as were most of the other phrase endings of the work. The long time lapse before the final triple piano, staccato A's serves as a dramatic conclusion and is apropos to the entire work.

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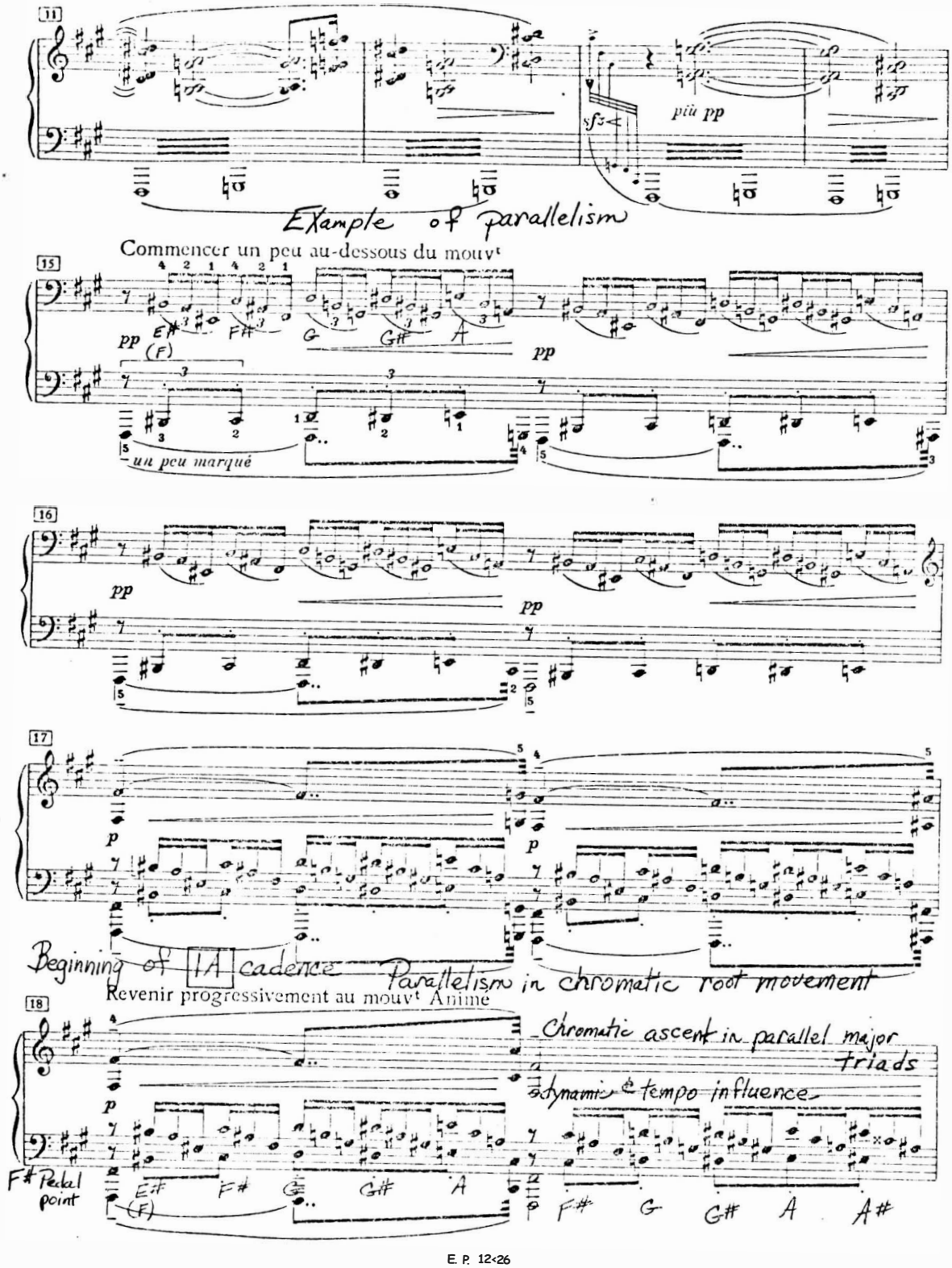
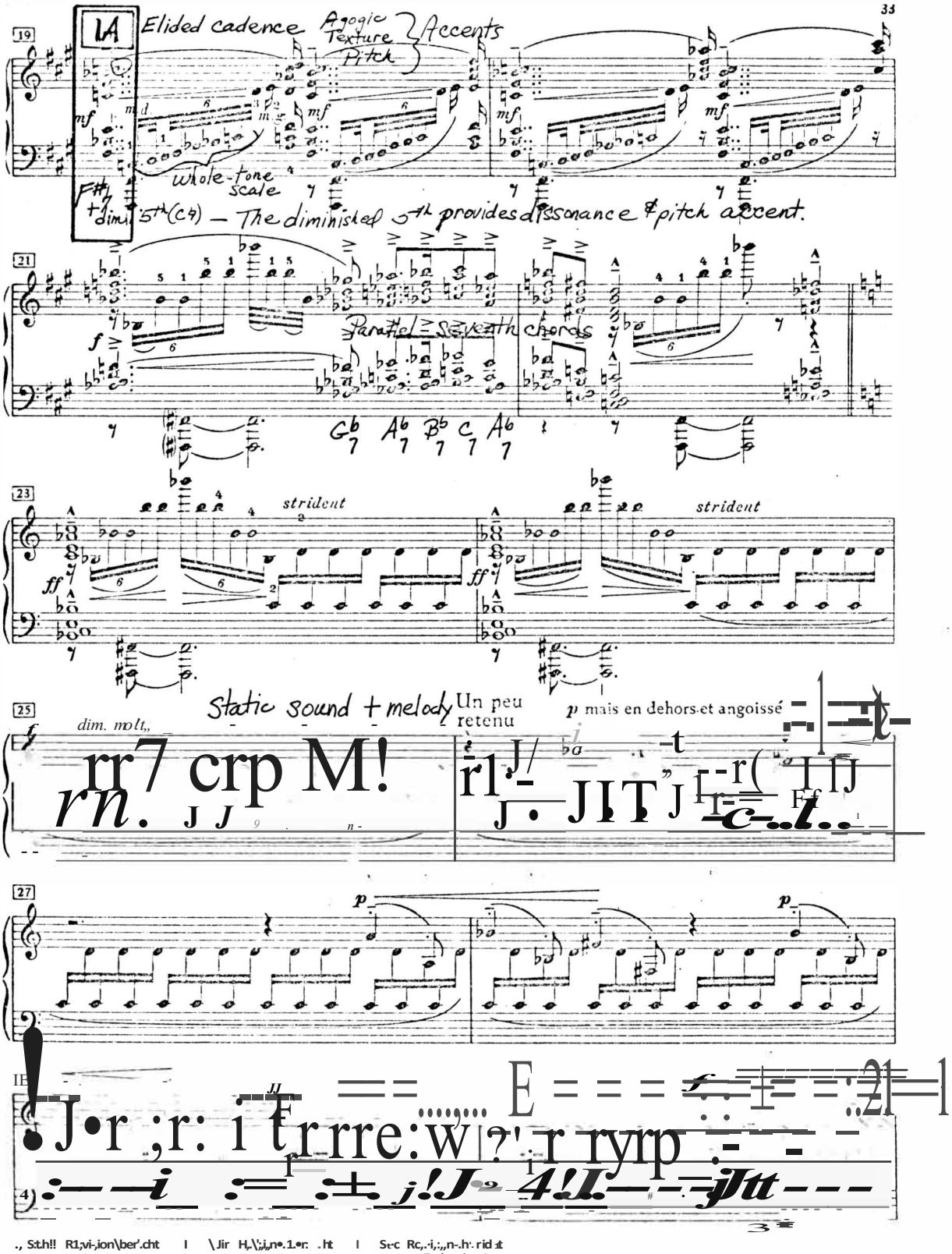
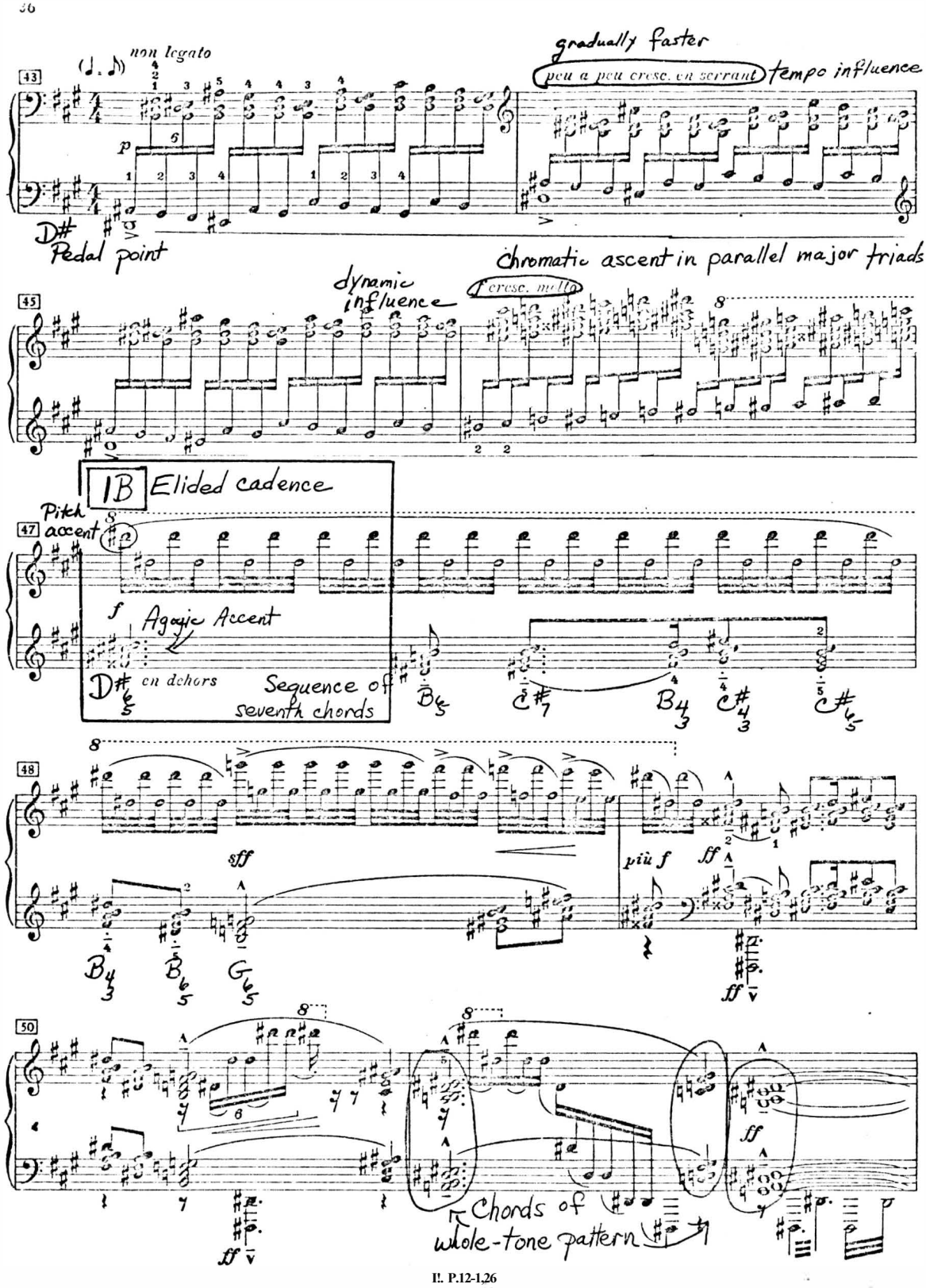
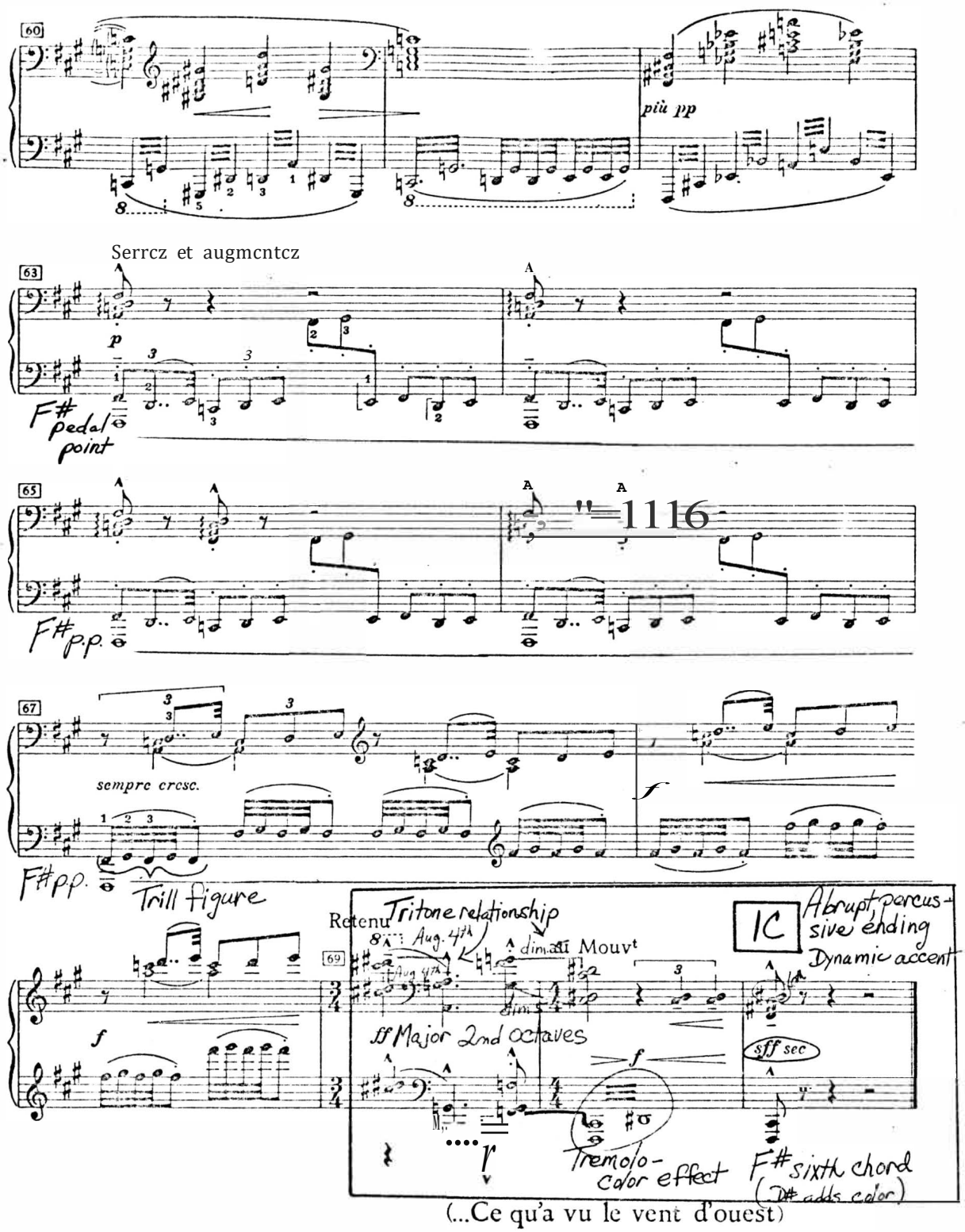

11
più pp
Example of parallelism
Commencer un peu au-dessous du mouvt
15
pp
(F)
un peu marqué
pp
16
pp
pp
17
p
p
Beginning of IA cadence
Parallelism in chromatic root movement
Revenir progressivement au mouvt Animé
18
Chromatic ascent in parallel major triads
dynamic & tempo influence
F# Pedal point
(F)


33
19
IA
Elided cadence
Agogic
Texture
Pitch
Accents
mf
whole-tone scale
dim 5th (C♮) – The diminished 5th provides dissonance & pitch accent.
21
Parallel 7th chords
Gb7 Ab7 Bb7 C7 Ab7
23
strident
strident
ff
25
Static sound + melody
Un peu retenu
p mais en dehors et angoissé
dim. molt.
27
p
p


36
non legato
gradually faster
peu a peu cresc. en serrant
tempo influence
D#
Pedal point
Chromatic ascent in parallel major triads
dynamic influence
f cresc. molto
1B Elided cadence
Pitch accent
Agogic Accent
en dehors
Sequence of seventh chords
sff
più f
ff
Chords of whole-tone pattern

JS



(...Ce qu'a vu le vent d'ouest)

L'isle joyeuse - Claude Debussy. Copyright 1940 Durand et Cie.
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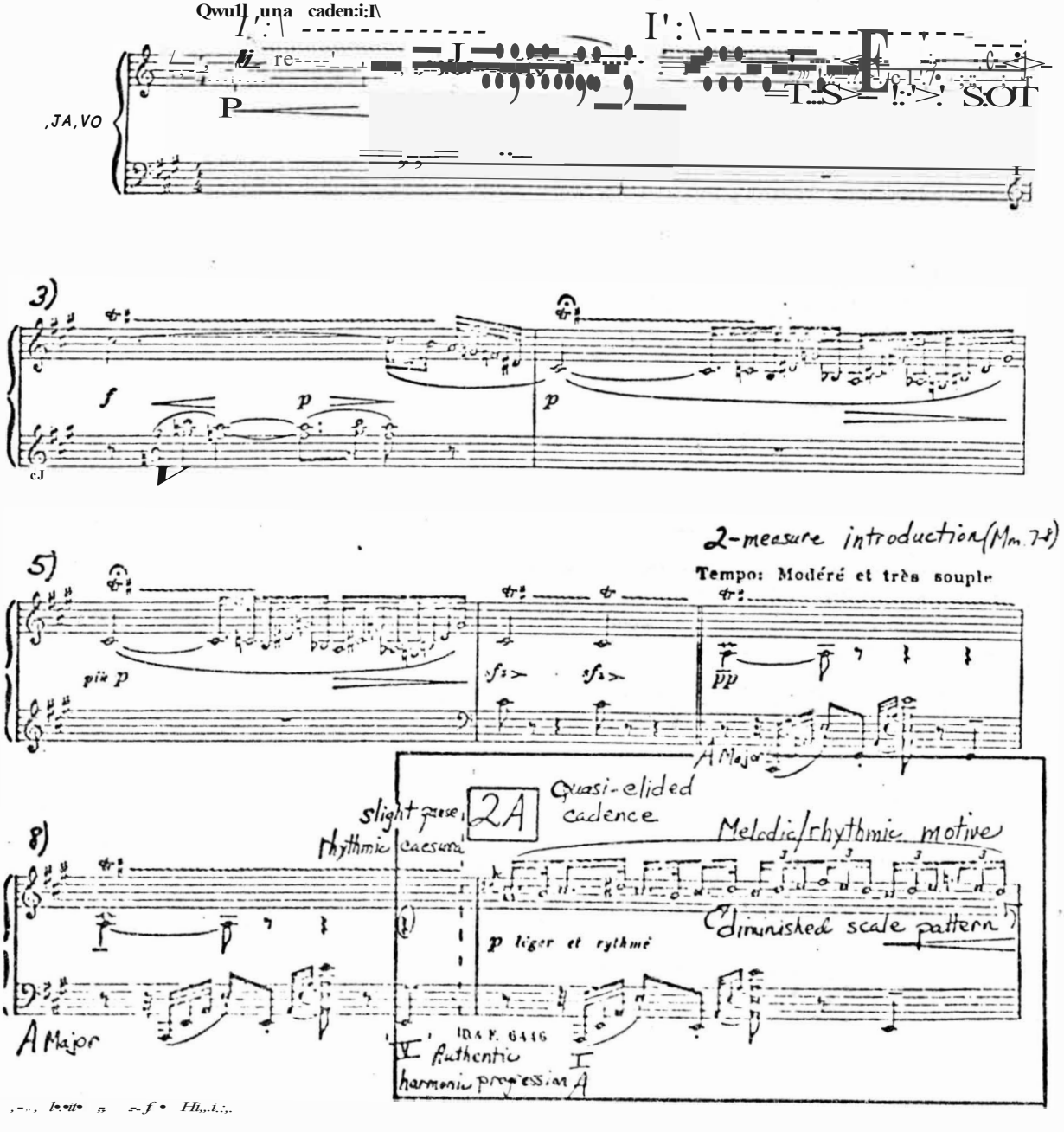
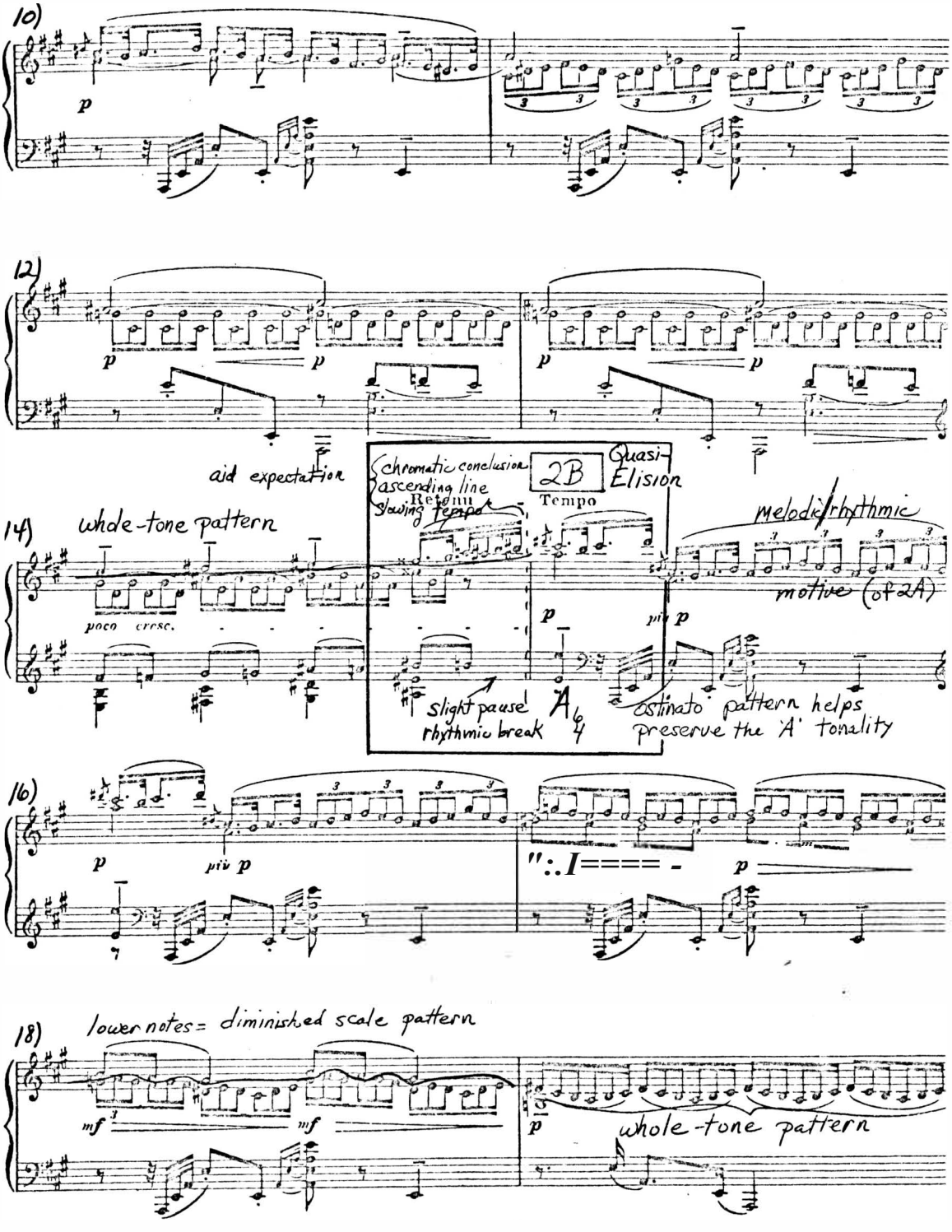
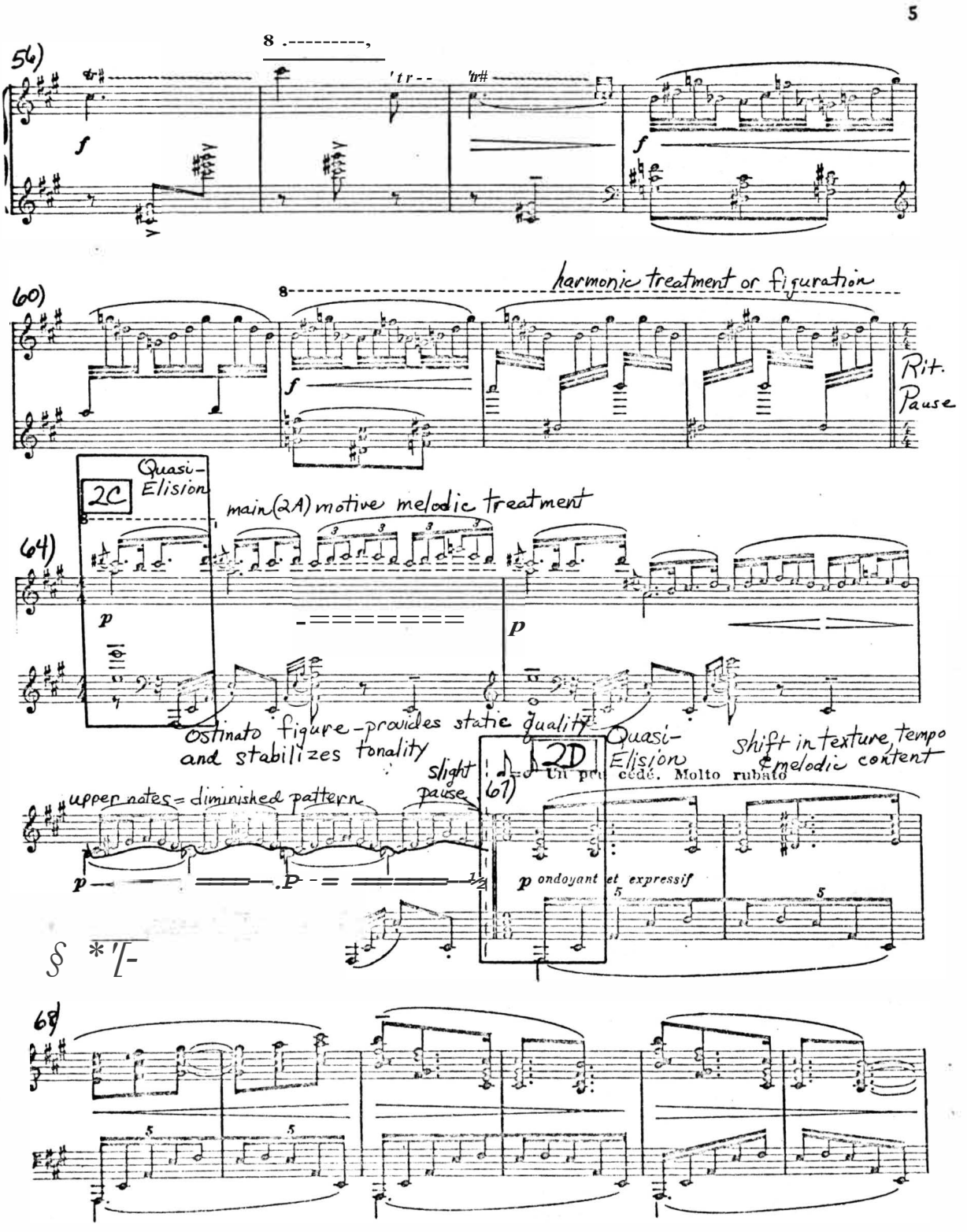
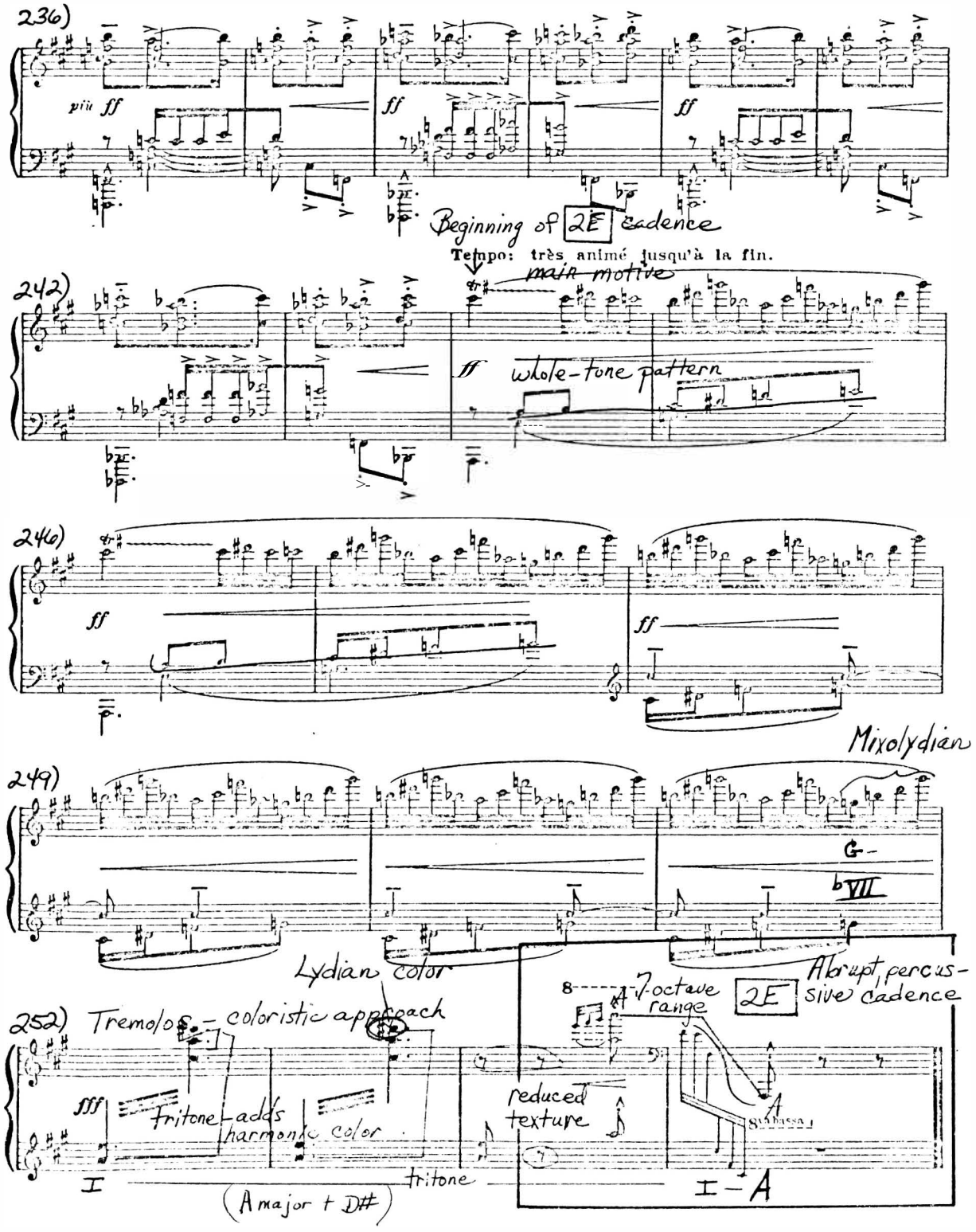
J

11isle joyeuse

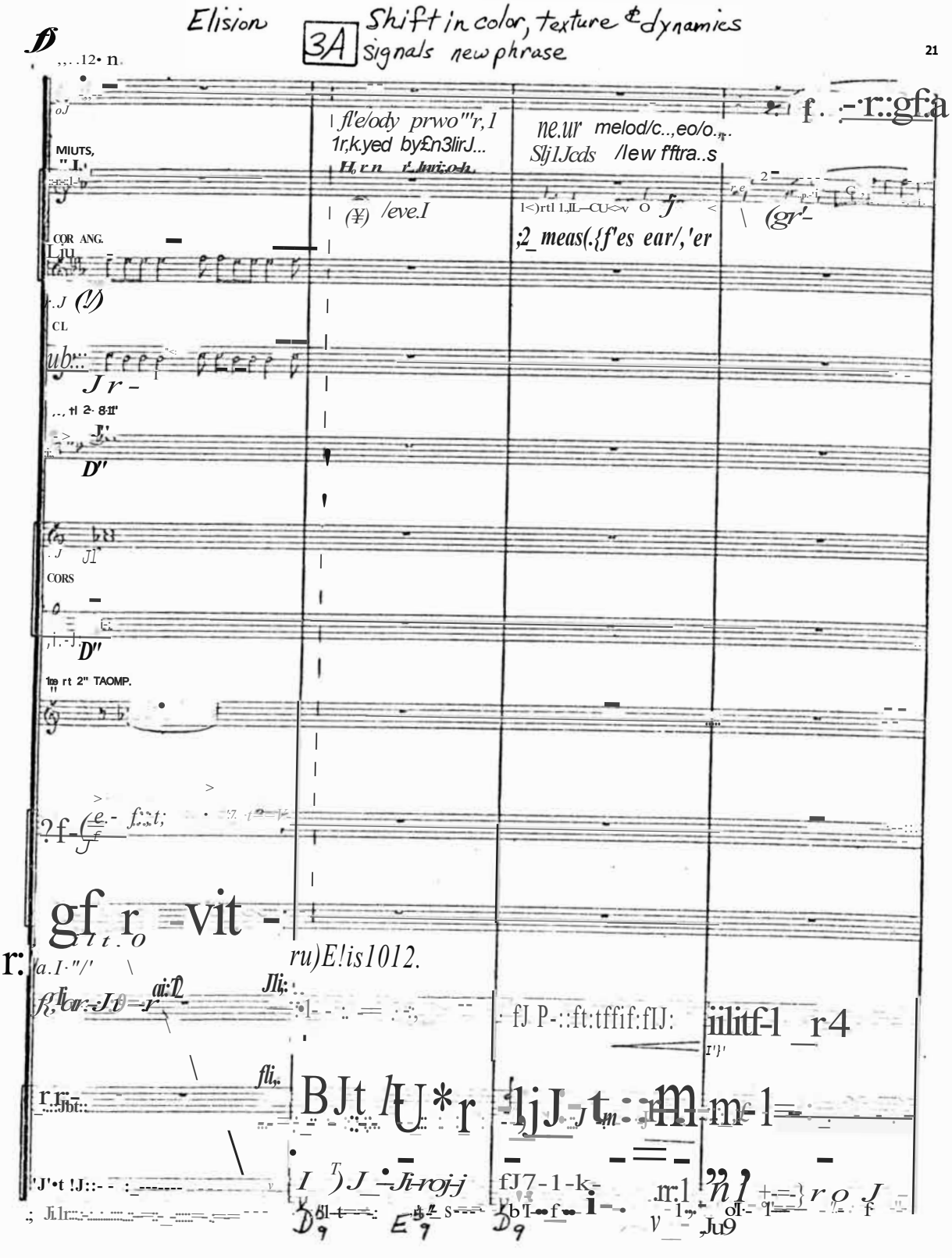


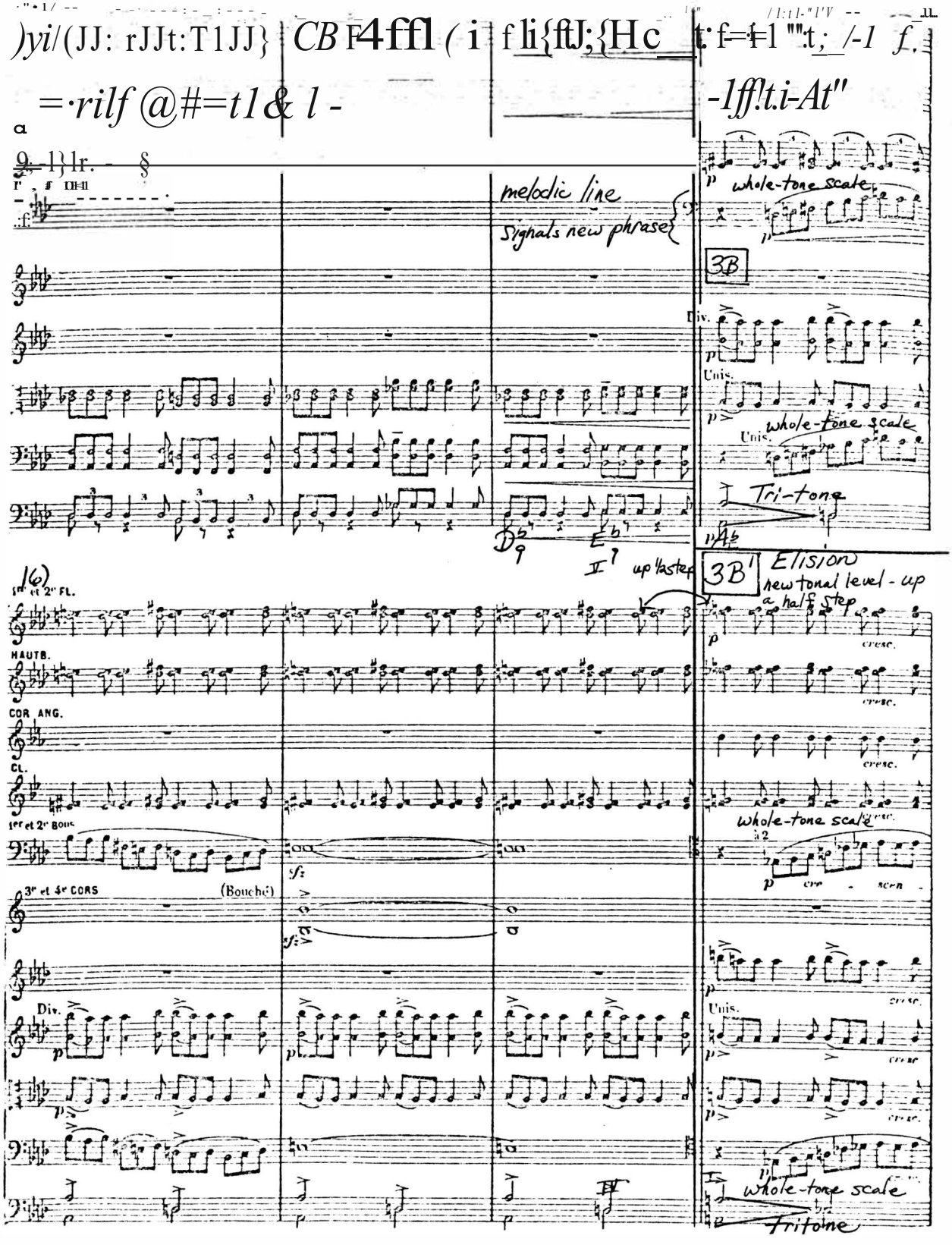

2
10)
p
12)
p
p
p
p
aid expectation
chromatic conclusion
ascending line
Retenu
slowing tempo
2B
Tempo
Quasi-
Elision
14)
whole-tone pattern
poco cresc.
p
più p
melodic/rhythmic
motive (of 2A)
slight pause!
rhythmic break
A
6/4
ostinato pattern helps
preserve the 'A' tonality
16)
p
più p
":.I==== -
p
18)
lower notes = diminished scale pattern
mf
mf
p
whole-tone pattern

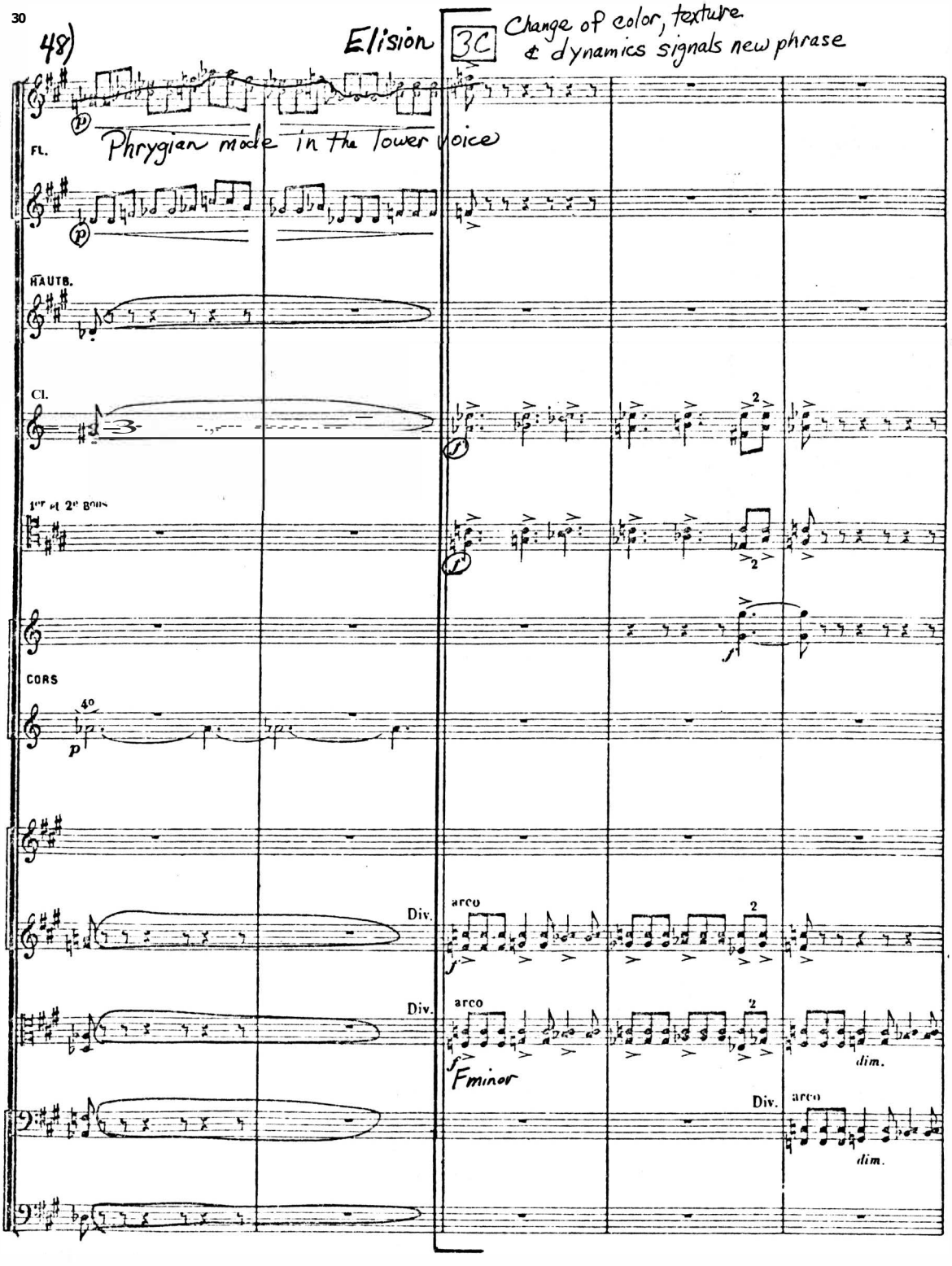

5
56)
8
tr
tr#
f
f
60)
8
harmonic treatment or figuration
f
Rit.
Pause
Quasi-
Elision
2C
main (2A) motive melodic treatment
64)
p
p
ostinato figure - provides static quality
and stabilizes tonality
Quasi-
Elision
2D
shift in texture, tempo
& melodic content
slight
pause
67)
Un précédé. Molto rubato
upper notes = diminished pattern
p
p
p ondoyant et expressif
5
5
68)
5
5

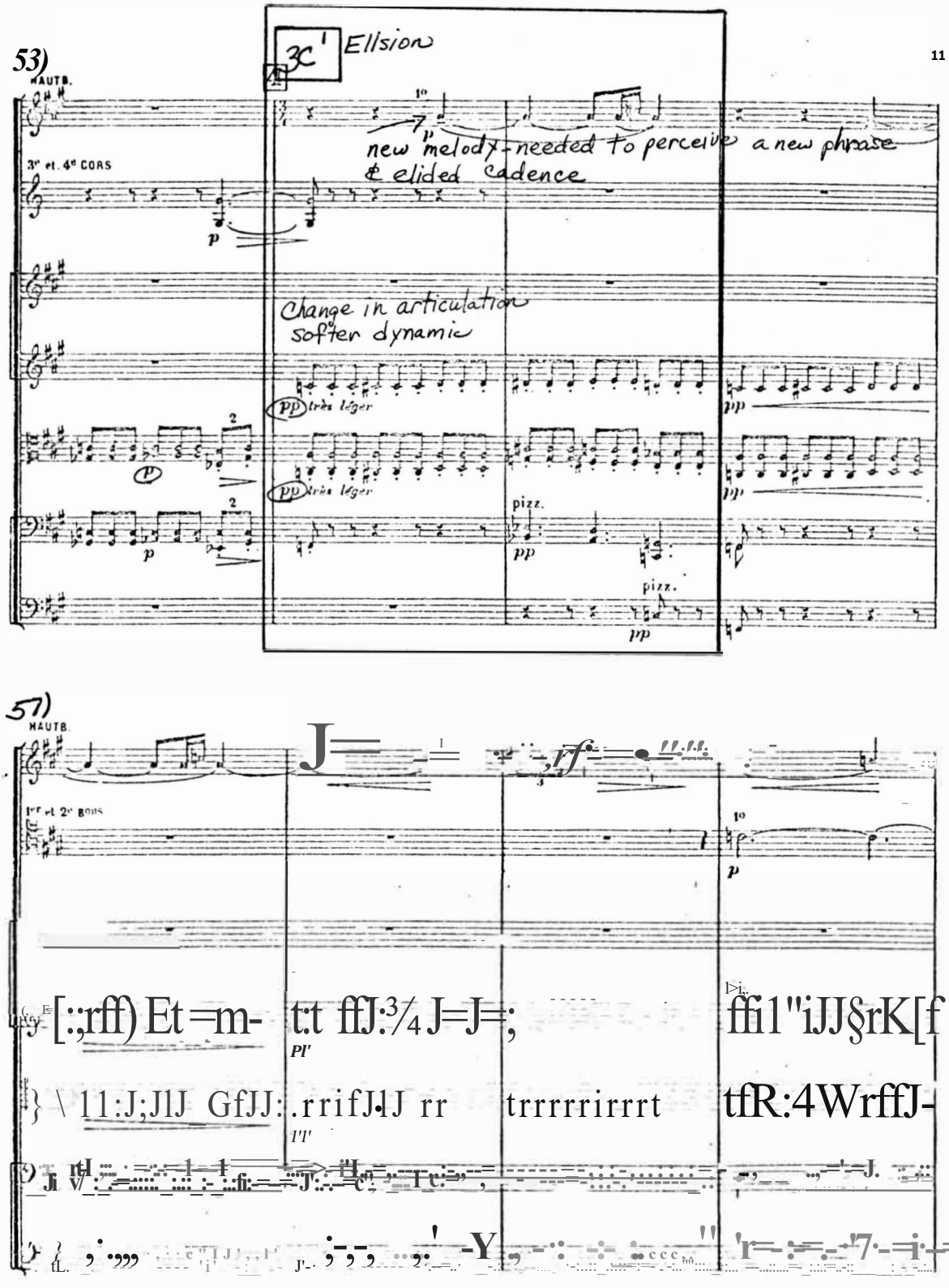

236)
più ff
ff
ff
Beginning of 2E cadence
Tempo: très animé jusqu'à la fin.
242)
main motive
ff
whole-tone pattern
246)
ff
ff
Mixolydian
249)
G-
♭VII
Lydian color
8
7-octave range
2E
Abrupt, percussive cadence
252)
Tremolos - coloristic approach
fff
Tritone adds harmonic color
reduced texture
8va bassa
I
(A major + D#)
tritone
I - A

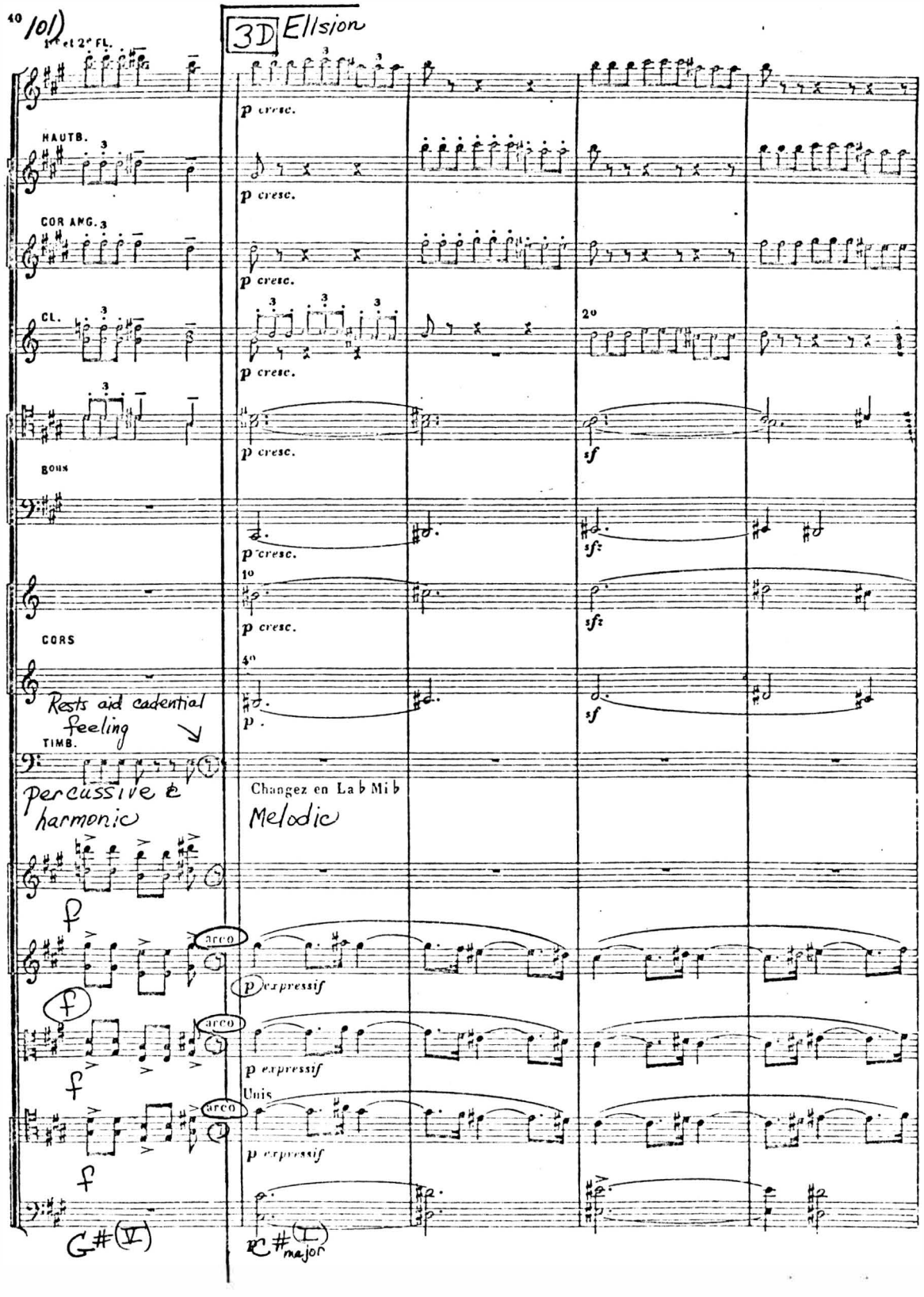
"Fetes" from Nocturnes - Claude Debussy. Kalmus edition - duplicated by permission by Belwin Mills Publishing Corp.

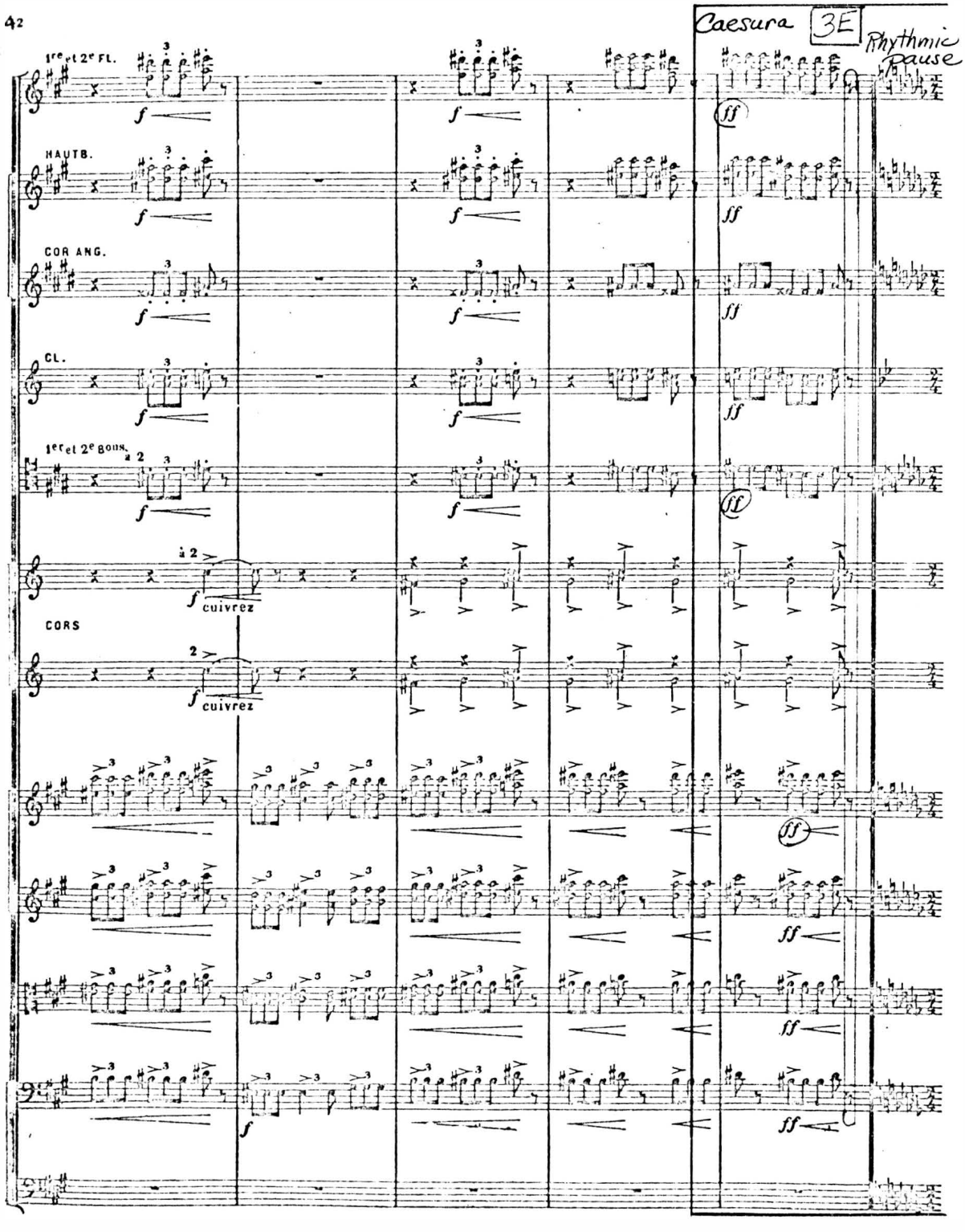

Elision
3A
Shift in color, texture & dynamics signals new phrase
21
MIUTS,
COR ANG.
CL
CORS
melod/c..,eo/o..
Slj1Jcds
/lew fftra..s
meas(.{f'es ear/,'er
ru)E!is1012.

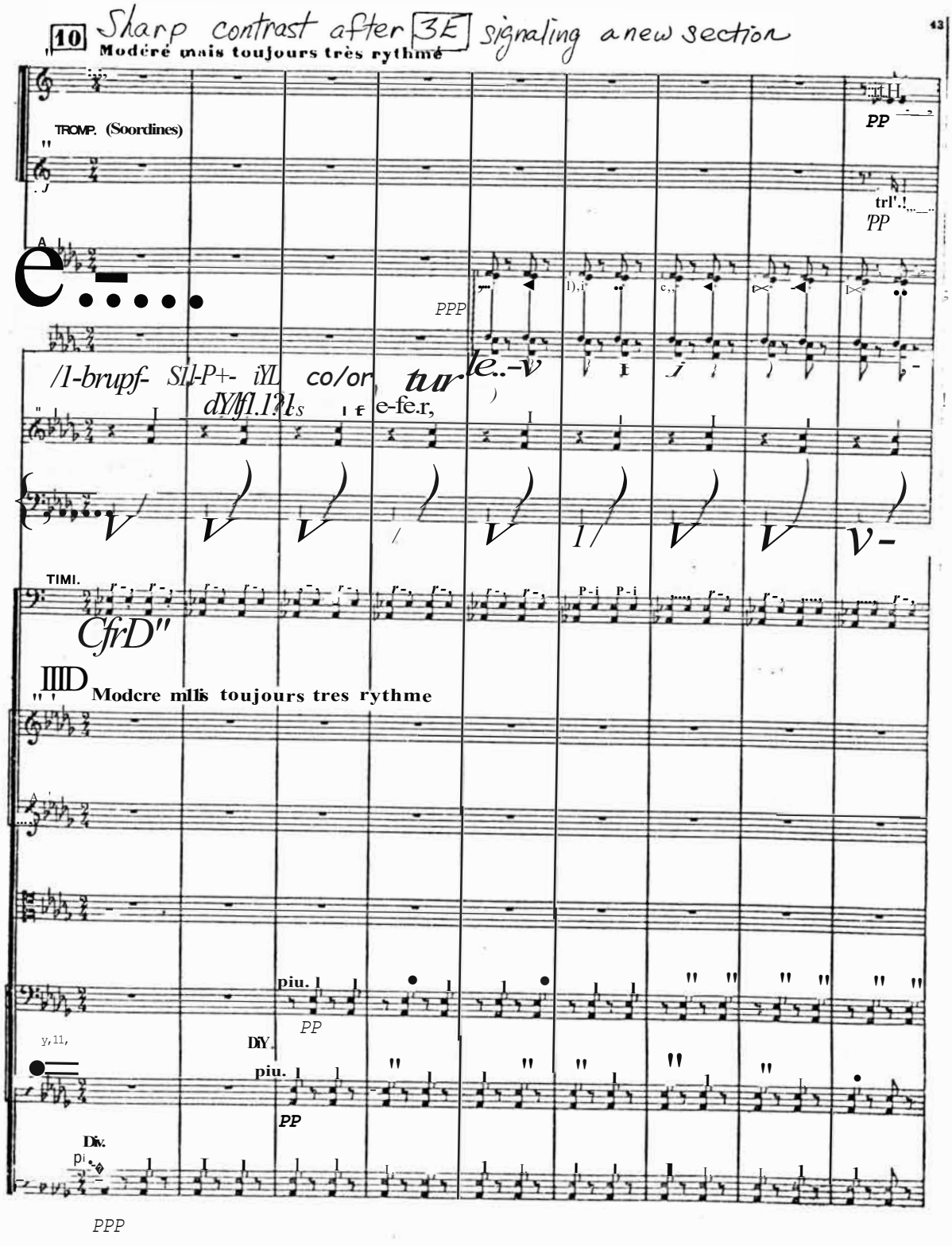

melodic line
signals new phrase
3B
whole-tone scale
Tri-tone
3B'
Elision
new tonal level - up a half step
up ½ step
(Bouché)
Div.
Unis.
cresc.
Tritone

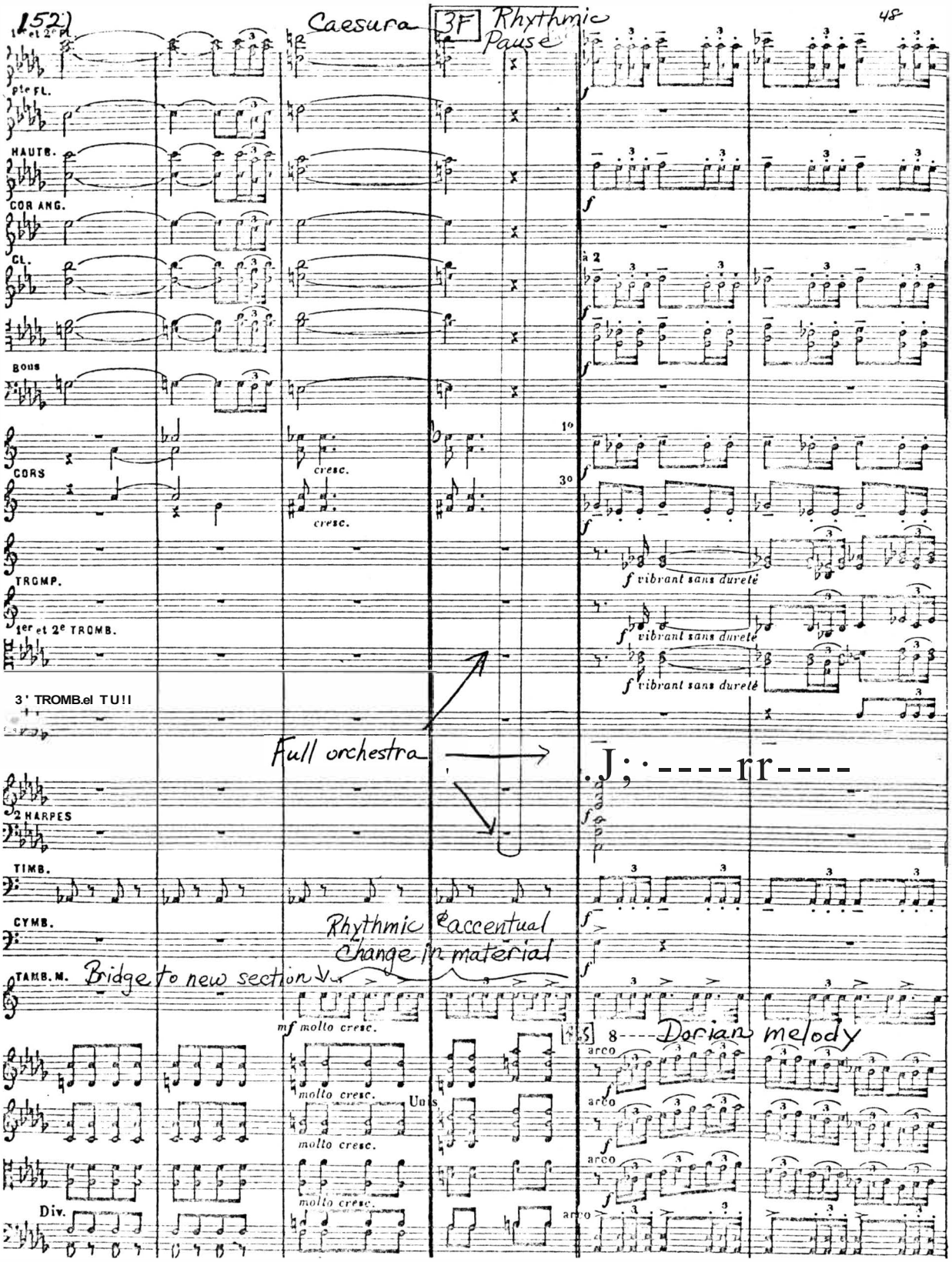

30
48)
Elision
3C
Change of color, texture & dynamics signals new phrase
FL.
Phrygian mode in the lower voice
HAUTB.
Cl.
CORS
Div.
arco
Fminor
dim.

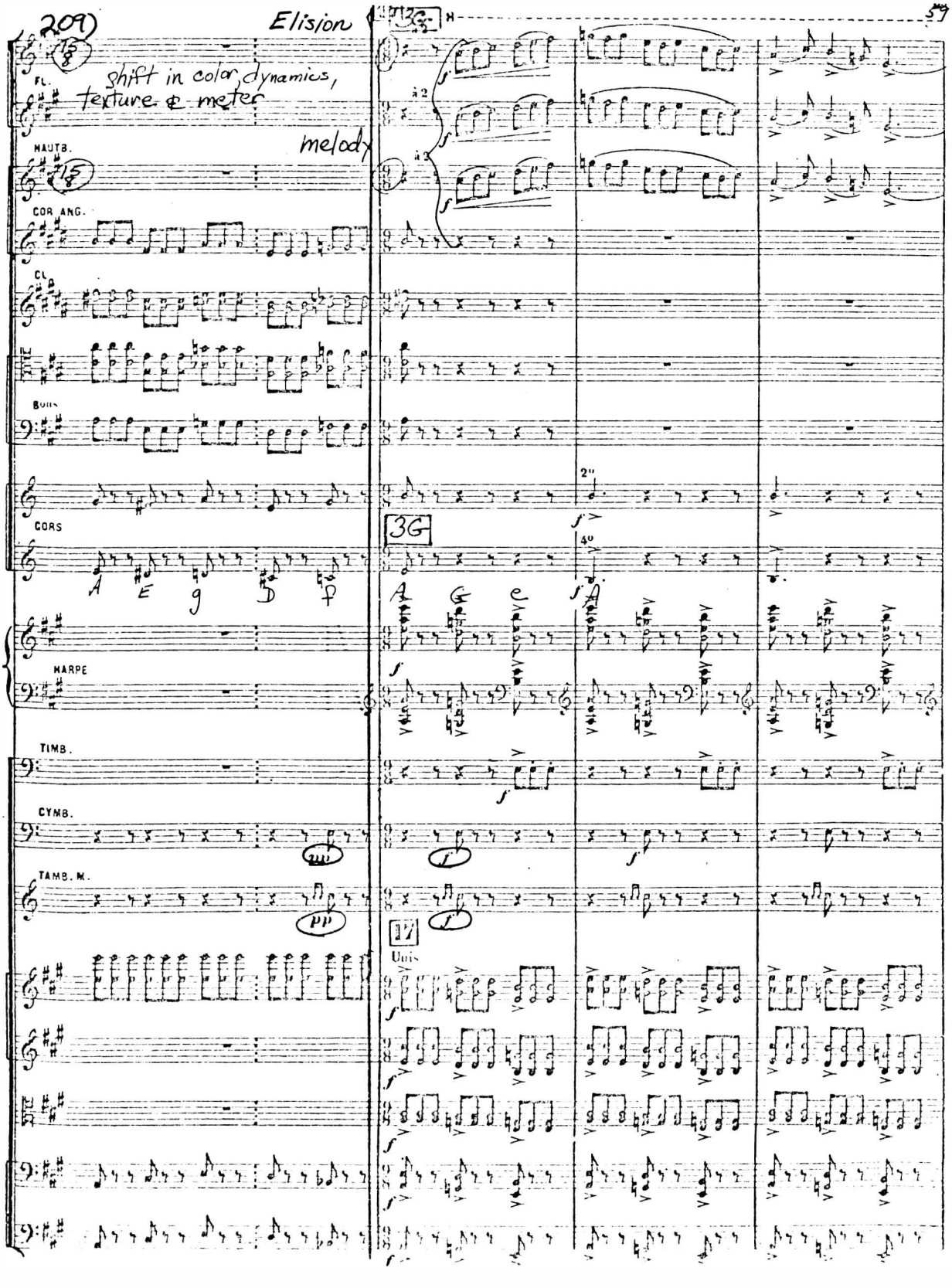

53)
3C'
Elision
11
HAUTB.
3e et 4e CORS
new melody needed to perceive a new phrase
& elided cadence
Change in articulation
softer dynamic
pp très léger
pizz.
57)
HAUTB.
1er et 2e BSNS
rff
p

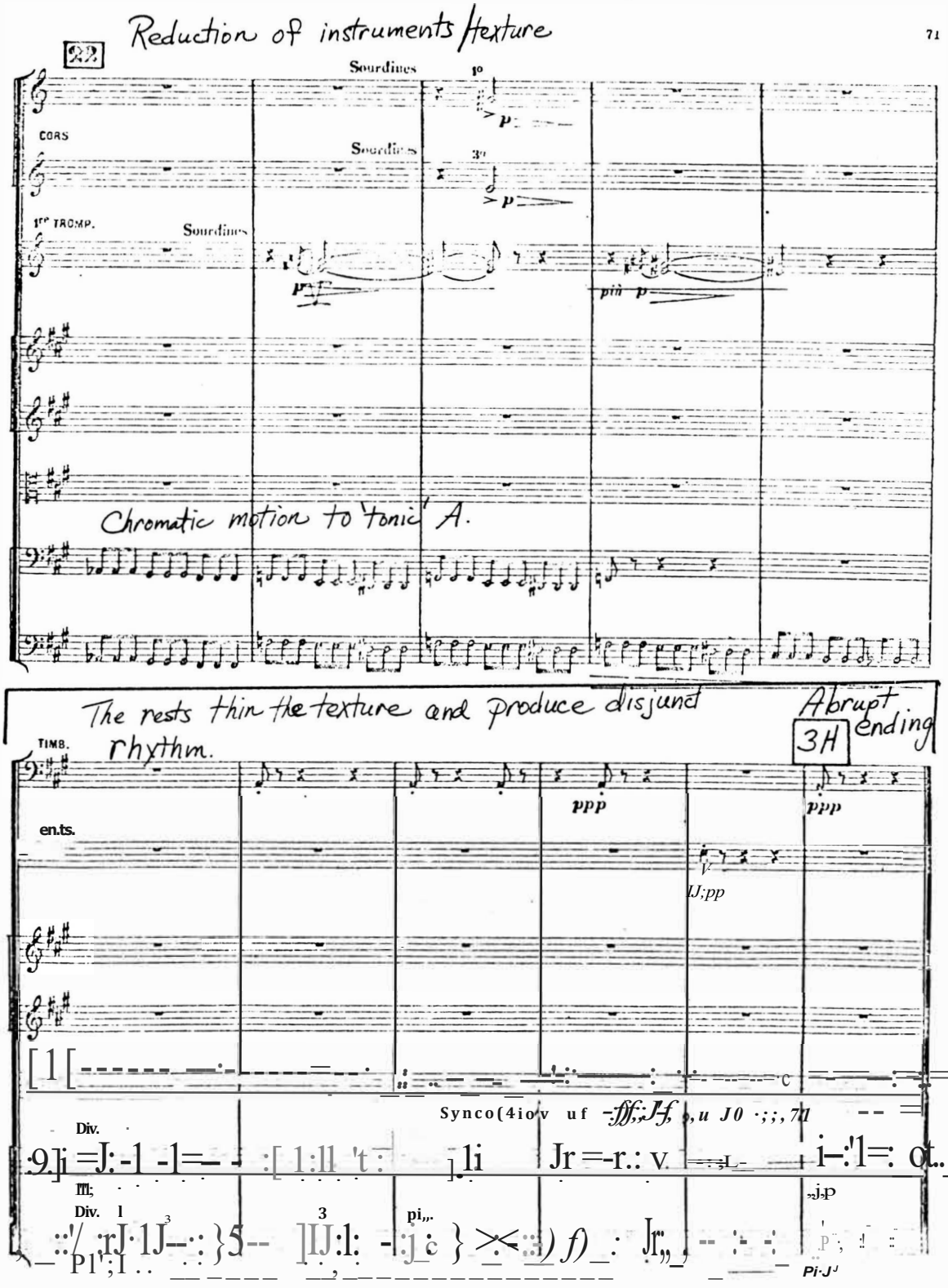

40 101)
1re et 2e FL.
3D Ellsion
p cresc.
HAUTB.
COR ANG.
CL.
2o
sf
BOUS
sf:
1o
CORS
4o
Rests aid cadential feeling
TIMB.
Percussive & harmonic
Changez en La b Mi b
Melodic
arco
p expressif
Unis
G#(V)
C# major


42
Caesura 3E
Rhythmic Pause
1re et 2e FL.
HAUTB.
COR ANG.
CL.
1er et 2e BONS.
à 2
CORS
cuivrez
cuivrez


10 Sharp contrast after 3E signaling a new section
Modéré mais toujours très rythmé
TROMP. (Soordines)
PP
PPP
TIMI.
CfrD"
IIID
Modcre mllis toujours tres rythme
piu.
PP
Div.
PPP


152
Caesura
3F
Rhythmic Pause
48
1er et 2e Fl.
pte FL.
HAUTB.
COR ANG.
CL.
Bous
CORS
TROMP.
1er et 2e TROMB.
3e TROMB.et TUBA
2 HARPES
TIMB.
CYMB.
TAMB.M.
cresc.
cresc.
f vibrant sans dureté
f vibrant sans dureté
f vibrant sans dureté
Full orchestra
Rhythmic accentual Change in material
Bridge to new section
mf molto cresc.
molto cresc.
molto cresc.
molto cresc.
Unis
Div.
8---Dorian melody
arco
arco
arco
arco


209
Elision
shift in color, dynamics, texture & meter
melody
FL.
HAUTB.
COR ANG.
CL
BASS
CORS
HARPE
TIMB.
CYMB.
TAMB. M.
Unis


Reduction of instruments/texture
22
71
Sourdines
CORS
Sourdines
1er TROMP.
Sourdines
Chromatic motion to 'tonic' A.
The rests thin the texture and produce disjunct rhythm.
Abrupt ending
3H
TIMB.
en.ts.
Synco(4io/v uf
Div.
Div.

Summary

To summarize the cadential devices used by Debussy, one would have to list elision as the chief technique. Cadences by elision are accomplished by driving rhythms which overlap and flow smoothly into the rhythm of the new phrase. The majority of his cadences studied are elided. Tempo change, including ritardando, accelerando, and pauses, are gnificant as are dynamic, texture and color shifts. His use of parallelism of chord progressions and use of whole-tone and diminished scale patterns obscures and at times destroys a feeling of tonality. While Debussy uses parallelism, whole-tone and diminished scale patterns to obscure tonality in works, he also uses pedal points (with foreign tones above) to indicate a section's basic tonality; therefore, it is apparent that tonality is not completely absent from his music. As Samson states in his dissertation, Music in Transition (New tonal languages), "...the predominantly dissonant textures ...are stabilized, moreover, by the extended pedal points which form an independent harmonic resource in Debussy's music ...and by tonally centered melodic lines which often remain to some extent independent of their harmonic support, resulting in quasi-bitonal effects."[4]

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[4]Samson, Jim. Music in Transition-A study of tonal expansion and atonality, 1900-1920 (New York: W.W. Norton & Company, Inc., 1977), p. 39.

In the subsequent chapters this technique of focusing and refocusing upon a tone, to establish a center executed through the use of pedal points and melodic line movement (often repeating tones of central importance), will prove to be a major technique of all of the composers, to a greater or lesser extent. Debussy laid the foundation of harmonic and rhythmic freedom upon which succeeding composers have expanded. Stravinsky credits Debussy as being one of the main proponents of an emancipated twentieth-century musical language. William Austin quotes a passage from Stravinsky's "Memories" (a diary entry). Austin writes that in 1959 Stravinsky's "summary judgment was: 'The musicians of my generation and I myself own the most to Debussy'".[5]

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[5] William Austin, Music in the 20th Century (from Debussy to Stravinsky) New York: W.W. Norton & Company, Inc., c. 1966 p. 249.

Chart of Cadential Techniques of Debussy
(Total cadences = 18)

				Significant Influences			
Elision	Abrupt Percussive Cessation	Rhythmic Pause	Agogic Accent	Dynamic Accent	Texture Accent	Rit./Acc. Tempo Change	Melodic Line
1A	1C	3E	1A	1A	1A	1A	2B
1B	2E	3F	1B	1B	20	1B	(7%)
2A*	3H	(13%)	(13%)	1C	3A	2B	
2B*	(20%)			3A	3C	20	
2C*				3C	3C[1]	(27%)	
20*				3C[1]	30		
3A				30	(40%)		
38				(47%)			
3B[1]							
3C							
3C[1]							
30							
3G							

(67%) *quasi-elision

Chart of Cadential Techniques of Debussy (Cont.)

Modal Color	Harmonic Progression	Ultimate Cadence Sonority= Triadic Structure
2E lydian	2A (V-I)	18-0# f 5
2E mixolydian	2E (^{b}VII-I)	1C-F +6t (D)
3C phrygian	3B (V_9-I)	2A-A
3F dorian (22%)	3B[1] (IV-I-quasi-plagal + added tones)	2B Aij
	3D (V-I)	2C A
	3H (V-I)	2D A
	(33%)	2E A
		3A-o^{b} 9
		3B-A^{b}
		3C-f
		3D-C#
		3G-A
		3H-A
		(72%)

CHARLES IVES (1874-1954)

Introduction

The music of Charles Ives, in many ways, reaches the epitomy of diversity, complexity, and innovation in twentieth-century composition. Terms such as heterophony (some might prefer 'cacophony' as more appropriate), planar (layars of sound), tone clusters, polytonality, atonality, polymeter, polytempi, polyrhythm, and proto-aleatory are often used to describe specific aspects of his music. The concept behind Ives' music - his personal, Transcendental philosophy - is probably the single most significant aspect of understanding his music, or at least understanding his purpose in composing as he did. Many of his works are simple and quite traditional in every respect; yet many works of the 1920's were so progressive that they waited forty years or more to be performed due to technical performance difficulties. Ives enjoyed quoting hymn tunes, patriotic songs, Stephen Foster songs and he often used several familiar tunes in their own key simultaneously. An excellent description of Ives' complex style is given by Henry and Sidney Cowell in their book, Charles Ives and His Music.

> One of the typical Ives' styles that is partly polyphonic, partly harmonic, is that in which he weaves a fabric with many different note-values at the same time, each part sustaining its own line. While the voices are quite separate, they are often also figurations of chord fragments, and the total, while polyphonic in general, forms an involved harmonic-web and is in itself a sort of super-figuration .... Often in such

> a sound-web there is a main melody (sometimes a quotation), and the rest of the web is in the nature of an accompaniment. So it is evident that even when Ives' voices seem most independent, the melodies are bound together by a strong harmonic feeling, rather than being deliberately separated so as to be heard contrapuntally.[1]

Analysis of Ives' music often seems impossible. Cadences are often elusive due to the dense layering of sound and the juxtaposed polytonalities, polymeters, polytempi and polyrhythms. Elision is a chief cadential technique and is applied in many sections of his musical scores. Most of his music studied for analysis (the Second Piano Sonata and the Fourth Symphony), has a continuous rhythmic drive and sense of on-goingness which defies cadential analysis. Many phrases are elided, though not often smoothly elided as they are in the works of Debussy. Instead, the abrupt end of one phrase is placed back-to-back with the new phrase with no or very little cessation of motion between to indicate a cadence. The term "cutting" shall be borrowed from Elliot Carter, twentieth-century composer and teacher, to describe this technique of back-to-back juxtaposition of ideas. "Carter used the term 'cutting' to describe the sectionalization of many modern works which are constructed of blocks or sections of varying material placed back-to-back with no rhythmic cessation between these sections."[2] This

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[1] Henry Cowell and Sidney Cowell, Charles Ives and His Music (New York: Oxford University Press, 1955), p. 55.

[2] Robert Ricci, the 'cutting' technique was explained to me by my main advisor, Dr. Robert Ricci, as told to him by Elliot Carter in a class on 20th century techniques at Yale University, 1965.

term is applied on a smaller scale - to phrases rather than large sections, although some of these phrase ends using the cutting technique may divide the music into sections. Examples of this 'cutting' technique will be examined later. Where there are definite cadences in Ives' music, that is, a feeling of some kind of cessation, there are often unresolved dissonances ... "he was not restrained by any need for resolving dissonances."[3] While studying the musical examples, it is helpful to keep in mind two things: 1) the performance of a work by different performers; and 2) Ives' philosophy of individual freedom. Different performers will have different interpretations with varying inflections and nuances. One performer may add a ritard here and there which would aurally give the listener a feeling of momentary cessation, while another artist may not interpret the same material in the same way. In analyzing Ives' scores, basically just the visual aspects of cadences and/or phrase ends, as indicated in the scores, will be evidence of cadences. To conclude, concerning Ives' philosophy of individual freedom, it is his belief that every diverse aspect of life co-existing simultaneously adds up to a harmonious whole. Mr. Hitchcock writes in Music In the United States:

> He seemed to view musical texture sometimes as a microcosm in which the co-existence of disparate elements does not threaten disorder anymore than say, in a forest the

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[3] loc. cit., page 156.

> co-existence of different trees, rocks, mosses, flowers, animals and insects threatens disorder ...[4]

To Ives, music is an expression of life itself and is not always immediately clear, and certainly not predictable.

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[4]H. Wiley Hitchcock, Music in the United States (Engelwood Cliffs, New Jersey: Prentice-Hall, Inc., c. 1974), p. 152.

Piano Sonata No. 2

The Second Piano Sonata of Ives, written between 1909-1915, was rewritten between 1940-1947 and was subtitled, "Concord, Mass., 1840-1860". The four movements of the sonata, "Emerson", "Hawthorne", "The Alcotts", and "Thoreau" are so named to represent programmatically the personalities of these famous transcendentalists who lived in Concord, Massachusetts during the mid-nineteenth century.

The "Emerson" movement uses two contrasting styles and motifs, as described by Mr. Cowell.[5] The main and unifying motif of the entire sonata, the "Beethoven" motif of three repeated notes and a drop of a 3rd, is seen at Ex. [[]] in the bass ($C^{\sharp}$-$C^{\sharp}$-$C^{\sharp}$-$A^{\sharp}$). A somewhat lyric, conjunct motif begins the movement, sounding it in contrasting motion between the bass and treble parts. There is contrast between basically polyphonic material, which incorporates the "Beethoven" motif, and melodic-harmonic, lyric material. This movement is very chromatic, very dissonant, and complex rhythmically and harmonically. The chromaticism and use of many augmented and diminished intervals and chords with seconds contribute to the atonal effect. At DJ the nine-voiced sonority (C in bass, G major plus G^{b}_{7} chords), is stressed and acts as a climactic point for the previous material, yet it is not heard as a cadence due to the

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[5] loc. cit., p. 190-200.

on-goingness of the following chords. The "Beethoven" motive is recognized at DK] and a semi-cadence is discernable here due to the long-tied notes in the treble, slowing of the tempo, the crescendo and then the immediate diminuendo and melodic quality beginning with the treble $G^{\#}$. This change in mood, following DK] lasts only momentarily; then the forte agitated rhythms ensue, becoming louder, faster and more syncopated. The first actual cadence of weight is heard at II[]. A syncopated sequence of chromatic chords (octaves and a 6th - both hands, the 4th - 5th staves) build up to the high G at II[] which drops a 7th to begin an extension of three and a half beats. The extension elides into the new melodic-lyric idea of a simpler rhythm and soft dynamic level. It is apparent that Ives did not use many barlines and when he did use them, it had little significance for the cadences. Lack of barlines and meters frees the music and frees the performer in Ives' belief, yet it adds to the complexity and makes it a difficult task for the performer to read the rhythms and feel the accents. What Mr. Cowell says about this lack of metrical organization, of barlines and time signatures is that "Ives leaves out the metrical signature, and he has either no bar lines at all or else he sets them irregularly where he wishes the impression of a first beat. This is a prose concept of rhythm; it is also related to the idea that different stresses may be given by

different performers, all of them right."[6] Example DI] through [TI] illustrate Ives' main cadential technique - that of elision. One section or phrase often glides smoothly into the next. The distinguishing features pinpointing a new section are: 1) change in melodic, harmonic, and/or rhythmic figuration; 2) change in dynamics; 3) change in tempo, and 4) change in texture, or a combination of these elements. At DI] a pronounced melodic line is heard indicated as a 'solo', accompanied by a quasi-ostinato bass and basically secundal chords above. At [I0 the new figure of the repeated chord figure ("Beethoven" motive in top voice, $G^{\#}$-$G^{\#}$-$G^{\#}$-E) becomes significant and acts as a transition to the next phrase, beginning at I]]] in elision. A new texture, rhythmic figure, dynamic level and tempo is noticed. A shift in emphasis from the upper staff figure of [J]J to the lower staff syncopated figure of DI] occurs as DI] begins as an elision. The phrase of DI] illustrates the use of heterogeneous rhythms and harmonies, which Ives often employs. Both right hand and left hand parts can be heard as separate lines (contrapuntally), though the left hand is pronounced. [TI] begins a new phrase in elision. A contrasting bitonal and more homophonic section begins at the 'slowly and quietly' - the phrase preceding []]]. Here the clearly delineated and melodic line is independent of the harmonic background. The diatonic melody at first appears to be in C major,

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[6] loc. cit., p. 172.

but aurally it sounds dorian even though the phrase end at [J]J terminates on step seven (C) of the dorian made. The left hand accompaniment is rather chromatic and does not hint of any certain tonal center. This bitonal section, semi-cadencing at [J]J and , is comparatively consonant and the rhythms are simple. A semi-cadence (semi-cadences are those cadences with considerably less weight than full cadences) is heard at with lydian color added by the use of $c^{\#}$ and $G^{\#}$ at the phrase end. The texture thickens as the rhythm becomes more complex and tempo increases, building up to the percussive, poly chords approaching [IE]. The final chord (B major in the bass and E minor in the treble) is a staccato eighth-note value and so ends the phrase abruptly and in a homogeneous rhythm. The following quarter rest aids perception of a cadence at O]]. Mm.47-60 show semi-cadences effected by: 1) a brief rest at the phrase end; 2) a longer note value in the melodic line (top staff) and 3) the sounding of the tonal center (C) in the highest and lowest voice on the cadence sonority. The measures marked 47-66 are strongly rooted in C - the pedal point on C asserts the tonal center. This rather chromatic section (Mm.47-66) finds harmonic release or rest at the semi-cadences because of the clear C carlence sonorities and the tonal support given by the sounding of C in the bass on the ultimate cadence chord. A11 of the cadences from DJ] through ITJ:J employ the 'tonic' and sound C in the highest and lowest voice, for the

most part. o::E] is the only cadence that does not use C in the highest voice, but the pure C triad at . preceded by clear triadic structures of C major, gives this cadence added tonal weight. The progression of . 1-V-iii-IV -1, is the most traditional cadential rendering in this sonata (with the possible exception of QQI) and it produces the effect of a plagal cadence (IV -1). The voice-leading is untraditional, though, and is disjunct with the IV to I jumping down an octave, blurring the plagal quality a bit. It has been assigned a semi-cadence quality because of the repetition of very similar material immediately following (not shown). The immediate repetition of an idea almost always gives the preceding phrase a semi-cadence ending. If an idea is repeated, the first playing of the idea will not have the final effect or full cadence effect that the final playing of the idea will have. At M.59, []]], is an elided semi-cadence which begins with the same melody of M.47. ITI:J, M.60, sounds like the end of that idea, with an extension following to the plagal cadence at o:::;EJ. The C pedal point shifts to an F pedal point at M.63, thus sounding like a quasi-plagal cadence. The descending treble line, the ritard and diminuendo and the placement of the half-note C and bass Con beat one, M.66, provide a strong cadential feeling. What happens in M.66 after beat one is an extension. It is interesting that Ives, whose music is so dissonant sounding, uses tonal centers, at times, asserted by pedal points and by the

repeating of the central tone at phrase ends. This repetition of the tonal focus, C, between Mm.47-66 provides a very strong harmonic cadential influence within this basically chromatic texture. One might expect that a focus upon one tone, as done here, example ITI]-[1EJ- foreshadov,s the tonal implications of following cadences. A strong C major ultimate chord is used for the final cadence of the "Alcotts" movement (QQ]) and the work as a whole does seem to be 'C' oriented, or at least, it incorporates many C major chords (see examples \4Al-fil] - final musical example). At M.114, the simpler, contrasting homophonic style appears. The cadence at [J!J is aided by l) the ritard; 2) dimimiendo; 3) the high D descending to C, then A; 4) the thinning texture and 5) augmented rhythms (from eighth notes to quarter notes). The next example shows Ives' use of complex rhythms and dense sonorities. The cadence at [ill is approached by a quintuplet, septuplet and sextuplet, accelerated run in the treble, followed by an augmenting of the rhythm and broader tempo in M.116. The climactic, dense secundal chord structure at [ill serves as an arrival point. It is the densest chord in this movement and is played sforzando. Its l) high range; 2) density; 3) dynamic level and 4) agogic and syncopated accent qualify it as a cadence chord, even though there is no pause before the next phrase. On the final page of the "Emerson" movement, Mm.124-137, the cadences are clear. At I]]] the cadence is elided. The new

phrase, beginning at D:ffi, incorporates new color - that of the viola - and a slower tempo. The slow, chromatic ostinato-like bass continues to the obvious cadence at O]]. The fermata and rest indicate a caesura. The melody of the new phrase, M.129, is a repetition of M.126, though accompanied and played differently. The "Beethoven" motive is reiterated constantly to the end. A type of half, semi-cadence is heard at [IQ]. The A major to E major chords sound like 1-V. The E to A octaves in the bass, from M. 131 over the bar to M. 132, strengthens the 1-V feeling. The half-note value of the A and E major chords give it agogic weight. The final cadence is at [TI] with the run up to the high F naturals dropping a 3rd to D. The sonority is basically $F^{\#}$ major with the added minor 6th, the D. Ives' predilection for dissonant cadences is evident at [TI] with an $F^{\#}$ major sonority in the bass and the F augmented sonority (upper note of cluster $A^{\#}$ and $c^{\#}$ plus the motivic F 9 above) four octaves higher. The wide spacing of the diminished octaves, $F^{\#}$-F and $A^{\#}$-Ao/, lessens the dissonance, though this dissonance contributes to an emphasis on the "Beethoven" motive, it being non-harmonic with the lower sonority [TI] has agogic, textural, and range accent with a pause following. Mm.134-137 function as an extension reiterating the main four-note motive in the bass, each time getting softer. At the end, Mm.136-137, the main motive is sounded in the lowest voices (A-A-A-F1). As a majority of the cadences in 'Emerson' were elided, so they are in

the other three movements. Only a few cadences from the other movements will be discussed due to the repetitiousness of techniques.

In 'Hawthorne[1], the shift in melodic, harmonic, and-or rhythmic figurations is evident from one phrase or section to the next. [1A] illustrates this shift to a new figuration using the technique of elision. It is often difficult to aurally perceive cadences in much of Ives' music because of its forward-driving nature. One idea seems to grow out of another spontaneously. Such is the case at . The repetitive bass and treble patterns are apparent. It is the new rhythm in the treble staff which signals a new phrase. The elided cadence at [1fil is struck sforzando and a new disjunct left hand figure (the octave jumps) is a change from the more chromatic and conjunct previous material. The figuration again changes in both hands at ; is another cadence by elision. This static bridge or transitional passage ends in elision at [IQ] where at coloristic passage of glissando figures occurs. This phrase ends in elision at@, which begins another static pattern. The elided cadence at ITI] is given greater stress through 1) approach by ascent to high A, then descending a third (the range being significant); 2) use of ritard and diminuendo, and 3) a more sustained bass sonority. The slower tempo and softer dynamic level and new melodic line just after ITI] indicates a new phrase. At 11§] the melody line

ends on a tied E9whole note and a new harmonic figure appears after it. This new harmonic element is the coloristic technique used in the upper staff - that of holding down all the black keys within a two-octave plus a 2nd interval. To do this, a board is used that can depress the keys while not striking them. These clusters are to be held down so that the symphathetic vibrations will sound when the notes of the lower two staves are played. In the recording studied, the performer actually played these clusters softly; it produced a unique ethereal effect and was, in the early twentieth century, a very avant garde procedure. [g!!] is a cadence of 1) extreme range; 2) dense, dissonant texture (the secundal tone cluster spanning two octaves and a major second); 3) agogic accent; 4) extreme dynamic accent (sforzando); and 5) accelerando. The 22-note tone cluster, beginning with the lowest D up three octaves and a 5th, is the thickest structure used in the sonata. The breath marks after it coupled with the reduced dynamics, tempo, texture, and descending range indicate a new phrase. At fm a cadence is heard because of a definite pause. The dissonant cadence chord at [bJ is sounded quickly, but serves as the terminating chord for that phrase. Immediately following 12JI the texture is greatly reduced and a new rhythmic and intervallic figure begins after the rapid two-octave scale run. The last page of the 'Hawthorne' movement exemplifies the complex rhythmic and harmonic writing Ives is noted for. Even though the

texture does not appear terribly dense, it is aurally perceived as an ambiguous, dense sound mass due to the dissonances, complex rhythms and use of the sustaining pedal. Both and are extremely abrupt cadences. is so abrupt that the term 'caesura' seems inappropriate. Rather than a breathing point, it is an abrupt breaking-off of one idea followed by a contrasting idea. The triple piano chordal "Beethoven" motive following comes as a surprise - thiere is no preparation for it and it is an extreme contrast from the previous material. The final cadence at IIIJ is approached by a rapidly ascending, triple forte whole tone scale ending on a twelve-note cluster (notes of the scale), and a $C^{\#}$ against C-9octave in the treble on a thirty-second note. "Hawthorne" ends in a frenzy, using the technique of abruptly breaking-off. The thirty-second rest is a visual psychological element.

"The Alcotts" represents the traditional and the simple. This movement is basically consonant and uses many triadic chord structures and simple rhythms. The final page illustrates four cadences. j3AI is an elided cadence on a IV chord, assuming the tonal center is C. The fortissimo subdominant chord adds a 7th and also a 6th, but the basic subdominant sound is preserved. The cadence at Qfil acts as a half cadence on the dominant, G. The 4th, C, and the 6th, an E, are also chord tones, but the bass G octave and the 5th, G and D, strengthens the dominant quality. The preceeding chord, built on D, is a secondary dominant, or the V_7

of G_1 a traditional cadential chord. The cadence at [illegible] receives agogic and dynamic emphasis. The "Beethoven" motive is incorporated into thick triadic (root-position) C chords from ill] almost to the end. QI} is a half cadence on V, again. The unusual aspect of the authentic cadence at QQI is that *the* I chord, C, is preceeded by the mixolydian modal quality of the B^b chord. The B^b chord functions as a dominant going to the tonic. The final, authentic cadence ends softly in a low register following a descending melodic treble line, and a diminuendo and a ritardando.

The final page of the fourth movement, "Thoreau", uses quasi-tonal cadences. /4A/ cadences with the three repeated notes of the "Beethoven" motive and ends the phrase which added the viola color. The viola and piano end the phrase on high D's of the main motive. The eighth rest and pause after the repeated D's also help to denote a cadence. Cadences at [illegible] and sound C major chords, which to this writer's ears, sounds most like the tonal center. The ostinato bass playing A-C-G octaves might look like the minor dominant seventh of D, the final bass pitch, but the C octaves come through so clearly and the C chords ([illegible] and GE]) are agogically strong enough to put the emphasis on a quasi-C major tonality. The C tonality is obliterated in the last line by the use of the many sharps, including $C^{\sharp}$. The bass G octave acts as a subdominant to the final D, although the 7th, $C^{\sharp}$, is heard last in the tenor. The "Beethoven" motive sounds on high repeated

A's, ending on A rather than dropping a 3rd. The chromatic and dissonant sixteenth-note figure in the tenor (8-G$^{\#}$-B^{b}-G), obscures the D tonality along with the tri-tone jump to c$^{\#}$ in the tenor at Gr}. This ambiguity is just what Ives wanted to depict the mystic quality of Thoreau and the other transcendentalists. The final cadence progression, analyzed in D, is basically vTIV-I, felt in the bass, with many non-harmonic tones adding an ambivalent element.

Considering the dissonant nature of the first, second, and fourth movements of this Second Piano Sonata, and their dissonant final cadences, a quote from Henry Cowell 's book seems appropriate.

> At a time when consecutive extreme dissonance [cadence O]] of M.35 of "Emerson"] were unknown Ives used them constantly whenever, in his judgement, they constituted the most powerful harmonic force for his purpose. He had no sense of their being ugly, or undesirable, or in any way unpleasant[6]. ...He was not restrained by any need for resolving dissonances.[7]

As for the frustrations felt by those listening, performing, or analyzing Ives' complex harmonies and rhythms, it is relieving to know that Ives himself believed "that music, like other truths, should never be immediately understood. There must always remain some further element yet to be disclosed."[8]

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[6] loc. cit., p. 155.

[7] loc. cit. , p. 156

[8] loc. cit. , p. 142.

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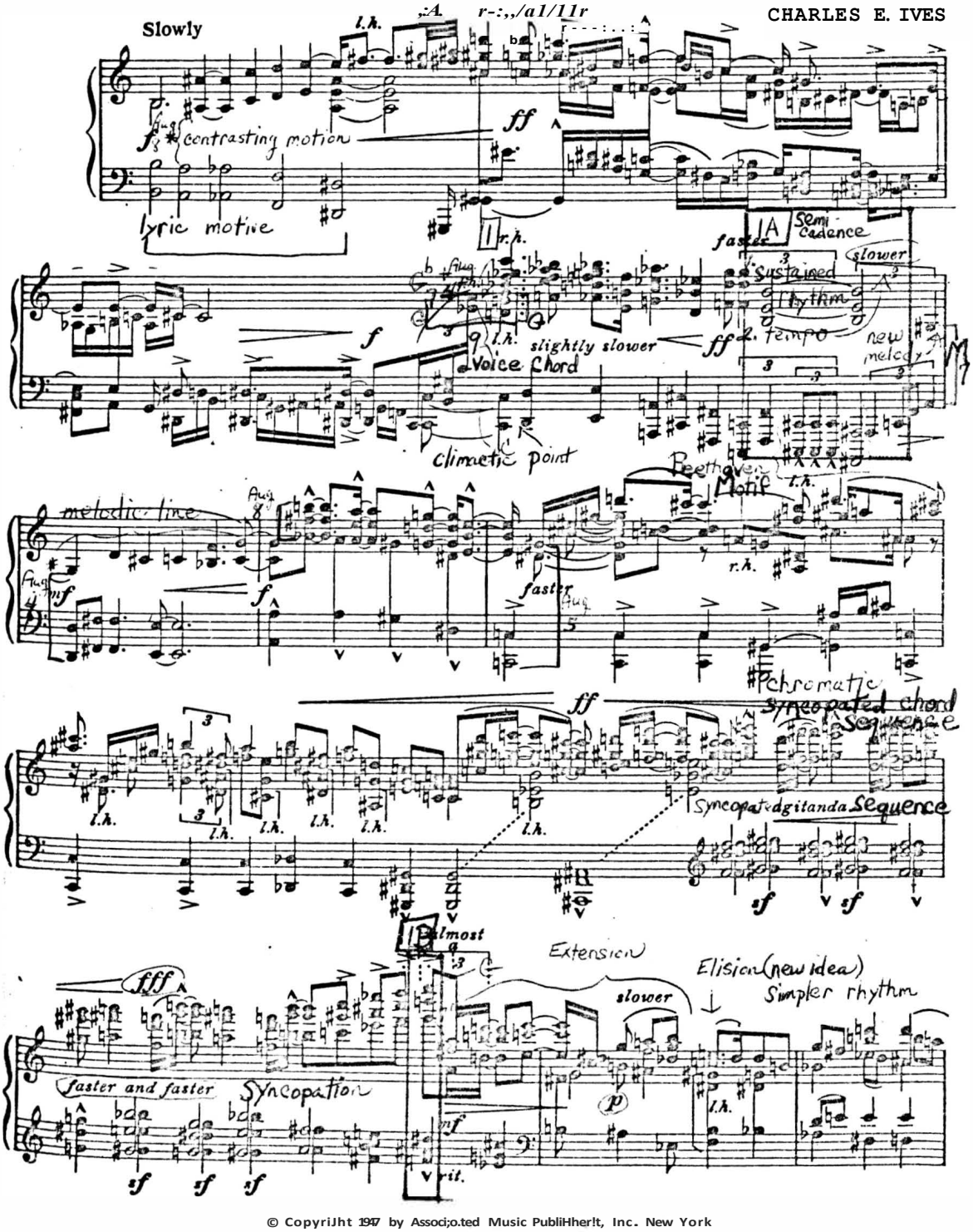
I. "Emerson"



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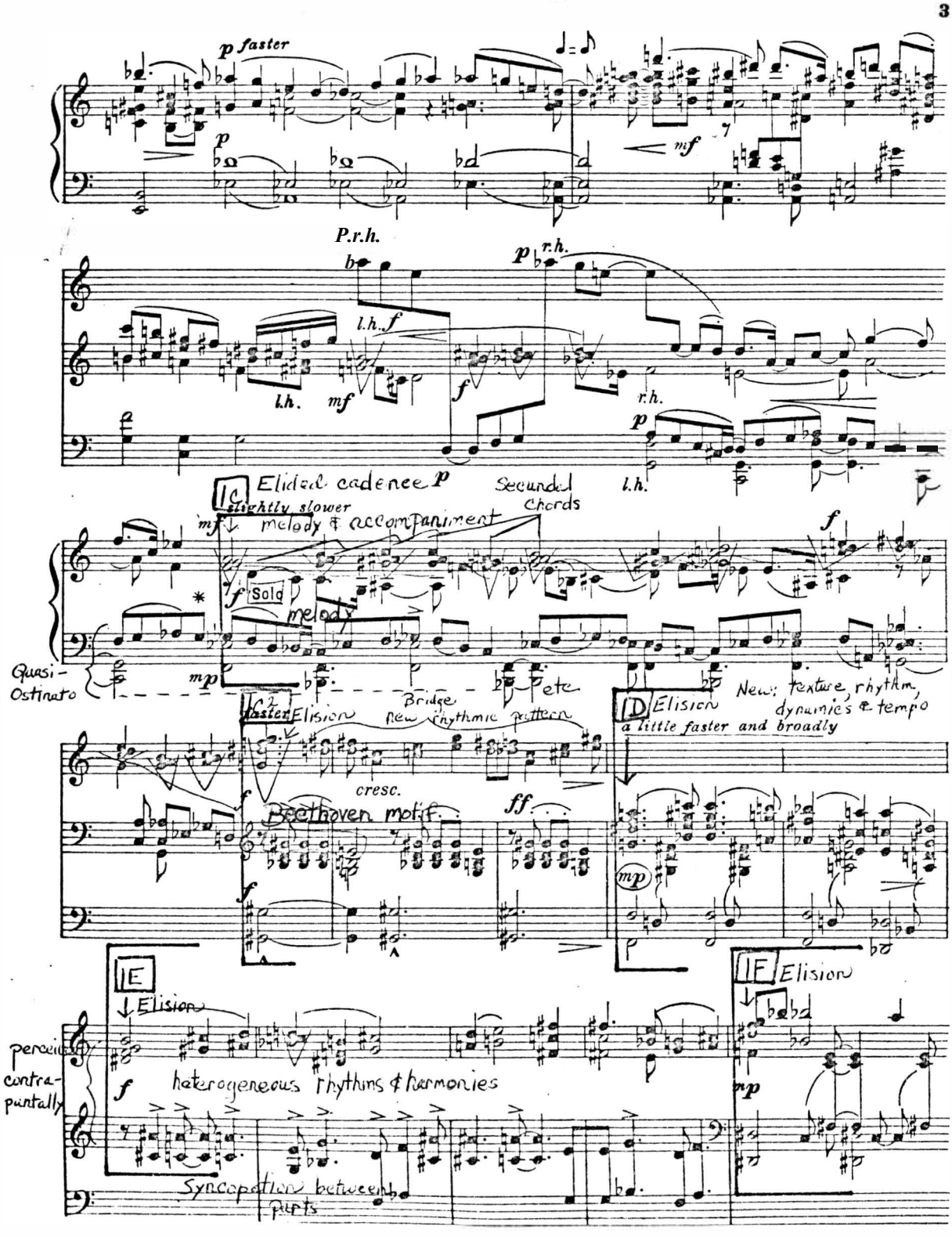
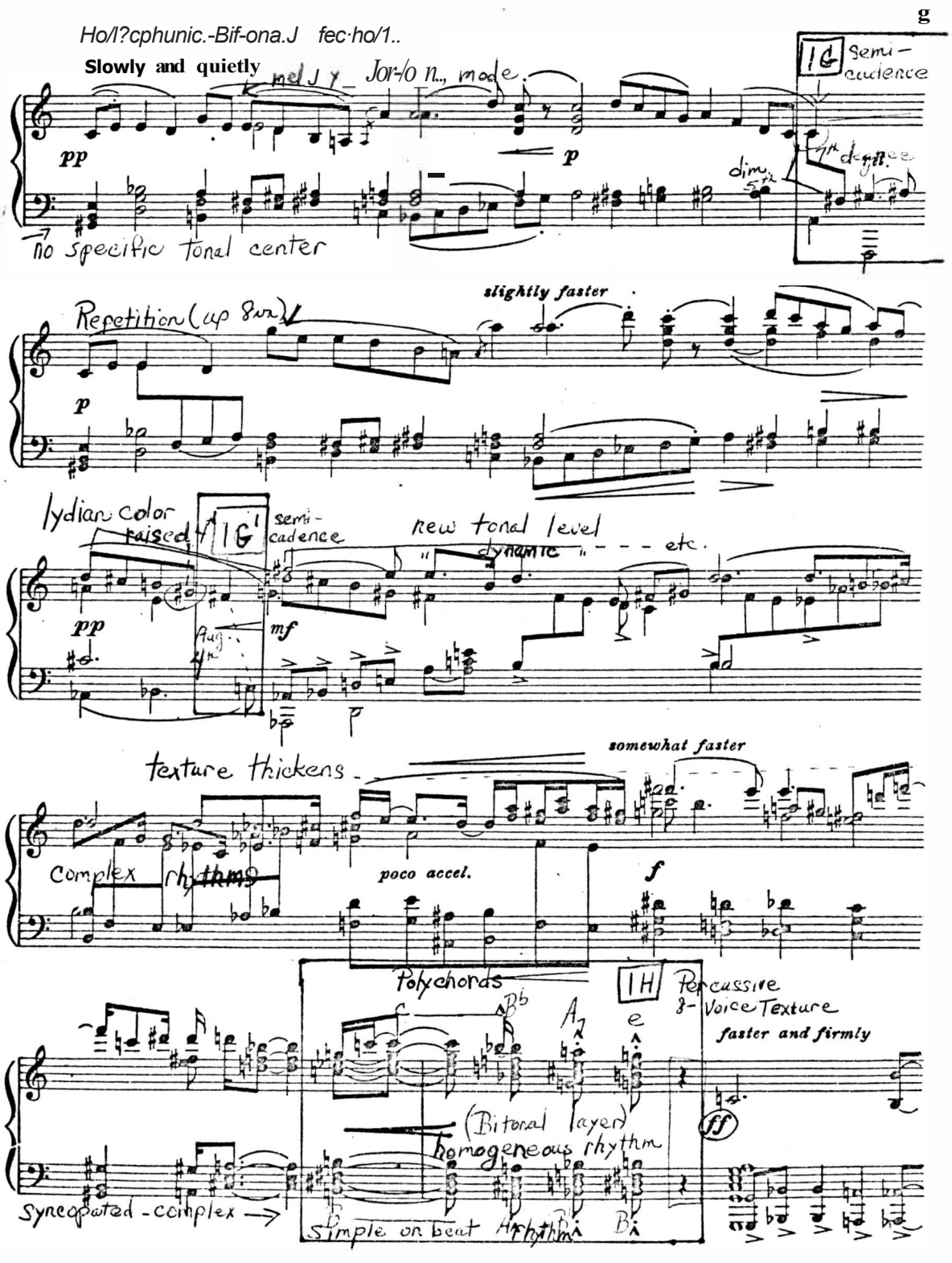
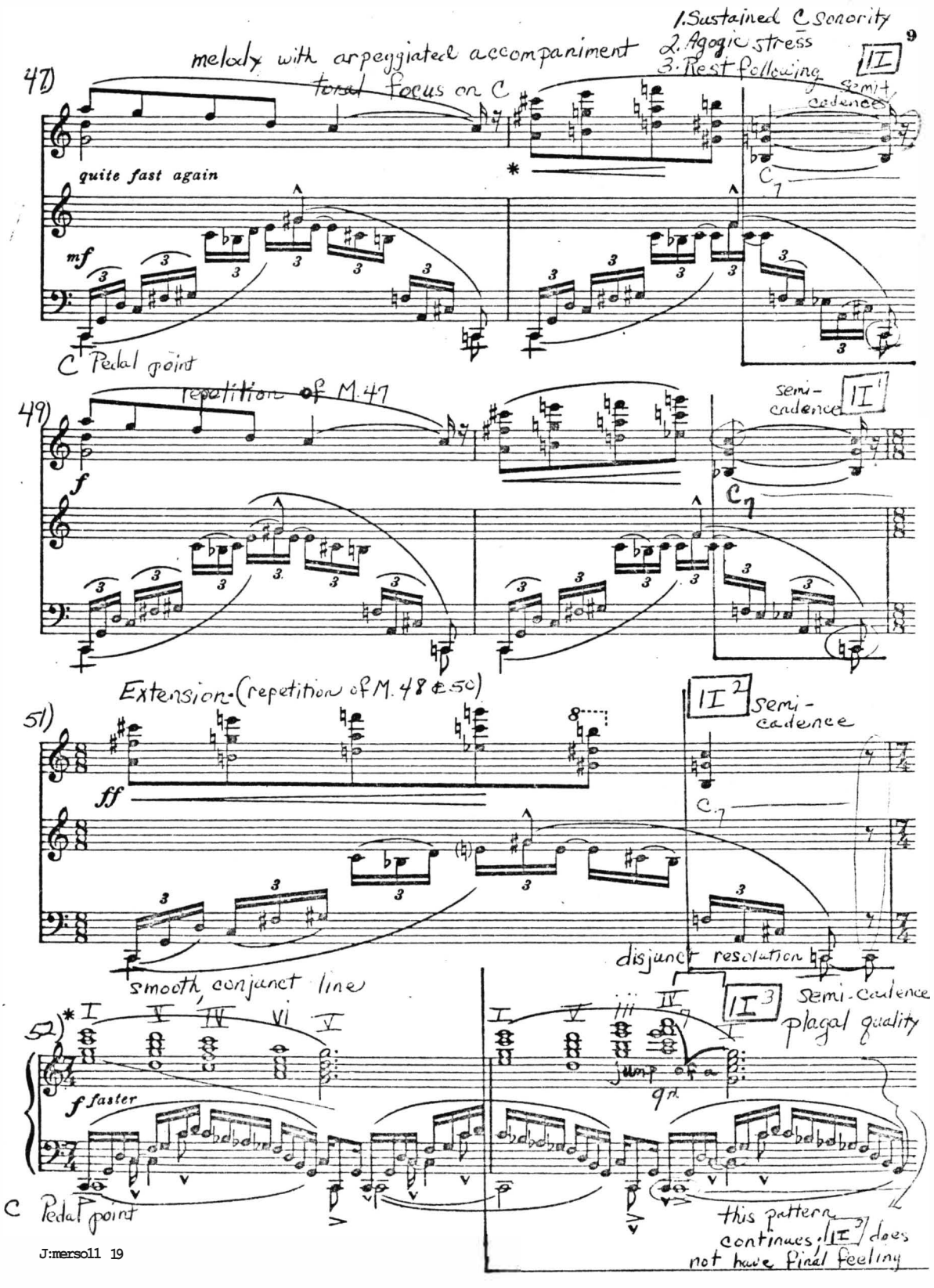
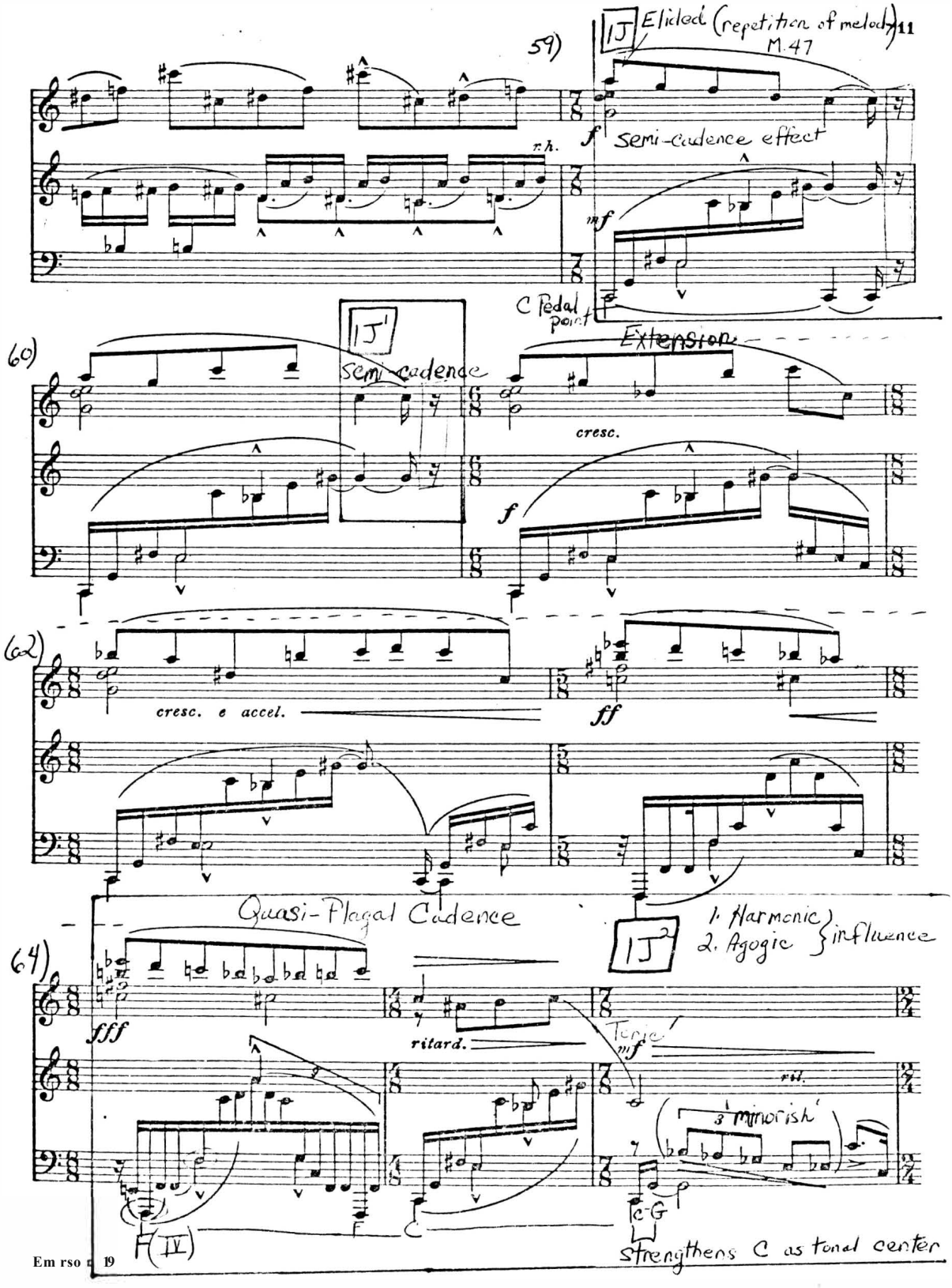
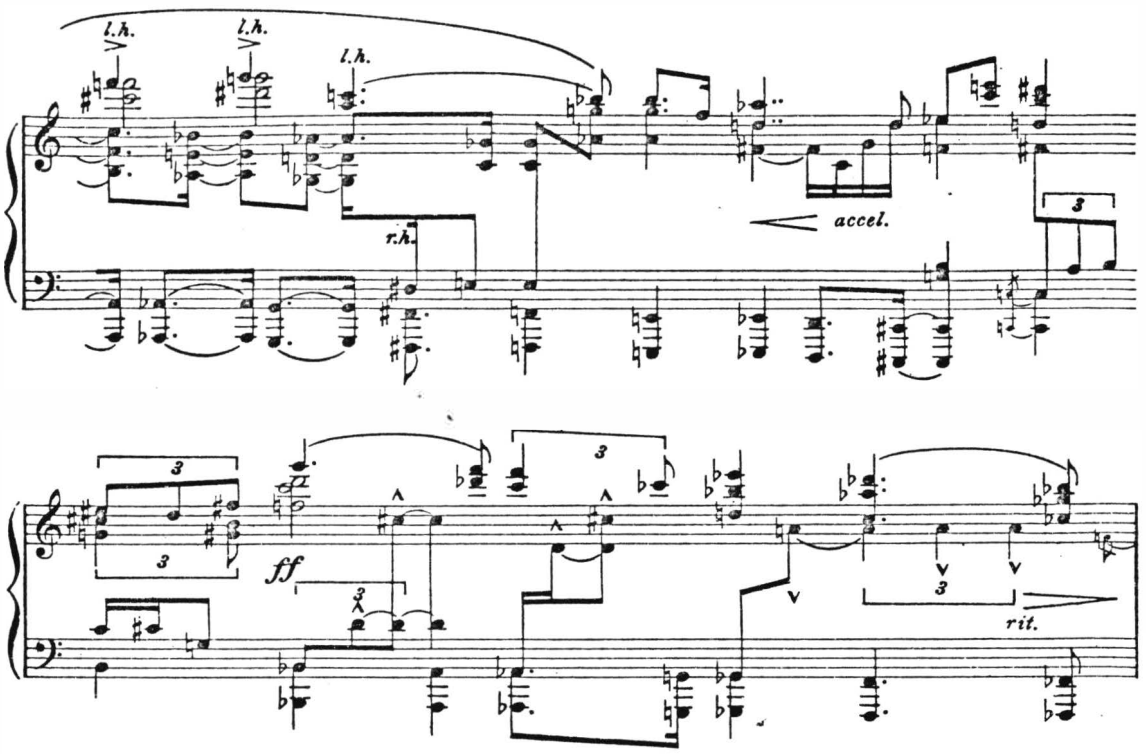

3
p faster
mf
P.r.h.
l.h. f
l.h.
mf
r.h.
Elided cadence
Secundal Chords
slightly slower
melody & accompaniment
Solo
melody
Quasi-Ostinato
Bridge
new rhythmic pattern
Pete
New: texture, rhythm, dynamics & tempo
Elision
a little faster and broadly
cresc.
Beethoven motif
ff
mp
percussive contrapuntally
heterogeneous rhythms & harmonies
Syncopation between parts

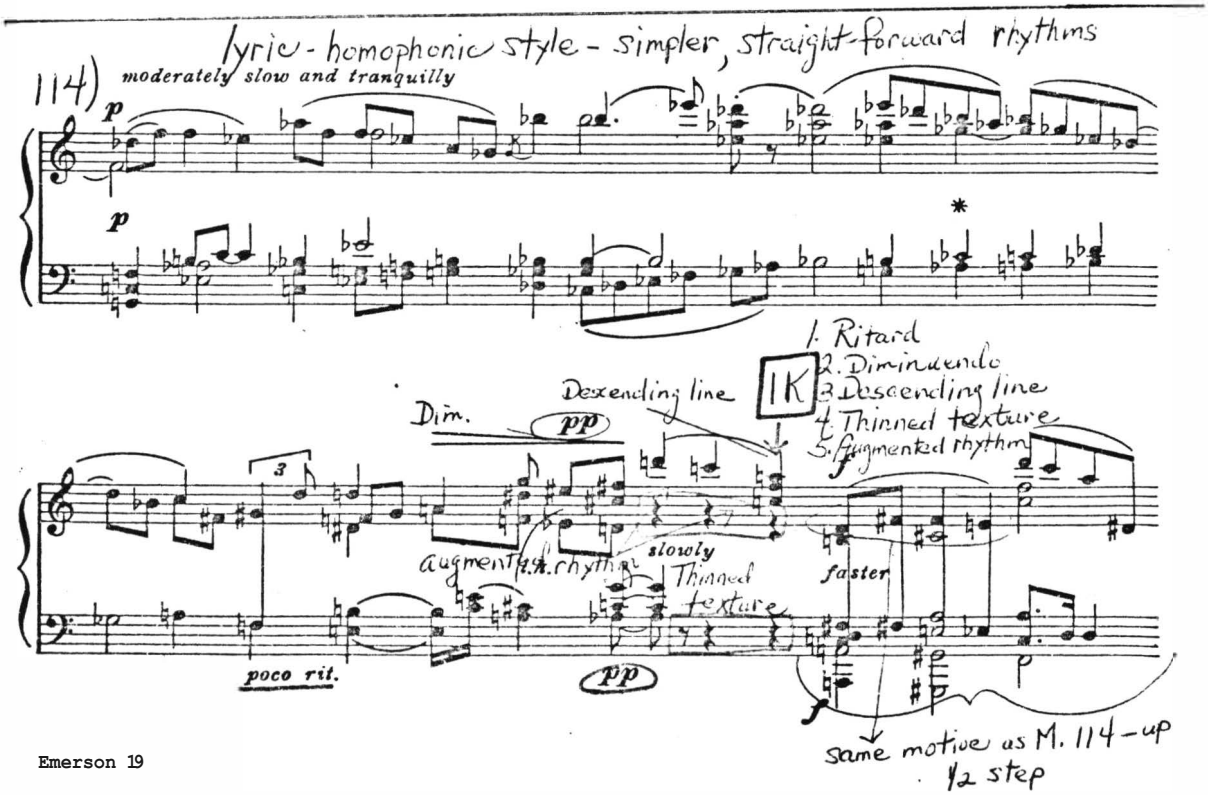

g
Ho/l?cphunic.-Bif-ona.J fec·ho/1..
Slowly and quietly
mel J Y
Jor-/o n.., mode
1G Semi-cadence
pp
p
dim.
No specific tonal center
slightly faster
Repetition (up 8va)
p
lydian color raised #4
1G' semi-cadence
new tonal level
dynamic
etc.
pp
mf
somewhat faster
texture thickens
Complex rhythms
poco accel.
f
Polychords
1H Percussive 8-Voice Texture
faster and firmly
(Bitonal layer)
homogeneous rhythm
ff
Syncopated - complex
simple on beat Rhythm

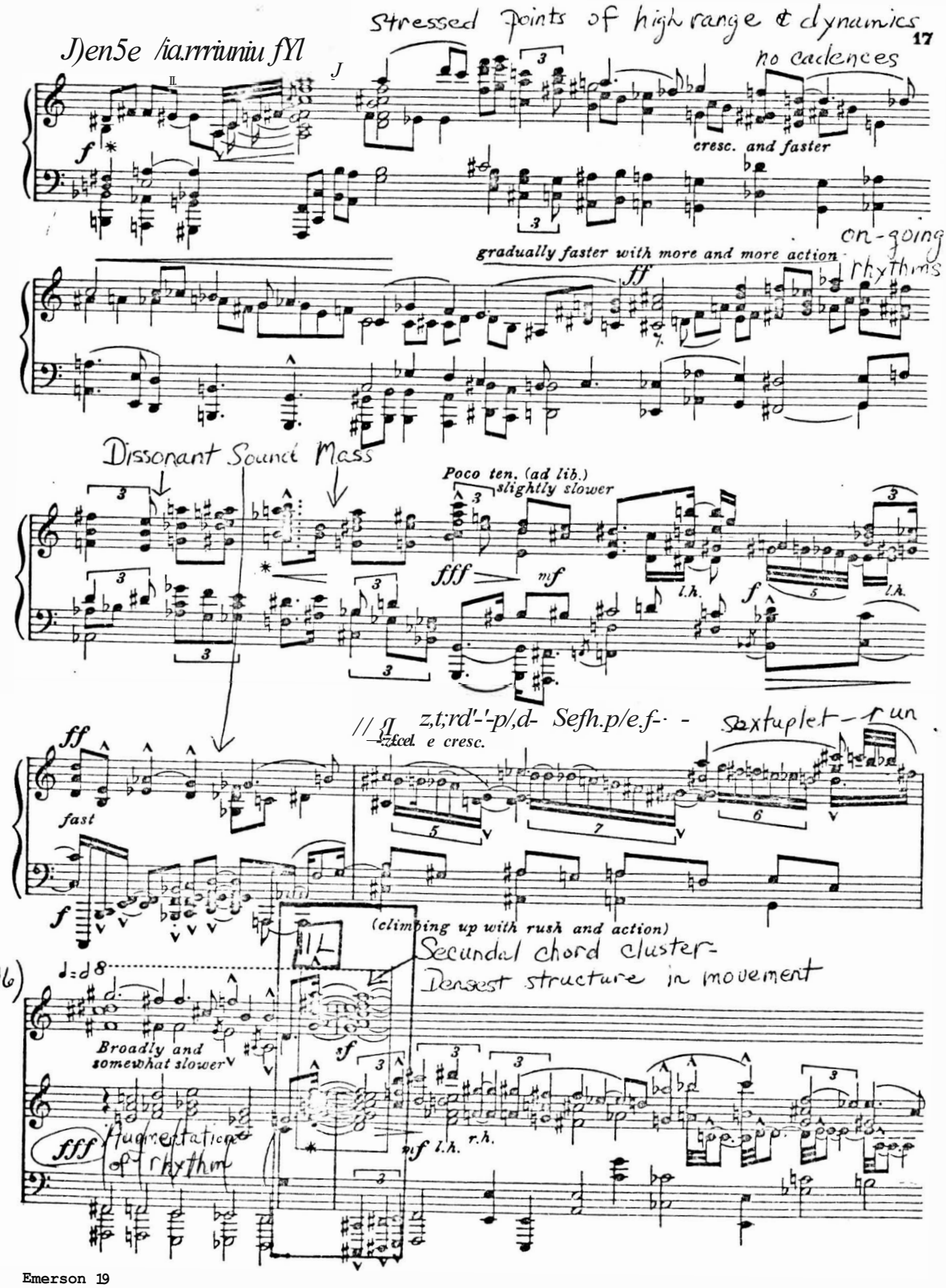

1. Sustained C Sonority
2. Agogic stress
3. Rest following
melody with arpeggiated accompaniment
tonal focus on C
47)
II
semi-cadence
quite fast again
mf
C Pedal point
repetition of M. 47
49)
semi-cadence
II'
f
Extension (repetition of M. 48 & 50)
51)
II²
semi-cadence
ff
disjunct resolution
smooth, conjunct line
II³
semi-cadence
plagal quality
52)
I V IV VI V
f faster
jump of a 9th
I V III IV I
C Pedal point
this pattern continues, II³ does not have final feeling

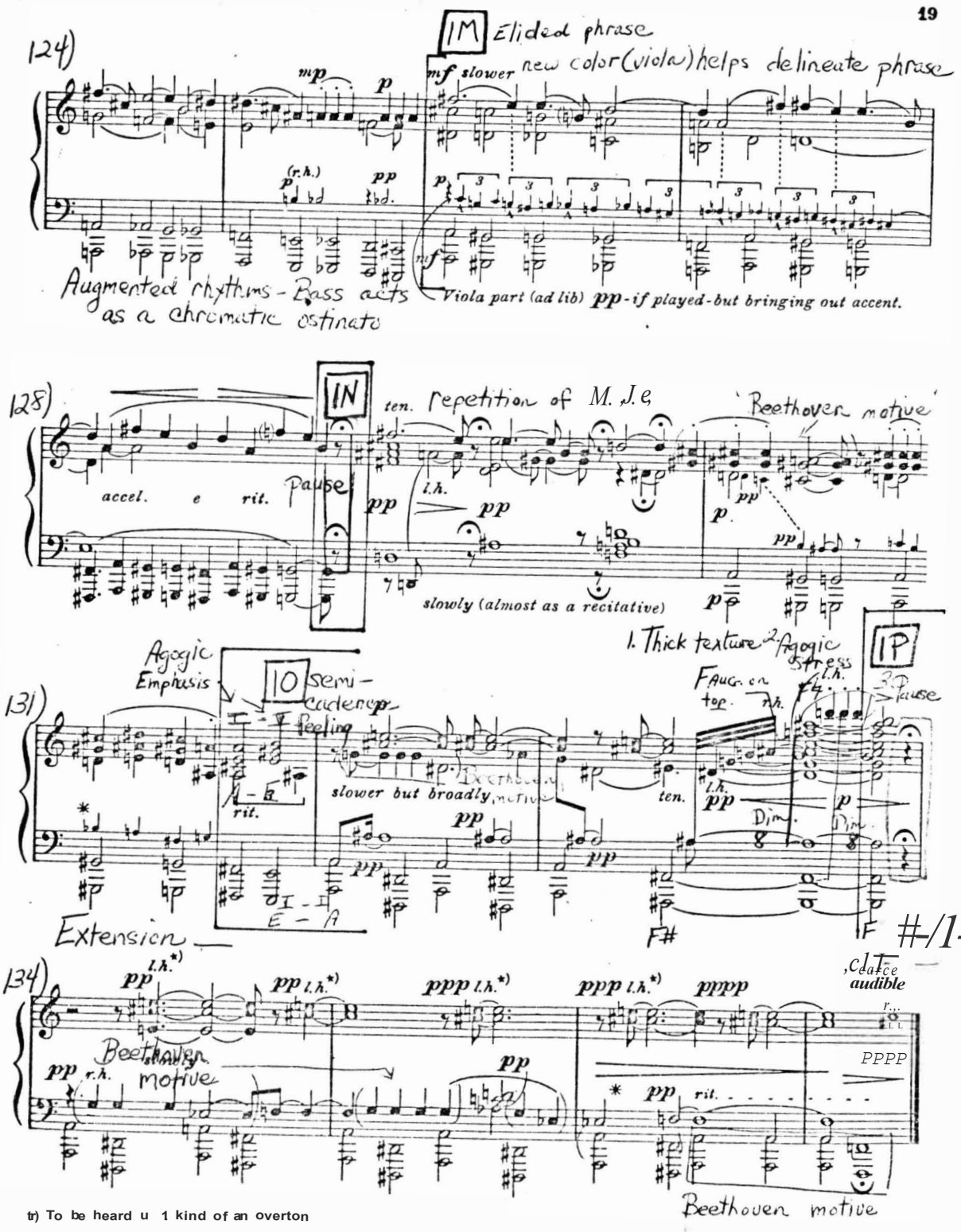

59)
IJ Elided (repetition of melody) 11
M. 47
f
r.h.
semi-cadence effect
mf
C Pedal Point
60)
IJ'
semi-cadence
Extension
cresc.
f
62)
cresc. e accel.
ff
Quasi-Plagal Cadence
IJ²
1. Harmonic
2. Agogic
influence
64)
fff
ritard.
Tempo I
mf
r.h.
3 'mirrorish'
C-G
F
C
H(IV)
strengthens C as tonal center

16

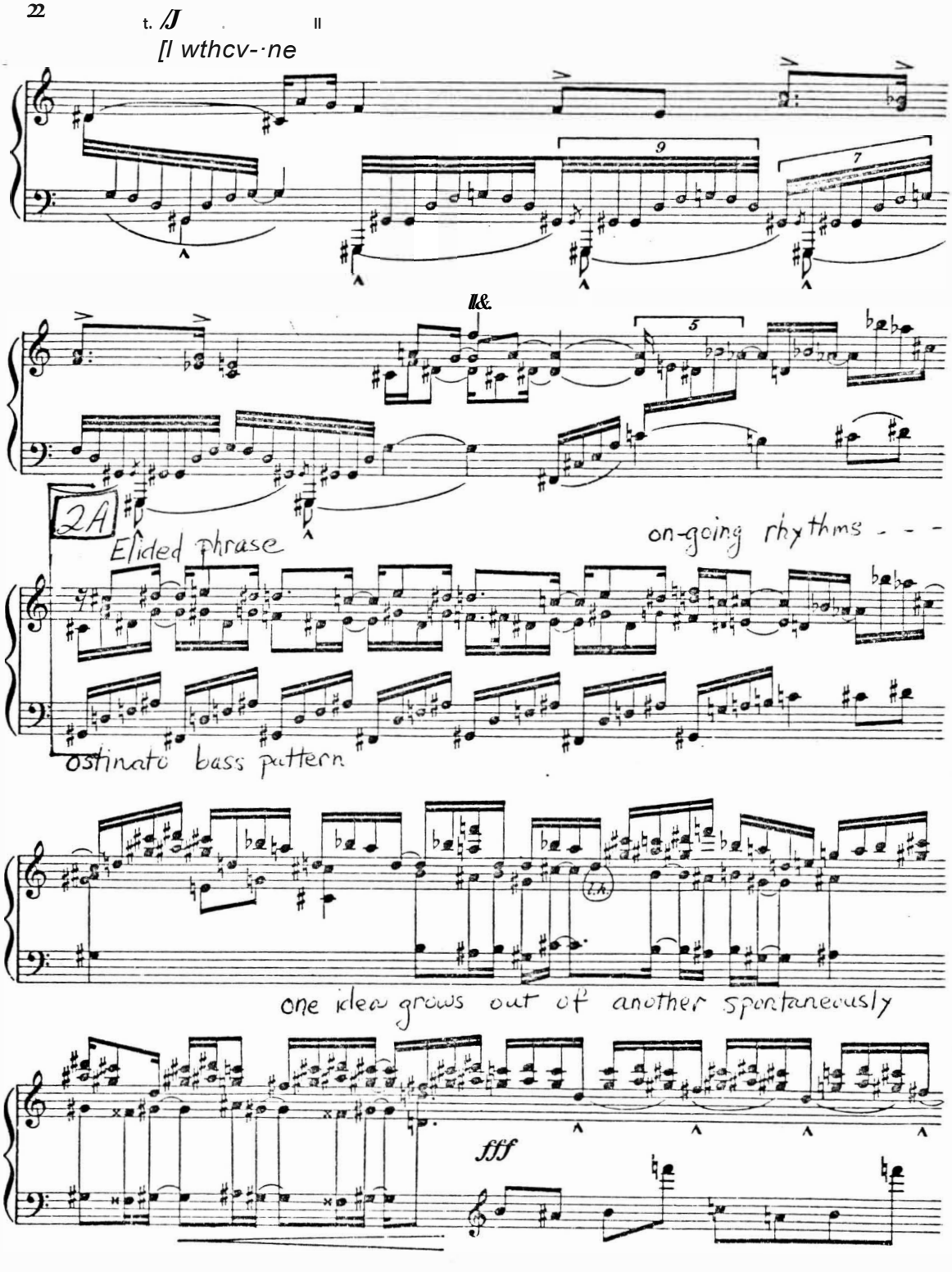

l.h.
l.h.
l.h.
r.h.
accel.
3
ff
3
3
3
3
rit.

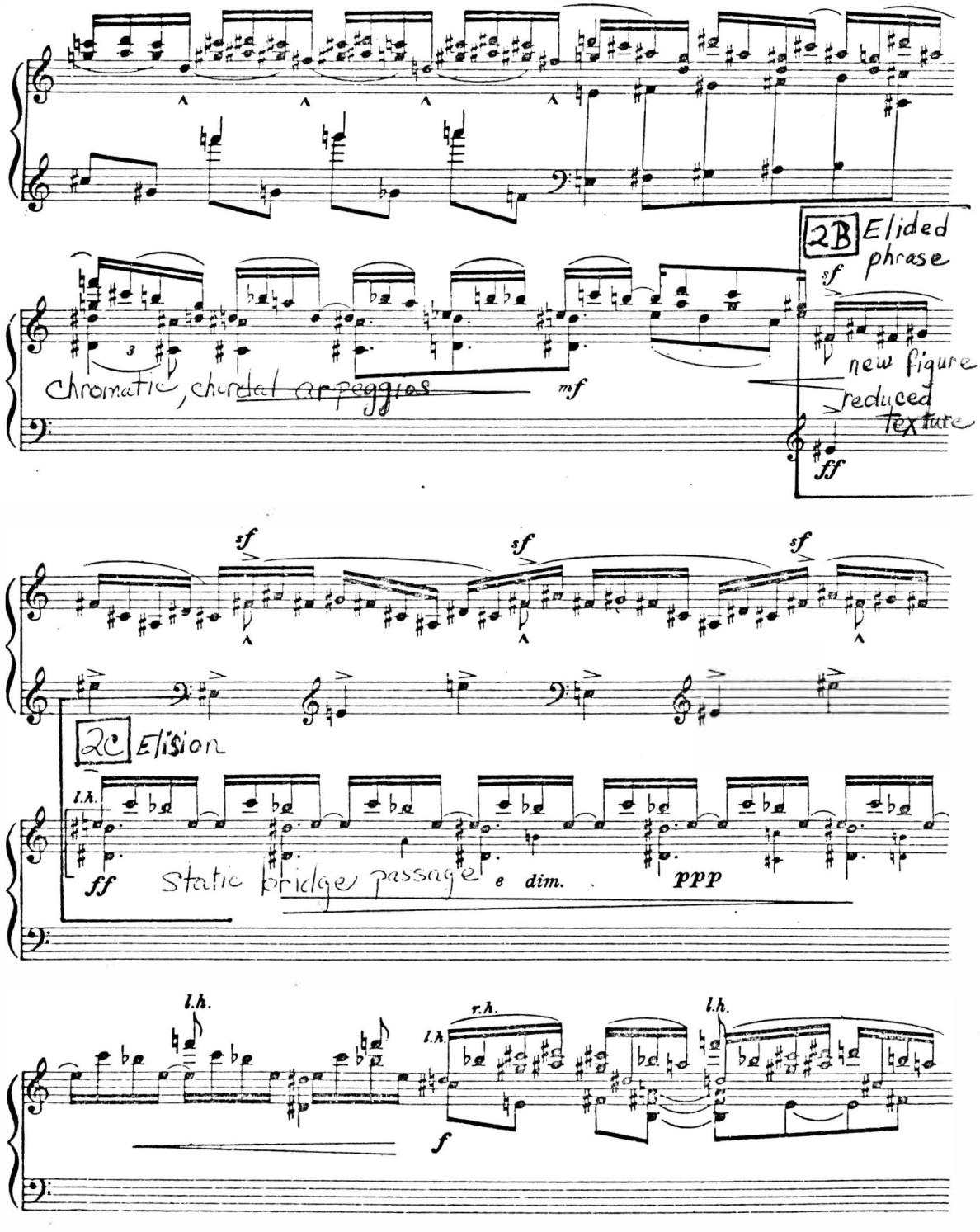

lyric - homophonic style - simpler, straight-forward rhythms
114)
moderately slow and tranquilly
p
p
*
1. Ritard
2. Diminuendo
3. Descending line
4. Thinned texture
5. Augmented rhythm
1K
Descending line
Dim.
pp
augment r.h. rhythm
slowly
Thinned texture
faster
f
poco rit.
pp
f
same motive as M. 114 - up 1/2 step

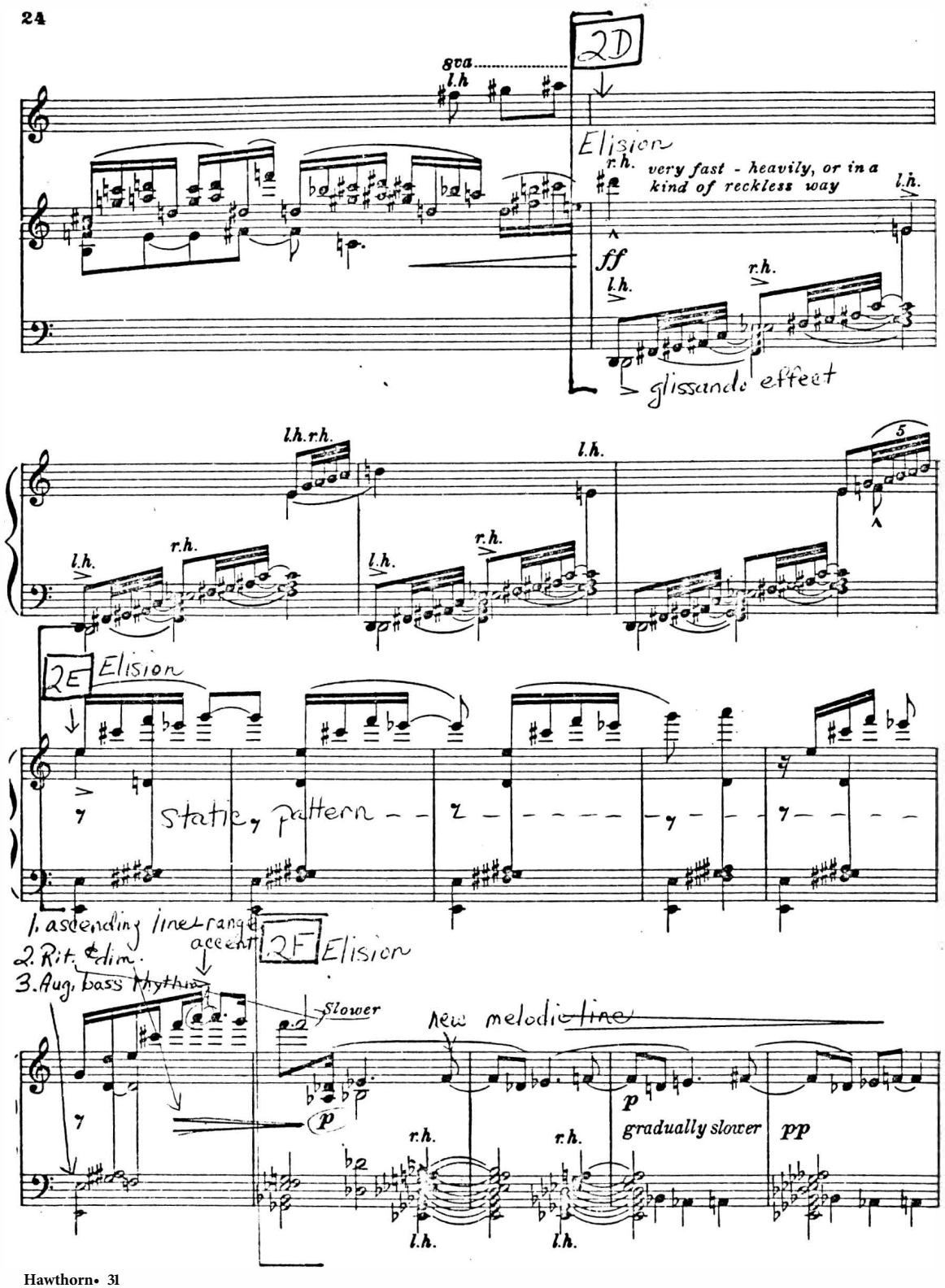

Stressed points of high range & dynamics
17
no cadences
cresc. and faster
on-going rhythms
gradually faster with more and more action
Dissonant Sound Mass
Poco ten. (ad lib.) slightly slower
fast
(climbing up with rush and action)
Secundal chord cluster-
Densest structure in movement
Broadly and somewhat slower
Augmentation of rhythm
Sextuplet-run
116)

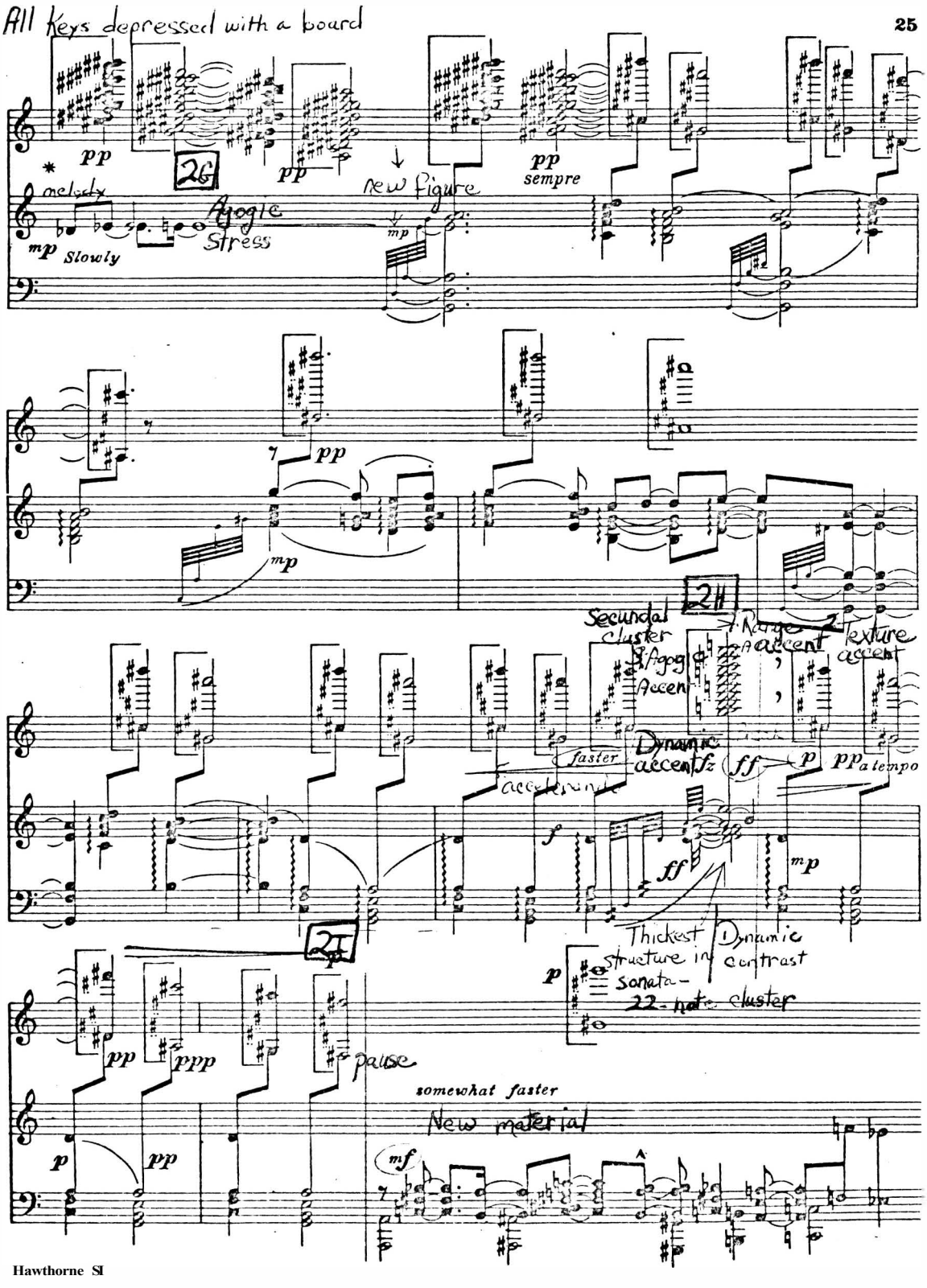


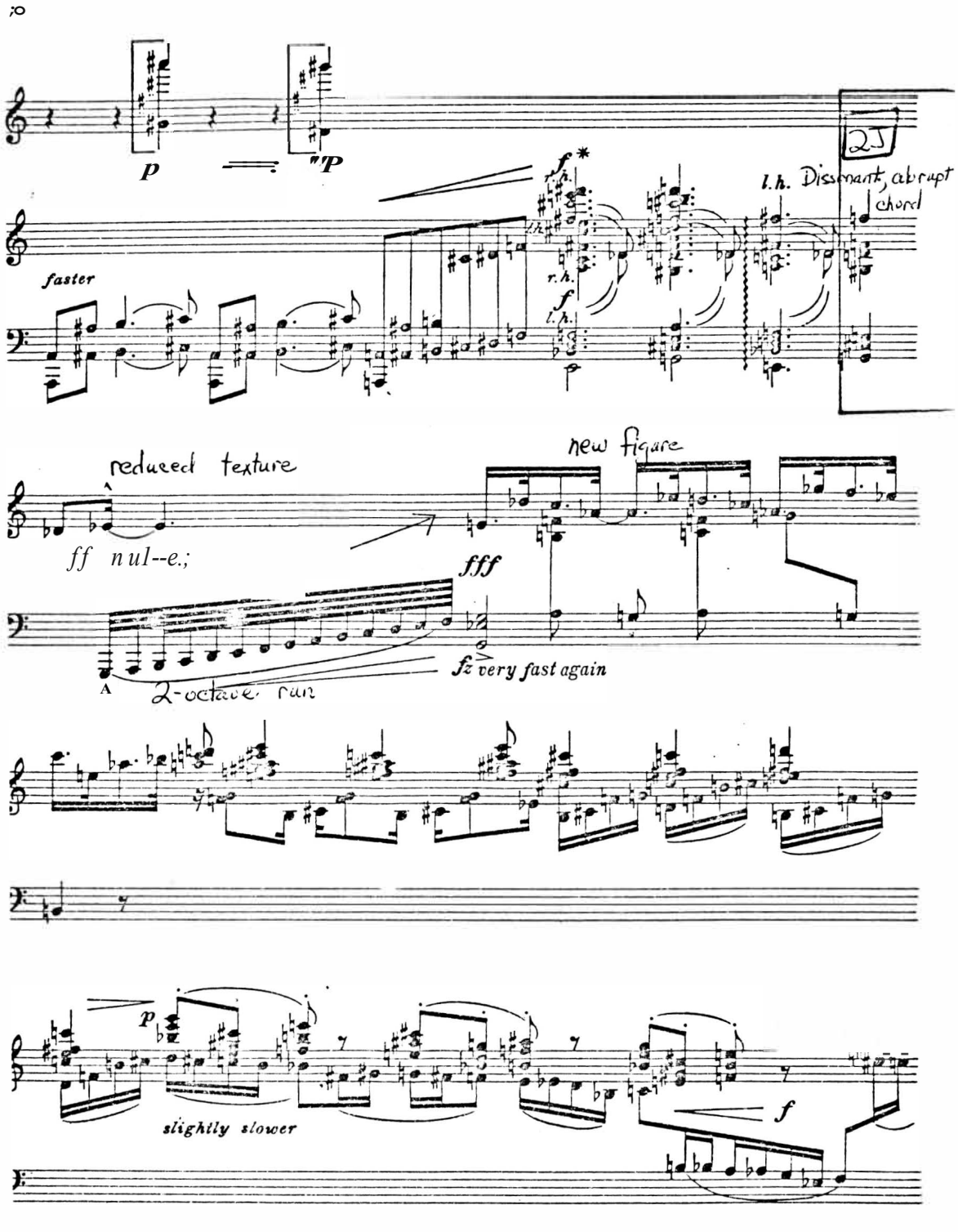
tr) To be heard u 1 kind of an overton


22
[I wthcv-·ne
9
7
5
2A
Elided phrase
on-going rhythms - - - -
ostinato bass pattern
one idea grows out of another spontaneously
fff

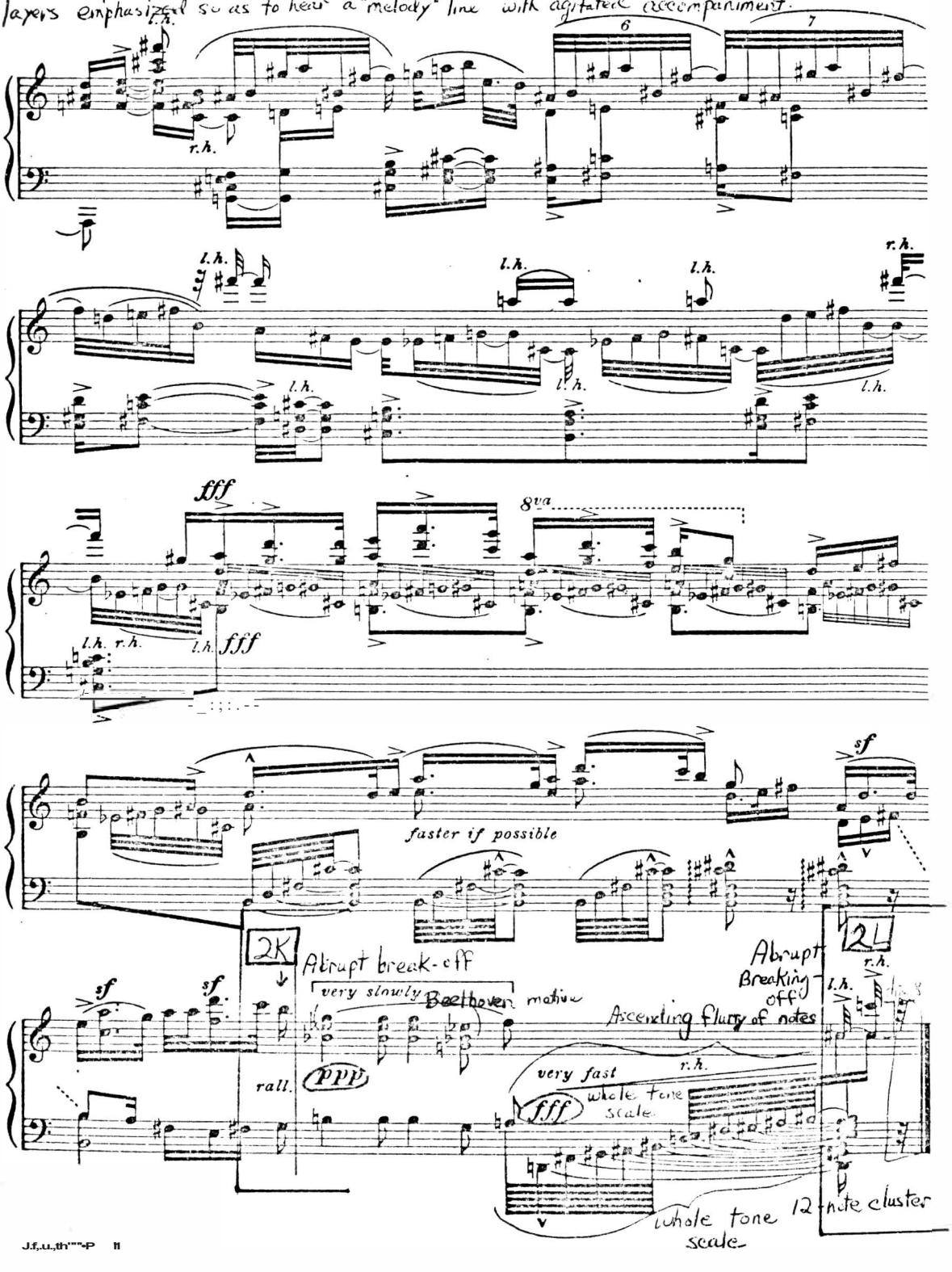

2B Elided phrase
sf
new figure
reduced Texture
ff
chromatic, chordal arpeggios
mf
sf
sf
sf
2C Elision
l.h.
ff
static bridge passage
e dim.
ppp
l.h.
r.h.
l.h.
l.h.
f

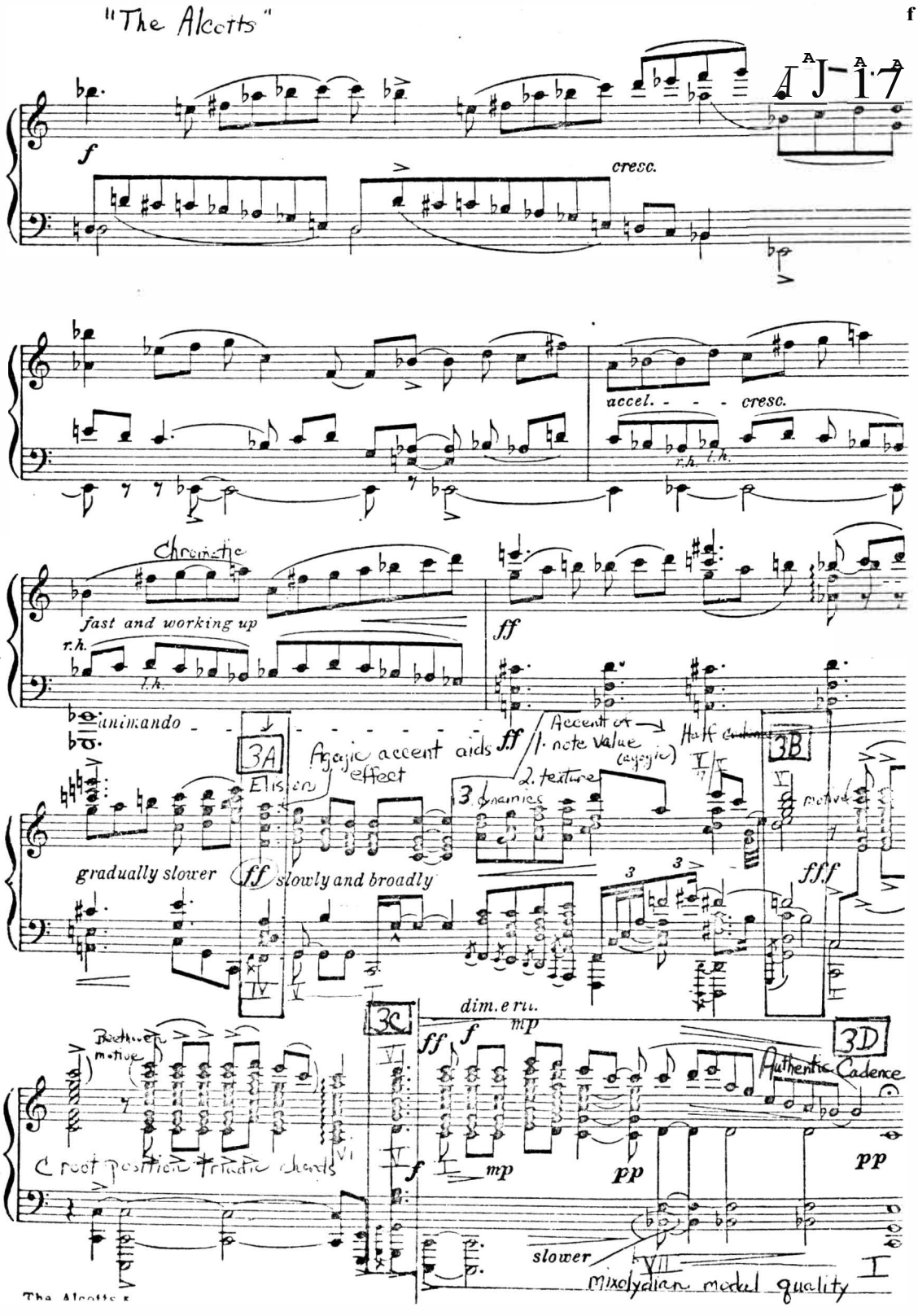

24
8va
l.h.
2D
Elision
r.h. very fast - heavily, or in a kind of reckless way
l.h.
ff
r.h.
l.h.
glissando effect
l.h. r.h.
l.h.
5
r.h.
l.h.
r.h.
l.h.
2E
Elision
static pattern
1. ascending line range
2. Rit. & dim.
3. Aug. bass rhythm
accent
2F
Elision
Slower
new melodic line
p
p
gradually slower
pp
r.h.
r.h.
l.h.
l.h.

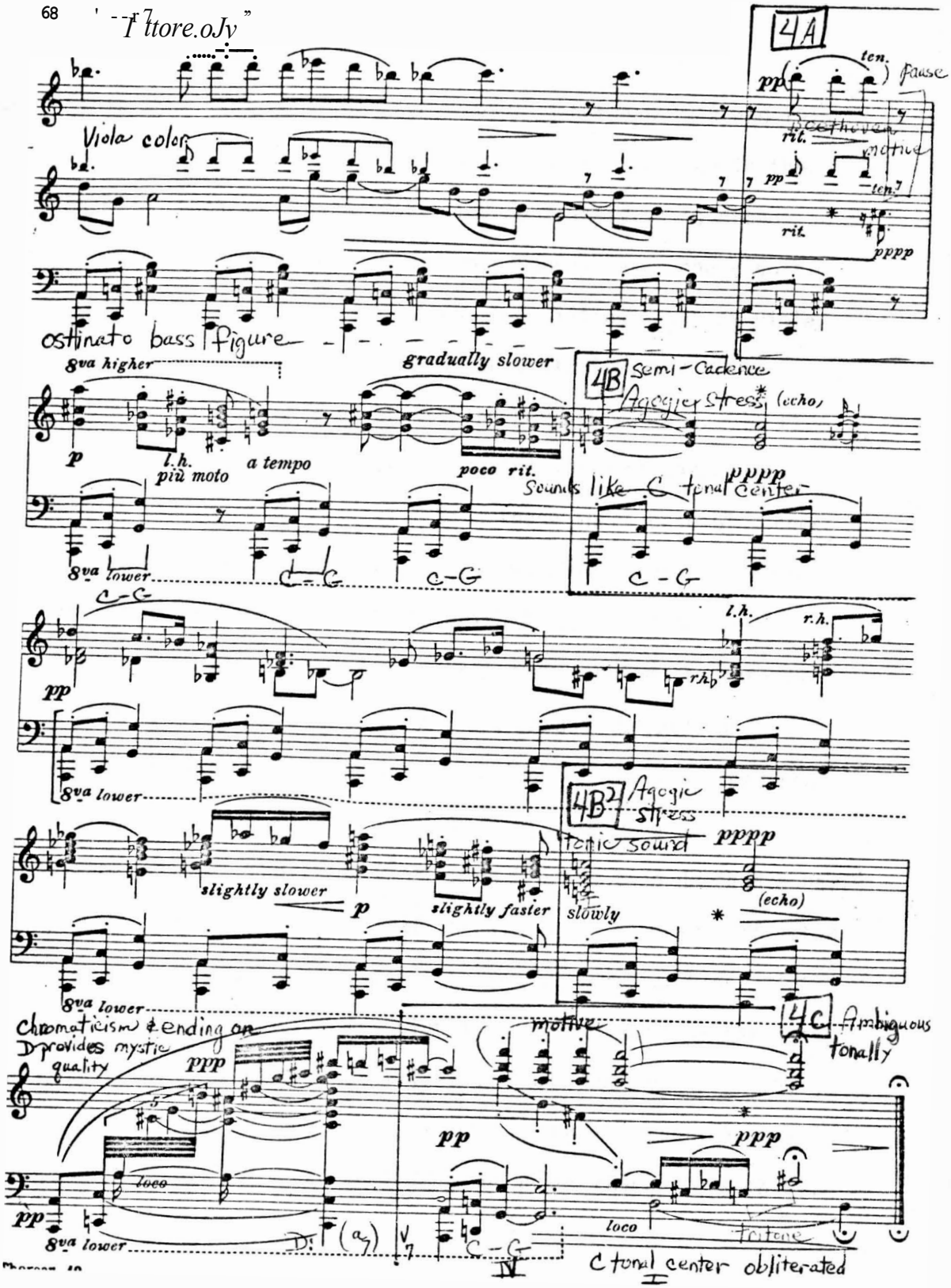

All keys depressed with a board
25
pp
melody
26
pp
New figure
pp sempre
Aggic Stress
mp Slowly
mp
7
pp
mp
27
Secundal cluster
Range
Texture
Aggic Accent
accent
accent
faster
Dynamic accent
fz
ff
p
pp a tempo
accelerando
f
ff
mp
Thickest structure in sonata-
Dynamic contrast
p
22-note cluster
28
pp
ppp
pause
somewhat faster
New material
p
pp
mf


p
"P
f *
r.h.
f
l.h.
faster
l.h. Dissonant, abrupt chord
reduced texture
new figure
ff nul--e.;
fff
A
2-octave run
fz very fast again
p
slightly slower
f

The last several pages are so rhythmically & harmonically, or sonorously, complex - it is (the music) perceived aurally as a dense, ambiguous rush of sound with one or two layers emphasized so as to hear a "melody" line with agitated accompaniment.




"The Alcotts"
f
cresc.
accel. - - - cresc.
r.h.
l.h.
Chromatic
fast and working up
ff
animando
3A
Elision
Agogic accent aids effect
Accent or 1. note value (agogic)
2. texture
3 dynamics
3B
motive
gradually slower
slowly and broadly
fff
3C
dim. e rit.
mp
Beethoven motive
3D
Authentic Cadence
C root position triadic chords
pp
slower
Mixolydian modal quality
The Alcotts


68
4A
ten.
pp
pause
Viola color
rit.
Beethoven motive
pp
ten.
rit.
pppp
ostinato bass figure
8va higher
gradually slower
4B semi-Cadence
Agogic Stress (echo)
p
l.h.
più moto
a tempo
poco rit.
Sounds like C tonal center
pppp
8va lower
C-G
C-G
C-G
C-G
pp
l.h.
r.h.
8va lower
4B' Agogic stress
tonic sound
pppp
slightly slower
p
slightly faster
slowly
(echo)
8va lower
4C Ambiguous tonally
Chromaticism & ending on D provides mystic quality
motive
ppp
pp
ppp
loco
pp
8va lower
D: (ø7) V7 C-G
loco
tritone
C tonal center obliterated
IV
I

Symphony No. 4. (1909-16)

This final symphony that Ives composed between 1909 and 1916 displays all of the complex elements that were discussed in the Second Piano Sonata. In the first movement analysis is often doubly difficult due to the use of three ensembles: one a soft chamber ensemble of two flutes, harp, two violins, and one viola to produce a distant ethereal sound (Ensemble II), the main orchestra of strings, piano, brass, and percussion (Ensemble I), and the chorus of mixed voices singing the unifying material, "Watchmen Tell Us of the Night". With these three ensembles comes the use of dovetailing or overlapping, and the favored technique of elision of phrases and sections which is produced by the "cutting technique". (Elliott Carter's term (applied to phrases other than sections) for cutting off one phrase abruptly and juxtaposing it beside the new phrase or idea). The first cadence at O]J, M.2, is heard as the first violins jump up a doubly diminished octave (D08, from $c^{\#}$ to high C^{b}) and then descend a half step to the B-flat octaves on beat three. This caesura is effected by 1) the crescendo; 2) the large leap in the first violins, 3) the wide range span of four octaves plus a minor second (from the bass part up to the high B^{b} of Vln. I); 4) the half-note value of the polyharmonic chord on beat three giving it agogic accent; 5) the thickened texture (27-voice including the upper chamber ensemble),

and 6) the following measure of rest in Ensemble I. The cadence chord is rooted on low A with an A major, A minor, F major and F minor-major seven chord above. The juxtaposition of C natural and C sharp and the A natural and A flat produces a discordant bichordal structure. The previous opening material is chromatic and is played in unison octaves. The first chord of Ensemble II juxtaposes G sharp diminished-seventh and A minor-major seventh chords. The arrangement of these two chords adds considerable dissonance with the minor and major 2nds, (the vertical sonority, beat 3, from bottom-upward: $G^{\#}$-A-C-0-$F^{\#}$-B-E-$G^{\#}$), camouflaging the sound of the 3rds. If the notes were rearranged an entire sonority of 3rds would result ($G^{\#}$-B-0-$F^{\#}$-A-C-E-$G^{\#}$); this being a bit less discordant. Whether these pitches actually affect the fuller bimodal chord of ensemble I is questionable due to the extremely soft dynamic level and low range placement of the ensemble II chord. The soft bitonal seventh chords are aurally perceived on beat one of M.3 as the other instruments rest. The opening D octaves descending to the bass A on the cadence chord might appear as a tonic-to-dominant progression; the frequent placement of D in the bass on beat one between Mm.1 and 16 might seem to put a focal point on D. A1so, the second cadence at [I[], progressing: $C^{\#}$-0-A-D (M.15-16 in the bass line), would seem to support D as a 'tonal' center. In actuality, there is no feeling of a tonal center. The chromaticism established at the beginning, coupled with the

juxtaposed and superimposed harmonies of the two ensembles, obliterates any feeling of a tonal or harmonic focal point. After the first four intorductory measures (Mm.1-4), an elision into the new phrase is heard as the viola plays a D major melody which becomes chromatic at Mm.10-16. In M.16 the A minor/A major chord to the D minor/D major chord looks like a type of authentic cadence - dominant-to-tonic, but it doesn't sound at all traditional. The mixing of major and minor modes, plus the foreign or 'non-harmonic' tones (the $A^{\#}$ and $B^{\#}$ in Vlns II, beat 2, M.16, and the E natural in Vlns. I and in the solo on the final cadence chord), provide an ambiguous tonal effect. The slowing tempo and sustaining of the final chord at []]] provides the needed momentary pause before the chorus enters. At M.17 to the end of the first movement a key signature of two sharps, ($F^{\#}$ and $c^{\#}$), is used. The chorale tune, "Watchmen Tell Us Of The Night", is in D major, while the accompaniment, the ensemble I strings and piano, is basically B minor. The 8 minor flavor below the chorus line gives a prevailing minor sound to Mm.17-32. The ensemble II strings, harp and flute provide a soft, ethereal sound-effect, tonally distant from the rest. The pause at *D[]* is noticeable, but has a weaker effect than preceding cadences and so is termed a semi-cadence. As noted in the introduction, a semi-cadence does not refer to a traditional half cadence on the dominant, but means, in this paper, a caesura of weaker inflection. The progression from a B minor chord to a

quasi-subdominant chord, harmonically aids the cadential feeling, coupled with the sustaining of the last chord of M.20. The simultaneous use of the D major tonal center and its relative minor key area, B minor, blends well and is very consonant in nature, and yet at the same time, provides a degree of ambiguity. The use of a few added non-harmonic tones (those outside the tonality of D major and B minor), and the non-tonal to bitonal sonorities of ensemble II contribute to an ambiguous harmonic effect. At [II] the melody ends on a dominant tone, E, with E octaves in the bass, but $G^{\#}$'s, Dq's, $F^{\#}$'s and $E^{\#}$'s (the piano part) blur definition of a "root" of the chord. The same chord progression is used at [IQ] even though the melody ends on its tonic, D. The longer note value on the word 'star' of the chorale, and longer value of the bitonal chord in the strings gives [IQ] agogic stress and again there is a rhythmic pause before M.25. The caesura at OIJ is very strong and clearly set on a G major harmony. The soft ensemble II is the only discordant element at ITIJ, except for the piano's A and C natural acting as an unresolved suspension, which has little total effect. The following measure of rest definitively supplies cadential awareness. The cadence at DI] employs a sixteenth rest before the final note, G, of the phrase. Making the short repeated phrase rhythmically disjunct, (Traveller---- yes '-/etc.), may effect an expectation of coming cessation, which does occur on beat three of M.29 of the vocal lines. The piano and violins extend

the cadence with a syncopation figure and added dissonance. The rests in the vocal parts and the ritardando are the cadential evidence along with a change in material, texture and tempo at M.30. The semi-cadence at D]J is like that at [ill. The solo repeats the musical material of o:rJ. The sustaining of the sonority at D]J, indicates a breath in the musical texture. The strong cadence at [Ifil is basically like that at [TI], ending on a clear G major chord (the IV or the vi depending on whether D or B is considered the tonal center). The slowing tempo and rests following the G chord of M.35 mark another long breathing space. The final cadence is felt at M.39, [TI]. The harmonies thin out and become simple, discernable triads (with a few non-harmonic tones) from Mm.36-41. At M.36, D major is emphasized and here sounds like the 'tonic' in both the vocal and ensemble I parts. The progression to the G major chord, M.38, might seem a likely spot for the cadence chord, yet the female vocal line does not finish its idea and arrive at its destination until M.39. There is a feeling of downbeat on beat one of M.39 and here all of the parts have stabilized and become harmonically and rhythmically static. As the G major tonality is suspended, it dies away so gradually that one almost expects this sonority to suspend or float in space and time indefinitely. The scarcely audible reply of ensemble II at the end, strengthens this effect of almost eternal continuation. The cadential extension of [TI], Mm.39-41, supplies a beautifully

subtle, drifting-off effect. The concept of time and space is almost abolished.

Movements two and four are characterized by a continual on-goingness of motion. New phrases and sections are elided - sometimes gradually and smoothly, but more often are initiated by the "cutting technique" - the abrupt cut-off of one part which is placed directly next to the new contrasting part. Elliott Carter's term "cutting technique" well describes this type of splicing procedure which Ives uses extensively and which results in contrasting material being placed back-to-back with no feeling of momentary cessation of motion or feeling of harmonic conclusion of an idea. The third movement is a fugue in traditional style, with phrases overlapping as one or several voices cadence and others continue on. The one decisive cadence is the final plagal cadence - a very traditional rendering of a plagal cadence. The basically orthodox treatment of this movement makes it less applicable for analysis of contemporary cadential procedures.

To conclude, a favorite statement of this composer's (C. Ives) philosophy of music is apropos. While keeping in mind the extremely discordant nature of much of Ives' music (especially large sections of the second movement of the Fourth Symphony which sound like an orchestra tuning to different pitches at a fortississimo level), one may get a better understanding of this music's conception by reading the concluding quotation. This statement is used in defense of Ives' musical creations which

probably very few people really enjoy or understand and which do not easily lend themselves to analysis. It is true that Ives wrote many works that are much more consonant - much more traditional and \'lhich are enjoyed by many; but for those avant-garde, 'cacophonous' works, this statement is offered as Ives' reason for their conception and birth. Ives believed it to be the composer's right and duty to express the 'idea' and put the resultant musical sonorities in a subordinate position.

> ...the composer's job is to write music. This music is the idea. The idea should not be subordinated to techniques of performance, and it should never be changed for the sake of facility. In certain sorts of composition, Ives makes a distinction between the music, which is the idea, and the sound, which is simply a physical disturbance during a performance. Naturally it is desirable to have the best sound possible, if this is compatible with the music. But the music itself must never be sacrificed![9]

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[9] loc. cit, p. 178

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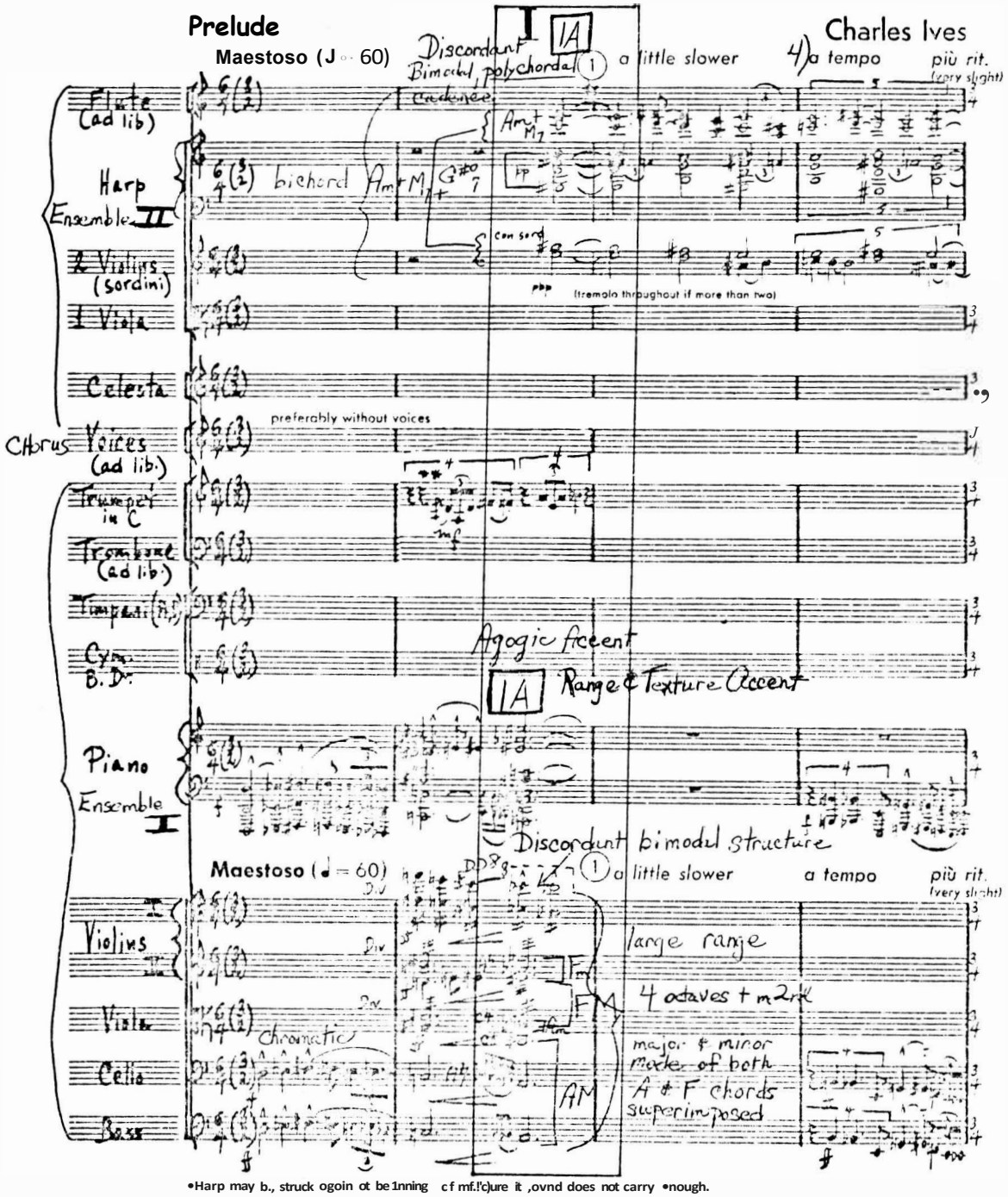
Symphony No. 4



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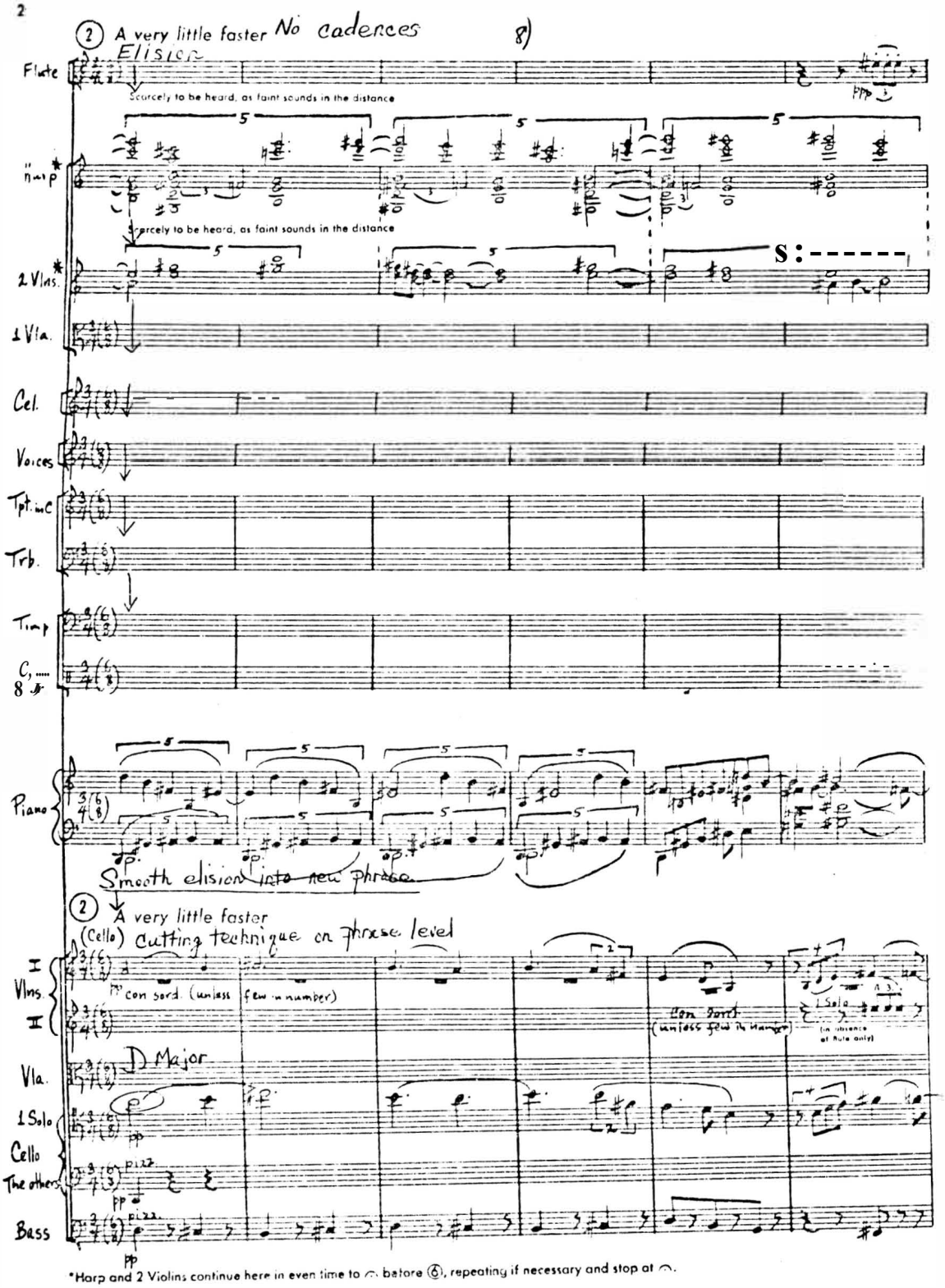
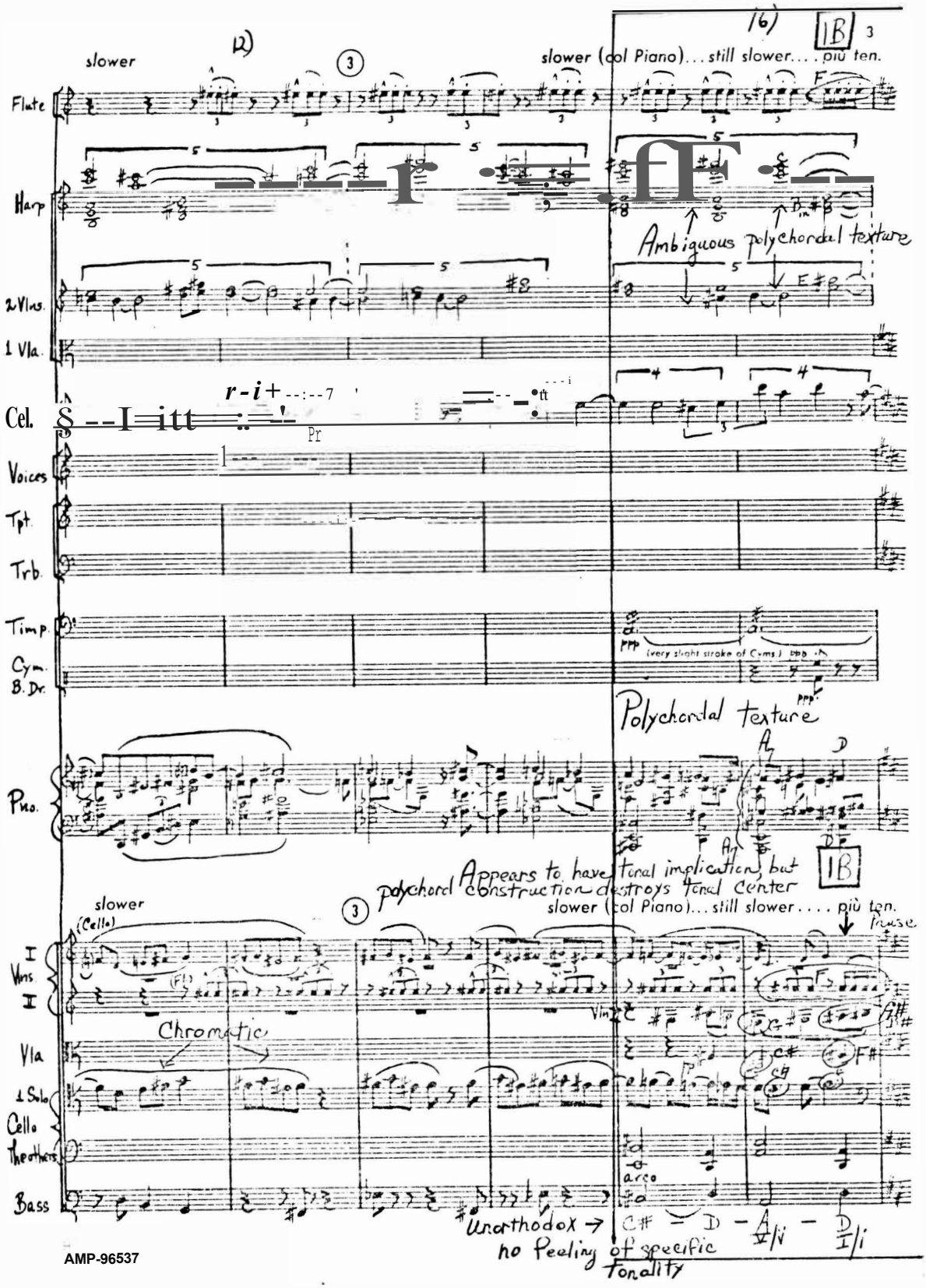
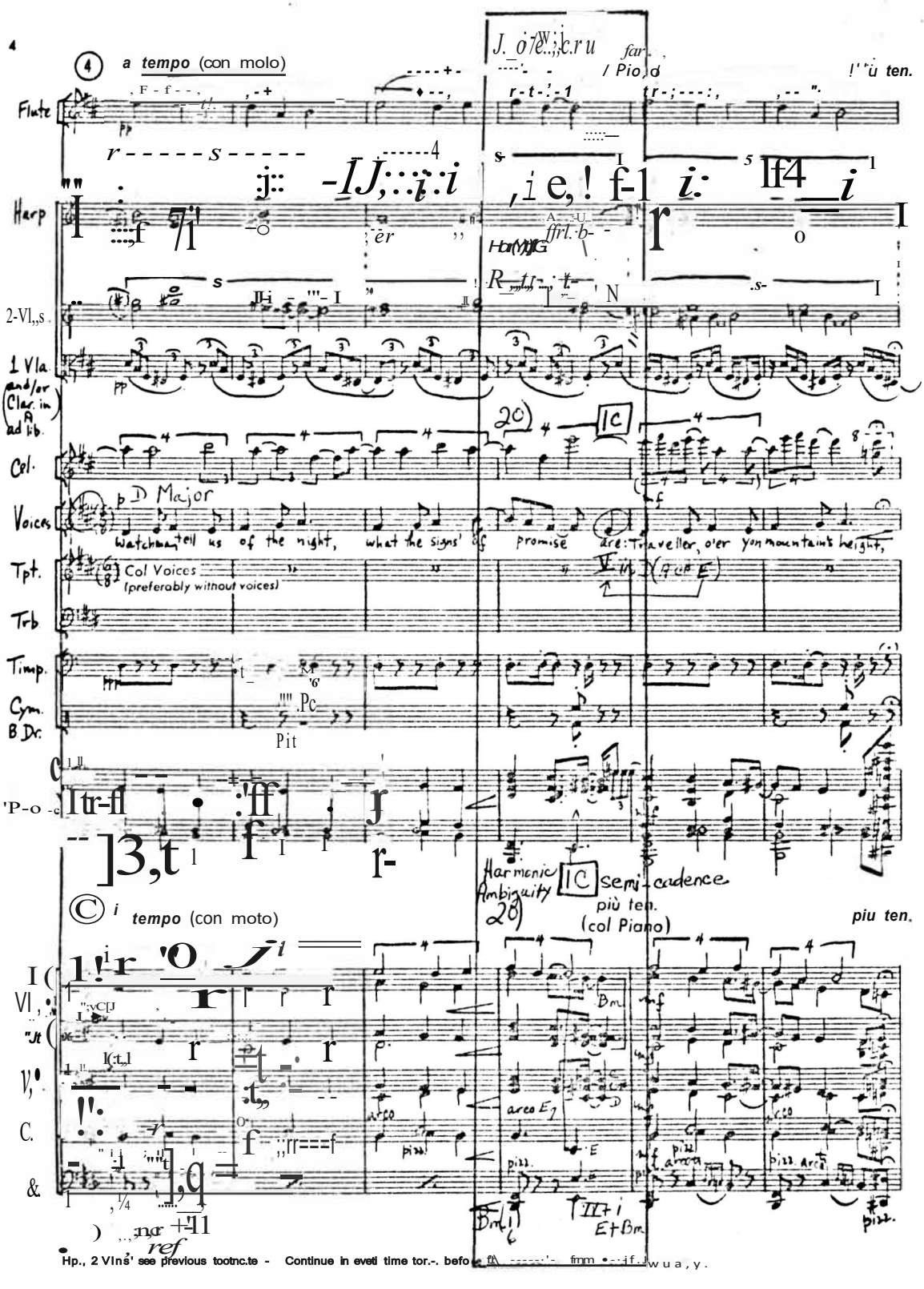

2
2 A very little faster No cadences
Elision
Flute
Scarcely to be heard, as faint sounds in the distance
Harp
Scarcely to be heard, as faint sounds in the distance
2 Vlns.
1 Vla.
Cel.
Voices
Tpt. in C
Trb.
Timp
Piano
Smooth elision into new phrase
2 A very little faster
(Cello) cutting technique on phrase level
I Vlns.
II
con sord. (unless few in number)
Con Sord.
(unless few in number)
D Major
Vla.
1 Solo
Cello
The others
Bass
*Harp and 2 Violins continue here in even time to ⌒ before ⑥, repeating if necessary and stop at ⌒.


slower
slower (col Piano)... still slower.... più ten.
Flute
Harp
Ambiguous polychordal texture
2 Vlns.
1 Vla.
Cel.
Voices
Tpt.
Trb.
Timp.
Cym.
B. Dr.
(very slight stroke of Cyms.)
Polychordal texture
Pno.
Appears to have tonal implication, but polychord construction destroys tonal center
slower (Cello)
slower (col Piano)... still slower.... più ten.
pause
I Vlns.
II
Chromatic
Vla
1 Solo Cello
The others
Bass
arco
Unorthodox → no feeling of specific tonality
C# = D - A/i - D/I


4
a tempo (con molo)
Flute
Harp
2-Vl.,s.
1 Vla.
and/or
Clar. in A
ad lib.
Cel.
Voices
Watchman tell us of the night, what the signs' of promise are: Traveller, o'er yon mountains height,
Tpt.
Col Voices
(preferably without voices)
Trb
Timp.
Cym.
B.Dr.
Pit
Harmonic Ambiguity
IC
semi-cadence
più ten.
(col Piano)
piu ten.
tempo (con moto)
Hp., 2 Vlns' see previous tootnc.te - Continue in eveti time tor.-. befo
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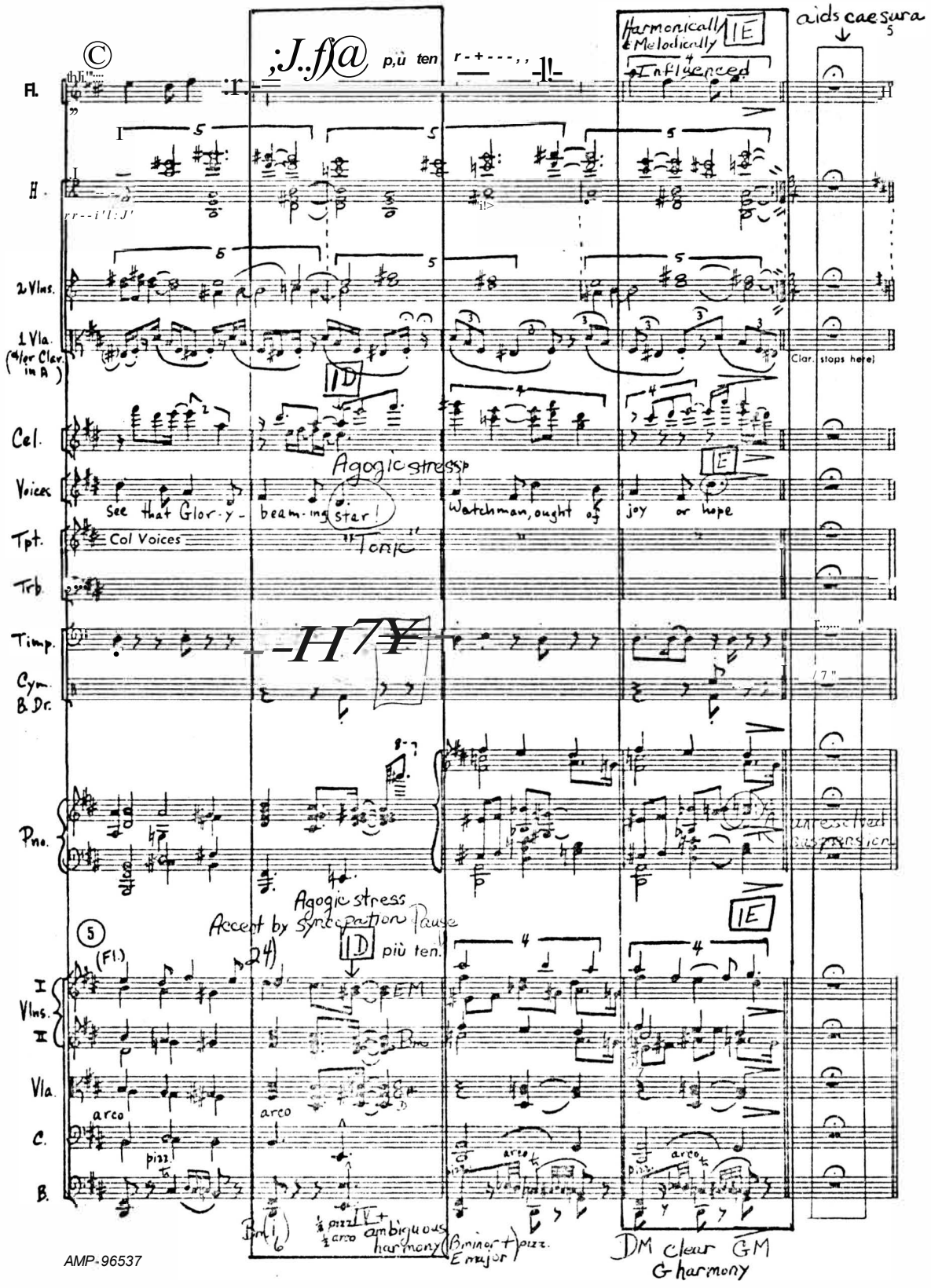
©
Fl.
H.
2 Vlns.
1 Vla. (=1st Clar. in A)
Cel.
Voices
Tpt.
Trb.
Timp.
Cym.
B. Dr.
Pno.
I Vlns.
II
Vla.
C.
B.
p,ù ten
Harmonically & Melodically Influenced
aids caesura
Clar. stops here
Agogic stress
See that Glor-y- beam-ing star!
Watchman, ought of joy or hope
Col Voices
"Tone"
Agogic stress
Accent by Syncopation
Pause
più ten.
(Fl.)
arco
pizz.
pizz. arco ambiguous harmony
(B minor → E major)
pizz.
DM clear GM G harmony
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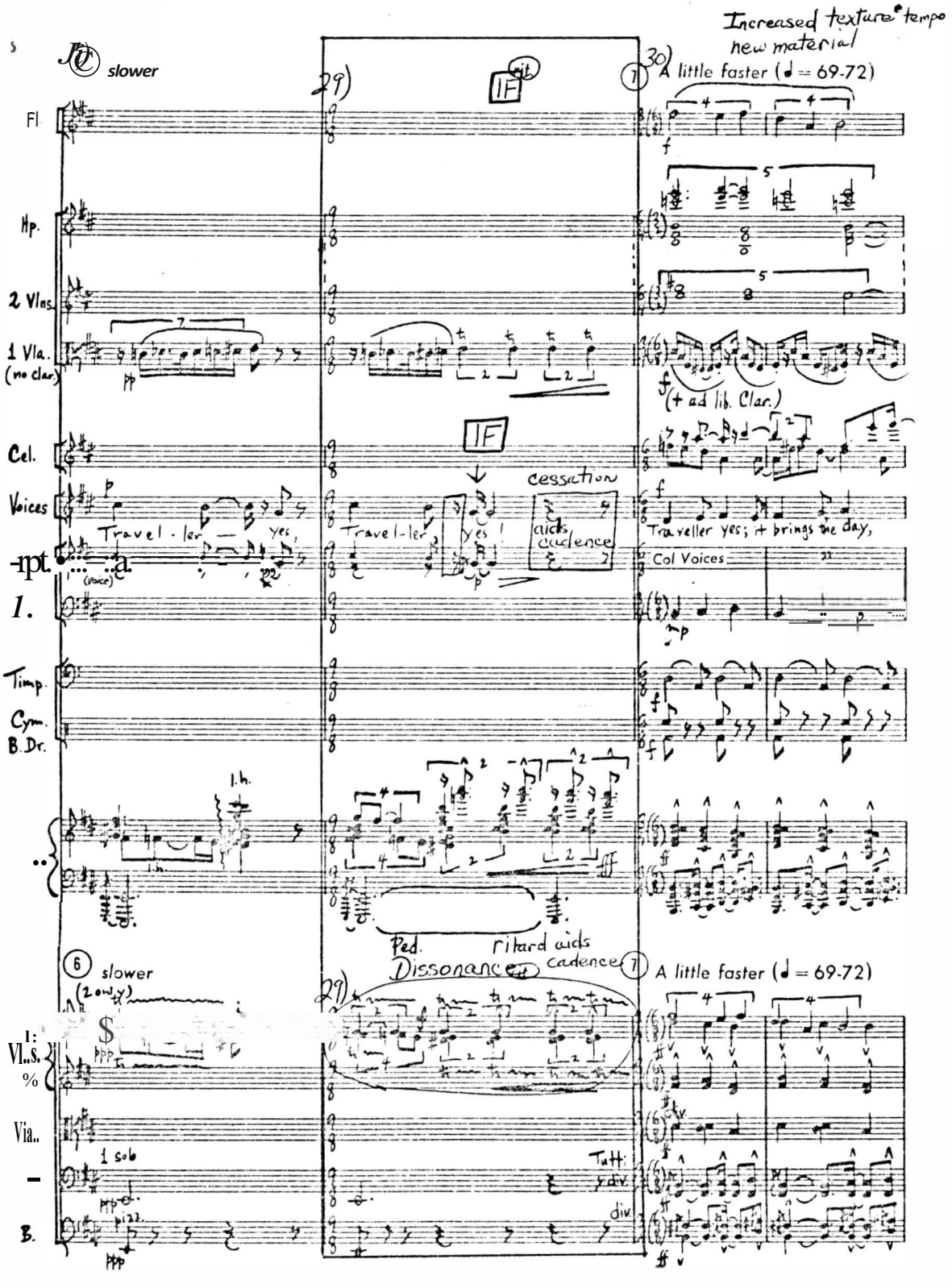
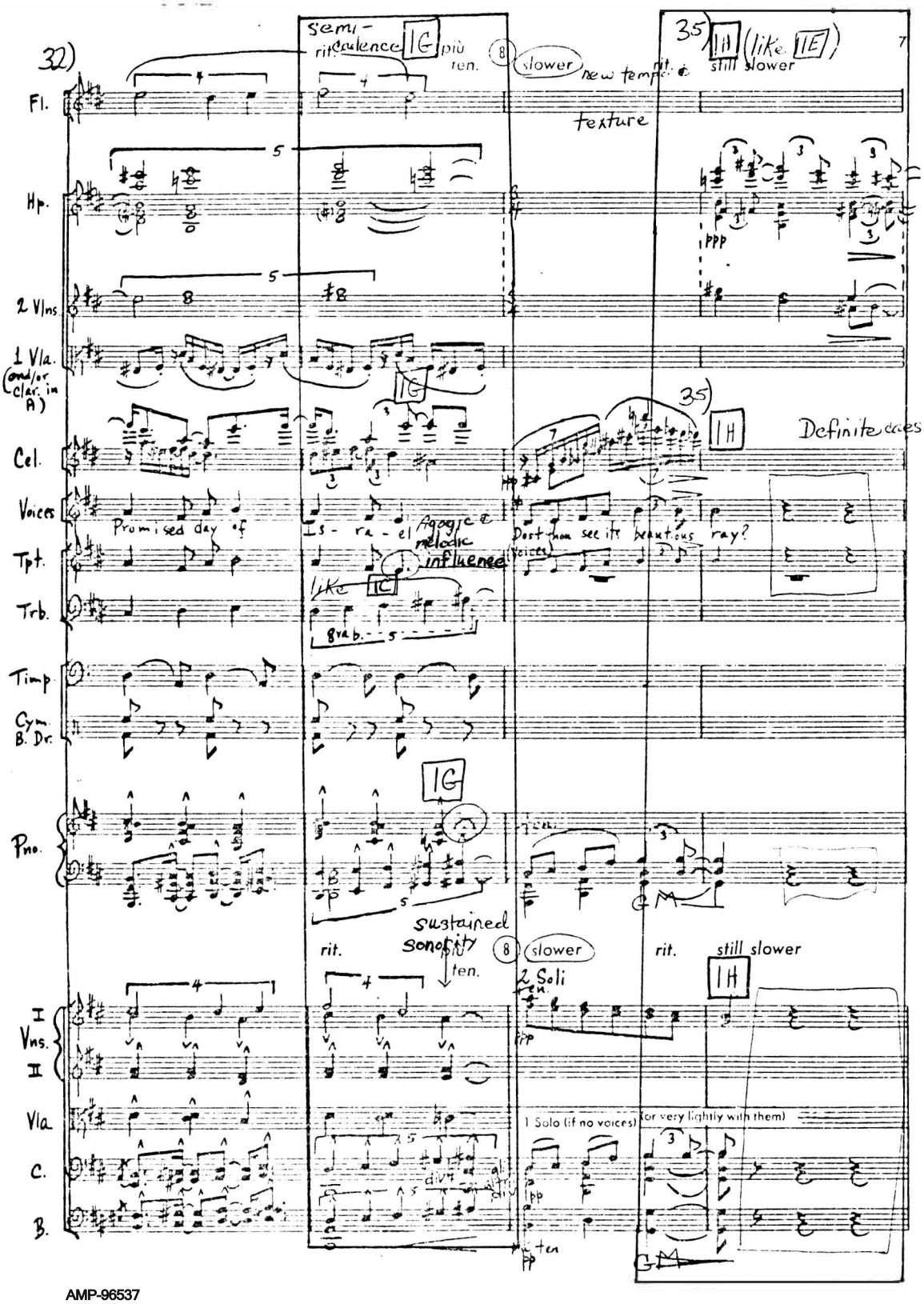
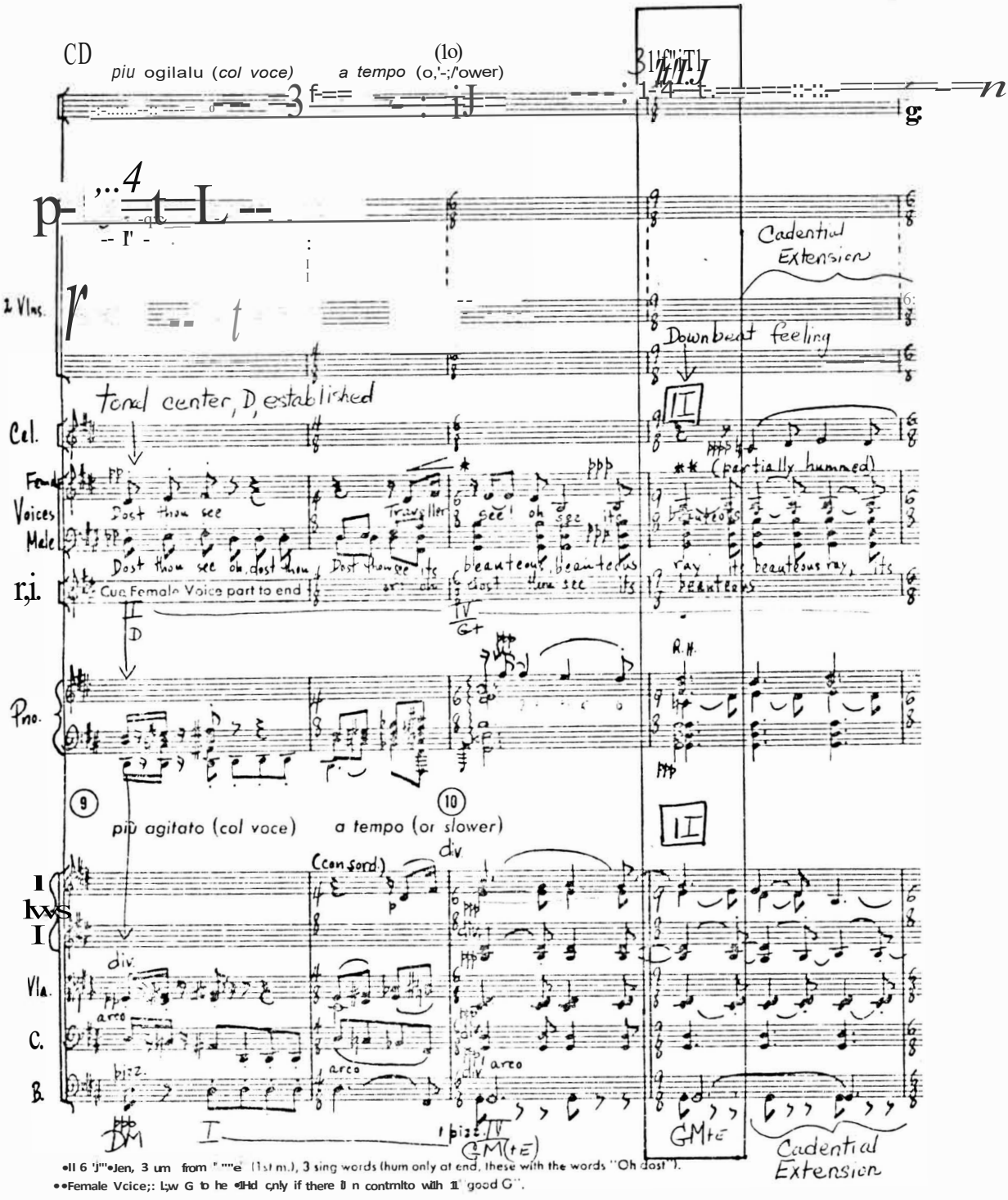
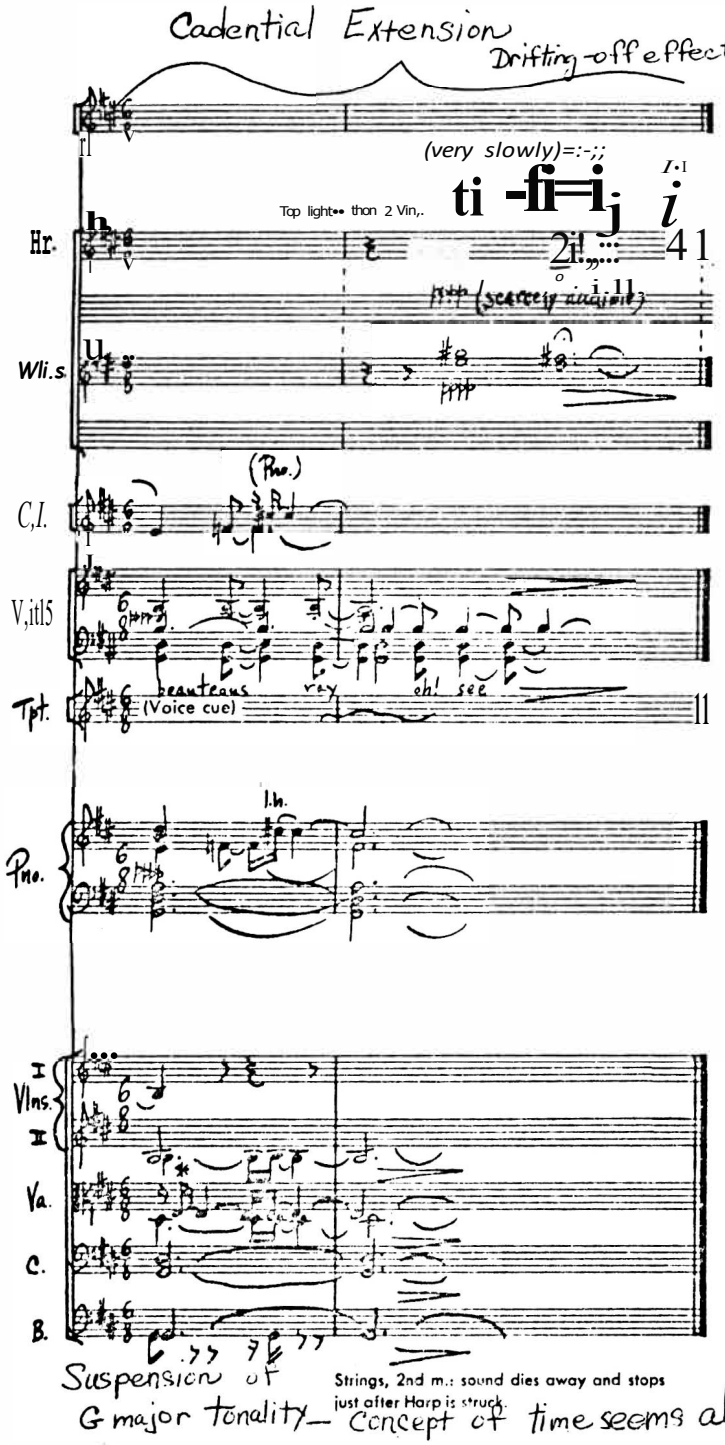

Increased texture • tempo
new material
slower
29)
IF
30)
A little faster (♩ = 69-72)
Fl
Hp.
2 Vlns.
1 Vla.
(no clar)
(+ ad lib. Clar.)
Cel.
Voices
Travel-ler — yes,
Travel-ler
yes!
cessation
aids cadence
Traveller yes; it brings the day,
Col Voices
rpt. a.
1.
Timp.
Cym.
B. Dr.
l.h.
Ped.
ritard aids cadence
Dissonance
6
slower
29)
7
A little faster (♩ = 69-72)
Vl. s.
Vla.
1 solo
Tutti
div
B.


32)
semi-
rit. cadence
1G
più
ten.
8
slower
new tempo
rit.
35
1H
(like 1E)
still slower
texture
Fl.
Hp.
2 Vlns
1 Vla.
(and/or Clar. in A)
Cel.
35)
1H
Definite caesura
Voices
Promised day of
Is - ra - el
Agogic & melodic influence
Don't them see its beauteous ray?
(voices)
Tpt.
like 1C
Trb.
8va b.
Timp.
Cym.
B. Dr.
1G
Pno.
sustained
Sonority
rit.
8
slower
rit.
still slower
ten.
2 Soli
1H
I
Vns.
II
Vla.
C.
B.
1 Solo (if no voices)
(or very lightly with them)
div.
unis.
ten



•II 6 'j'"•Jen, 3 um from " ""e (1st m.), 3 sing words (hum only at end, these with the words "Oh dost").

••Female Vcice;: L;w G to he •Hd c;nly if there Il n contrnlto with 1l' good G".



Harp, 2nd m.: ploys when the strains of last Piano chord ore dying gway. Not necessarily on some beat.

Celesta, 1st m., C: not to be ployed ii Piano is used.

Piuno, 1st m.: ""o upper notes li'dhfer than ..c''.

Upper Viola .b . ,hovid be scarcely audible and softer than lower Viola's "O".

Strings, 2nd m.: sound dies away and stops just after Harp is struck.

Chart of Ives' Cadential Techniques
(Total Cadences = 43)

Elision	Rhythmic Caesura	Abrupt Breaking Off	Harmonic Influence	Melodic Influence
1C	1G	1G[2]	1I[3] (IV_7-I)	1B
1C[2]	1H	1K	1.J[3] (IV-I)	1H
1D	1N	2K	10 (V-1)	StmQhOnj'.
1E	21	2L	3B (V_7/V-V)	1C
1F	4A	(99%)	3C (vi-V)	1D
1J	StmQhOnj'.		3D {I-[b]VII-I)	1E
1M	1B		4B (V-1)	1F
2A	1D		48[2] (V-1)	1G
2B	1E		Sj'.mQhOnj'.	(16%)
2C	1F		1E (I-IV)	
2D	1H		1I (I-IV)	
2E	(23%)		(23%)	
2F				
(33%)				

Chart of Ives' Cadential Techniques (Cont.)

Sharp Change in Texture and/ or color	Agogic Accent	Textural Accent	Homogeneous Rh,z'.thm	Modal Usage
lA	lA	ll	lH	lG - dorian melody preceding lG
1B	lE	lP	lK	
21	11	2H	lM	
2J	111	3B	S1mehon1	1G[1] - lydi an
(9%)	112	S1mehoni	lA	3D - mixolydian
	113	lA	(9%)	(7%)
	lJ	(12%		
	lJ			
	ll			
	10			
	lP			
	2G			
	3A			
	3B			
	3C			
	3D			
	4B			
	482			
	4C			
	S1mehon1			
	lA			
	1D			
	lG	(51 %)		

ARNOLD SCHOENBERG (1874-1951)

Introduction

The twelve-tone technique of composition wasn't actually codified by Arnold Schoenberg until about 1920 to 1922. His early compositions, though not serial, were very chromatic. It wasn't until 1920-1922 that his twelve-tone method was fully realized in the last piece of The Five Piano Pieces, n. Schoenberg believed that twelve-tone music, music in which all twelve semi-tones have equal weight and importance, was predestined. Tonality had worn itself out. No longer could tonality function as the main structural and organizing force in music. Pantonality (all tonalities merged), was Schoenberg's vision of music's historical course to follow. "The twelve-tone principle was, for him, a way of organizing musical thought that is coherent, that controls every aspect of every piece but is uniquely established anew by each piece."[1] "In Schoenberg's classical formulation of the technique, each piece is based on a given ordering of the twelve tempered pitches abstracted (without regard for octave or register) as the twelve-tone series or row - and the work itself is an exposition or realization of this order structure. '[2]

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[1]Salzman, Eric. Twentieth-Century Music: An Introduction (New Jersey: Prentice Hall, Inc., c. 1974), p. W6

[2]loc. cit., p. 104

The first two pieces of *ll* are not strictly serial compositions, yet they sound like twelve-tone pieces. Many major and minor seconds, sevenths, and ninths, and augmented and diminished intervals are used - both vertically and horizontally. The use of 1) multiple meters (No. 1 keeps the unit pulse constant with an eight note; No. 2 uses 3/4, 2/4, 9/16, 4/4, 4/2, 1/2, and 6/4 meters); 2) complex rhythms, coupled with 3) expansive registers and 4) the many wide disjunct intervals produces characteristic sounds of twelve-tone composition. Just because a tone row, that is a pre-ordered pattern of all twelve semi-tones, is not used strictly, does not mean that a work cannot sound serial. The first two pieces of Op. 23 are not serial; the Klavierst ck Op. 33a of 1932 and the Fourth String Quartet of 1936 fully use the serial technique, also known as twelve-tone or dodecaphonic method. The deciphering of or analysis of tone rows in any of these works will not be included in the cadential study of these works.

It seems paradoxical that such a decisively ordered or structured type of composition, written in the twelve-tone idiom, should produce the opposite effect of freedom and spontaneity. Often the compositions sound as if they were conceived almost improvisationally. The use of asymmetrical meters and rhythms, extremely wide, disjunct intervals, small compressed intervals, augmented and diminished intervals, and many major and minor seconds, sevenths,

and ninths produce this effect of freedom. With tonality being abandoned there is no gravitating force to a central tone or tones. Characteristic 'tonal intervals', such as leading tones, perfect fourths, fifths, and octaves, and triadic structures are avoided, though sometimes used nontraditionally. Ironically, this intellectualized and strictly ordered type of composition does not sound as such. The explanation of the music's free quality is found in the many variations possible with a tone row. There is the basic row, its inversion, its retrograde, and its retrograde inversion. All four of these forms can be transposed to any of the twelve chromatic pitches. With forty-eight variations and the choice of rhythmic and register change, it is understandable that such music expresses an inner freedom and spontaneous quality. The fact that is is often difficult to listen to and usually impossible to aurally comprehend the mathematical renderings of serial pieces, illustrate the method's complexity and the ears' inability to decipher and organize patterns of a row. This writer, having a background rooted in tonality finds it difficult to ignore what the ears expect to hear and to understand the intricate intervallic and rhythmic workings of Schoenberg's music.

Fünf Klavierstücke n_

1

Of Schoenberg's Five Piano Pieces, Oo. n_, written in 1920-22, the first and second will be analyzed. Neither are strictly serial compositions, although upon hearing they sound like twelve-tone pieces, because they contain twelve-tone elements such as extreme range, disjunct and anti-tonal intervals (those not supporting any feeling of tonality), and complex rhythms. It is interesting that the intervals of the 7th and the 3rd play an important role in the first piece. Major and minor 7ths and 3rds appear to be important intervallic compositional elements throughout number one (I). 7ths and 3rds are also prevalent in the second piece. The cadence at DK] is characterized by: 1) the wide range and disjunct minor 7th interval from the D^b in the top voice on beat one to the E^b staccato sixteenth-note on beat two; (this wide leap at the cadence serves as a variant to the many vertical 7ths sounded previously); 2) the diminution of the rhythm from basically eighth and sixteenth notes to sixteenth, thirty-second, and sixty-fourth notes; 3) the reduction of two and three-voice texture to a single sonority; 4) the reduction in dynamic level, and 5) the use of rests within and at the end of the cadence. The staccato sixteenth-note on E^b brings the preceding essentially polyphonic material to a very abrupt halt. The following rests

coupled with a new tempo and articulation indication, make apparent the beginning of a new section - homophonic in nature and still using 7ths and 3rds. Even without a change in tempo, articulation, and texture in M.13, one hears M.12 as a definite caesura. Example O]] illustrates a cadence by the use of ritardando and a lengthy fermata. In contrast to the first section, these nine measures, Mm.13-21, sound 'homophonic[1] or basically vertical, using harmonic 7ths and 3rds. After the pause at the fermata, M.21, texture, dynamic level, articulation and tempo change, indicating a new section. Ex. [}]] is a cadence produced by ritardando, a pause after the final diminished octave, and the diminuendo. At M.22, a caesura is heard, but without as much finality as in the two previous examples. A semi-cadence is felt because of the use of the diminuendo and rests. The following measure uses the same melodic or intervallic material, an octave higher with a change of rhythm and dynamics. The next breath is noticed at D]J, M.29. Again the rests are the decisive cadential factor. The ritard and diminuendo and reduction of texture and descending top line aid the cadential effect. The four-voice chord spanning a major 9th, at [!I] serves as a climactic point - a point of arrival for the final section. The following two measures sound more like a cadential extension than the actual cadence. Accent on this chord is achieved agogically as well as texturally and by syncopation and range (C, three octaves above middle C). The high C is the highest note in

the entire work except for the C# in M.20. The tension of the final six measures (Mm.30-35) culminates in cadence IIEI and, at the same time, relaxes on this sonority. The rests which surround this chord also give it special importance rhythmically. The cadential extension ending at [IO uses devices noticed in the earlier cadences: 1) tempo, dynamic, and texture reduction; 2) a descending line; and 3) pause both on beat 1 of M.35 and on the final augmented octave. All of the cadences discussed illustrate a denial of metric regularity. Even though time signatures are used (4/8, 3/8, and 2/8), and the unit pulse remains constant there is a lack of metric regularity and actually no feeling of meter at all. Never does a final cadence sonority sound on beat 1; there is no feeling of downbeat. The ultimate cadential sonority is always a very short note value (the final cadence having the longest value - a dotted-eighth note), bringing a section to a very abrupt halt. The rests and pauses after the cadences do as much as any other element to signal a cadence. To conclude with the first piece, a brief chart of cadential beat placement and note values will be shown:

Example	Final Sonority on Beat #	Final Note Value
4a	2	I′
4b	the 2nd 32nd note of 3	F
4c	the 2nd 32nd note of 2	
4d	the 2nd 32nd note of 3	f
4e	the 2nd 16th note of 2	
Extension	the 2nd 16th note of 4	

This cadential beat placement chart confirms the abandonment of downbeat importance and of a definite, clear-cut, metric structure. By ending on a short note value - on a fractional part of a beat, the sense of metric balance is destroyed; metrical asymmetry results and cadences are merely an abrupt breaking-off.

Fünf Klavierstücke *£l.*

2

The second of the Five Piano Pieces is a lively, percussive contrast to the first piece. Within the 23-measure work are nine tempo indications. These tempo changes often affect the cadences. It should be noted that the final cadence sonority is indicated by placing the cadence number directly over the ultimate sonority. The cadence at begins in M.3 with the lively, heavily-accented contrary-moving parts which crescendo to a coloristic trill with accented vertical sonorities below. This progressive expanding of the range is greatest on the five-voice cadence chord, M.5, beat 1. The interval of four octaves and a perfect 4th is spanned in this triple forte chord. Falling on the downbeat, beat 1 of M.5, this cadence chord receives emphasis through dynamics, texture, rhythm (the longest single sonority yet heard), and range (the high Eis the highest note to this point). This cadence passage is the only one in this piece to receive the coloristic effect of the trill. Example exemplified a cadence maneuvered mainly by the

ritardando, diminuendo, and descending line. The final two vertical sonorities are abrupt in their appearance. The following change of tempo, texture (use of many 2nds, 3rds, 6ths, and 7ths vertically), tough, dynamics, and especially the use of the quarter rests on beat 1 of M.10, sets off M.10 to beat 1 of M.14 as a new section. Without these contrasting elements in M.10, one might miss a cadence in [lli is on the downbeat of M.14. The ritard, crescendo, and following rests mark it as the cadence chord. A type of semi-cadence, that is a weaker-felt cadence heard on beat 1 of M.20, example j2Dsj. The previous phrase is elided by the suspended chord in the top staff. The eighth rest and change of articulation in the lower part, M.20, beat 1, help to set it apart from the previous measures. At [IQ], one hears the end of one phrase and beginning of the next. The diminuendo and augmentation of the note values and texture reduction, Mm.20-23, are the chief cadential techniques used for the final cadence. The extremely low pitch of the last single tone, the whole note on the lowest $C^{\#}$ on the keyboard, also gives an impression of completion and rest. The use of the larger melodic intervals, such as 7ths, compared to the previous more stepwise motion, probably has little effect upon the feeling of cadence in the last two measures. The longer rhythms, Mm.20-23, and extreme low range (the lowest pitch in the entire piece, M.23, beats 3-4, besides low C, M.21, beat 4), are the criteria for cadential expression in the final cadence at 11I].

Klavierstuck 33a

This piano work, composed in 1932, is constructed of many short phrases, often set apart by rests and tempo fluctuations. Most of the phrases break down into two-measure units. Example QK] marks the first caesura. The chords of quartal and quintal construction rise and fall in an arc and come to rest on the half-note chord on beat 3 of M.2. The agogic and dynamic emphasis plus the following eighth rest, help to signal J3AI as a cadence, or at least semi-cadence. Smaller, less significant caesuras result within Mm.3-7 and are marked with asterisks. These brief points in the music are not very noticeable. The next definite cadence ends on the last beat of M.9 and is effected by the pitch and range accent and rhythmic syncopation. The cadence passage, example [l[l, Mm.8-9, is characterized by increased rhythmic complexity, a ritardando and expanded texture and range of four octaves on the final sonority. The texture, which had as many as five parts sounding in M.9, is reduced to one low bass pitch at the end of M.9 as the eighth rest appears in the treble clef. Again the slowing in tempo and decreasing of volume in Mm.8-9, and presence of quarter rests on beat 1 of M.10 help give the aural indication of a cadence at the end of M.9. Example 00 again uses the rising and falling chordal arc ending on a longer rhythm (the half-note chord), with the range widened by the descending bass arpeggiated figure.

Example Q]] is felt cadentially because of the ritardando and pause before M.14. The pedal masks the thinned texture on beat 2 of M.13 because of the sustaining of the tones and slowing of the tempo. A semi-cadence, that is, a weaker caesura, is experienced on the last eighth notes of M.15. The heavily accented bass E ends that two-measure phrase abruptly and is repeated to begin the new phrase in M.16. The four-part texture at becomes a single pitch (the repeated E, M.16), to begin the next phrase which is perceived as a new sound level, up a minor 3rd from Mm.14-15. The texture and cantabile style remain constant within these two phrases. The reduced texture on beat 1 of M.16 plus the higher "tonal" level of a 3rd, pinpoint Mm.16-18 as a new phrase - the answer to Mm.14-15. The cadence at is realized by rhythmic augmentation and the expanded range of three octaves and a perfect 4th. It is always helpful to hear the material following a caesura, whether the break be abrupt, as in [ill or lengthy, as in QQ] . Often the ensuing material is so contrasting in texture, articulation, dynamics, and tempo, that one realizes that a type of cadence had to occur prior to this new material. The phrases within Mm.19-25 are very contrasting. The very percussive and rhythmic passage of Mm.19-20 quickly changes to a cantabile, sustained lyric passage in Mm.21-23. Example QI] concludes this martellato, forte phrase with a crescendo, ritard and wide range of four octaves and a minor 6th. At M.21, the cantabile style, soft dynamic level, and use of longer

note values set it apart from the phrase before. The phrase culminates in a single high E half-note, being approached from a minor 7th above, the highest D on the piano. The agogic and dynamic accent on beat 1 of M.23 coupled with the thinned texture mark example 00 as the cadence end. A very short phrase or extension of example 00 is heard from beat 4, M.23, to beat 1 of M.25. At QR], the final cadence sonority is on a widely spaced four-voice chord spanning four octaves and a major 3rd. The upper three pitches share agogic and dynamic accent and the top B is accented by pitch. The ritard again is a chief aid in perceiving point QR] as the cadence chord. This cadence illustrates one new aspect - that of over-lapping. The bass G continues immediately into the new phrase at the fortissimo with increased tempo and texture on the accented major 9th sonority (D^{b}-A^{b}-E^{b}). The final cadence chord at QB] is a major ninth chord approached by an anacrusis-like, grace-note figure. At the 'a tempo' in M.25, a very long section is initiated. M.25 through beat 1 of M.32, form one section, full of rests, but void of any noticeable caesuras. The rests do group the notes, but the motion and impetus are so constant and unyielding that a cadence is not heard until the six-note sonority at the fortissimo of M.32. It is curious that a regular four-beats per measure exists in Mm.25-31, but a very jagged, asymmetrical rhythm is felt. A consistent number of beats per measure means little when rhythm is complex and disjunct or

fragmented as here. Abolishment of downbeat also annihilates the feeling of meter. Example QII definitely sounds like the arrival point of the preceding seven measures. This is one of the principal caesuras in the piece, having the fullest vertical texture, the largest range - five octaves plus a perfect 5th, and being accented dynamically. It also concludes the longest single section of the work. The fermata over the quarter rest on beat 2 also stresses the weight or importance of this cadence. Example Q;D is a cadence felt after a rising line descends to a relatively consonant eighth-note chord, a C_7. The rests supply the rhythmic pause. Example \3Ks\ is a semi-cadence affected by the slowing tempo, diminuendo and the wide, descending leaps in the bass. The first beat of M.35 sounds like the beginning of a melodic line in the bass with an augmented rhythm accompanying it above. This idea ends on the eighth rests of M.37, at QIJ. The cadence is actually on the last eighth notes of M.36, but the following eighth rests are necessary to delineate the cadence. The final phrase Mm. 37-39, becomes rhythmically more active with wide leaps and a shape which descends, ascends, and finally descends again, to end on heavily accented and percussive chords of longer duration. The slowing of tempo and agogic accent on the final sonority with its low, widely-spaced pitches are features of the final cadence of example Qffl. The crescendo and sustaining of this last chord give it a feeling of finality. Surprisingly, this combination of

tones (minor 9th overlapping a minor 7th in the bass clef), sounds relatively consonant. The low range and spacing of pitches has a lot to do with the consonant quality. The slow tempo and the fact that all five pitches do not sound simultaneously on the same beat add to the consonant effect. To sum up this work, a categorization of the degree of consonance or dissonance of the cadences will be proposed. The following outline uses these abbreviations:

VC	=	very consonant	**M**	+ a numeral	= major
C	=	consonant	m	+ a numeral	= minor
MC	=	mildly consonant	A	+ a numeral	= augmented
MD	=	mildly dissonant	d	+ a numeral	= diminished
D	=	dissonant	oct.		= octave
VD	=	very dissonant			

The ultimate cadence chord refers to the final sonority of a cadence - the one right before the new phrase. The penultimate sonority is the one right before the ultimate. The fourteen cadences in QQ:33a will be classed in one of the following categories: 1) very consonant; 2) consonant; 3) mildly consonant; 4) mildly dissonant; 5) dissonant; and 6) very dissonant. It must be noted that such a classification is an individual impression - an individual aural interpretation - which is open for argument. The final cadence chord is the point being considered for degree of dissonance, although the degree of dissonance of the previous material is the chief deciding factor of the ultimate cadence chord's consonance or dissonance. Because the final cadence sonorities are

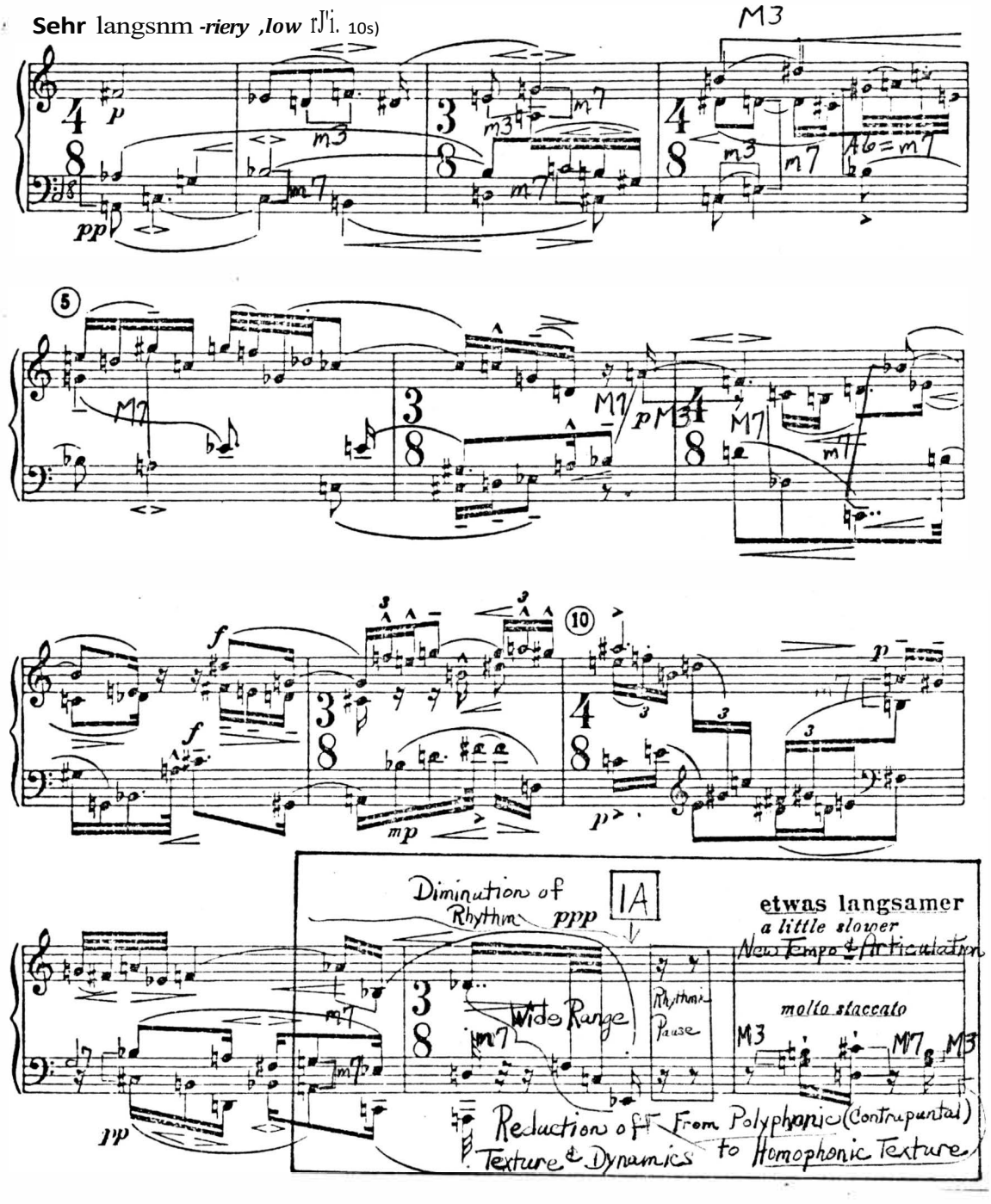
separated from each other by inter-phrase material, the ear does not compare each cadence sonority with the others, but with what came immediately before that cadence being considered. Therefore, the degree of consonance or dissonance within each phrase is of utmost importance in classifying the phrase end.

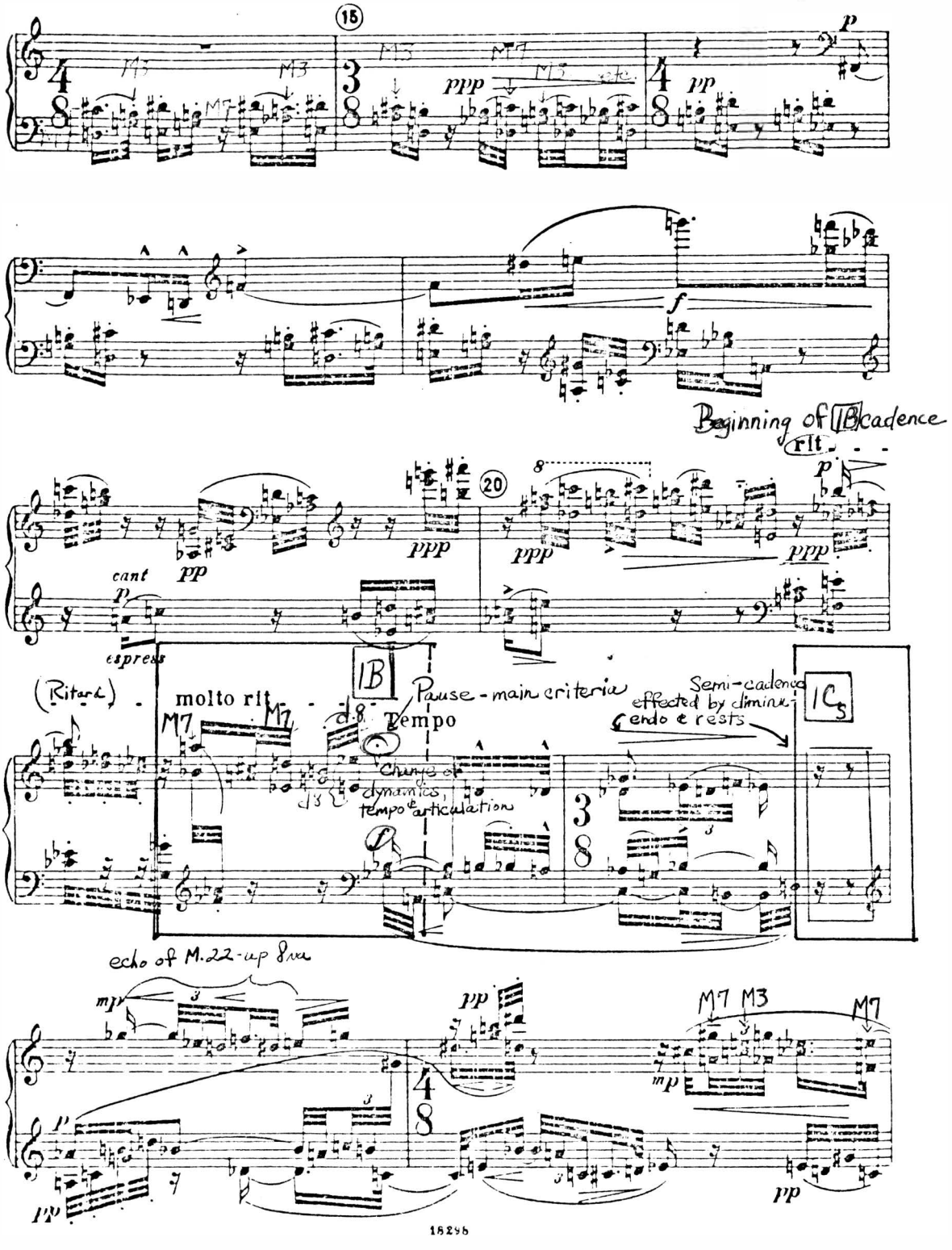
Funf Klavierstucke Op. 23 - 1 & 2 by Arnold Schoenberg (Wilhelm Hansen Edition) Used by permission of Lorenz Industries.

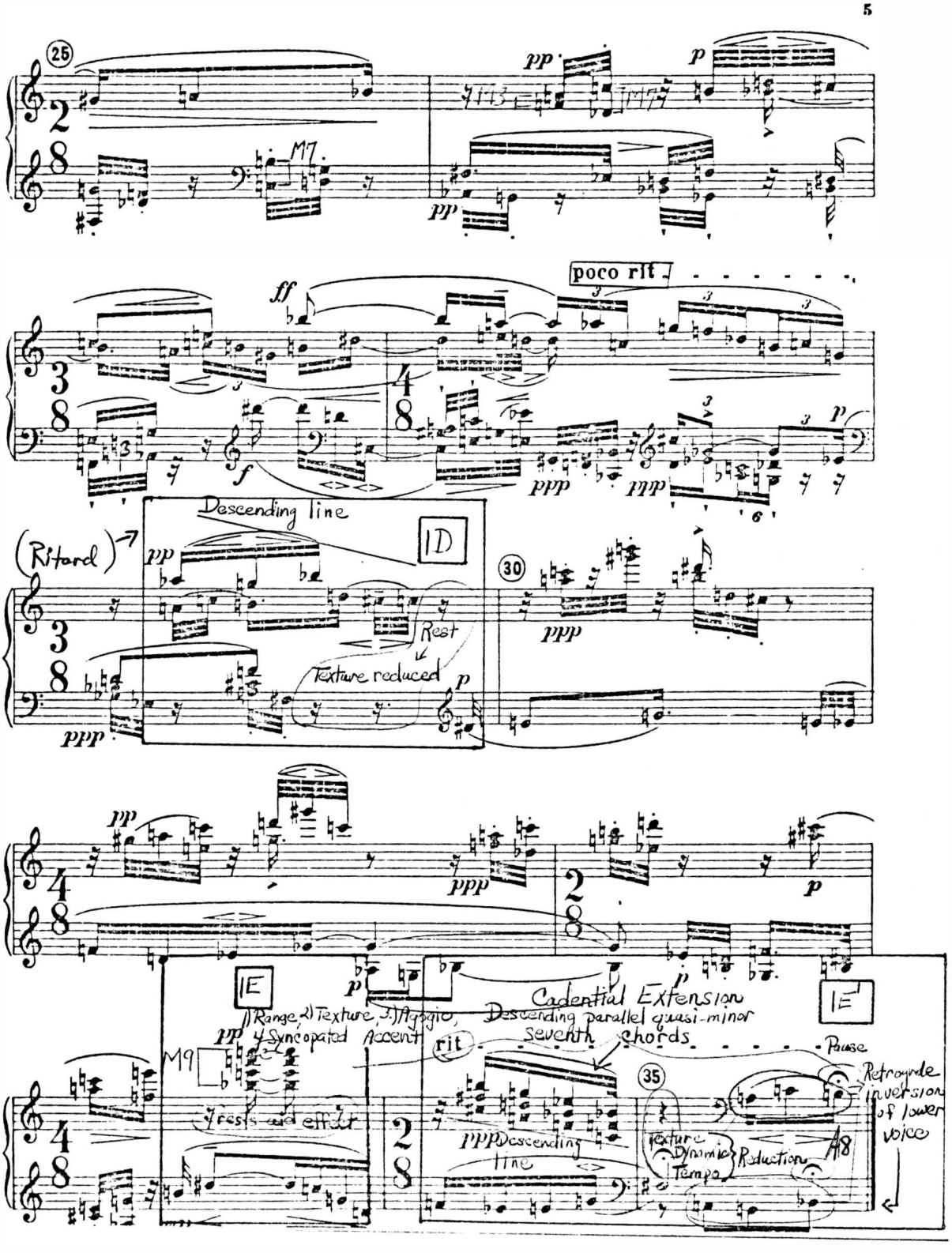
I

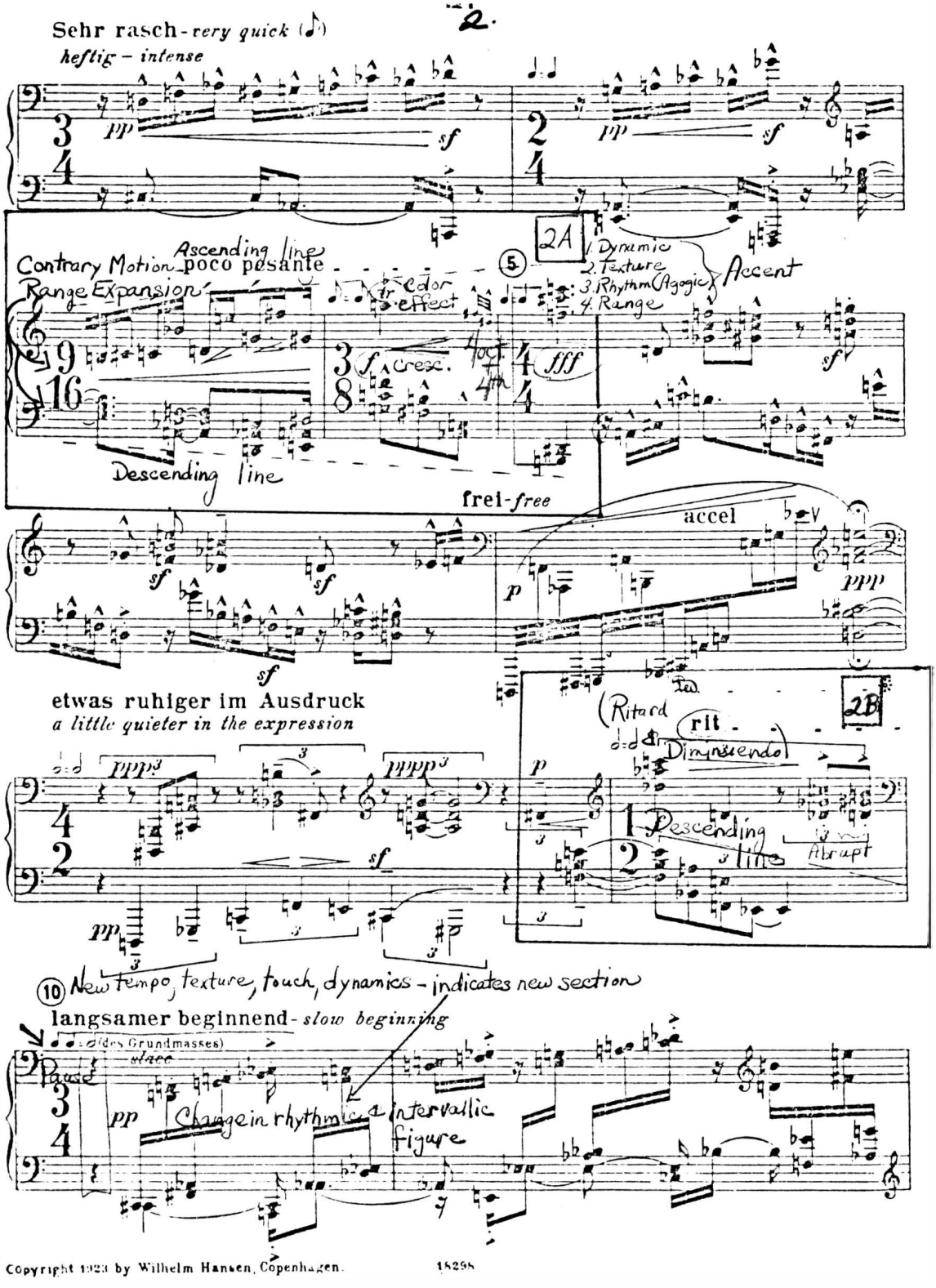
Arnold Schooborg
Fiiuf Klavierstiicke Op. 23
Jl'ir,6 Piano Piece,, Q . 23

1.




15
M3
M7
ppp
pp
p
f
Beginning of IB cadence
rit
20
cant
espress
(Ritard)
molto rit
IB
Pause - main criteria
Tempo
Change of dynamics, tempo & articulation
Semi-cadence effected by diminu endo & rests
IC5
echo of M.22-up 8va
mp
M7 M3
18296


5
25
pp
p
M7
pp
poco rit
ff
f
ppp
ppp
Descending line
1D
(Ritard)
pp
Rest
Texture reduced
p
ppp
30
ppp
pp
ppp
p
p
1E
1) Range, 2) Texture, 3) Arpgio,
4) Syncopated Accent
pp
Cadential Extension
Descending parallel quasi-minor
seventh chords
1E
rit
Pause
M9
rests and effect
35
Retrograde inversion of lower voice
PPP Descending line
Texture
Dynamic
Tempo
Reduction
A8



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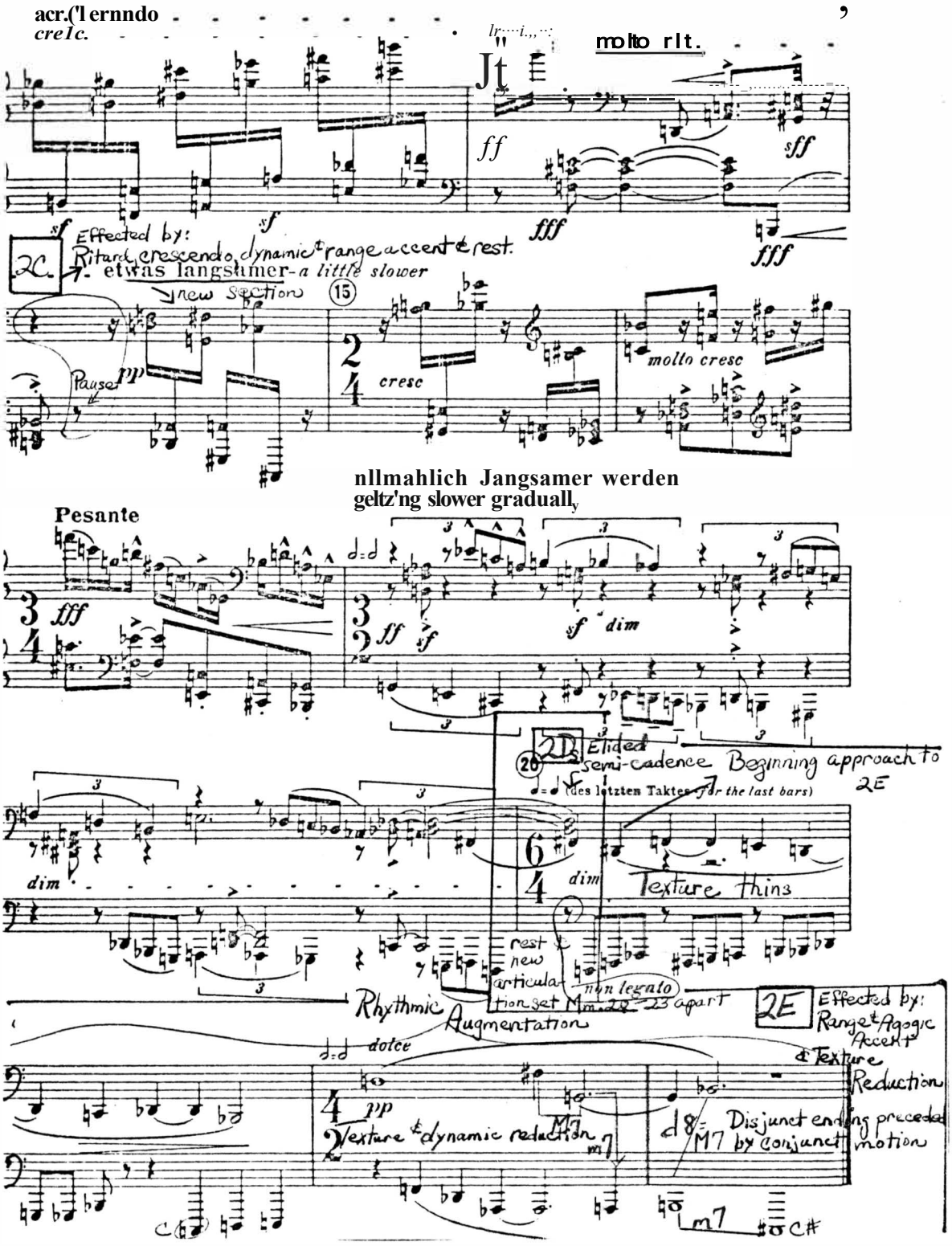
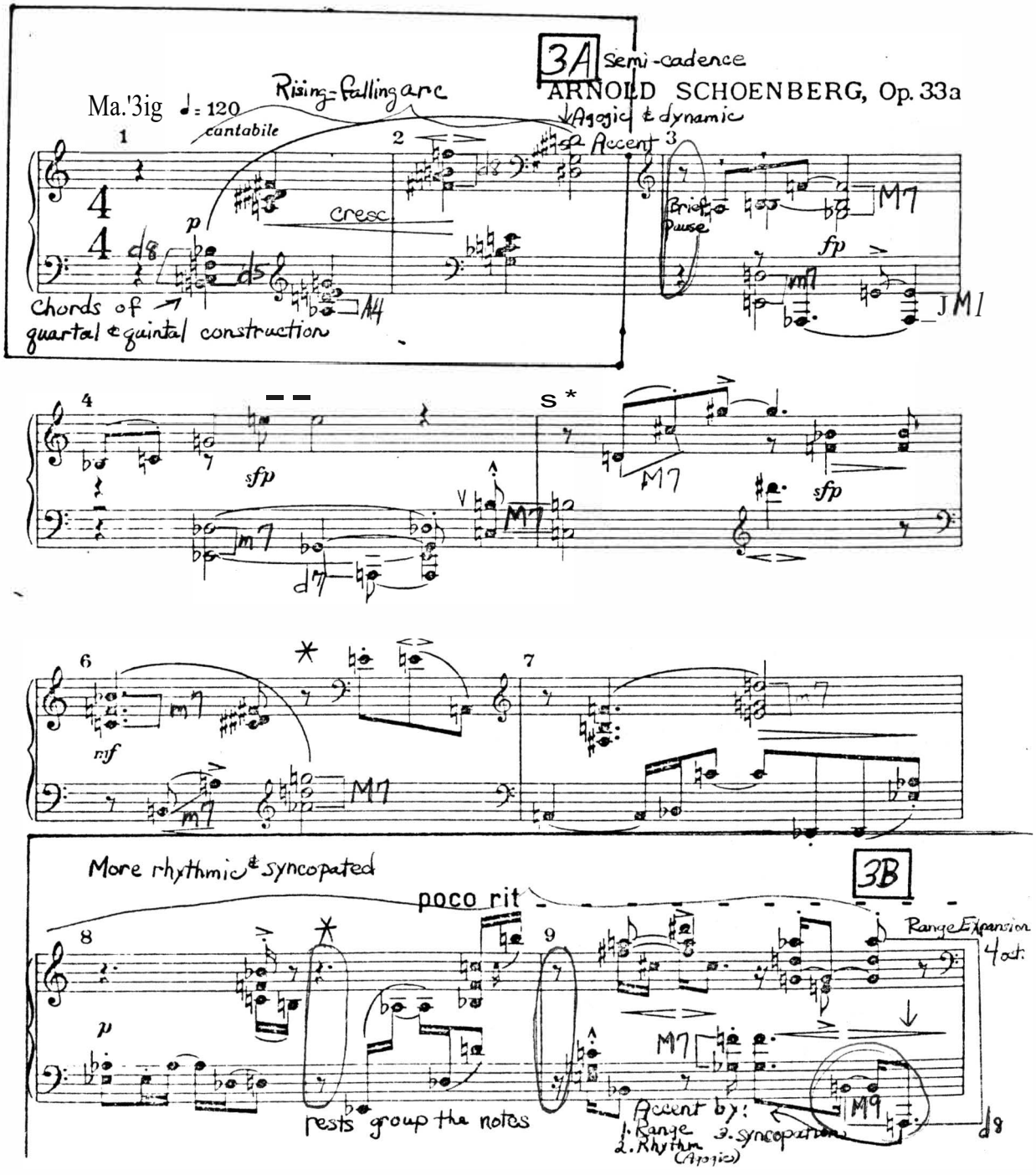
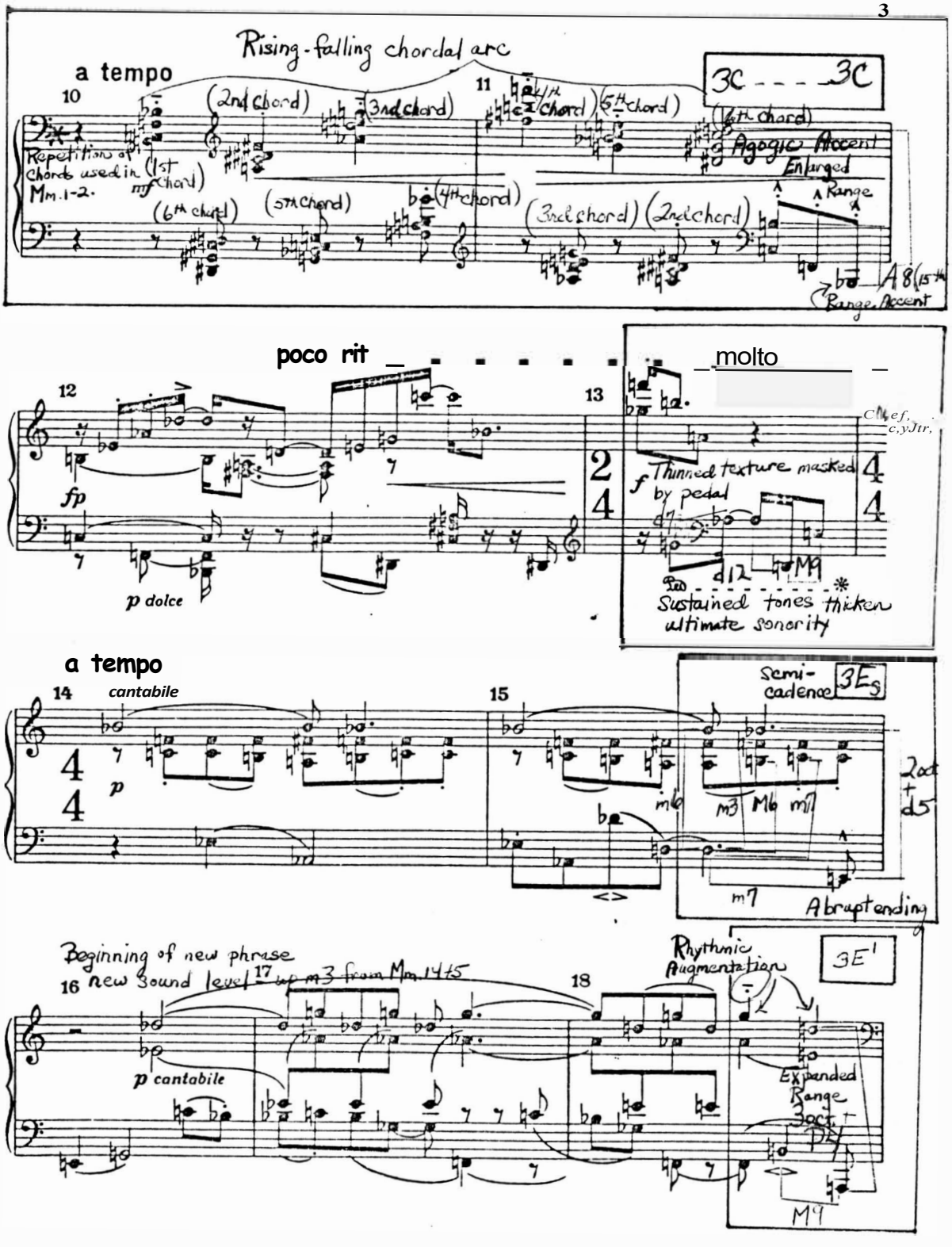

acr.(l ernndo
cre1c.
molto rlt.
ff
sff
fff
Effected by:
Ritard, crescendo, dynamic range accent & rest.
2C
etwas langsamer - a little slower
new Section
15
Pause
pp
cresc
molto cresc
nllmahlich Jangsamer werden
geltz'ng slower graduall y
Pesante
fff
ff
sf
dim
2D
Elided
semi-cadence
Beginning approach to
2E
(des letzten Taktes - for the last bars)
Texture thins
rest &
new
articula-
tion set
non legato
Mm. 20 - 23 apart
Rhythmic Augmentation
dolce
2E
Effected by:
Range & Agogic
Accent
& Texture
Reduction
pp
Texture & dynamic reduction
M7
m7
Disjunct ending preceded
by conjunct motion
C#

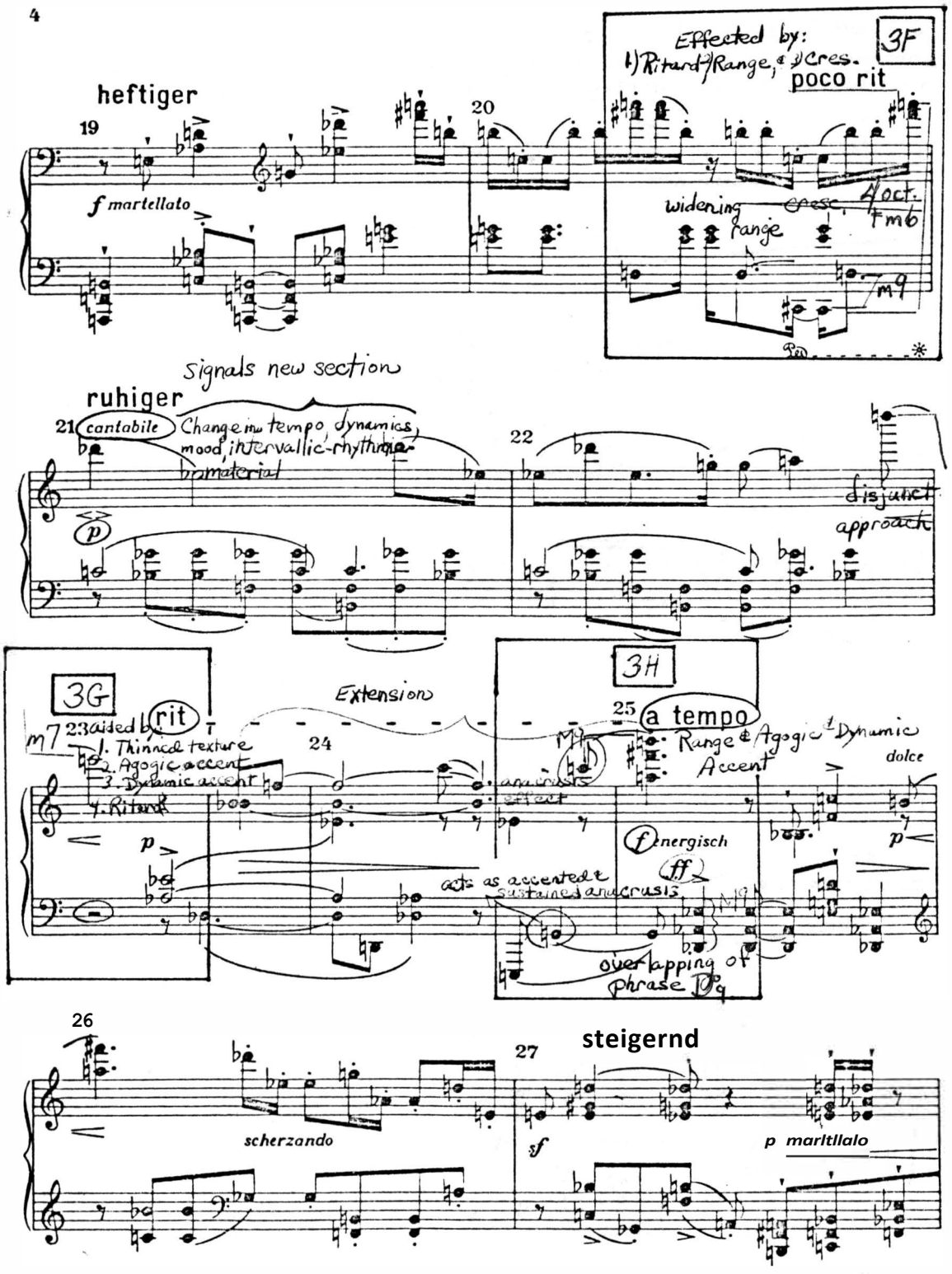
Klavierstück Op. 33a - Arnold Schoenberg. Used by permission of Belmont Music Publishers, Los Angeles, California 90049.

2 Aufrilhrungsr.,cht vurbchalten
D1.oit1 d"r,.xicution risen>ea

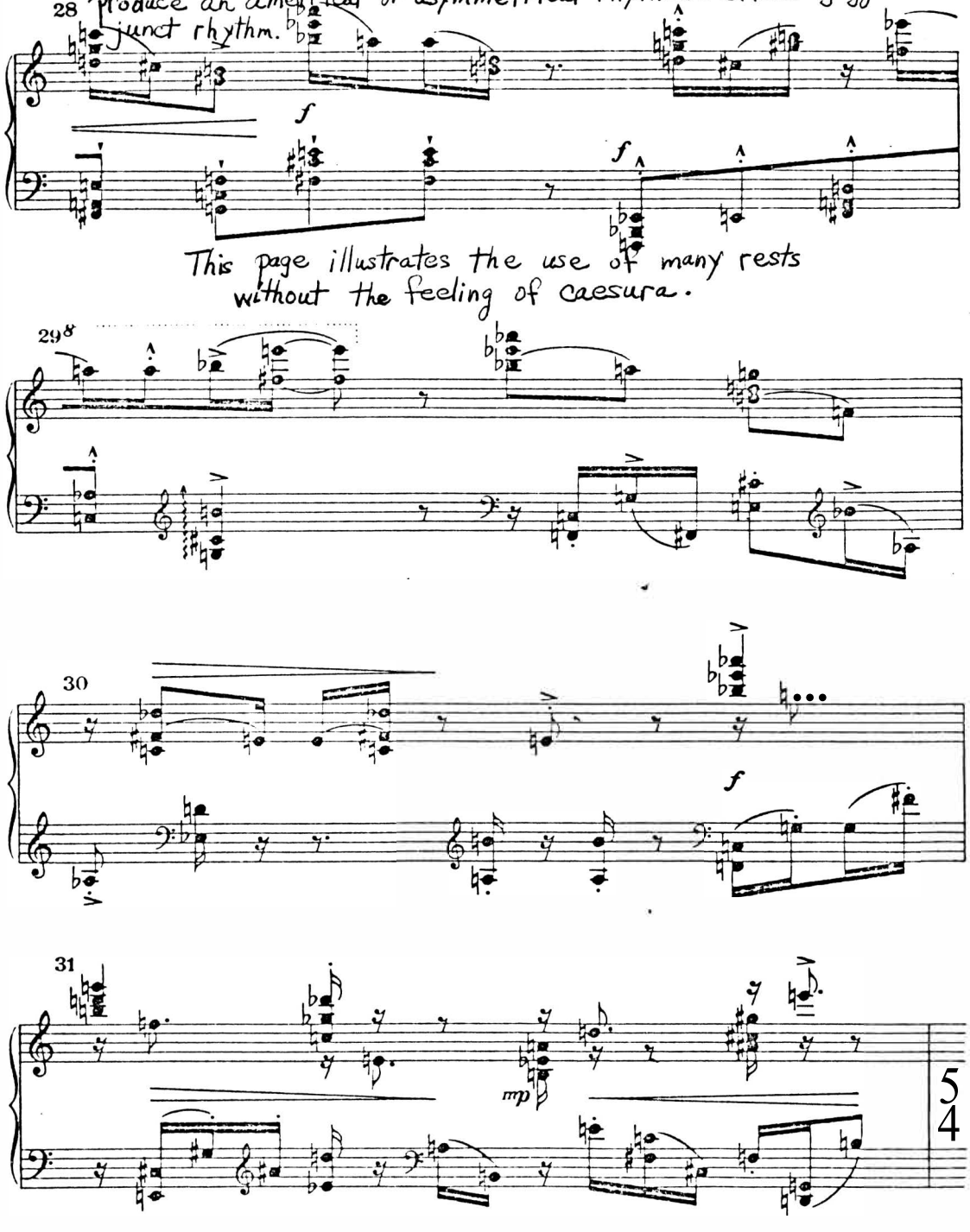
KLAVIERSTÜCK




3
Rising-falling chordal arc
a tempo
10
11
3C - - - 3C
(2nd chord)
(3rd chord)
(4th chord)
(5th chord)
(6th chord)
Repetition of chords used in Mm. 1-2.
(1st chord)
Agogic Accent
Enlarged Range
Range Accent
poco rit
molto
12
13
fp
p dolce
f
Thinned texture masked by pedal
Sustained tones thicken ultimate sonority
a tempo
14
cantabile
15
p
Semi-cadence
3E5
Abrupt ending
Beginning of new phrase
16
new sound level
17
18
p cantabile
Rhythmic Augmentation
3E1
Expanded Range


4
heftiger
19
20
f martellato
Effected by:
1) Ritard/Range, & 2) Cres.
3F
poco rit
widening
range
4 oct.
+m6
m9
Ped.
*
Signals new section
ruhiger
21
cantabile
Change in tempo, dynamics, mood, intervallic-rhythmic material
22
disjunct
approach
p
3G
3H
Extension
m7
23 aided by
1. Thinned texture
2. Agogic accent
3. Dynamic accent
4. Ritard
rit
24
25
a tempo
Range & Agogic & Dynamic Accent
dolce
p
f energisch
ff
acts as accented sustained anacrusis
overlapping of phrase
m9
26
scherzando
27
steigernd
sf
p marttllalo

Rests group notes, but no caesuras are felt because of the constant motion of the unyielding rhythms. The 4 beats per measure produce an ametrical or asymmetrical rhythmic effect - jagged & disjunct rhythm.



This page illustrates the use of many rests without the feeling of caesura.

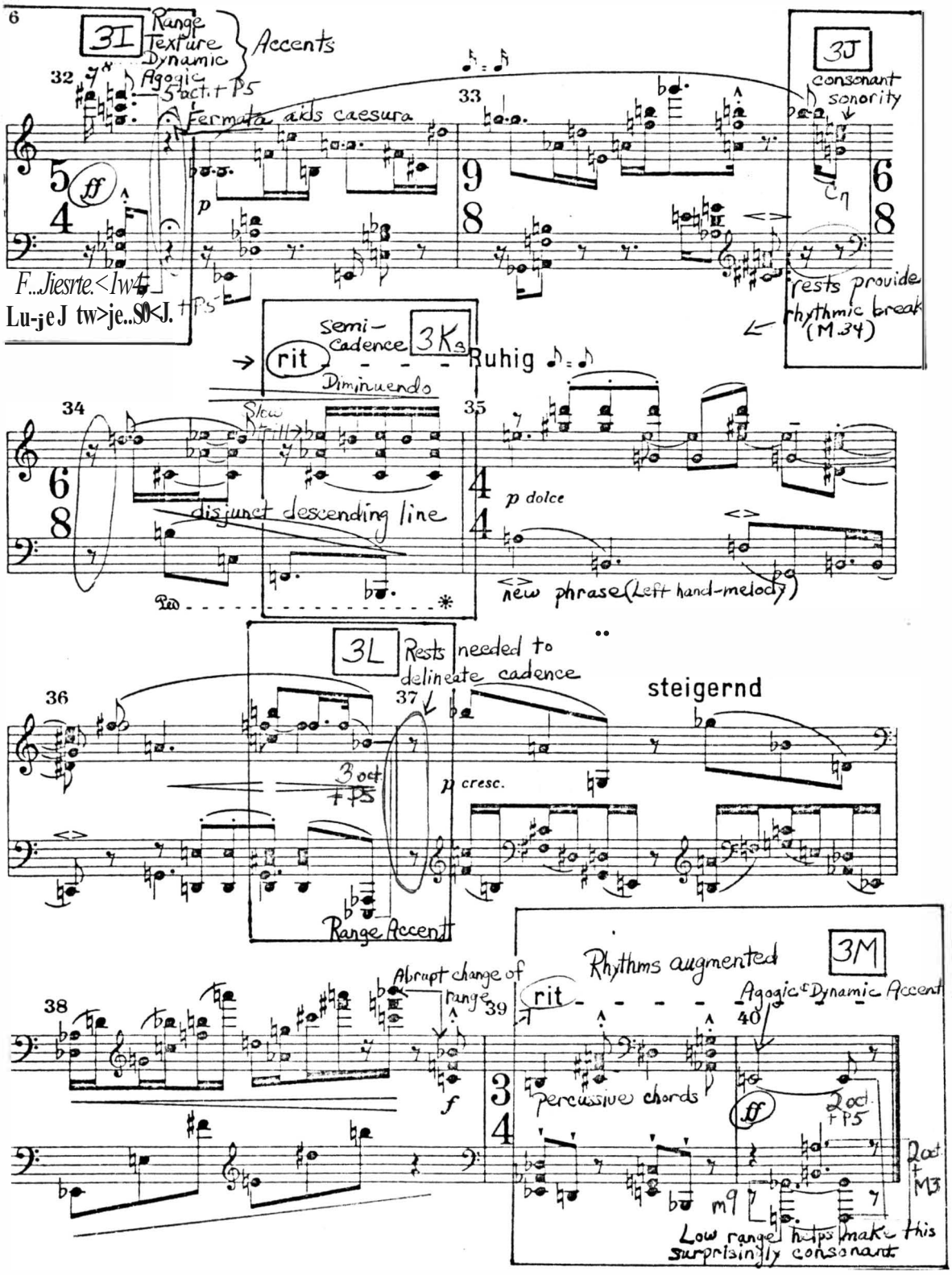

3I
Range
Texture
Dynamic
Agogic
Accents
5act. + P5
Fermata aids caesura
3J
consonant sonority
rests provide rhythmic break (M.34)
semi-cadence
3K
rit
Ruhig
Diminuendo
Slow
disjunct descending line
p dolce
new phrase (Left hand-melody)
3L
Rests needed to delineate cadence
steigernd
3 oct + P5
p cresc.
Range Accent
Abrupt change of range
Rhythms augmented
3M
rit
Agogic & Dynamic Accent
percussive chords
2 oct + P5
2 oct + M3
Low range helps make this surprisingly consonant

Chart of Cadential Consonance or Dissonance of Cadences of Klaverstack Op. 33a

Ultimate Cadence Sonority	Degree of Consonance or Dissonance	Intervals from Lowest to Highest	Preceeding Phrase Dissonance	Other Influencing Factors
3A	MD	d8 m7 P4	penultimate chord= C4 = VC, making 6a MD in comparison	crescendo to 3A, agogic accent, diminished oct. range of 3A.
3B	MC-C	4 oct. + d8 3 oct. + P4 2 oct. + m7 M9	MD in m. 8 to D. in m. 9	rhythm syncopated; heavier texture; wide spacing of intervals; solitary sound of 1 note at end-lower & softer.
3C	MD	same chord as 6a + M7 descendiBg B - 2 oct. to B = A 15th	VD, same chords as m. 1-2, but diff. order, louder and percussive	Dim. & wide spacing and melodic sounding t (; = b5 g !aves last impression.
3D	D-VD	bass line-horizontal intervals: up d7-down d-12- up M9 Ped. sustains M7-d5-M9 above	MD	Sustain pedal pro- duces a more dissonant quality at 6d. forte level; traditionally dissonant intervals.

Chart of Cadential Consonance or Dissonance of Cadences of KlaverstUck Op. 33a

Ultimate Cadence Sonority	Degree of Consonance or Dissonance	Intervals from Lowest to Highest	Preceeding Phrase Dissonance	Other Influencing Factors
3E	**MC-MD**	m6 m3 *m1* bass drops m7 to form 2 oct. + d5 from bottom to top note of 6e chord; adds diss. on last .	VC	without the drop of m7 in bass (d-e) the final 3E cadence sonority would be C-**MC.** Soft dynamics aids concordant quality.
$3E^2$	**C**	2 oct. + m3 p 11 bass then drops M9 forming 3 oct. + P4 in outer voices	**C**	soft, slow, cantabile style, repeated pitches; very homo-phonic; wide range of 3E.
3F	**MD-D**	4 oct. + m6 4#oct. + P4 C : up m9	D	crescendo & sustain pedal added at cadence to compound **sonorities; extrewe** range from bass C up 4 oct +#m6 to accented F -A.
3G	VC	1 pitch, high E approached from high D above = down m7	**C**	**thinned texture; 1** half-note pitch at 6g - cannot clash with other intervals.

Chart of Cadential Consonance or Dissonance of Cadences of Klaverstuck Op. 33a

Ultimate Cadence Sonority	Degree of Consonance or Dissonance	Intervals from Lowest to Highest	Preceeding Phrase Dissonance	Other Influencing Factors
3H	MD-D	4 oct. + P4 3 oct. + M7 G up: 3 oct. + M2	VC	wide range and widely spaced pitches.
31	VC	4 oct. + M6 4 oct. + M3 3 oct. + M7 A8 A^b : PS A^b drops m7 making final outer interval S oct. + PS- B^b up to F	VD	ff, 6-voices sonority of extreme range; very percussive climax to preceeding vigorous rhythms.
3J	C	m3 M6 P4 } aC_7 chord in closed position	MC	thinned texture; sonority of triadic structure; close spacing of C_7 chord.
3K	VC	3 oct. + P4 2 oct. + m7 B^b : 2 oct. + A2	C-VC	soft, slow trill figure in tr9b le; sonority= B minor 11th; widely spaced to ease tension or dissonance.

Chart of Cadential Consonance or Dissonance of Cadences of Klaverstuck Op. 33a

Ultimate Cadence Sonority	Degree of Consonance or Dissonance	Intervals from Lowest to Highest	Preceeding Phrase Dissonance	Other Influencing Factors
3L	MC-C	3boct. + P5 E : P4	MC	extreme range; lowest pitch of phrase ending softly.
3M	MC	2 oct. + P5 2 oct. + M3 1 oct. + A4 F: 1 oct. + m2	D	vigorous rhythm; dissonant disjunct intervals, crescendo to percussive chords in m. 39; the ff sustaining of all 5 pitches at end are quite consonant due -to low range and wide spacing.

From this chart we can perceive that cadence sonorities are more or less consonant or dissonant in relation to what was perceived immediately before. The type of intervals at ultimate chords sometimes determines the classification, though not always. Where one pitch terminates the cadence only consonance is perceived, (example 3G). Where there is a traditional triadic structure to end a phrase (example 3J), consonance is perceived. There can be no definite formulation of consistent elements needed to provide consonant cadences or vice versa. The cadential sonorities' range, spacing, intervallic construction, dynamic level. and rhythm all affect the overall quality, but each cadence is unique and needs to be examined separately in this complex twelve-tone idiom.

Fourth String Quartet, R

This work, written in 1936, is a masterpiece of serial composition. Even though it is very structured and ordered it gives an impression of freedom and spontaneity. This paper will deal only with the first movement. The downward arrows (i) indicates the placement of the final cadence sonority in the cadence passages. Example 14AI is a cadence procured by longer, accented notes, the homogeneous rhythm of the three lower parts, with the sustained whole-note in the first violin, agogic emphasis, and the consequent rest in each part at the end of the cadence. The repetition of pitches and similar motion of the four parts also supports a cadential feeling. The chief cadential technique is the augmentation of the rhythm from accented eighth notes in Mm.1-3 to accented quarter notes (with sustained tone above Mm.5), in Mm.4-5. The same techniques are used for example [![I. Uniform rhythm, articulation, repeated notes and similar motion are employed in the three lower parts while the first violin plays a sustained sonority., The crescendo to the sforzando on the abrupt sounding of the final cadence chord heightens the expectation of cadence. The following silence after [![I, M.16, beat 3, also signals a cadence. Example @II uses a rhythm in the three lower parts which becomes more homogeneous, though lively, along with a descending line and crescendo to the cadence end. The 'cello elides into the new phrase

as the top three instruments rest. It is interesting the Mrn.27-29 are conceived polyphonically, whereas at M.30, the conception is more "homophonic", that is, the material is more vertically constructed. This increased homogeneity of rhythm really helps to build a clear path to a cadence. At [!Q] is the beginning of a lengthy, fragmented cadence. Mm.57-65 contain so many caesuras that it is difficult to tell where the principal cadence occurs. The fermata at the end of M.65, with the following change of tempo, texture and material, is evidence that the principal caesura is at the end of M.65. A case could be made for the principal cadence to be placed on beat 3 of M.62 with the following three measures functioning as an extension. Rhythmically and texturally the cadence at M.62 appears more feasible, yet M.65 sounds like the conclusion of the lengthy, previous, fragmented section. The asterisks mark the other breathing points within this section. The 1) use of rests to divide the segments; 2) change of a. tempo, b. dynamics, c. texture, and 3) shift to the coloristic element of the tremolos in Mm.63-65; and 4) change in articulation (pizzicato vs. bowing), all help to group these nine measures (57-65) into small units. The cadence at @II is one involving the coloristic effect of the harmonic in the first violin, beat 1, M.78, which is sustained as the lower voices successively descend to the phrase end, thus widening the range right before the upbeat to the new phrase. Approaching the cadence, in Mm.75-77, the range is very expansive and gradually descends to the

lower pitches on beat 3 of M.78. The rests, again, are important breathing points following the final cadence sonority. A semi-cadence is felt at M.83, beat 1, example . This four-measure phrase (Mm.79-82) ends in an upward sweep on heavily accented eighth notes, with one and a half beats of rest following. Example @IJ is elided, but is easily perceived as a cadence due to the introduction of the whole-note value and use of the sustained vertical sonorities. The sudden shift from the crescendo in M.84 to the pianissimo on the cadence chord in M.85 affects the aural awareness of cadence here. This section, Mm.85-94, is similar to section I!QJ, with its shift in contrasting material. The measures after 85, up to 88, are an extension of @IJ which cadences at [![:], with the rests signaling the breathing point. Since the material in Mm.89-93 is so strikingly contrasting, this section can be thought of as a bridge passage, though not in a traditional sense. The coloristic opulence of sound produced by the tremolos and harmonics, plus the thickened texture, just merges into the new phrase beginning in M.94. There is such an abrupt pause before the second violin and viola begin the fortissimo line in M.94 that a feeling of cadential finality is lacking on beat 1 of M.94. The tempo and dynamics change at M.95 and a sense of line is renewed along with new decisive rhythmic activity. The bridge passage has the effect of suspending time and motion, thus abolishing a sense of caesura. E;J, though not a true caesura, marks the end of Mm.88-94 and the beginning of

the next section. Example @§] is easily recognized as a cadence. It is approached by harmonics and tremolos in a basically ascending figure as the texture thins. The final sound is a single low A in the 'cello followed by a relatively long silence in all parts. Example [!8] employs an increasing number of rests, uniform vertical rhythms, a descending line with diminuendo, and texture reduction, on beat 1 of M.187. Example [!!] is similar in cadential approach, but the viola, in this case, overlaps the cadence and new phrase at M.195. Example @I] uses augmented, homogeneous rhythms, similar motion and texture reduction to achieve a cadence on beat 4 of M.273. At 1!K], tremolos in the lower three parts are added for an agitated accompaniment to the disjunct descending line of half notes in the first violin. The first and third beats of M.280 give a very satisfactory feeling of finality, largely because here, the vertical sonorities are the heaviest or thickest, with thirteen pitches comprising the vertical chord. The additional four measures will be called cadential extension. The movement could end in M.280, although the extension serves as a final closing statement with its caesura felt in M.284, example *[ffi.* The repeated $C^{\#}$ in the top violin supplies a feeling of conclusion as does the uniform rhythm and use of similar intervals in the lower parts. In M.284, the movement cadences abruptly on beat 1 on a fortissimo, ten-part chord.

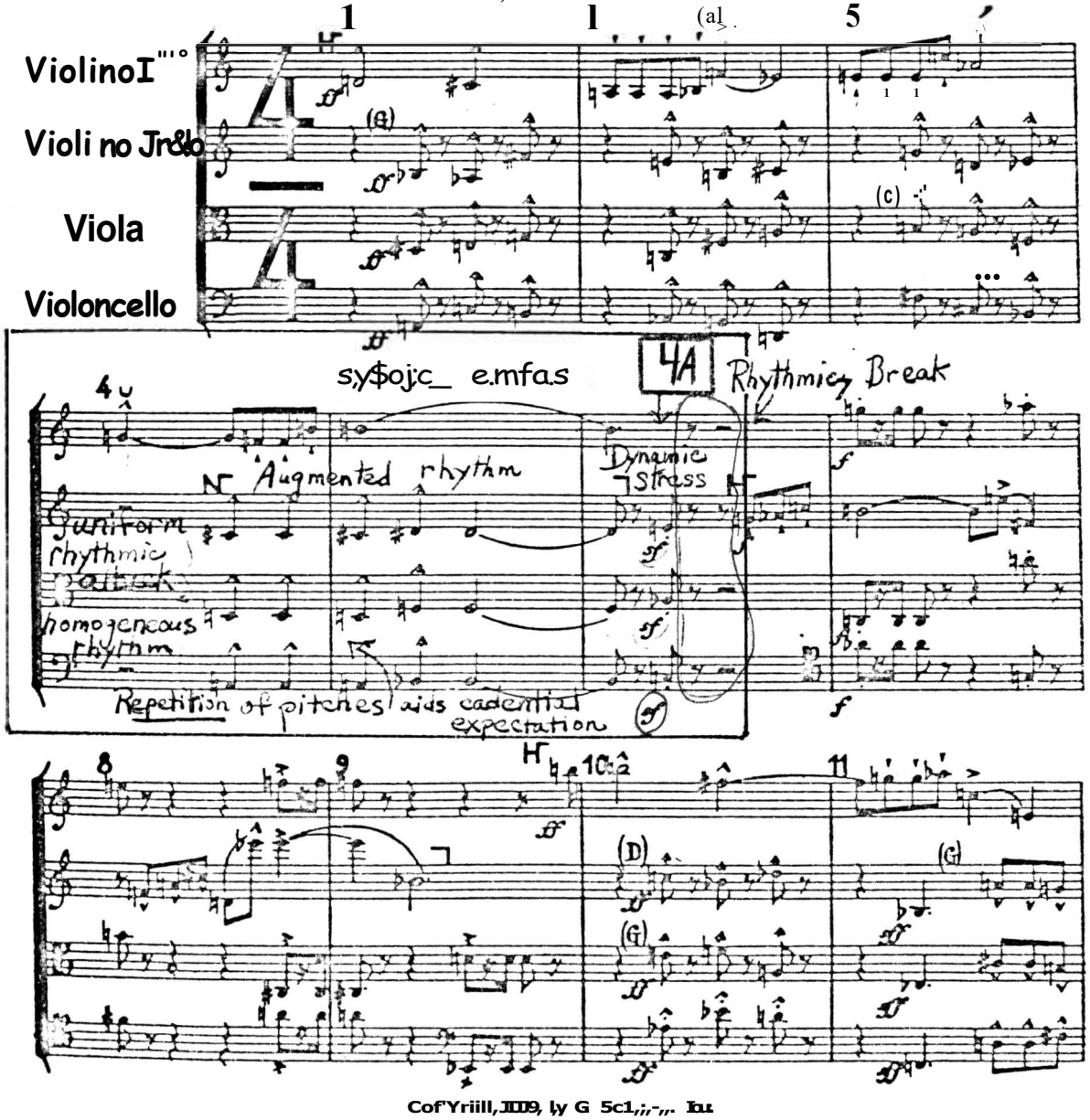
Fourth String Quartet Op. 37 - Arnold Schoenberg. Used by permission of G. Schirmer, Inc.

Fourth String Quartet

1

Arnold Schoenberg, Op. 37

I



Cof'Yriill, JIDD9, ly G 5c1,;,-,,. Iou
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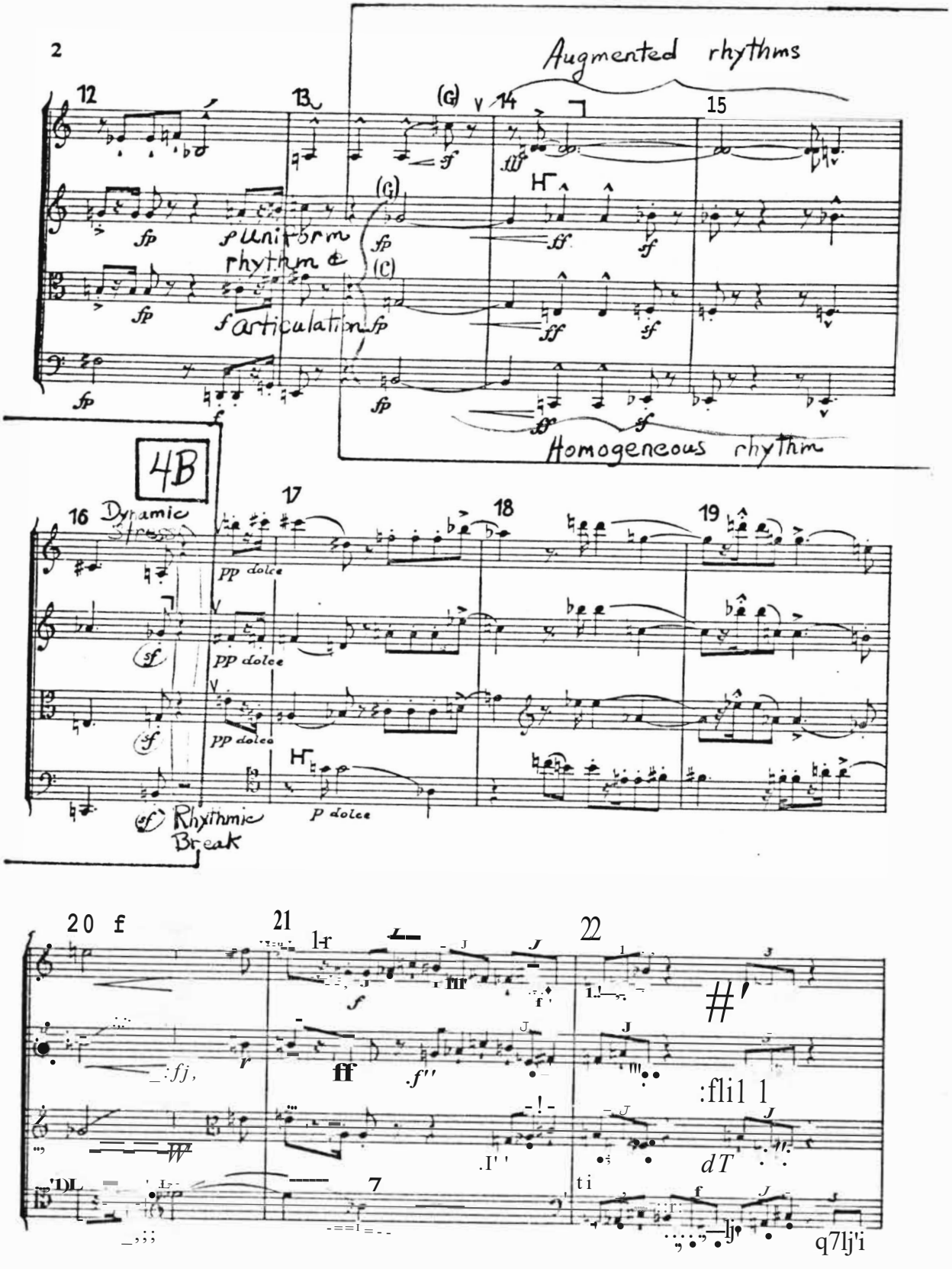
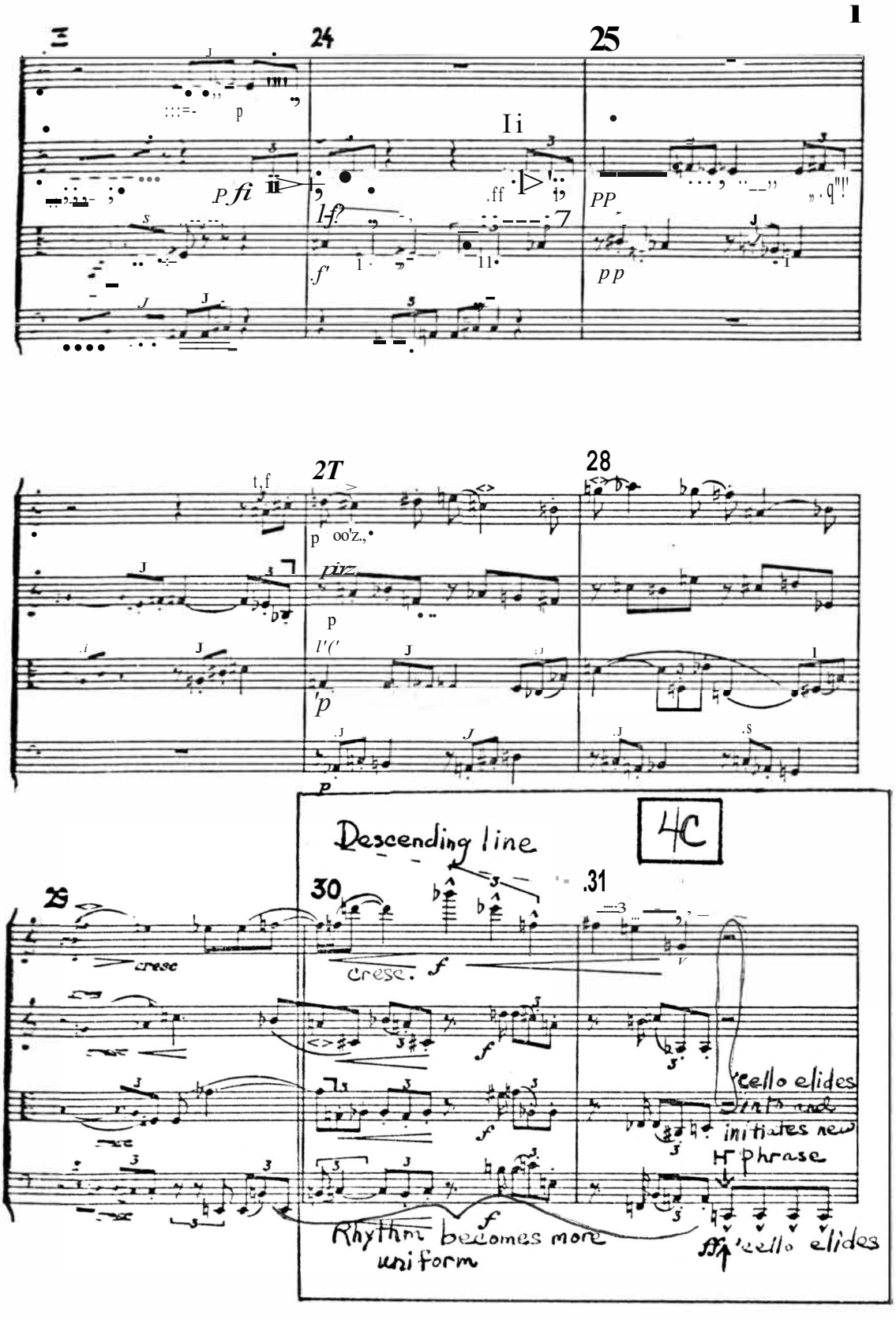
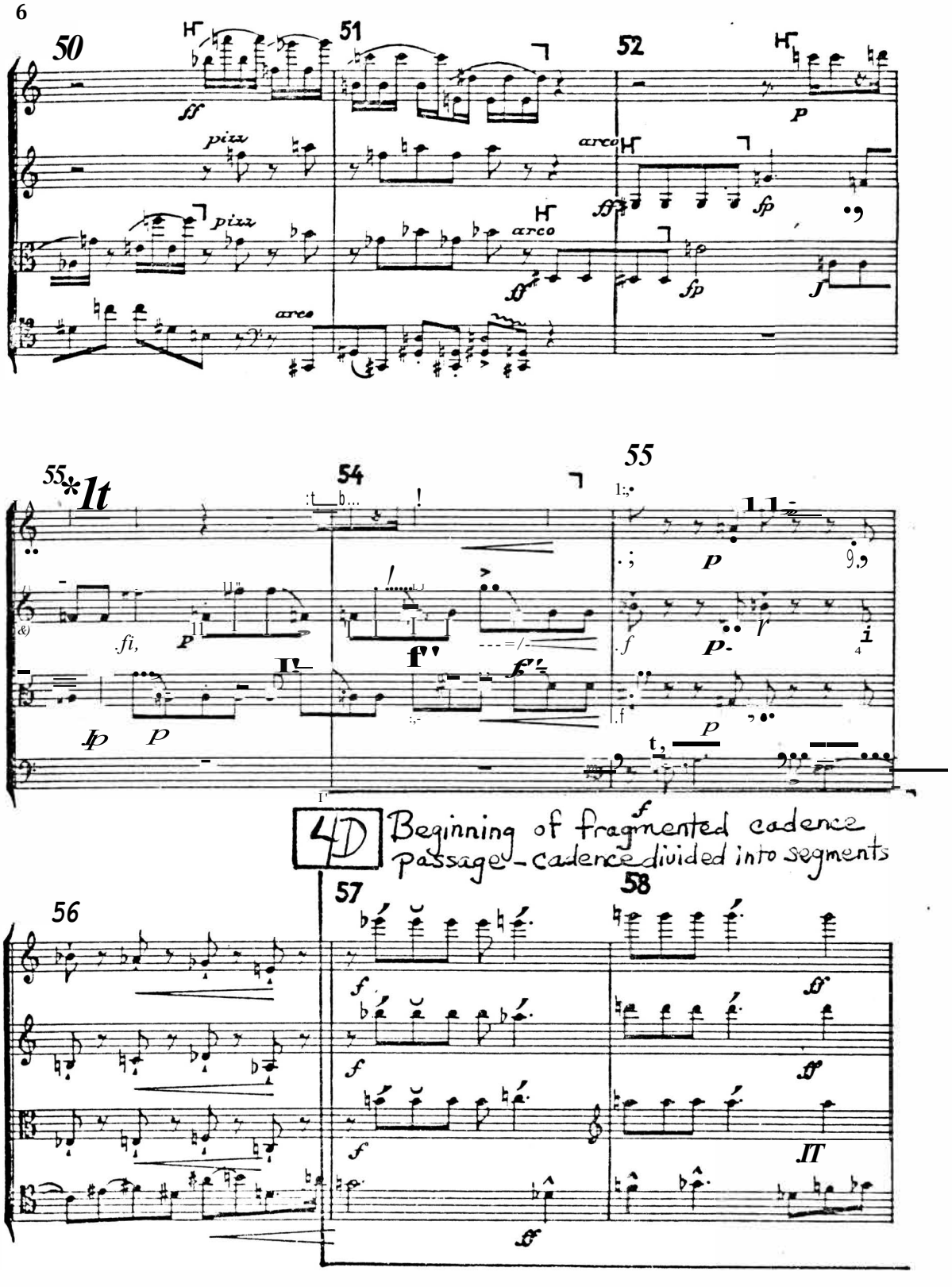
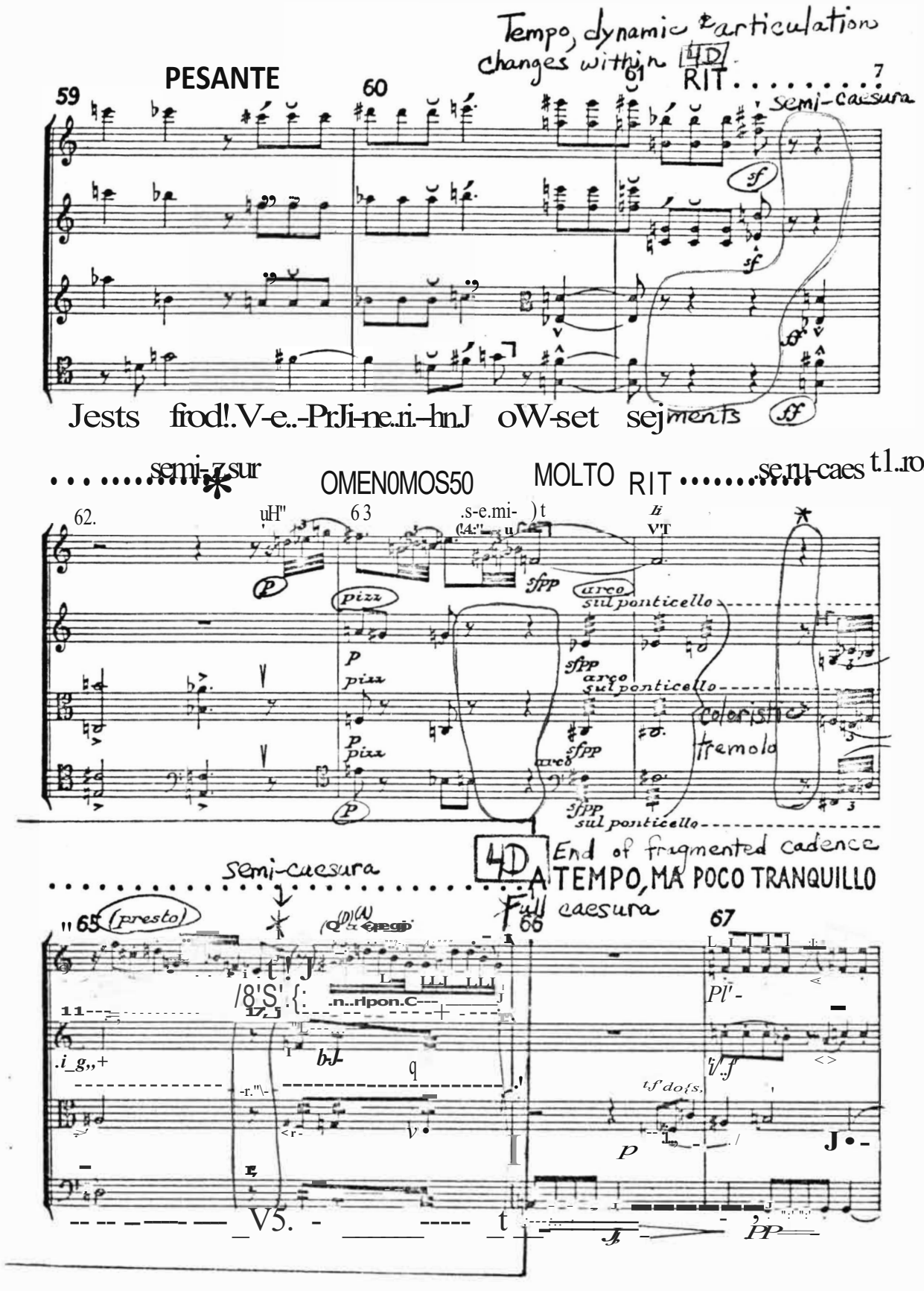
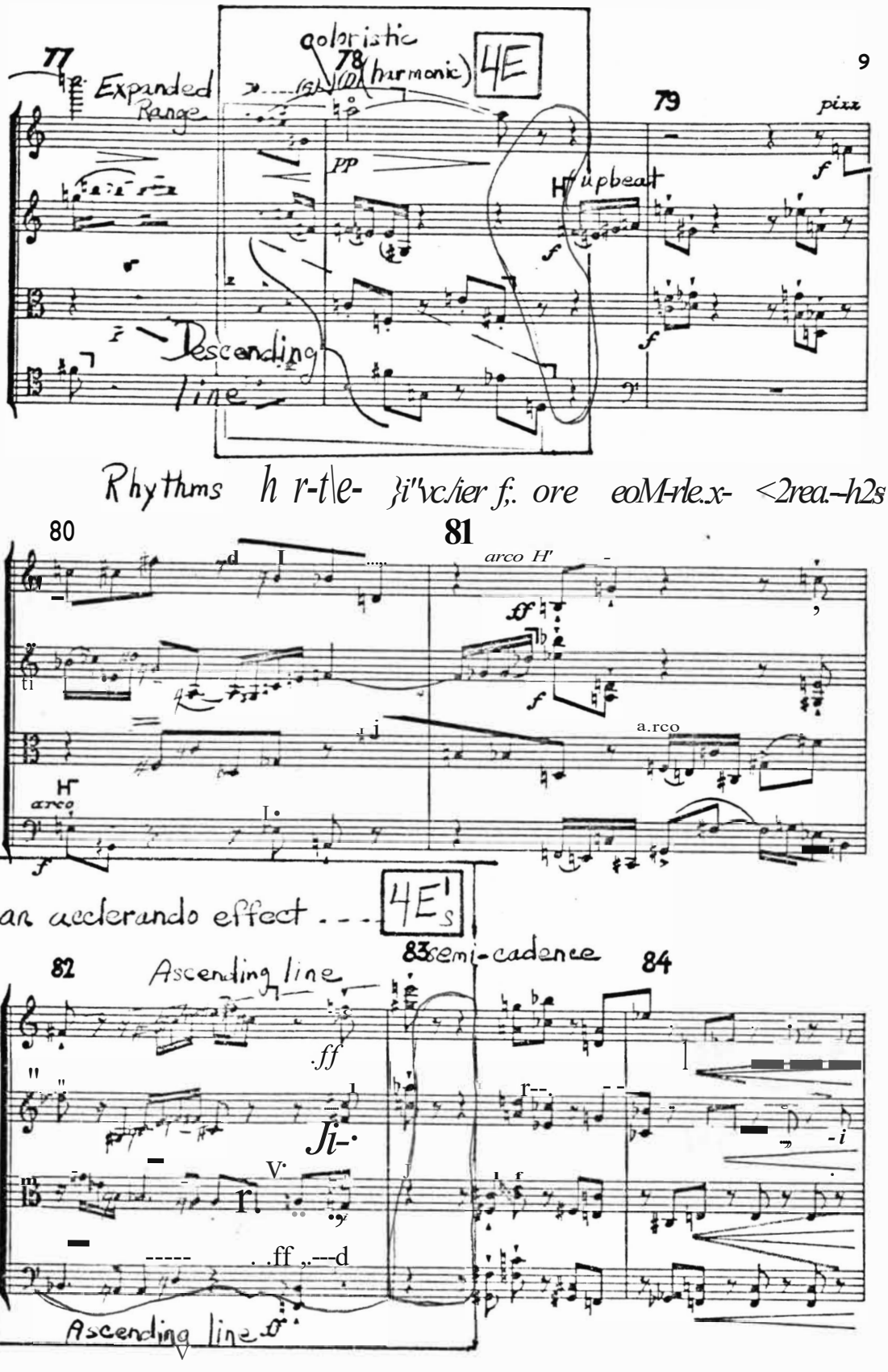
I'rial.d"'it. u. s A

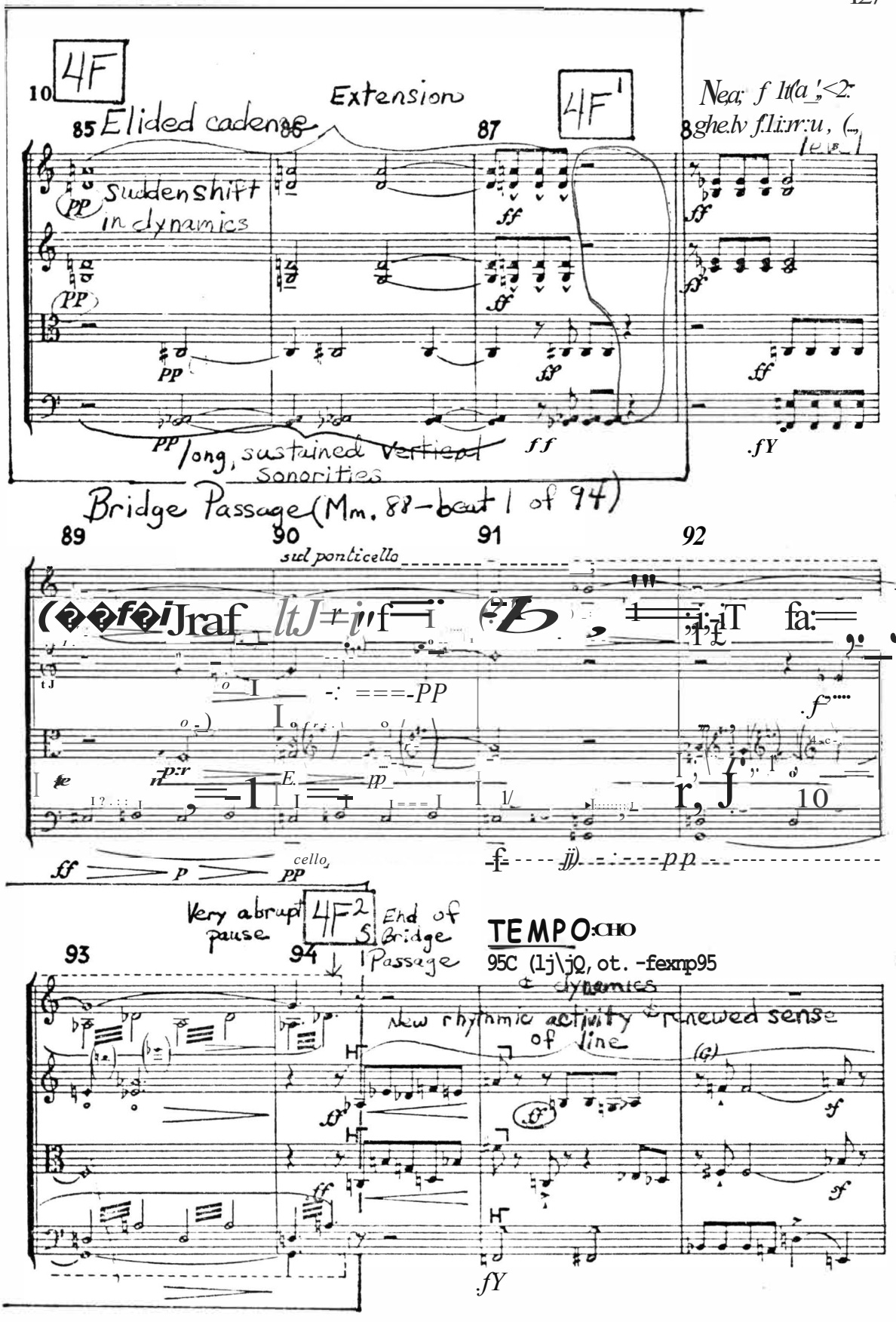

2
Augmented rhythms
12
13
14
15
(G)
(C)
sfp
sf
ff
Uniform rhythm & articulation
Homogeneous rhythm
4B
16
17
18
19
Dynamic
pp dolce
p dolce
Rhythmic Break
20 f
21
22
ff
fff
dT
q7lj'i

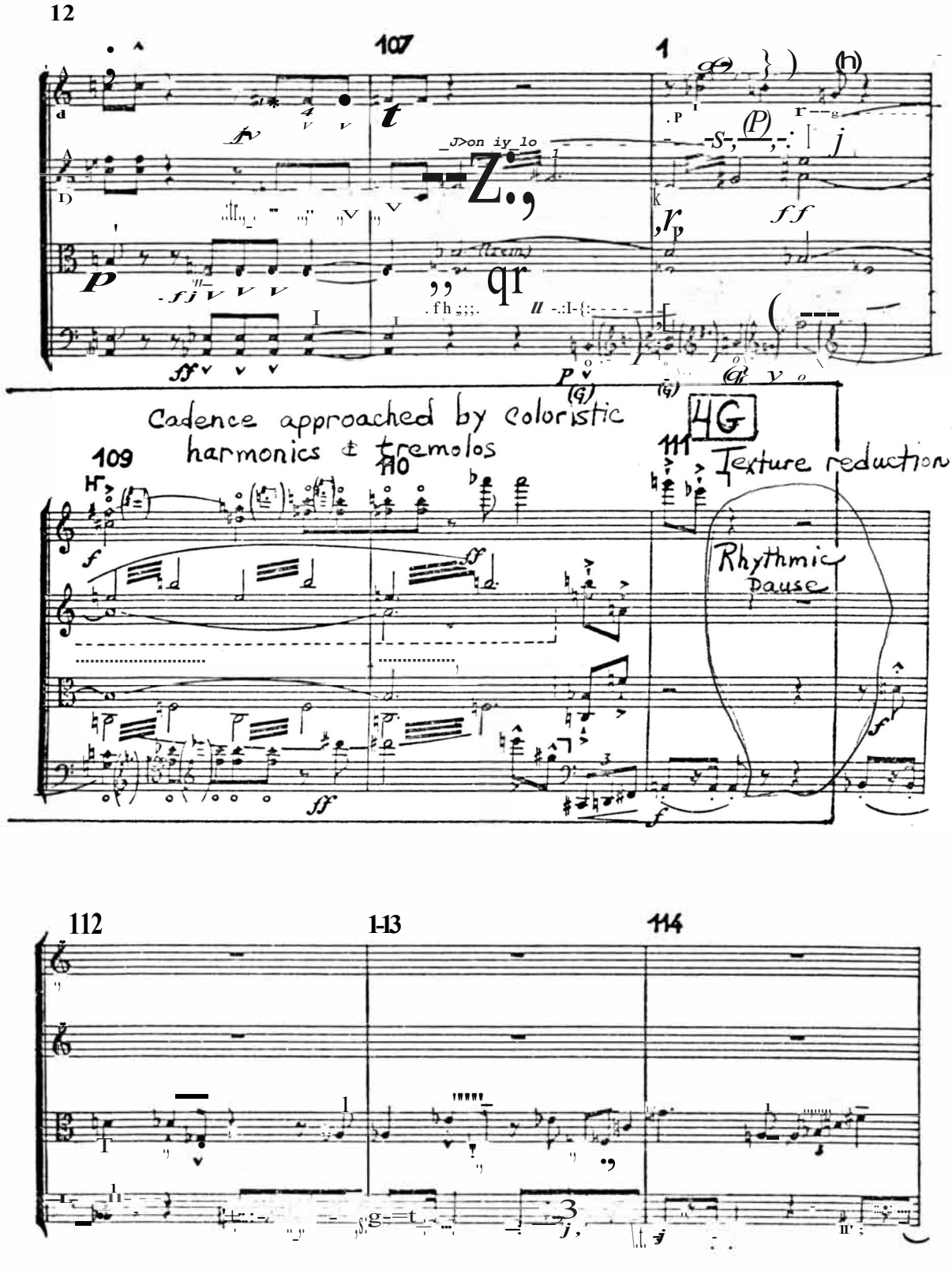

24
25
2T
28
Descending line
4C
30
.31
cresc
cresc. f
cello elides
initiates new
phrase
Rhythm becomes more
uniform
cello elides

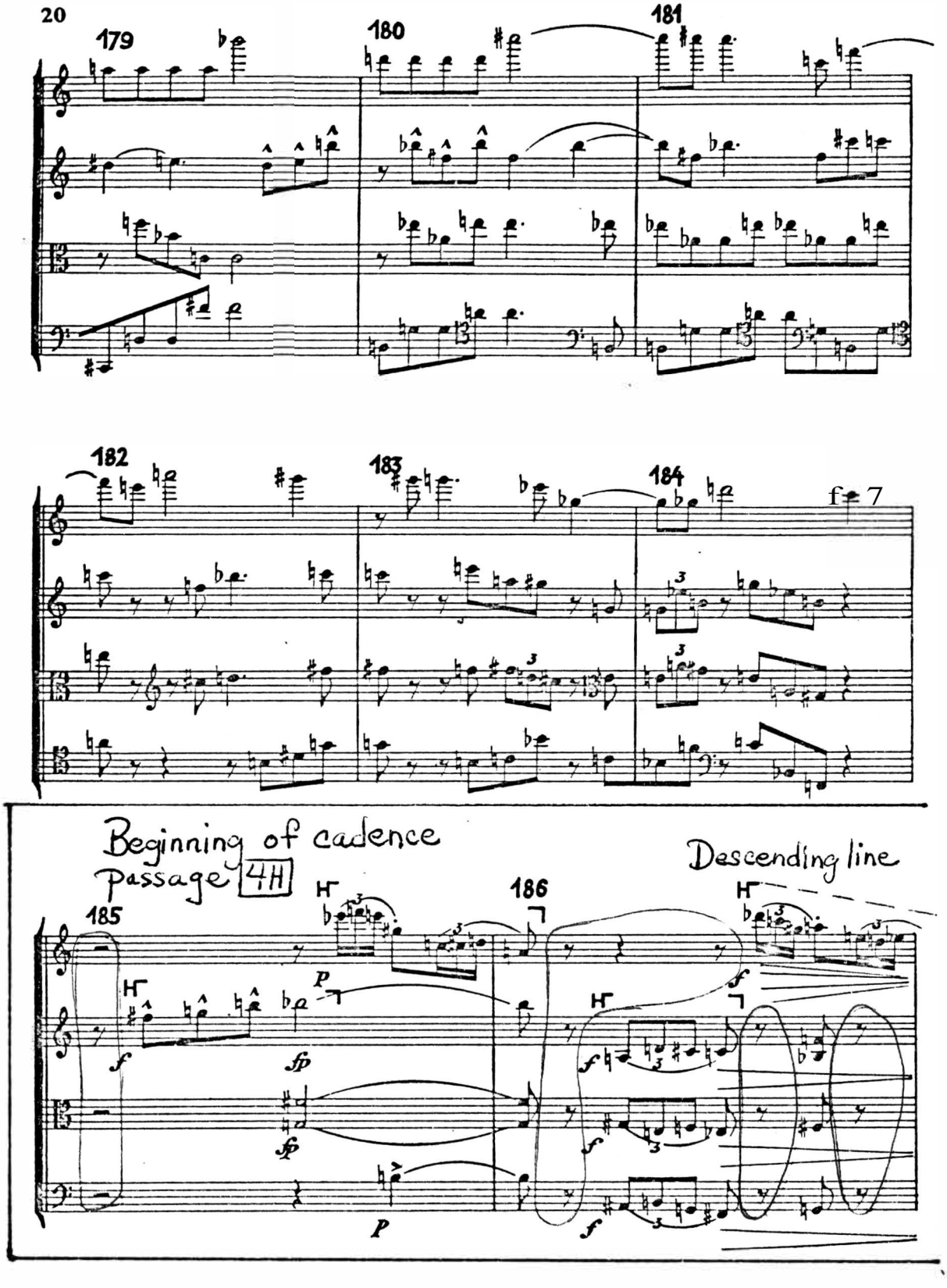

6
50
51
52
pizz
arco
ff
fp
p
f
55
54
55
fi,
f'
f''
4D
Beginning of fragmented cadence passage - cadence divided into segments
56
57
58
IT

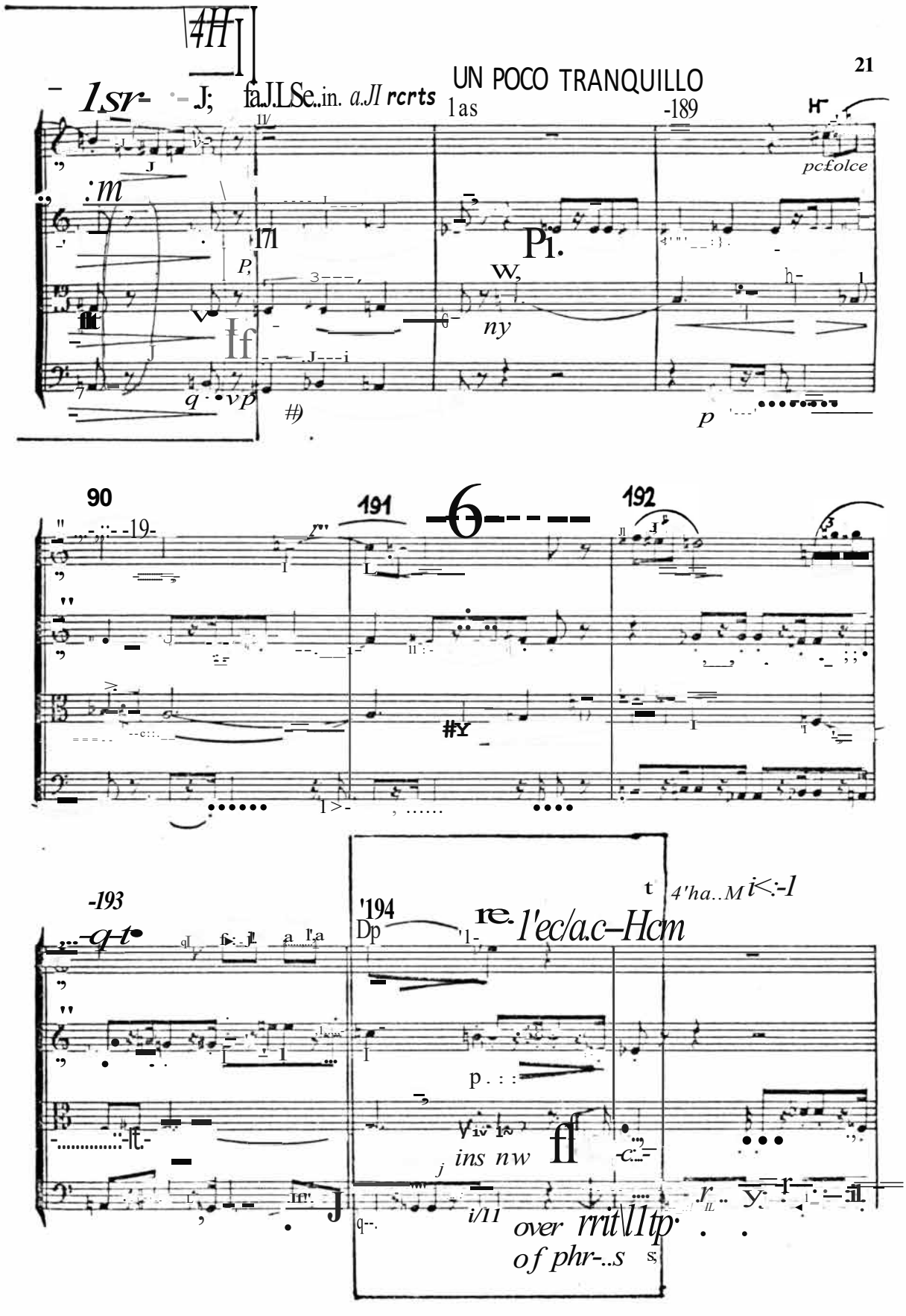

Tempo, dynamic & articulations changes within 4D
PESANTE
59
60
61
RIT
7
semi-caesura
sf
sf
sf
Jests frod!.V-e..-PrJi-ne.ri.-hnJ oW-set sejments
semi-z sur
OMEN0MOS50
MOLTO RIT
se.ru-caes t1..ro.-
62.
63
pizz
arco
sul ponticello
Coloristic tremolo
4D
End of fragmented cadence
semi-caesura
A TEMPO, MA POCO TRANQUILLO
Full caesura
65
(presto)
66
67
Pl'-
sf
sf dots.
P
PP

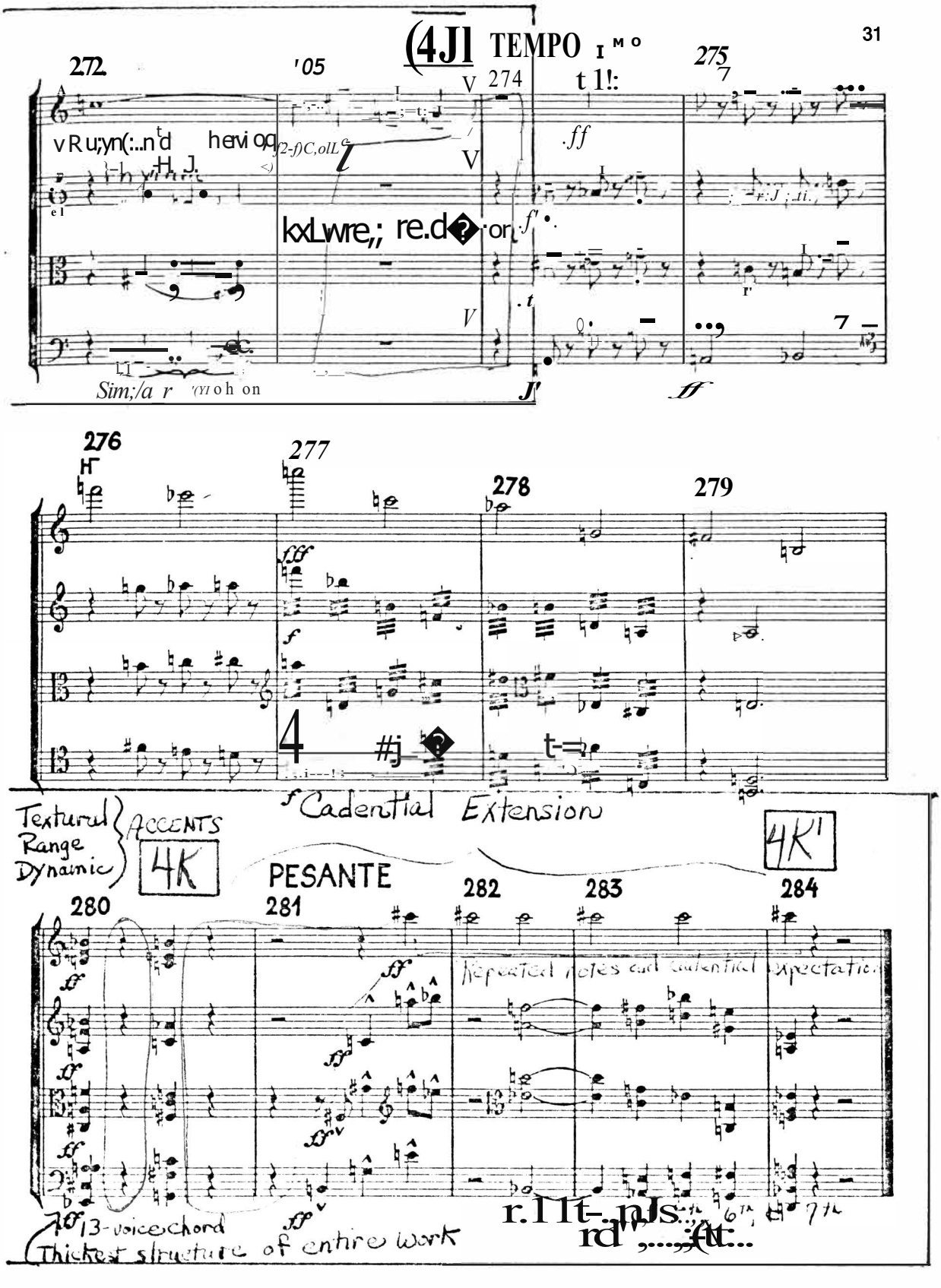

77
Expanded Range
78
coloristic
(harmonic)
4E
79
pizz
pp
upbeat
Descending line
Rhythms
80
81
arco
arco
a.rco
an accelerando effect . . .
4E's
82
Ascending line
83semi-cadence
84
.ff
Ji-
Ascending line


4F
10
Extension
4F1
85 Elided cadence
86
87
88
Sudden shift in dynamics
PP
ff
long, sustained sonorities
fY
Bridge Passage (Mm. 88-beat 1 of 94)
89
90
91
92
sul ponticello
cello
Very abrupt pause
4F2
End of Bridge Passage
93
94
TEMPO
95
dynamics
new rhythmic activity
renewed sense of line


12
107
1
Cadence approached by coloristic harmonics & tremolos
109
110
111
Texture reduction
Rhythmic pause
112
113
114


20
179
180
181
182
183
184
f
7
Beginning of cadence
Passage 4H
185
186
Descending line


UN POCO TRANQUILLO
21
-189
171
90
191
192
-193
'194
ins nw
over rrit\l1tp
of phr-..s


272
'05
TEMPO I MO
274
275
31
ff
Sim;/a r
276
277
278
279
f Cadential Extension
Textural
Range
Dynamic
ACCENTS
4K
PESANTE
4K'
280
281
282
283
284
Repeated notes and cadential expectation
13-voice chord
Thickest structure of entire work

Summary of Schoenberg's Cadential Techniques

Of the forty cadences discussed in the preceeding four works, thirty-three have rests or a fermata and pause following the ultimate cadence sonority, thus oroducing a true breathing point, or caesura. This one element, the rest, is a logical and workable way to produce the momentary cessation of motion and sound needed to experience cadence. The rests provide the demarcation between sections or between phrases. With elision used very sparingly, cadences are made quite obvious. A few other chief cadential characteristics in Schoenberg's music are: 1) agogic; 2) pitch; 3) range; and 4) dynamic accent; 5) texture reduction or addition on the ultimate sonority; plus 6) often the use of a ritardando approaching the final sonority. This slowing up produces a natural expectation of caesura. The consequent shift of tempo and change in texture, articulation, et cetera makes the previous cadential happening even more evident. The Fourth Quartet also uses another technique - that of homogeneous rhythms within the cadential phrase. One-third of the cadences in the Quartet use homogeneous rhythms coupled with rests to effect the cadence. It is evident that Schoenberg's cadential techniques are more discernible than several of the other composers studied (e.g., Debussy and Ives), because of his notated caesuras - the all-important rests.

Chart of Cadential Devices in Schoenberg's Works
(Total Cadences = 40)

Rhythmic Caesura (Pause)	Elision	Abrupt Breaking Off	Agogic Accent	Textural Accent	Linear Motion
1A	2D	ID	1E	1E	3F
IB	3H	2B	2A	2A	3K
1C	4C	2C	2E	3£[1]	4C
ID	4F	3B	3A+	31	4E
1E[1]	41	3C	3B+	4K	4H
2B	(13%)	3E	3C	(13%)	(13%)
2C		4F	3£[1]		
3D		4H	3G		
31		4K	3M		
3J		4K[1]	(23%)		
3L		(26%)	+brief pause		
4A					
4B					
4D					
4£[1]					
4F[1]					
4G					
4H					
4J					
4K					
4K[1]					
(56%)					

*These 3 have abrupt breaking-off quality also.

FRANCIS POULENC (1899-1963)

Introduction

Francis Poulenc, one of the members of "Les Six", a group of French composer-musicians who shared a general attitude towards music, was influenced *by* Satie and *the* French poet, Cocteau in their quest for simplicity and clarity of expression. "Les Six", composed of Darius Milhaud, Arthur Honneger, Georges Auric, Germaine Tailleferre, Louis Durey and Francis Poulenc, was, as Poulenc emphasized, "an association of convenience ... and not a group aesthetic."[1] Each composer maintained his/her own individuality and stylistic traits, but supported each other in their reaction against Impressionism. Their concern was for the restoration of a national music founded on clarity and vigor and rejecting the haziness and complexities of Debussy and Schoenberg. Poulenc reacted against Impressionism and strove for a return to melody, counterpoint, precision and simplicity. Compositional traits to be found in Poulenc's music are: 1) use of diatonic or folk-like melodies; 2) repetitive chordal accompaniment; 3) modal usage; 4) absence of complex contrapuntal structure; 5) thin texture; 6) use of ostinato and pedal point; 7) almost exclusive use of one motivic folk-tune-like idea - succinctness of material; 8) polytonality, bitonality,

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[1]Samuel Miller Trickey, B.M., M.M., Les Six, Denton, Texas, August, 1955, p. 63.

and often diatonic bichordality; 9) the combining of major and minor triads; and 10) simple-to-complex rhythms often with jazz and ragtime influences. All of the above compositional characteristics may not be present in the two works chosen for analysis, but these are Poulencian traits which contribute to his basically simple and popular style. One might take note of these distinguishing compositional features within the two works discussed: 1) much repetition of rather short phrases and their melodic motives and harmonic progressions; 2) the use of many seventh chords, some dominant, but many non-dominant in function, and the use of ninth and eleventh chords occasionally; 3) the use of pedal point and ostinato; 4) modal inflections; and 5) simple metrical rhythms.

Suite Francaise Pour Piano

Poulenc's piano suite, written around 1935, contains seven dance movements or sections, all typifying Poulenc's simple, straightforward compositional techniques. Although these seven pieces sound traditional and often use traditional harmonic progressions within phrases and at cadence junctures, there are some unique, unorthodox harmonic progressions, key shifts, and/or cadences in all seven of the dance movements. It will be apparent that at times there is a seeming duality of keys or a bitonality, and various interpretations of a passage may be feasible. In the Suite Francaise bitonality is not the appropriate term for Poulenc's dissonant chord structures. This paper uses the term bichordal to mean Poulenc's superimposition of two diatonic chords of the same key. It is this ambivalence of, or better, this vertical juxtaposing of diatonic chords which gives this mild, consonant-sounding music its uniqueness and charm.

I. "Bransle de Bourgogne"

The first, short dance is named after the popular sixteenth century group dance, the bransle; Poulence titles it, "Bransle de Bourgogne," (of Burgundy). Possibly this is to be reminiscent of the sixteenth-century "follow-the-leader" type, swaying dance in duple meter. It certainly gives a "follow-the-leader" effect with its numerous phrase repetitions. This 57-measure piece incorporates

only three melodic ideas, each four measures long. Each melodic idea could be said to have two motives or figures arranged in a question-answer type phrase structure: 1) Mm.1-4 with Mm.1-2 the question and Mm.3-4 the answer; 2) Mm.9-12, same two-measure division as number 1; and 3) Mm.17-20, with Mm.13-16 first sounding this idea with an inconclusive ending or semi cadence at M.16. The strongly concluded cadence is in M.20. This third idea found in Mm.13-20 could be said to have three motives, the third being the cadence, Mm.19-20. With Poulenc's use of repetition there is succinctness of material, but variety is achieved through various changes in chord spacings, range, and texture. Intra-phrase material is important to study to better understand cadential techniques. This "Bransle", in C major, appears to begin in the dominant key, G major, and uses the $F^{\#}$ (raised 4th degree of C), to strengthen the G tonality. In actuality, G major is not established, but is used as a dominant-ninth pedal point for the first two measures, again returning as the penultimate chord of the cadence at [I!1. This initial sounding of the dominant-ninth is a prevalent sonority in the first movement and strengthens the tonic, C, while at the same time supplying (with the lydian inflection) some added color and ambivalence with the raised 4th degree, $F^{\#}$. A V_9 chord is not an extremely common beginning sonority nor an extremely common penultimate chord for a traditional perfect authentic cadence, which [!!I could be termed. The 9th of the V_9 looks like a suspension-type figure, carried over

from the ii_7, but it doesn't resolve - it just leaps down a 6th to the tonic, C, (M.4 and M.3). The V_9 is a true V_9 chord with a major ninth and not a form of the diminished seventh chord which would not be unusual as a penultimate cadence chord. The V_9 helps obliterate much of an eighteenth- or nineteenth-century sound idiom and establishes more of a twentieth-century sonority, just as many of the other ninth and eleventh chords set a 'modern' aural perspective to basically traditional triadic intraphrase harmonic progressions. Examples , M.10, and , M.12, support the preceding statement. The four-measure phrase (Mm.9-12) breathes at the end of M.10, with the same progression as M.12, but is less weighty or conclusive. The repeated harmonic progression is: V-IV-iii_7- ii_9 -V. A half cadence on the dominant results in M.10 and M.12, but the ii_9 adds the dissonant element and the modal inflection of mixolydian, (the ii_9 could be interpreted as the v_9/ V to V with lowered seventh, F). The next four measures, M.13-16, progress: I_6-iv_7- I_6 - iv_7 - I_6-V_6, with a half cadence at which is termed semi-cadence due to its[5] feeling of on-goingness or inconclusiveness. The caesura at [10 is a traditional perfect authentic cadence, ending: IV-V-1. the ii_9 which begins the cadence passage, M.19, is the only somewhat unusual chord in the progression. The "Bransle" could end here, because the rest of the movement is repetitious, except for a two-measure deviation, Mm.27-28, which produces the most dissonance yet heard. These contrastingly discordant two measures use the second figure

(the second two measures, Mm.3-4) of the first motive, but progresses from the V_9 (G_9) to a vi_7 in A major. The F, C, and G sharps pinpoint the A tonality, but the combining of the V and IV (E and D) chords in M.28 confuses the ear, at least momentarily, as to the tonality here. The last chord of M.27 is an A major ($!^6_4$) triad with a dissonant, non-harmonic B, in the lowest voice. M.28 vertically juxtaposes the V_6 and IV chord which results in a V_{11} or vii_9 structure. Here, the treble and bass sound contrapuntal in nature with the bass part ending on V_6 in A and the treble cadencing on the IV in A - example [IQ]. This is a bichordal cadence in a diatonic setting, in a fairly far-removed key from C. There is no smooth transition or modulation from the dominant of C to A major; the motive jumps up a major 2nd, M.27, and sounds a diatonic A major scale pattern in the top voice. The material following [I[I is an exact harmonic and melodic repetition of the first 20 measures, with some change in register and texture. M.36 cadences just like M.20 and M.57 and could serve as the final cadence, but Poulenc repeats the first 20 measures, with just slight change, to lengthen the movement and emphasize the mesmerizing motives one last time. One notices that all of the cadences end on either the I or V chords, with [I[I an extension of the V_6 chord in A. The penultimate, or second-to-the-last cadence chord, is the most significant in expressing a twentieth-century cadential sound. Also sharing this significance are the intra-phrase seventh and ninth chords (Mm.9-12). The other cadential traits to observe

are: 1) the use of a feminine ending on a weak beat for all of the cadences except [ill; and 2) the use of rests after the final chord in a11 cadences except 0]J and [ill. The symmetry, metri ca1 regularity, and basically harmonic (triadic) progressions are apparent and are the chief elements contributing to Poulenc's straightforward, popular style.

II. "Pavane"

The second movement of the suite, "Pavane", uses numerous non-dominant seventh chords for a coloristic effect. Chord progressions are shown to point out the use of seventh and ninth chords and to illustrate the frequent ambiguity of tonality. There is much shifting from F major and the relative minor, D minor, so that often an analysis in both keys seems necessary. Beginning in F major, the "Pavane" cadences with imperfect authentic cadences in M.4 and 8, Mm.5-8 being a repetition of Mm.1-4. There is nothing unorthodox about the phrase and cadence of [gfil. The two [m cadences can be analyzed as 'deceptive' on vi in For as a perfect authentic cadences on i in D minor. Mm.13-16 repeat Mm.9-12, but with a slightly different harmonization which uses a predominance of seventh and ninth chords. Example [1[I seems to have modulated to D natural minor with a perfect authentic conclusion: v-i. The aeolian mode on D, having the lowered seventh (c), is maintained in Mm.9-16 and 25-55, except for Mm.35-38 where F major is again

estab lished. The minor dominant of D gives a greater modal inflection and ob scures a truly strong feeling of D minor. One expects F major to return, but it appears only b riefly again in Mm.35-38. Mm.17-24 employ dissonant progressions, b asically in A minor b ut with added tones foreign to the tonality. Mm.17-24 use successions of 7ths in the left hand part which clash with the upper-staff's notes. Seventh and ninth chords result from the tones used, b ut the effect is very dissonant, relatively, and the 7ths or 9ths sound like added, non-harmonic tones, rather than chord tones. The last chord of M.19 definitely uses an added C natural; likewise, the $F^{\#}$ in the V/III, M.20, is added for clash and a discordant effect. The upper and lower staves of Mm.17-24 seem almost independent of each other harmonically. Contrapuntal writing is most ob vious in this section. Cadence [ill is unusual, ending on a III_7, and yet there is no feeling of a modulation away from A minor. is a half cadence on the minor dominant of A minor, preceded b y IV_7-vi_7 (plus an added B) - a retrogression of harmonic movement. Mm.25-28 are harmonically static, sounding a v_7 pedal point in D minor, and v_7 chords ab ove with double neigh b oring tones (G and B^b) in the b ass and a neigh b oring chord, in M.27, b eat 4, to add some harmonic am b ivalence. Since IT:QI cadences on the v_7, there had b een no harmonic movement for four measures. The shift from an A minor tonality, Mm.17-24, to a D natural minor tonality, Mm.25-34, occurs smoothly since and A minor chord is the dominant in D minor. [ill

and CIT::] are half cadences in D with CIT::] using the major dominant for the first time. Both and are approached by an appoggiatura-type figure, the F octaves, which resolves down a 2nd on the weak beat to the A triad. Mm.35-38 repeat Mm.1-4 exactly, with the authentic cadence in F major. is best interpreted as a half cadence in D minor. The progression to is very traditional. 12Gsl is a deceptive cadence, v-VI, ind. The fact that each four-measure phrase from Mm.35-54 begins with an F major chord (M.47 begins on iii - an incomplete 1_7), is reason for some question as to whether Ford is the basic tonality. The fact that /2Fs/• /2Gs/• and both ff[1 cadences are more logically ind, supports d as the key, though the shift from the relative major to minor is easily accomplished. Also, the key relationship of Mm.17-24, a minor to d minor, dominant to tonic, is typical. Mm.47-54 is a repetition of Mm.9-16. The final cadence is perfect authentic ind minor. The added measure, M.55, adds a typical Poulence coloristic effect - the major 7th interval in the lower staff, (1_7 in F), against the tonic in the upper staff, resulting in a i_9 or d_9• Following movements will illustrate this bit of poignancy at the final cadence also. It serves as an element of surprise and color and reveals a twentieth-century vocabulary and one not found in the common-practice period of the eighteenth and nineteenth centuries. While the ''Pavane[1] has employed very traditional cadence procedures, the intraphrase progressions have used more of a twentieth-century

idiom. Masculine endings, that is, final cadence chords on strong beats, are a chief characteristic (, [IT}, and [IT} are exceptions), along with agogic accent on the cadence chords. The charm of this music arises out of the often simultaneous use of the major and relative minor keys, the modal quality of the aeolian mode, with a lack of harmonic minor flavor, and the mildly dissonant sonorities resulting from the seventh and ninth chords.

III. "Petite Marche Militaire"

Poulenc uses the key signature for F major and then adds E^{b}'s which provide a tonal ambiguity. Upon hearing, this marche sounds centered „n B^{b} maJor. The question arises whether to analyze the piece in For B^{b}. No other movement from the suite uses an "incorrect" key signature. It seems that Poulenc conceived this marche to be centered in F with a prominent mixolydian sound. This piece brought to light the fact that out twentieth-century Western ears find it difficult to perceive modes other than major and minor. The lowered 7ths, the E^{b}'s, result in the minor dominant (v) and major seven (VII) chord, which supply ambiguity as to the tonality. This piece can be interpreted in both the keys of F and B^{b}. The key of B^{b} was first considered due to the aural effect, and the key of F, (mixolydian), was considered secondly due to the key signature and logical harmonic progressions in F. The final cadence does not clear-up the ambiguity of key center. The final cadence

sonority ends far afield on a G major chord - a VI chord in B♭ and II chord in F. An F tonal center is strongly supported though by the cadences progressing V -I in F (e.g., QKI, Q0, and QQJ). There is not one V-I cadence using s♭ as the tonic. The Q!I, [}[:] and QQ] cadences in B♭ would be interpreted as half cadences. The aural impression at first is that B♭ is the key center. This modal inflection which Poulenc infuses into the music supplies the intriguing charm of this piece. Since a mixolydian rendering on Fis logical, an analysis in F will be discussed. Harmonic analysis in B♭ is provided and listed above the chords in order to provide for a comparison of the two harmonic interpretations.

The first 30 measures break down into 6-measure phrases, each ending on the tonic, resulting in a traditional authentic cadence. Since this music is reminiscent of a classical idiom, non-harmonic tones are often best described in terms used for such tones in music of the common practice period - the eighteenth and nineteenth centuries. The non-harmonic tones often do not follow the rules of beat placement or resolution, but they seem to function in the specified way. The v chord before the authentic cadence at QKI has an accented passing tone in the soprano - very orthodox in usage, yet supplying that tinge of dissonance so apropos of Poulenc's musical language. Later dissonances discussed will exemplify even better Poulenc's predilection for mild dissonance within a very consonant musical fabric. Mm.7-12 repeat the first six measures. Beginning at M.13

is a tonic pedal point in the tenor line. Mm.13-24 present an ambivalence or elusiveness of harmonic interpretation. Each staff, treble and bass, can be analyzed as separate harmonic progressions vertically juxtaposed, sometimes coinciding harmonically and sometimes not, although a better analysis would be to call each 3-voice chord what it is and consider the tonic pedal point a dissonant factor. Only four chords present a problem for analysis: the last eighth-note chord of M.16 and the three chords of M.17. On these two-and-a-half beats it sounds like two individual chord progressions superimposed - one in the bass clef and the other in the treble. Poulenc's use of the tonic pedal (F) in the tenor produces a relatively very dissonant clash. Not considering the pedal point the upper clef progresses: I-IV or (VII_7)-I-VII-| I and the lower clef progresses: IV-VII- IV-VII-| I (the area between the brackets). Those four chords can also be interpreted as ninth chords considering the F pedal as a chord tone although it is unlikely that one would think of them as ninth chords since no other ninth IV_9-VII_9- IV_9-VII_9-JI chords have been used previously. This area sounds like the juxtaposition of two chords, both belonging to the same tonality, but producing dissonance when put one on top of the other. This use of bichords of the same or closely related tonalities is a favorite technique of Poulenc's, and here is employed at the cadence. Cadence Qfil is an authentic cadence of agogic accent, being

approached by a dissonant progression. At M.19 the repetition of Mm.13-18 as harmonically simplified on the three penultimate sonorities preceding . The great degree of consonance at cadences [3A] and [1[! also is a signa1 of their cadenti a1 significance, although the harmonic progression and rhythm are the main criteria. Cadences at QI], , QQ]; Q[:J and QI! are not pure triadic structures of great consonance. Mm.36-43 use a double pedal on I and Vin F major, alternating them and thus producing an ostinato effect. The simultaneous sounding of the tonic with the dominant again is found in Mm.36-39. j3Csj is a semi-cadence of weaker inflection than and is a half cadence in F. The 'D' is a dissonant element at J3Csl• but does not destroy the basic dominant quality of the chord. Mm.40-43 continue the I-V pedal in F, which can also be interpreted as all tonic pedal in F since F and Care both p3rt of the tonic harmony in F. Mm.40-43 provide a variation of Mm.36-39. The melody is basically the same, but is harmonized with mixolydian flavor (E^b's). At M.40 the progression is (the top 3 voices forming the chord with pedal point below): F: iiT iii7-IVT v. The first chord of M.42 is unnameable with the tones present. The following eighth notes, A and B^b, add more dissonance. The chord on the second beat of M.42 sounds like a v_7 in the lowest three parts with an accented passing tone on A in the soprano. If only the top three voices are considered (keeping the lowest Ca pedal point), it sounds like a VII

chord (E^b-G-B^b with A as accented passing tone). The chord at is very dissonant and ambiguous. It could be a combining of I+ ii in F, but it basically sounds like a I with unresolved dissonance above. Even though this chord is dissonant and only of quarter-note value, it sounds like the end of the melody. The change in range, dynamics, and texture following QI:} helps signal a cadence here even though QI:} is at unrest harmonically. Possibly the harmonic confusion felt in Mm.36-43 is due to a more contrapuntal conception of this material. It is not purely homophonic with simple heterogeneous rhythms as is the material previously heard. Mm.43-58 display a simple 'folk-like' melody with triple pedal point accompaniment which again functions as a quasi-ostinato (Mm.43-53 can be easily analyzed in B^b and can be thought of as having modulated, although analysis will consider it still mixolydian on F). The lowest part of the bass clef chord alternates between a I and IV pedal with the seven chord (VII) harmony sounding with each. Poulenc combines tonic and quasi-dominant elements to strengthen the F mixolydian tonality while the melody goes its own way in F. QQ] is again a cadence on I and has an agogic accent. Mm.51-58 repeat the melody of Mm.43-50, but embellishes the melody with added notes (passing tones, lower neighbors) and a second voice part making this phrase the thickest texturally. is a dissonant final cadence sonority because of its trichordal construction. Here Poulenc merges three prominent triads of the mixolydian mode:

1) the tonic, the bass pedal point; 2) the modal VII chord, B^{b} and E^{b}, in the bass; and 3) the subdominant in the treble. This 'trichord' is dissonant and of short duration and yet sounds like the cadence end due to 1) its placement on beat 1; 2) the feeling of melodic conclusion; and 3) the following rests and reiteration of the movement's opening material. The final cadence adds Poulenc's element of surprise. After the I3AI cadence, M.69, which is on the I chord, one expects to hear the tonic, F, repeated or a VI-I progression. Instead Poulenc sounds a G major harmony in the bass - again his combining of one chord with its dominant. The movement ends on a supertonic harmony - on a major II chord against the V/II. The final sound is an incomplete, open II harmony of eighth-note duration followed by rests. The final cadence can definitely be termed a deceptive cadence, although not traditionally deceptive, and one of surprise and Poulenc charm.

IV. "Complainte"

The fourth movement of the suite is short and simple cadentially, although relatively chromatic compared to the other movements. All of the I4AI cadences are half cadences, implied by the melodic line. "Complainte" is solidly rooted in G minor with harmonic minor (Mm.13-15 and 23-25), melodic minor (M.16, Mm.22-23), and lydian inflections (Mm.13-14, 21-22, and 24-25 - the $C^{\sharp}$'s). All of the cadences end on the dominant or some altered form of the V. @fil and [!Q] are

the most dissonant of the half cadences with the diminished 5th, A^b, in the D chord. The harmonic progression approaching @fil and @Q] is not unusual: Mm.15-16, i-vi $_7$VT vii^o I i-vii7/IV-IV-V(5). Mm.25-26 is similar in its progression. Example ffi], Mm.20-23, employ a tonic pedal with a rather chromatic approach. M.21 progresses i-augmented 6th, (A^b-C-$F^\#$ =achromatic passing chord), -V_7/V- V. M.23 uses an A chord, (A^b-C-E^b-$F^\#$), as a dissonant chromatic chord before the dominant at ffiJ. [![I uses an altered V chord, (D-$F^\#$- A^b-0), dissonant and unsettled in itself, but to this is added a minor 9th (D and E^b), which combines the V, D, with the 6th degree, E^b. Poulenc, as has been seen, often likes to end these short pieces on a discordant note - on a sonority of unrest.

V. "Bransle de Champagne"

"Bransle de Champagne" refers to that sixteenth-century, follow-the-leader type group dance; Champagne refers to the region of Champagne in France. This piece, like the "Bransle", uses the natural minor scale or aeolian mode and basically one motive repetitively (only one basic motive; not three as in # I). The key signature does not indic te the actual tonality. The 6th degree, E, is flatted in the main motive. The ascending melodic pattern using E natural is used in Mm.15-17 and 21-23 for variety. In the first 14 measures, the phrases divide into, usually, two-measure units. The

first two measures sound the main motive or melodic and harmonic idea of the piece. Some phrases (mm.3-5 + extension, M.6 and Mm. 7-8) repeat the rhythmic and melodic motive on the same or on a different scale degree, which, in Mm.3-6, lengthens the phrase, or as in Mm.7-8, supplies variety of melodic and harmonic movement. The repetitiousness of the material is made apparent by the numerous identical cadence points. The twelve 15Asl cadences are practically identical, with only one or two notes changed, occasionally; they all are half cadences on a minor v or v_7 chord and most, if not all, have a rather weak, inconclusive effect, and so are called semi-cadences. The fact that the v_7 is used for the end cadential chord causes expectation of something yet to come to conclude the musical thought. The two-measure units can be grouped into larger phrase structures which are bracketed. A more conclusive musical idea is felt at these longer phrase ends. All of the final cadence chords are very consonant as are most of the chord progressions up to the cadences. Examples . M.17, 15A1, M.37, and]Q], Mm.41-42, have some degree of dissonance. ends on i_4^6 with an added A, which sounds as if it needs resolving, but never does. This added A, is carried over to M.18 and combined with the tonic triad and it is also used in M.34, 36, and 38 as the 7th of the III chord, while the adjacent g minor tonic makes itself strongly felt. The blending of III_7 and i is apparent in Mm.34-38. 15C'sl progression: i7-III-IV7-ia uses an accented double lower neighbor on beat 2,

creating dissonance. M.7 has a very dissonant third beat. The harmony is a V_7/III-III. The V_7/III displays four non-harmonic tons within the third beat: 1) a tenor suspension; 2) also two non-harmonic tones, one a suspension resolving finally on beat four; and 3) the D passing tone in the soprano. It is these moments of discordance that add interest and charm to this mild-mannered music. Mm.15-19 introduce a broken chord ostinato bass which surfaces again at Mm.34-41. This ostinato figure outlines a G minor and B^b major harmony, so when the i and III are combined at the end of the piece in block chords, it isn't too surprising aurally. Mm.18-24 contain little cadential interest and intra-phrase happenings are of little importance except for supplying contrast and variety of melody. Mm.20-24 are basically of static dominant harmony with semi-cadences on V. The cadence at , M.37 is on v with III sounding below. is approached by an augmented bass ostinato pattern of half notes rather than quarter and eighth notes, and ends on D octaves - a dominant implication. The texture is thin because of the unison sounding of the D octaves, but color and dissonance are incorporated in M.42 with the major 9th interval in the bass added to the sustained D's. The natural minor 6th degree is abandoned and the melodic raised 6th is heard instead. Example 15D'sl cadential elements are: 1) agogic accent; 2) thinning texture; 3) an expanded range; 4) added color with the use of a non-harmonic tone; and 5) a degree of unrest due to cadencing

on the dominant harmony and adding the dissonant major 9th. Of the five different cadences indicated on the score, three are on the v harmony and one is a ie which has a similar dominant quality. Poulenc has a definite predilection for cadencing on the dominant harmony and usually prefers the minor dominant when the work is in the minor mode.

VI. "Sicilienne"

This movement is named after the seventeenth and eighteenth-century dance in moderate 6/8 or 12/8 meter with a soft lyrical melody with dotted rhythms, somewhat similar to the pastorale. This very traditional-sounding piece has little cadential uniqueness to discuss. The harmonic progressions are common, with simple progressions ending on tonic or dominant triads. Poulenc seems to have captured the mood of the seventeenth-century French court in this sicilienne. Only one phrase sounds really 'contemporary' and that is the last phrase, Mm.33-37. Cadences $\underline{\overline{16}AI}$ are half cadences, receiving agogic accent followed by an eighth rest. is an imperfect authentic cadence of relatively long duration followed by a rest. $\underline{\overline{16}AI}$ and fall on the downbeat, on beat 1 of the measure and so would be termed masculine cadences in traditional terms. [ill, ,]]I], and [ill fa11 on the second beat of the measure and so are feminine cadences. and [fil1 are authentic cadences on the tonic, C. is a half cadence in the key of B minor. Mm.13-16

modulate to B minor smoothly, with suspensions (repeated notes rather than tied notes), causing mild dissonance. Mm.17-20 are chromatic and form a short sequential progression back to C major, ending the phrase at ffirI on the dominant, preceeded by the minor tonic for variety. The one unique, unorthodox phrase in this traditional piece precedes the final cadence, Mm.33-37. Beginning this phrase, as most of the others, with an upbeat, the composer uses disjunct 7th intervals, melodically, descending in 2nds forming a progression of: IV7-iii7-ii7-I7-IV7-iii7-ii7-V-I, in the treble. The bass also uses a seventh chord, (C-F-B) but the C functions as a tonic pedal point with the V7 harmony above implied by the F and 8. This sequential seventh pattern ends at [ill - a perfect authentic cadence in open position and minus the 3rd of the triad. At I]IJ, Mm.36-37, the range is greatly expanded to four octaves as the treble C octave is played against the sustained octave and a 5th in the bass. [ill is the longest-held cadence sonority (it has the most agogic emphasis), and ends very conclusively with the V7-I-V7-V-I chord progression.

VI I. "Cari 11 on"

Like the "Sicilienne". "Carillon" uses very orthodox chord progressions and cadences in terms of the common-practice period. "Carillon" is an unusual name for a movement of a dance suite. Poulenc possibly wanted to bring to mind the sound of the carillon which was so popular in France between the fifteenth and eighteenth

centuries. As in the other movements, much repetition prevails. Of the eight different cadences, five end on the dominant and three are tonic-based. The harmonies are simple, traditionally logical progressions in the key of C major, with no modulations or harmonic ambiguities whatsoever. To discuss each phrase and each cadence would be superfluous. A quick study of the analysis will reveal the traditional nature of the music. The three phrases of interest for discussion of twentieth-century techniques are Mm.58-65, 122-125, and 130-142. Beginning at M.58 there is a sequence of seventh chords in second inversion. The treble chords sound like suspensions on beat 1, being resolved on beat 2, but as the octaves resolve downward another seventh chord is formed by the bass notes on beat 2, so a chain of seventh chords descending in 2nds results. The analysis shows descent by a 3rd, (A_7-G_7-F_7-E_7-E_7). The resolution down a 2nd of the octave suspensions draws attention to itself and the sequence's intervallic motion is perceived to be in 2nds, rather than in 3rds. Admittedly, these are not traditional suspensions, but they sound and function like suspensions even though an eighth rest is interpolated between the sustained octaves. Mm.58-65 are not melodic in nature as are the other phrases in the piece. They are strictly chordal except for the parallel 3rds under the V pedal point, Mm.62-63, which are more melodic. These measures of seventh chords lead into a typical cadence pattern of: IV_7-V-I. The dominant pedal point in the soprano, Mm.62-64, adds some dissonance

with the other chord tones, but it also strengthens the tonality of C major. rm is the only cadence to use staccato chords separated by rests. The other final caden e chords are approached very smoothly and terminate a lyrical line. *[Zg* is a nice contrast. [ZIJ actually is better suited for the role of final cadence than the one marked , (marked due to its· similarity to [Zfil cadences). rm would traditionally be an excellent final cadence because harmonically and rhythmically it ends conclusively on a complete tonic triad on the downbeat. One could interpret rm, M.121 as the final cadence with Mm.122-142 an extension or coda.

is agogically important, receiving almost two full measures of duration. Also, an introduction of sorts is heart at M.122 where a vertical 7th combined with a melodic 7th, percussively, in [1]carillon-fashion[1] announces the return of the main motive (Mm.1-5). CTm is a half cadence, sounding for the second time, M.136 (first heard at M.130), slightly longer than six measures. Again, as in the "Sicilienne", there is no 3rd of the chord present. Dominant octaves are played as an after-thought, widening the range and supporting the dominant sonority. Both the "Sicilienne" and "Carillon" end with a very transparent texture.

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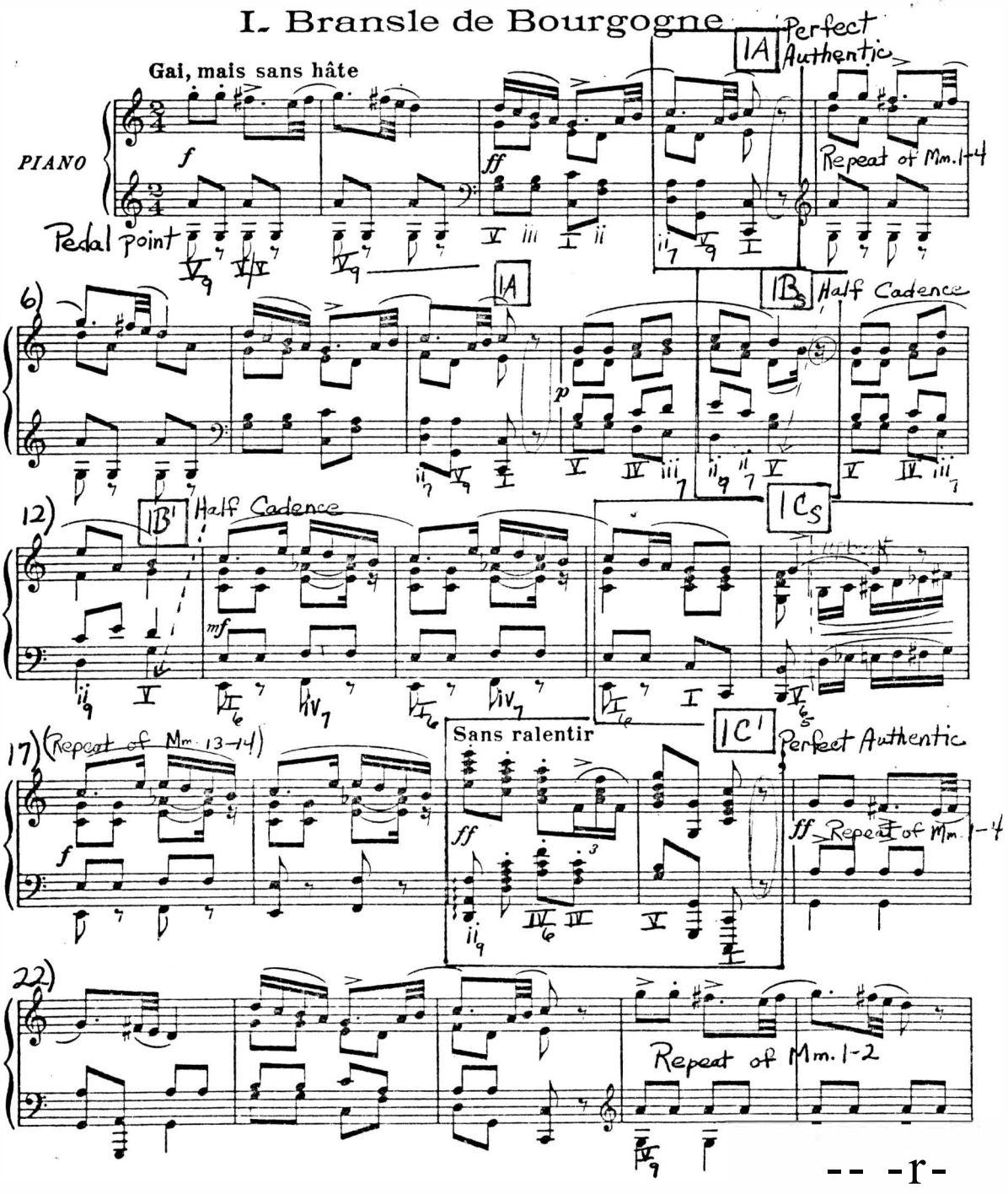
2

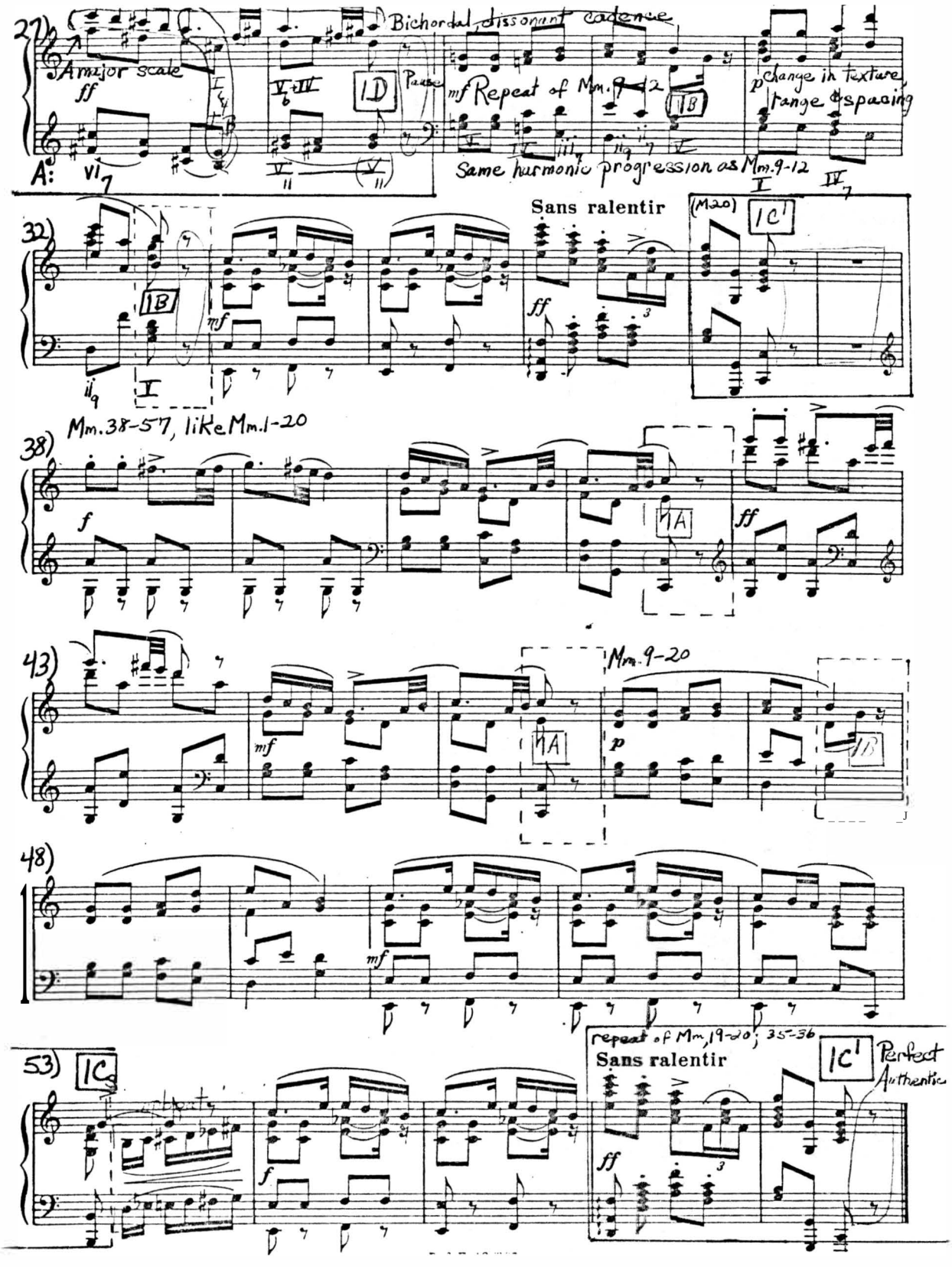
SUITE FRANÇAISE

pour Piano

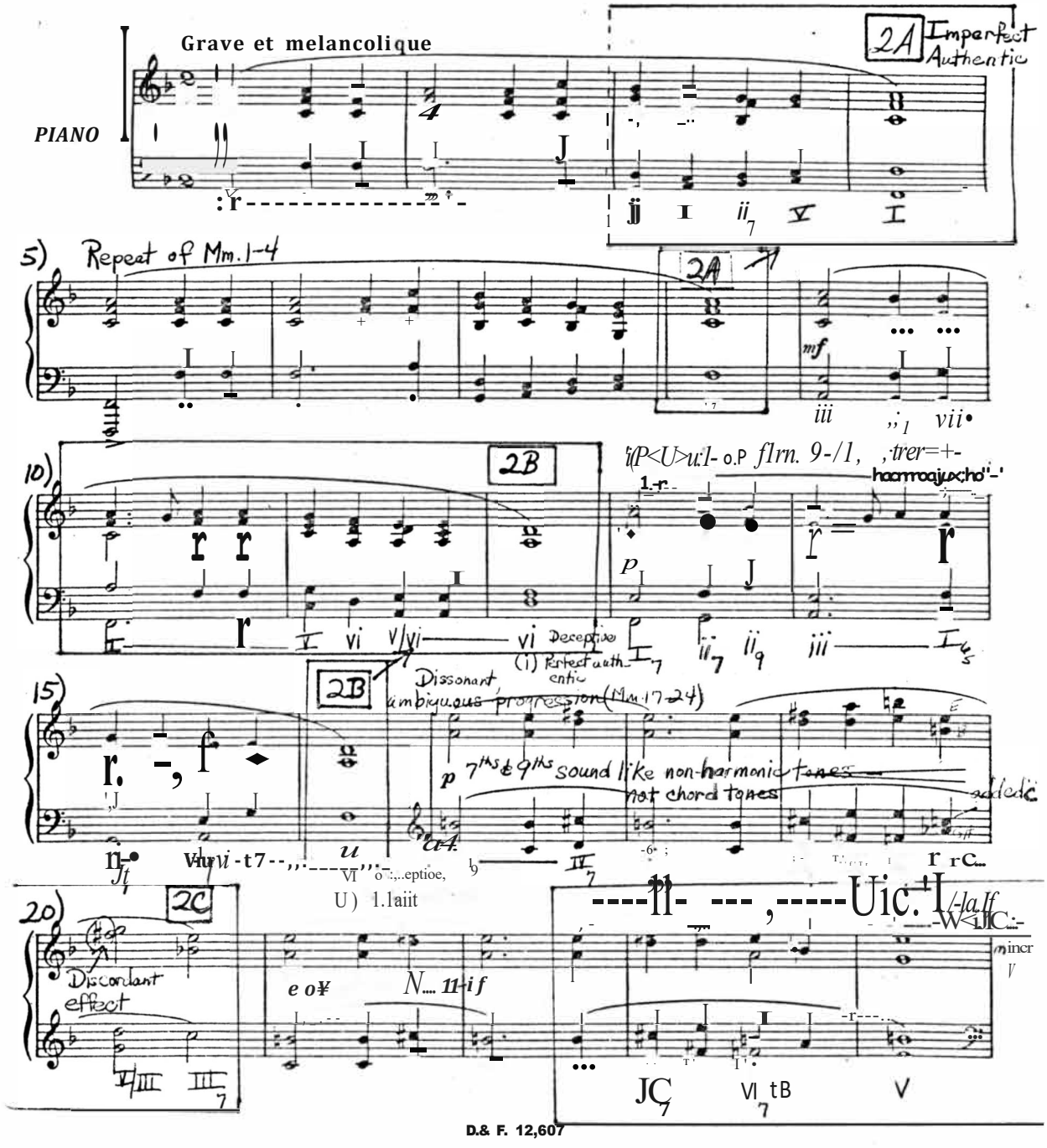
d'apres {:LAUDE GERVAISE
(ZYJ! 1iicl1)

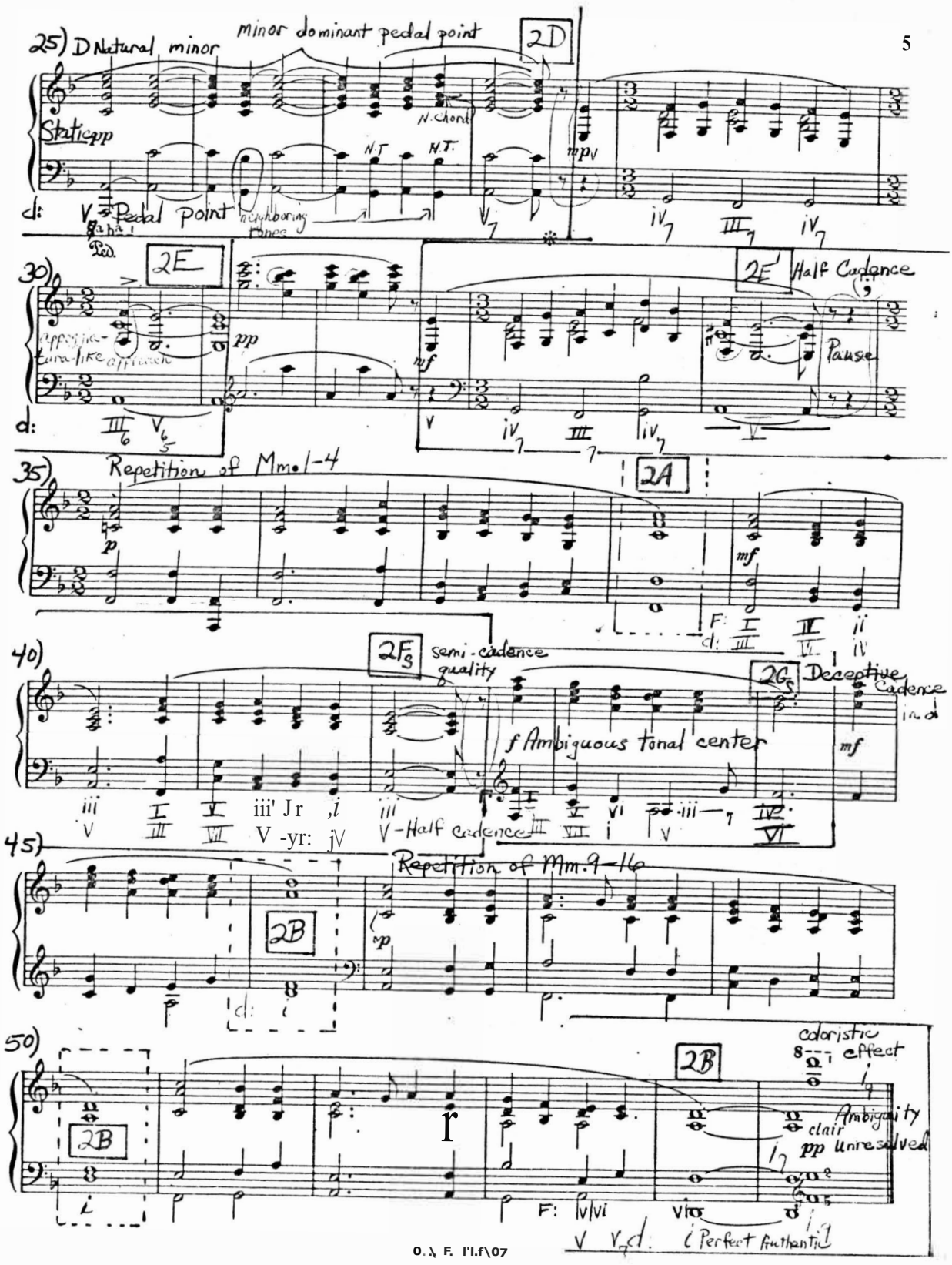
FRANCIS POULENC




27)
A major scale
ff
Bichordal, dissonant cadence
1D
Pause
mf Repeat of Mm. 9-12
1B
p change in texture, range & spacing
A: vii7
Same harmonic progression as Mm. 9-12
I
IV7
32)
Sans ralentir
(M20)
1C1
1B
mf
ff
38)
Mm. 38-57, like Mm. 1-20
f
1A
ff
43)
Mm. 9-20
mf
1A
p
1B
48)
mf
53)
1C
repeat of Mm. 19-20; 35-36
Sans ralentir
1C1
Perfect Authentic
ff
f

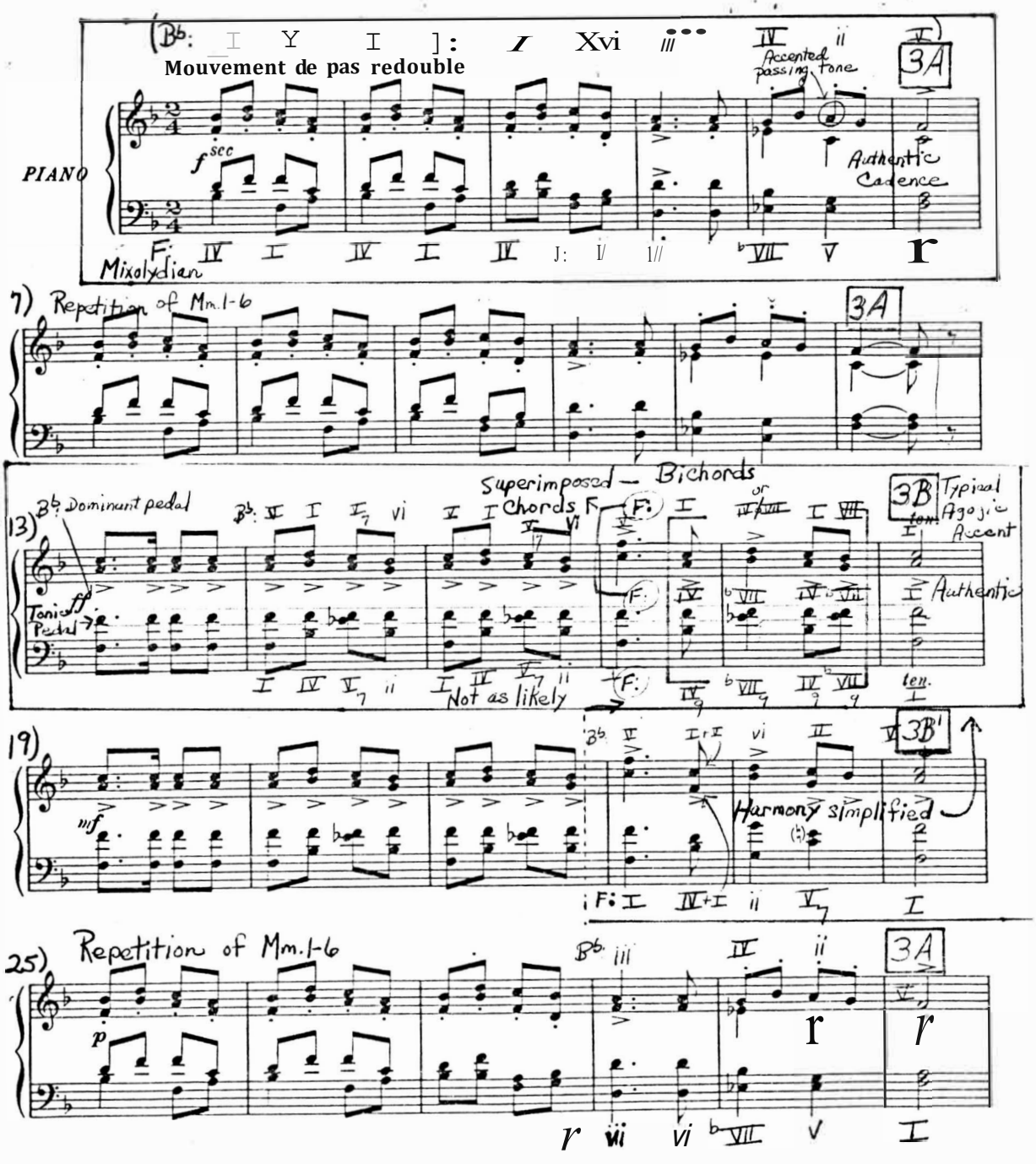
II. Pavane

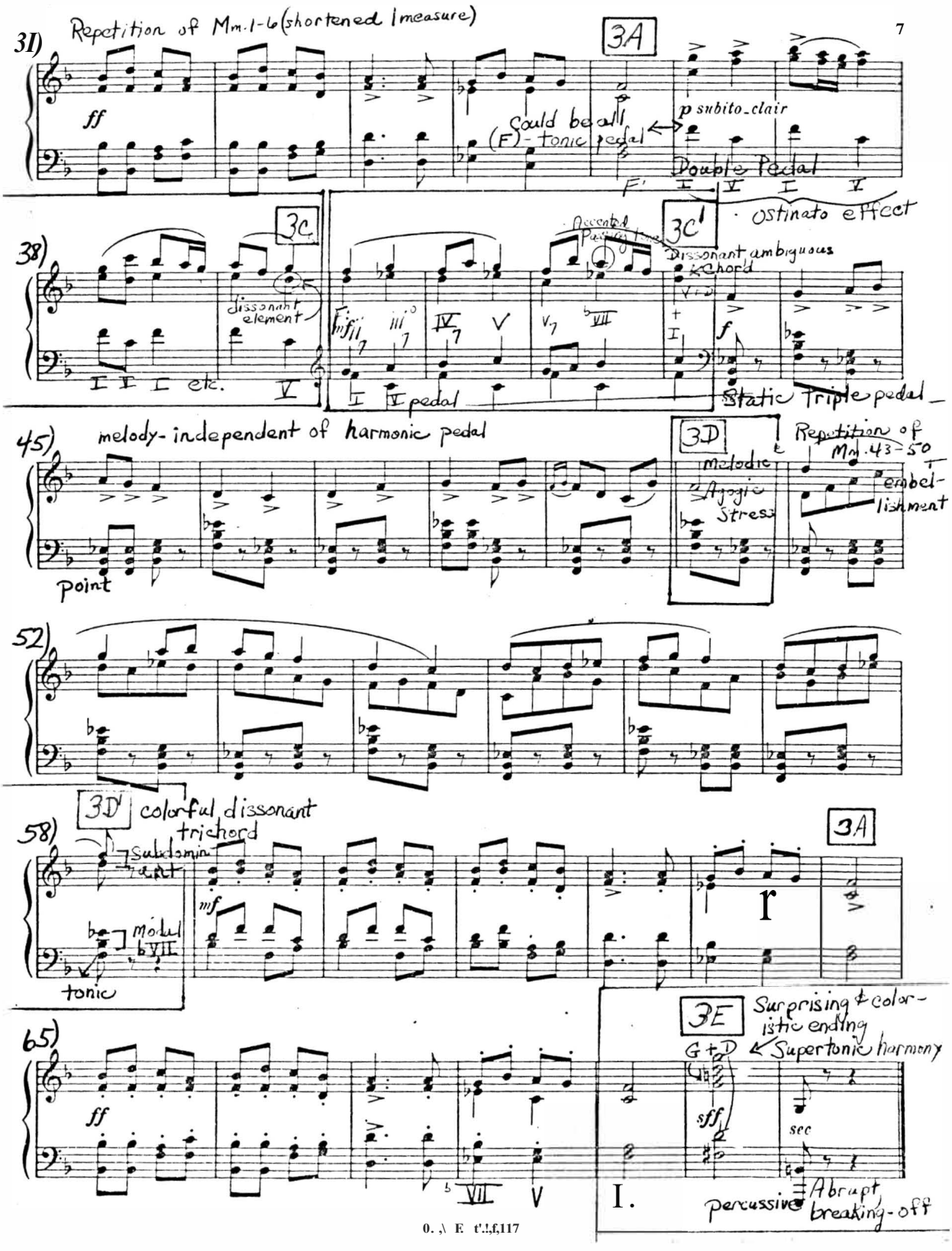

Grave et melancolique
PIANO
2A
Imperfect Authentic
5)
Repeat of Mm. 1-4
2A
mf
10)
2B
Deceptive
(i) Perfect authentic
15)
2B
Dissonant, ambiguous progression (Mm. 17-24)
p
7ths & 9ths sound like non-harmonic tones not chord tones
20)
2C
Discordant effect
D.& F. 12,607


25) D Natural minor
minor dominant pedal point
2D
Static pp
N. chord
N.T.
N.T.
mpv
d: V
Pedal point
neighboring tones
Ped.
iv7
III7
iv7
30)
2E
2E'
Half Cadence
Appoggiatura-like attack
pp
mf
Pause
d:
III6
V6/5
V
iv7
III7
iv7
35)
Repetition of Mm. 1-4
2A
p
mf
F: I
II
ii
d: III
IV
40)
2F8
semi-cadence quality
2G8
Deceptive Cadence in d
f Ambiguous tonal center
mf
iii
V
I
III
V
VI
iii' J r
,i
V -yr: jV
iii
V - Half cadence
III
V
VI
i
V
iii
VI
45)
Repetition of Mm. 9-16
2B
mp
d: i
50)
coloristic effect
8va
2B
Ambiguity
clair
pp unresolved
i
i7
F: V/VI
VI
V
V7
i Perfect Authentic

6

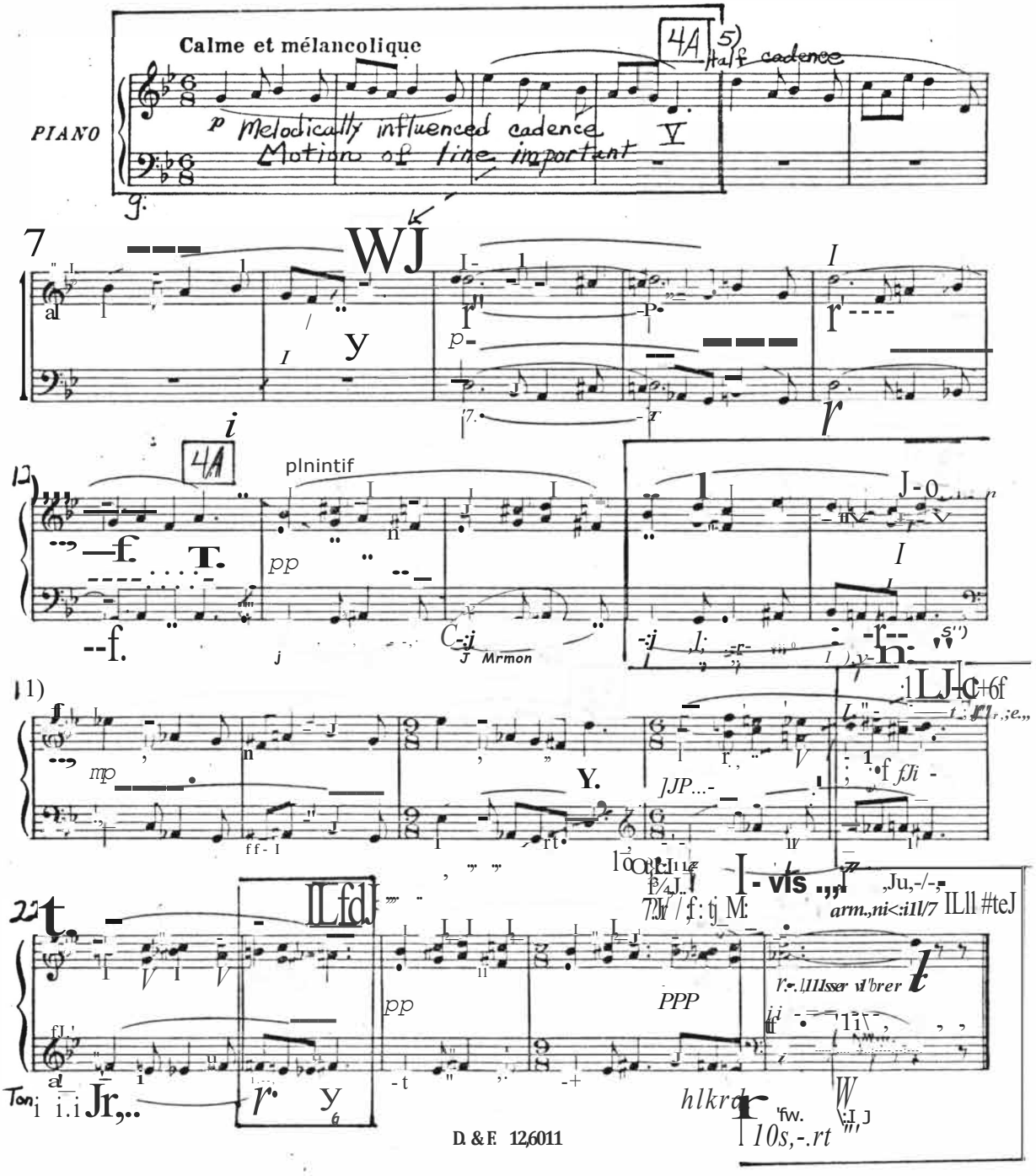
III- Petite marche militaire



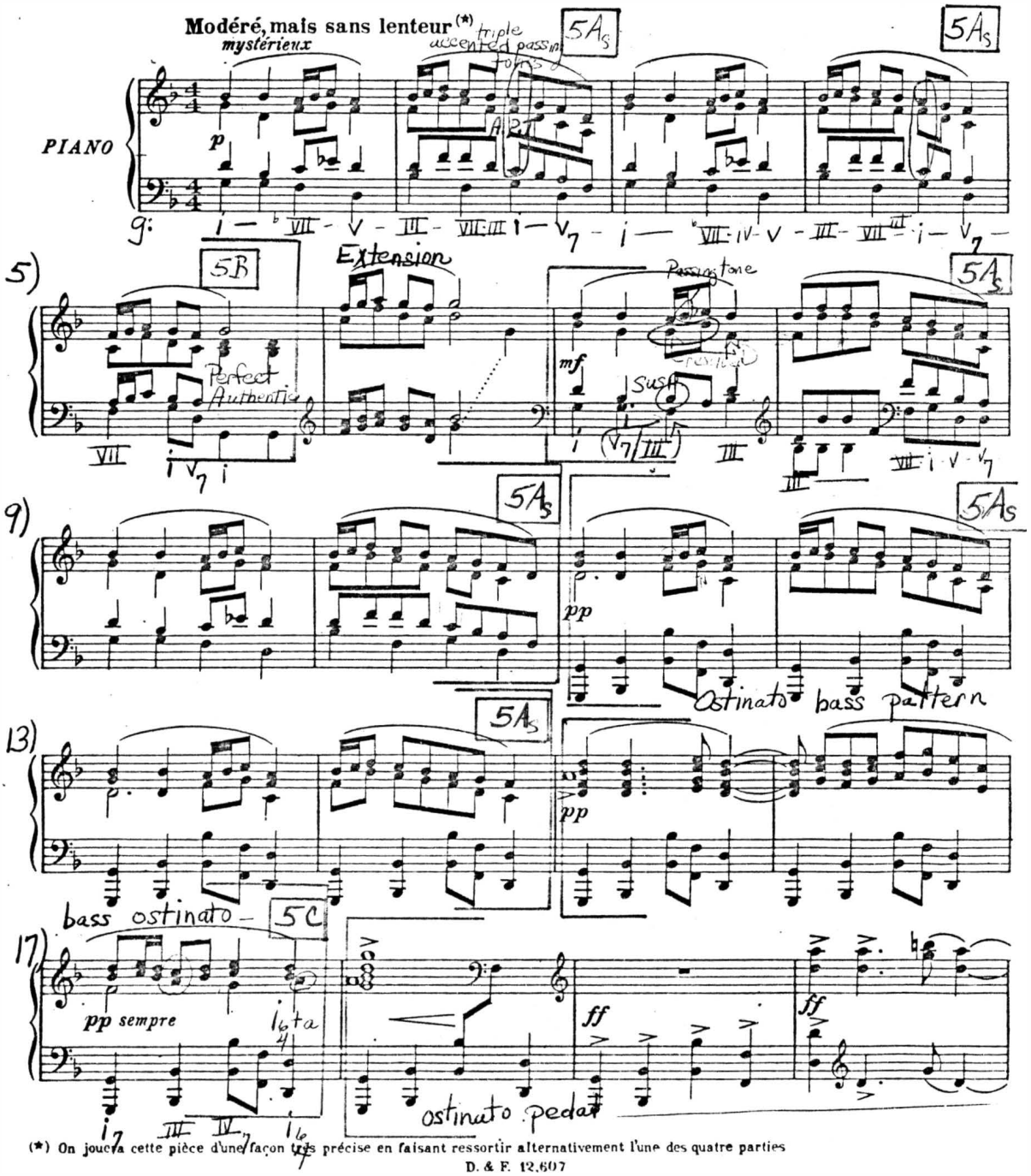

3I)
Repetition of Mm.1-6 (shortened 1 measure)
3A
7
ff
Could be all (F) - tonic pedal
p subito clair
Double Pedal
ostinato effect
3C
3C1
38)
dissonant element
Dissonant ambiguous chord
I I I etc.
V
I IV pedal
Static Triple pedal
45)
melody - independent of harmonic pedal
3D
Repetition of Mm. 43-50
embellishment
Melodic Agogic Stress
Point
52)
3D
colorful dissonant trichord
58)
3A
mf
Modal bVII
tonic
65)
3E
Surprising & coloristic ending
Supertonic harmony
G+D
sff
sec
I.
percussive
Abrupt breaking-off

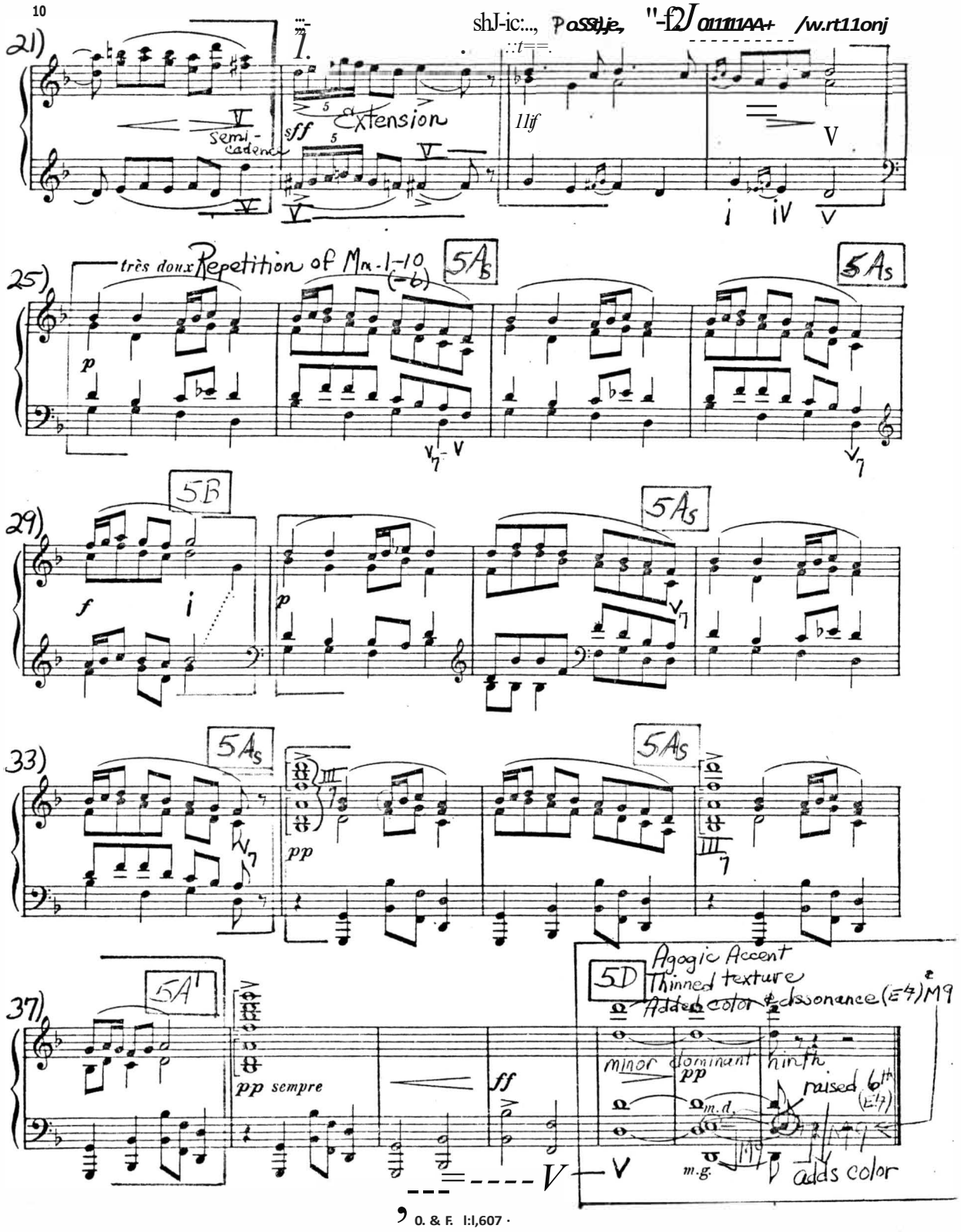
8

IV- Compla nte



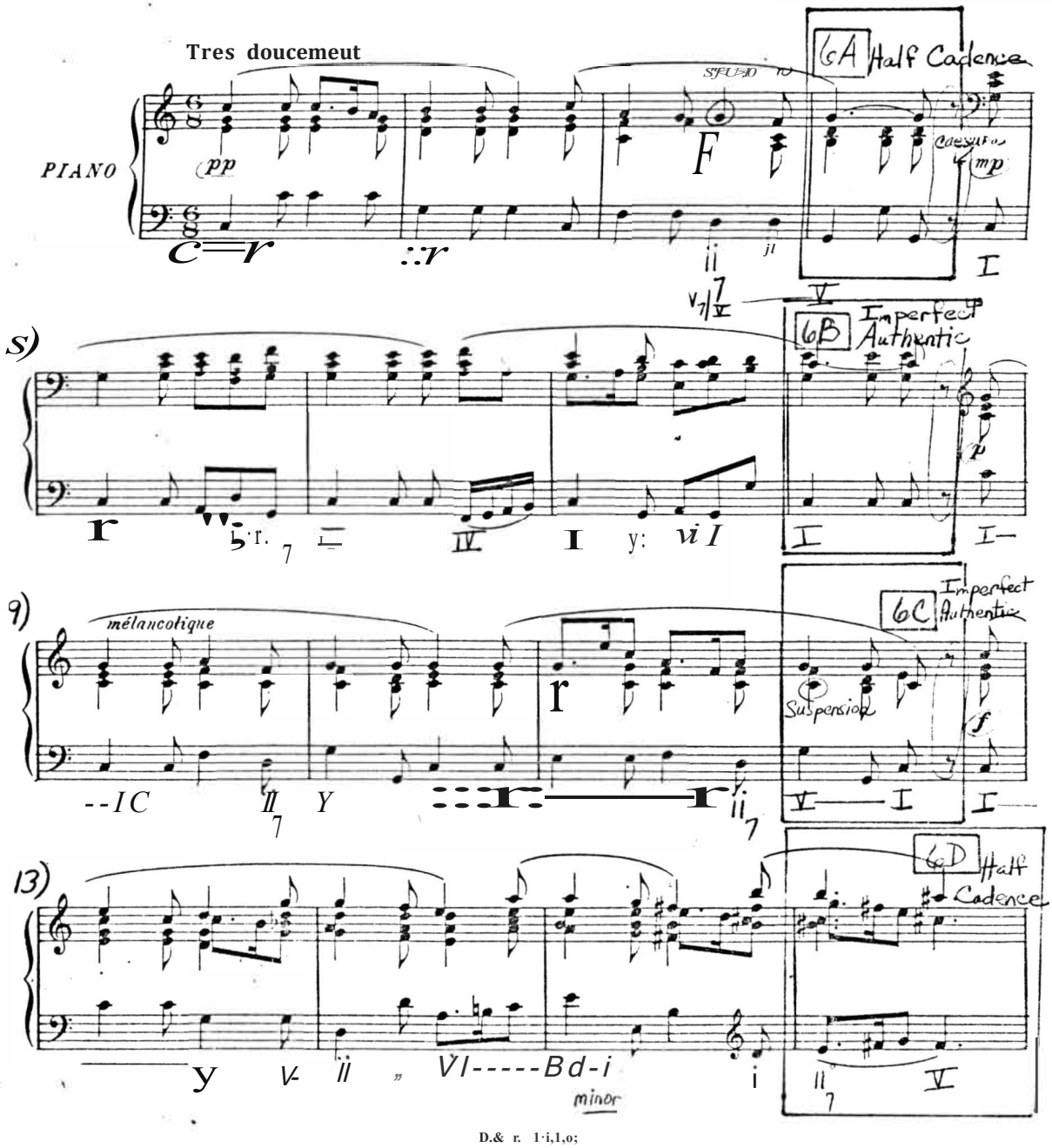
V. Bransle de Champagne



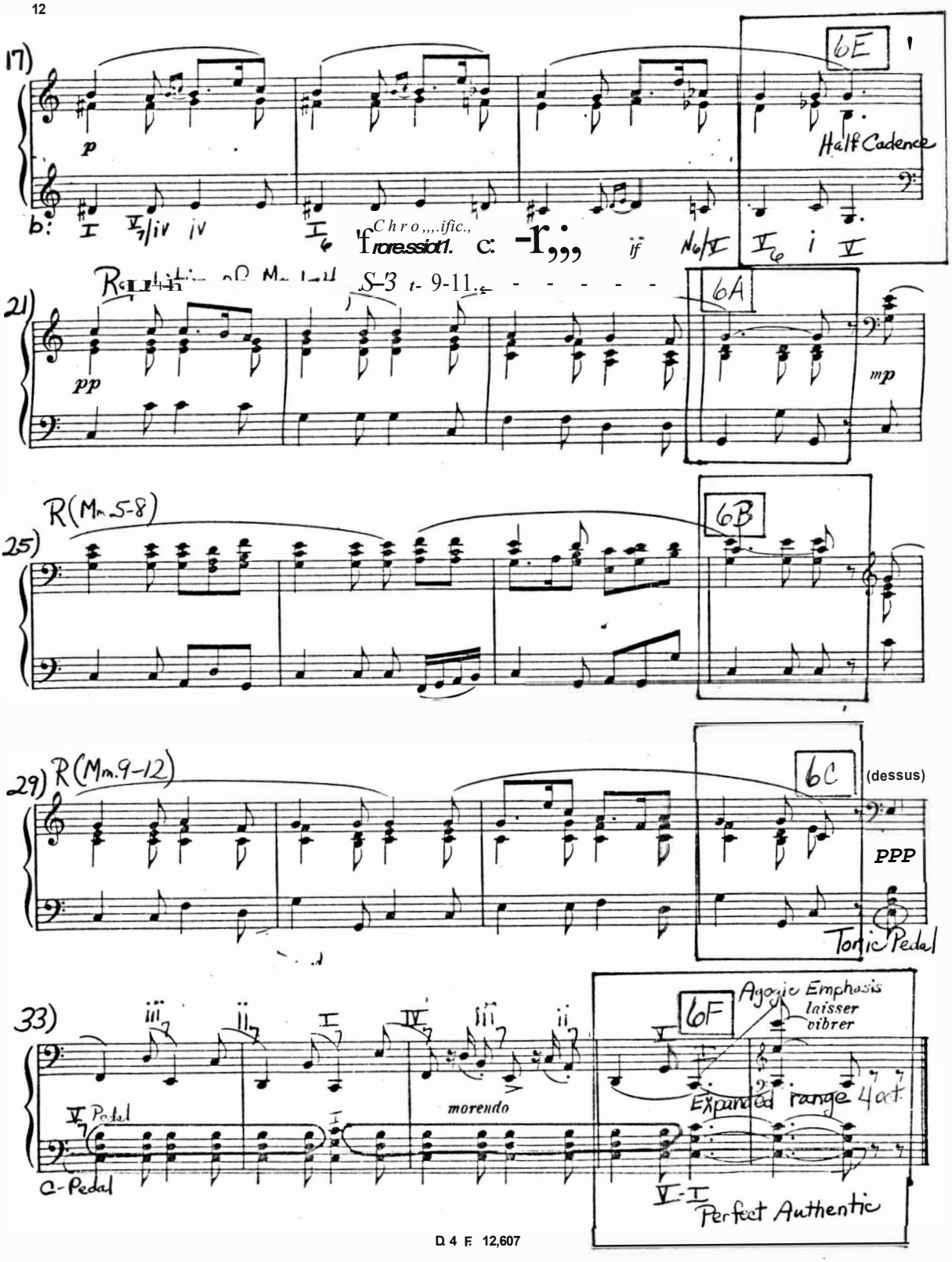

10
21)
Semi-cadence
sff
Extension
llif
i
iV
V
25)
très doux
Repetition of Mm. 1-10
(-b)
5As
p
V7
29)
5B
f
i
33)
pp
III
37)
5A'
pp sempre
ff
5D
Agogic Accent
Thinned texture
Added color & dissonance (E4) M9
minor dominant
pp
ninth
raised 6th
(E♭)
m.d.
m.g.
adds color
O. & F. I:I,607

II

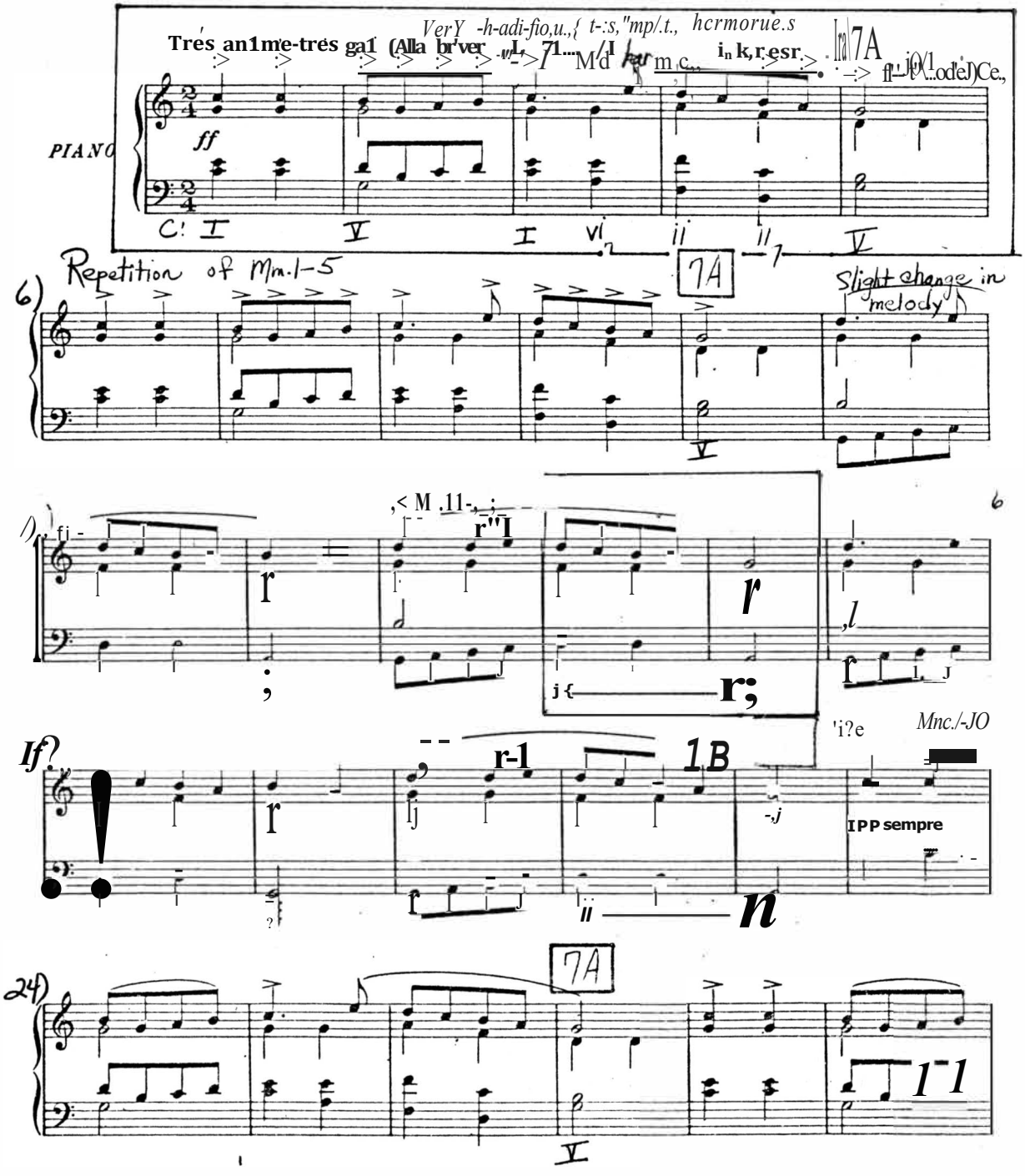
VI_ Sicilienne

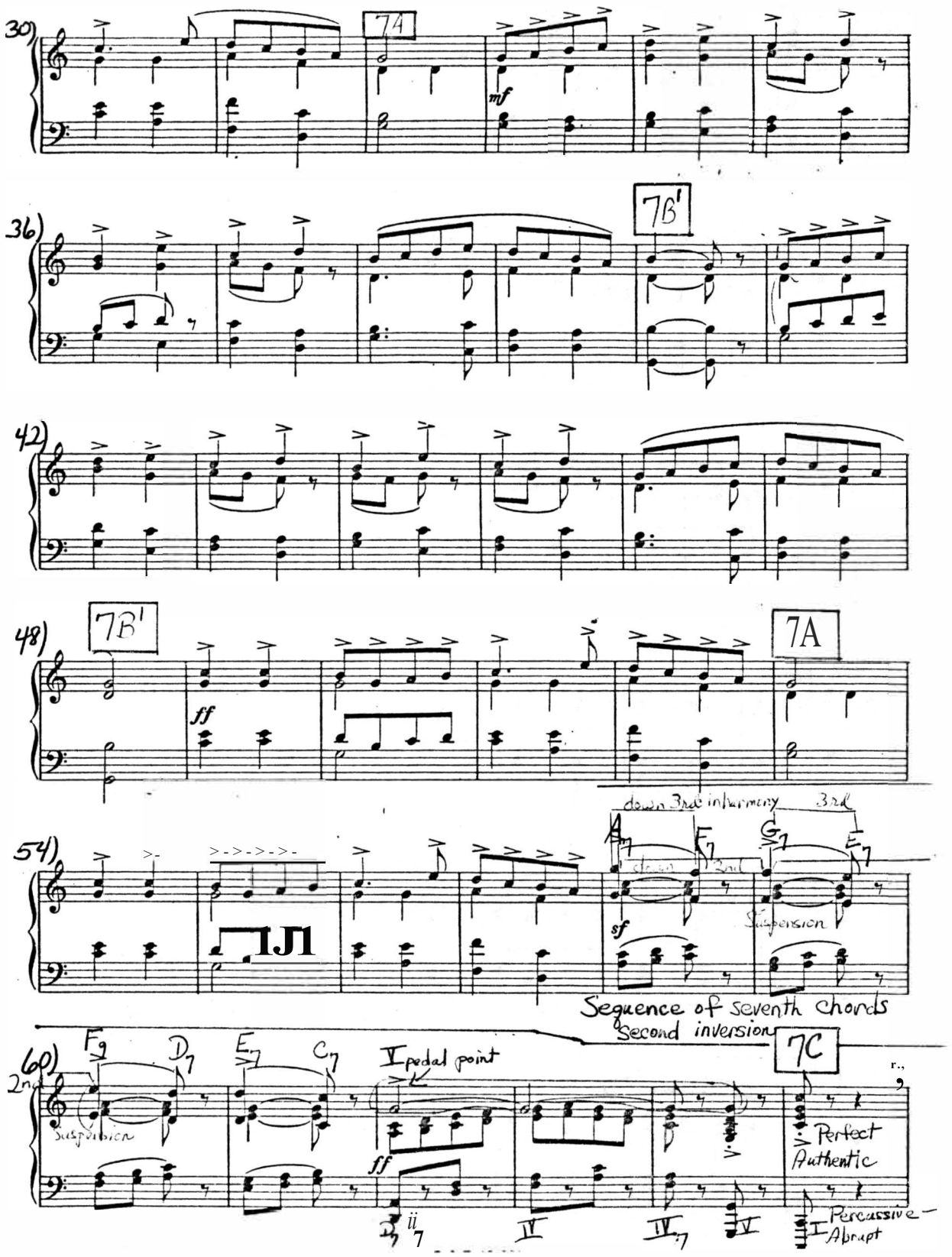


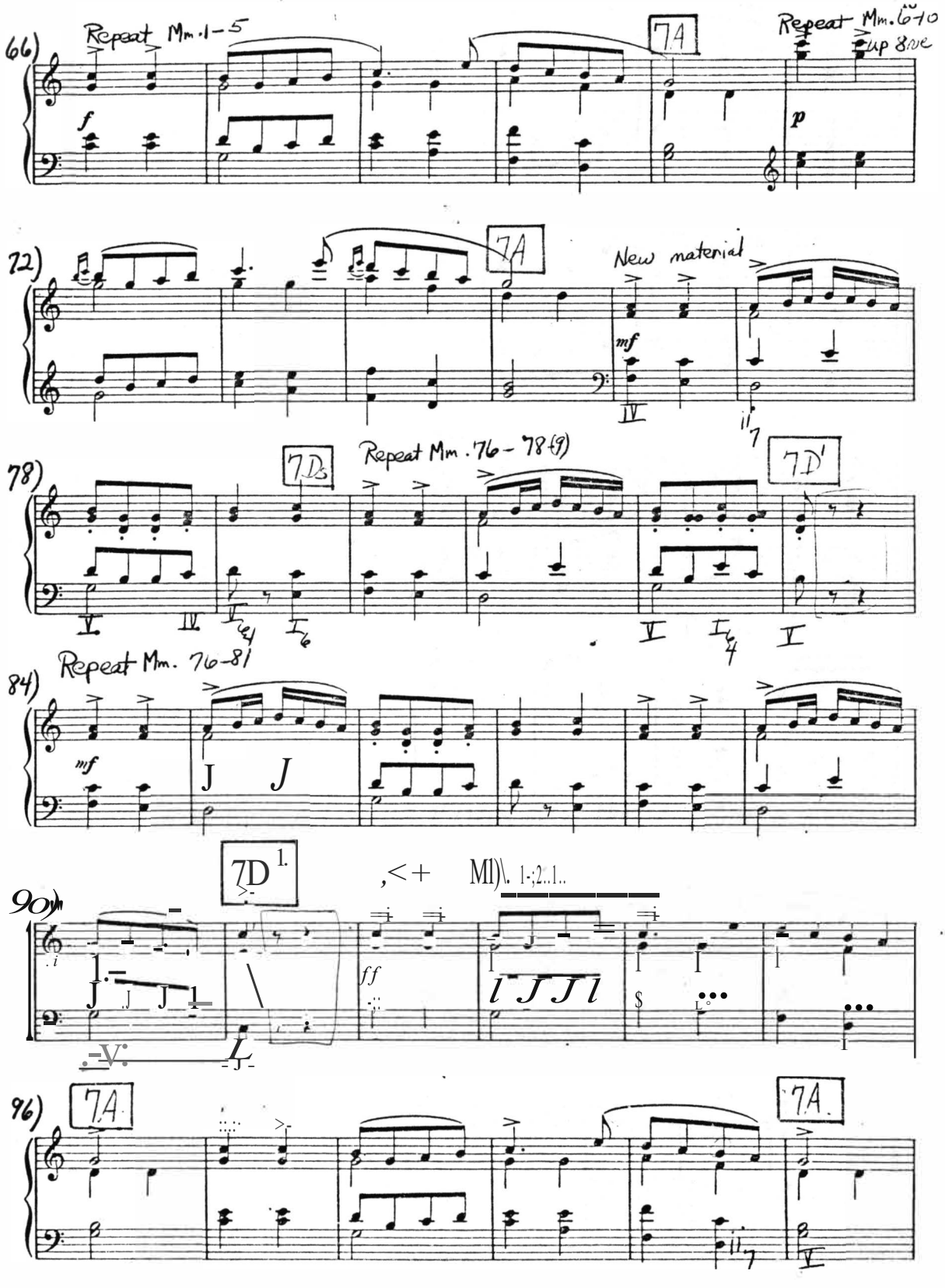
D.& r. 1·i,1,o;

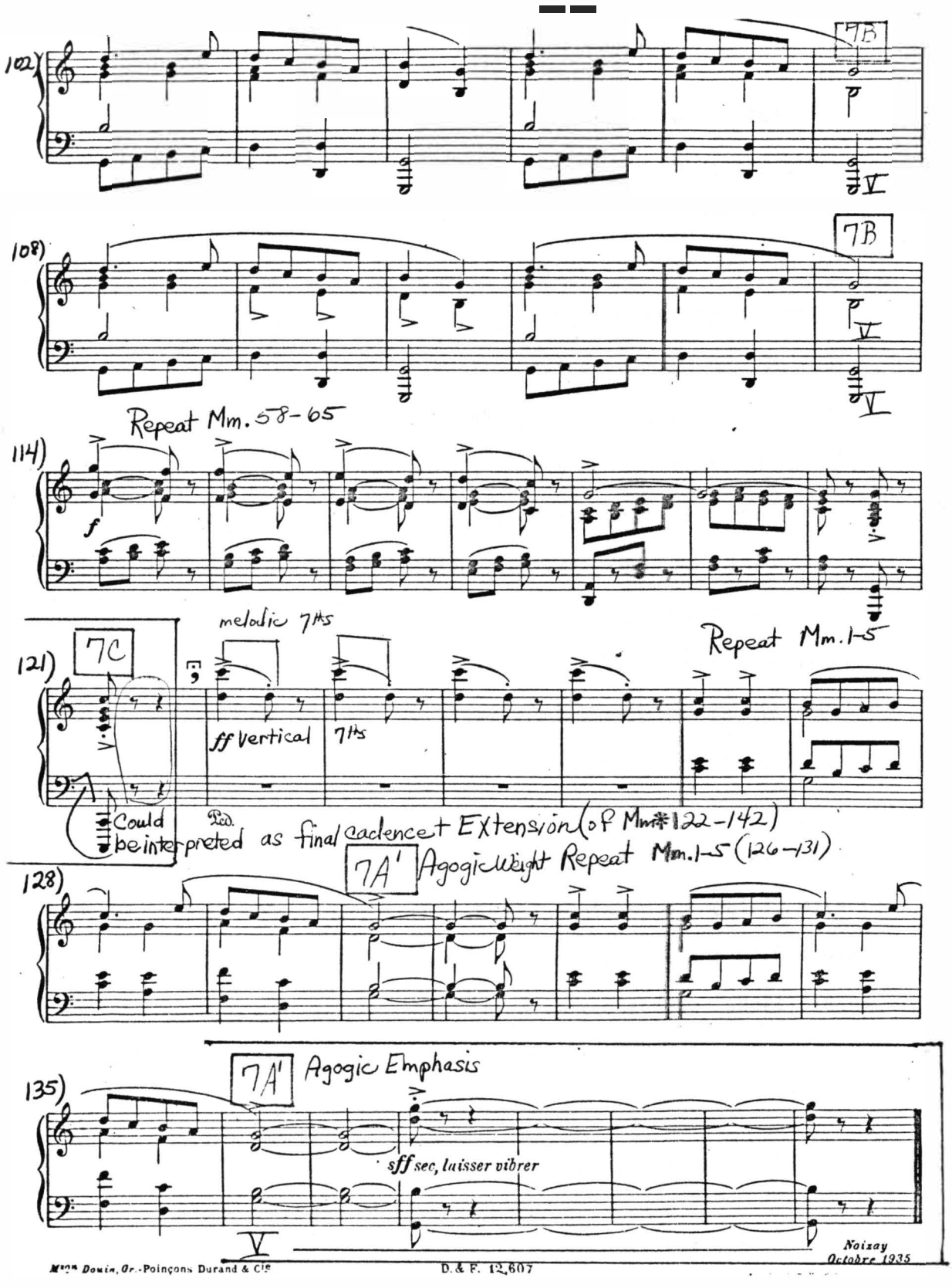

12
17)
6E
Half Cadence
b: I V7/iv iv I6
Chro...ific.,
progressi1.
if
N6/IV
V6 i V
21)
6A
pp
mp
25)
R(Mm.5-8)
6B
29)
R(Mm.9-12)
6C
(dessus)
PPP
Tonic Pedal
33)
iii7 ii7 I IV iii7 ii7
6F
Agogic Emphasis
laisser vibrer
V7 Pedal
morendo
Expanded range 4oct.
C-Pedal
V-I
Perfect Authentic

VII- Carillon




30)
7A
mf
36)
7B'
42)
48)
7B'
ff
7A
54)
down 3rd inharmony
3rd
sf
Suspension
Sequence of seventh chords
Second inversion
60)
7C
2nd
Suspension
I pedal point
ff
Perfect
Authentic
Percussive
Abrupt


66)
Repeat Mm. 1-5
7A
Repeat Mm. 6-10
up 8ve
f
p
72)
7A
New material
mf
78)
7B
Repeat Mm. 76-78(9)
7D'
Repeat Mm. 76-81
84)
mf
7D 1.
90)
ff
96)
7A
7A


102)
7B
108)
7B
Repeat Mm. 58-65
114)
f
melodic 7ths
Repeat Mm. 1-5
121)
7C
ff Vertical 7ths
Could be interpreted as final cadence + Extension (of Mm. 122-142)
Ped.
7A' Agogic Weight Repeat Mm. 1-5 (126-131)
128)
135)
7A' Agogic Emphasis
sff sec, laisser vibrer
Noizay
Octobre 1935

Summary of Techniques in Suite Francaise

It is apparent that Poulenc favors final cadences on the dominant harmony. Four of the seven movements end on V; the other three are tonic caesuras. Movement III uses the Bat its final cadence, but after this chord, sounds a major VI chord, to end with a surprise. This element of surprise, usually producing a coloristic effect, is another favorite device of Poulenc. In four of the movements, he adds non-harmonic, 'color-tones' to the final cadence. His use of seventh chords, mostly non-dominant in function, and ninth chords and his superimposing of two diatonic chords reveals his twentieth-century influences and produces a kind of Poulenc-musical-language; not a sixteenth-, seventeenth-, or eighteenth-century musical language. Poulenc's musical vocabulary is simple, straightforward, and often traditional as are his regular meters and rhythms. Phrase structures are mostly symmetrical, though examples of asymmetrical phrases exist (III-Mm.31-71 = varying phrase lengths, and IV). His use of 1) diatonic, folk-like melodies; 2) his succinctness of material = repetitiousness of motivic material; 3) modal usage; 4) use of ostinato and pedal point; and 5) his use of bichordal structures are exemplified in these seven short pieces and affect the cadential junctures.

Sextour
(1932-1939)

I

Poulenc's Sextour is written for piano, flute, oboe, clarinet, bassoon, and french horn. The first movement of the sextet is imbued with chromaticism and impetuous, on-going rhythms which give the music a restless and energetic quality. Cadences are generally very abrupt; often a breath or caesura is not felt at half phrases or phrase ends because the shifting of instrumental color is so smooth. Often, elision is felt because the changing woodwind or piano solos stand tightly back-to-back. It is the rhythmic on-goingness of the music which obscures cadences. Often cadences are heard because of the harmonic progression, but these are traditional in nature, (e.g., a half cadence, vi-V; IV-V or an authentic cadence V-I), and not worth discussing. The cadences discussed are those which produce a definite break in the rhythmic and/or harmonic flow or those which are unorthodox as compared to those of the common practice period. The introduction, Mm.1-5, displays two caesuras. $\overline{\overline{\text{IBAI}}}$ is on a V_7 chord with added tonic, A, but it sounds dissonant and not at all like a half cadence. The use of A melodic minor, A major, and A natural minor in the sweep of scales in M.1, and the landing on $G^{\#}$, step seven, in M.2, coupled with the brief, percussive sounding of the $\overline{\overline{\text{IBAI}}}$ cadence structure

obscures the dominant tonality. The pause after IBAI convinces one that a caesura resulted, dissonant and abrupt as it seemed. (§0 is even more dissonant, being approached also by an ascending line - here, rather chromatic - and ending on the pitches, from bottom to top, spanning two octaves and a 5th: B-A-E^{b} -F - E-F. It is a combining of the V (E-G$^{\#}$-B), and iv (0-F-A), plus an E^{b}, if one stretches the imagination, but it functions as an abrupt, dissonant breaking-off of the phrase. The cadence at j8Bsl is extremely dissonant and uninterpretable harmonically. Mm.47-52 are sequential and chromatic with no tonality being established. The percussive quality of the 0$^{\#}$7 plus G and E sonority at j8Bsl and the eighth rest following give it the needed momentary pause for a semi-cadence before the new idea at M. 53. The []II caesura, unlike @fil, is strongly felt and sounds on minor tonic A octaves. The rising nd falling A harmonic minor scale played alternately by the woodwinds, Mm.57-59, sets the tonality as the piano sounds a fonic followed by a raised subdominant - D$^{\#}$ major triad - (i-$^{\#}$IV), repeated twice. The augmented 4th (tritone) relationship of the A minor chord too$^{\#}$ major chord provides a dissonant twentieth-century harmonic progression which adds ambiguity to the cadential passage; the harmonic progression is made discernible and transparent at []II. The descent of line, the thinned texture, and transparent A octaves followed by four measures of rest in the woodwinds contribute to the cadential strength of - It is a quasi-perfect authentic

cadence, ending this section of the movement in the home key (the opening key}, of A. Example ffi[J is another dissonant, percussive cadence approached by a static, repetitive pattern beginning at M.104. C minor is the tonality with a locrian flavor (C-C$^{\#}$, D^{b}, - E^{b} - (F)-G^{b}-A^{b}-B^{b}-C + A), in the piano part. The repeated C-A-D^{b}-C, Mm.104-107, in the clarinet and bassoon, strengthens the C tonality while the horn, M.108 and piano, M.110, obscure it j adding ambiguity which is most apparent at ffi[J. Texture thins and lines are fragmented and contain many rests up to the dissonant I]QJ cadence which superimposes a B7 or vii7 and G or V chord with a sustained F$^{\#}$, supplying sharp dissonance while initiating a bassoon solo of the following slow section, which is in a romantic idiom. The cadence at [§I}, M.181, is tonally nebulous, being approached by a chromatic tremolo line in the flute and clarinet parts, Mm.175-178, with an ostinato pattern in the piano, sliding chormatically from a D_7 to an F_7 harmony, Mm.175-178, producing a suspended effect of the tonality. At M.179, the texture has thinned and a very bare, fragmented sonority is heard. The piano plays a hypnotic pattern beginning with parallel 5ths, contracting to a minor 2nd and expanding again to a perfect 4th, and then perfect 5th on F$^{\#}$ and c$^{\#}$ which is the final cadence sonority. The suspended tonality at Mm.181-183 is nebulous and also confused by the dissonant D-F-B^{b} in the " honky ", fragmented bassoon line. Interest is added by the color of the oboe sounding on c$^{\#}$ above the piano's perfect 5th and bassoon's non-harmonic

B♭ triadic figure. The agogically stressed [fill sonority terminates with three-and-a-half beats of rest which aid the feeling of caesura here. All of the cadences so far have contained a great degree of dissonance or a degree of ambiguity as to tonality, except [@which ended on 'A' octaves. ∏ also was chosen for analysis because of its twentieth-century harmonic flavor and dissonant elements; it also carries rhythmic weight - that is, agogic emphasis followed by a pause. Even though Mm.217-219 outline an A minor chord in the bass part of the piano line, thus forming a tonic pedal, a strong A minor tonality is lost as the B♭ major triads sound on beat 1 of measures 218 and 219 and as the G♯ arpegio sweeps upward in M.220 over and under a tonic pedal in all parts except the horn, which also sounds G♯. One might not think that a tonic pedal superimposed with a form of the dominant harmony would sound terribly discordant, in reference to twentieth-century repertoire, but here, it really produces a sharp dissonance, with the woodwinds high in their registers at a triple forte and a range of six octaves being spanned between the piano's A octaves and the flute's high A. The A's against the G♯ 's produce a very discordant clash in relation to the work's basically tonal and consonant musical fabric. The final cadence of the first movement is harmonically lucid. Beginning at M.242, A minor tonic pedal point is used as an ostinato with chromatic descending minor arpeggios above, changing to

chromatic diminished arpeggios in Mm.244-245-in the piano part. The horn and bassoon, Mm.242-245, play a martial repeated-note rhythm, characteristic of this last section of the movement. At M.246 a fragmented chromatic line ($F^{\#}$-G-$G^{\#}$-A), begins and then ends on a tonic pedal in the upper four woodwinds, beat 3, M.247, as the piano supplied dissonance with a minor iv chord combined with a $G^{\#}$, that seemingly ever-present leading tone. Mm.248-249 sound a quasi-V harmony as the piano ascends with a scale pattern beginning on the leading tone, $G^{\#}$ (on the beat), followed by thirty-second notes of the A minor lower tetrachord (A-0). A I chord plus a "0" appoggiatura-like non-harmonic tone, sounds at 18GI with the D's being resolved on beat 2, to $c^{\#}$, and a final striking of A octaves on beat 4 by all six instruments finalizes the cadence. A rather traditional V-I progression ends the movement even though more untraditional harmonic structures are used previously in Mm.242-247.

II

The Divertissement is very traditional and Romantic-sounding in nature with nothing cadentially significant concerning twentieth-century techniques. The final cadence will be the only one discussed. The final cadence sonority is at []BJ with an extension following which contains two caesuras within the extension. The authentic cadence at [fil!1 is approached by the dominant harmony,

first the minor dominant plus non-harmonic tone, C, to an augmented V_9, (E^b-(G)-(B)-C^b-D-F), and to a regular V_9. The cadence on the A^b chord is extended with an arpeggiated, rhythmic ostinato figure in the piano and ornamental turn figure in the upper woodwinds. The tonality sounds static from Mm.8-11 at the asterisk(*) even though the harmonies change. Poulenc blends the tonic, A^b, with the vi and alterations of the IV chord in the piano line. The 09's in the A^b-D-A^b chords (M.9 and 10, beats 1 and 2), add color of the raised 4th degree, but that is changed to a IV -I from M.10 into M.11. Another caesura is heard at on a vii$^{O}_{t}$/V harmony which has a very dissonant aural effect following the I chord of M.11. The progression is not unusual, except that a pause is made after the vii$^{O}_{4/3}$/V before proceeding to the V, M.12, which is chromatically expressed. The V harmony of M.12 ends on a suggested N_6/V on beat one of M.13 followed by another chromatic and disjunct fragment ending on V (beat 5, M.13) to an A^b minor chord at - The modal inflection ending the cadential extension at is a lovely and subtle surprise. Except for the alterations of the subdominant harmony (Mm.9-10), and the semi-cadence on the vii^{O}/V at , this is actually quite a traditional cadence and extension.

III

The third movement, Finale, like the second, uses traditional-sounding phrase endings. A true caesura, or breath, usually is

not heard because of the on-going nature of the phrases. The overlapping or immediate horizontal (melodic) juxtaposition of solo lines between the woodwinds and piano, that is, the alteration of instrumental color in the melody, gives the music an energetic, non-resting quality. Phrase ends are perceived harmonically with an immediate upsweep into the new phrase. Often it is the piano line which drives onward at, and following, the cadence, as in examples @II andrn:I:J. The five cadences discussed in movement III, were chosen because of their definite cadential quality or feeling. fill and illustrate the cadentiial devices of the majority of cadences in movement III, with the woodwinds' solo ending on a sustained harmony - resulting in agogic emphasis - followed by rests as the piano continues its rhythmic drive, thus, somewhat masking the caesura. It is the harmonic progressions and metric placement of the final cadence chord which give the cadential impression. @] is a half cadence on a V9 chord, preceeded by its dominant-ninth, (B^b-o^b-F-A^b-c - not shown), and progressing to the tonic, A^b, following the cadence. The C in the French horn is the only non-harmonic tone, which being unresolved at the cadence, blends into the tonic chord of the following measure, M.34. Poulenc's predilection for vertically juxtaposing the tonic and dominant of a key is apparent in Mm.34-35 as the V (E^b), pedal is held and the tonic tone, C, is sounded above on beat 2, M.34, of the piano part. In M.35 the bass changes

to I as the piano treble line sounds on the V on beat 1, resulting in an accented passing chord on beat 1 (treble line) and resolving on beat 2. This delayed resolution produces an aural effect of *an appoggjatura on* beat 7, a7so feJt *on* beat *1* of *M.41*, [TI!]. The same harmonic progression is used at cadence []I:] as at @II: V9/V-V_7 9-1, with the V acting as an appoggiat ra above the tonic pedal on beat 1, M.41, and resolving on the weak beat. (m and are typical of the rendering of most cadences in this movement. Example illustrates an unresolved dissonance at a caesura. This, too, is an abrupt break, but is definitely felt as a cadence. The percussive, abrupt, eighth-note sforzando (sff) chord at @II, M.91, terminated the C major-minor melody of the piano and is followed by four and a half measures of rest. The rhythmic drive which somewhat masks the caesura is pursued by the disjunct, chromatic flute figure, M.91. This fleeting cadence sonority, E-G#- (B)-D-F#-Bb-E could be called an E ninth or a C augmented eleventh chord with flatted 5th, B^{b}. Many of the diatonic and chromatic tones of the previous three measures, Mm.88-90, are here combined at @;!]. The $G^{\sharp}$ and $F^{\sharp}$ are heard in the woodwinds; the B^{b} in the piano and the D and E in both parts. The @rI cadence sonority is a coloristic merging of tones previously heard. Possibly the E major ninth or C augmented eleventh interpretation is not too far out of line because of the use of 9th and 11th structures in M.84 and 87, although the structure does not

sound like a discernible 9th or 11th - it sounds like a percussive sound block, in no particular key. Besides the coloristic, percussive effect of cadence rn:;[I, another interesting element in the cadence passage, (Mm.88-91), is the shift in meter from 6/4 to 5/4 to 2/2. The downbeat feeling at is thrown off by this meter change. The syncopated and disjunct rhythmic patterns (use of many rests, Mm.88-91), also heighten the anticipation of the phrase end. [§!:[is a strong caesura of break in the rhythmic flow of the music. It, like ffiTI, is more unorthodox because of it ending on an unresolved dissonance. The beginning of the cadence passage is a M.190 with an ostinato-like bass sounding a dominant pedal point on G with **vi-IV-ii 7-ii**7 chords above. The final cadence sonority is a V_9 plus a dissonant E^b in the oboe. The mixing of C major and C minor is evident with the use of E^b and E'o/,A^b , A'i, and B^b and s'f. This cadence is strengthened by 1) the crescendo of the flute scale passage and the triple forte sounding of the chord at @!]; 2) the full 9-part texture; 3) the range of three octaves and a 3rd; 4) the sustained sounding agogic emphasis; and 5) the following long pause. The V9 plus the added tone, E^b , is what one could call a twentieth-century-type of half cadence, and here, very dissonant in relation to most of the musical fabric. Following this cadence, one is even more surprised to hear the far-distant key center sounding at the beginning of the final section of the work - $F^\sharp$ minor. The key of

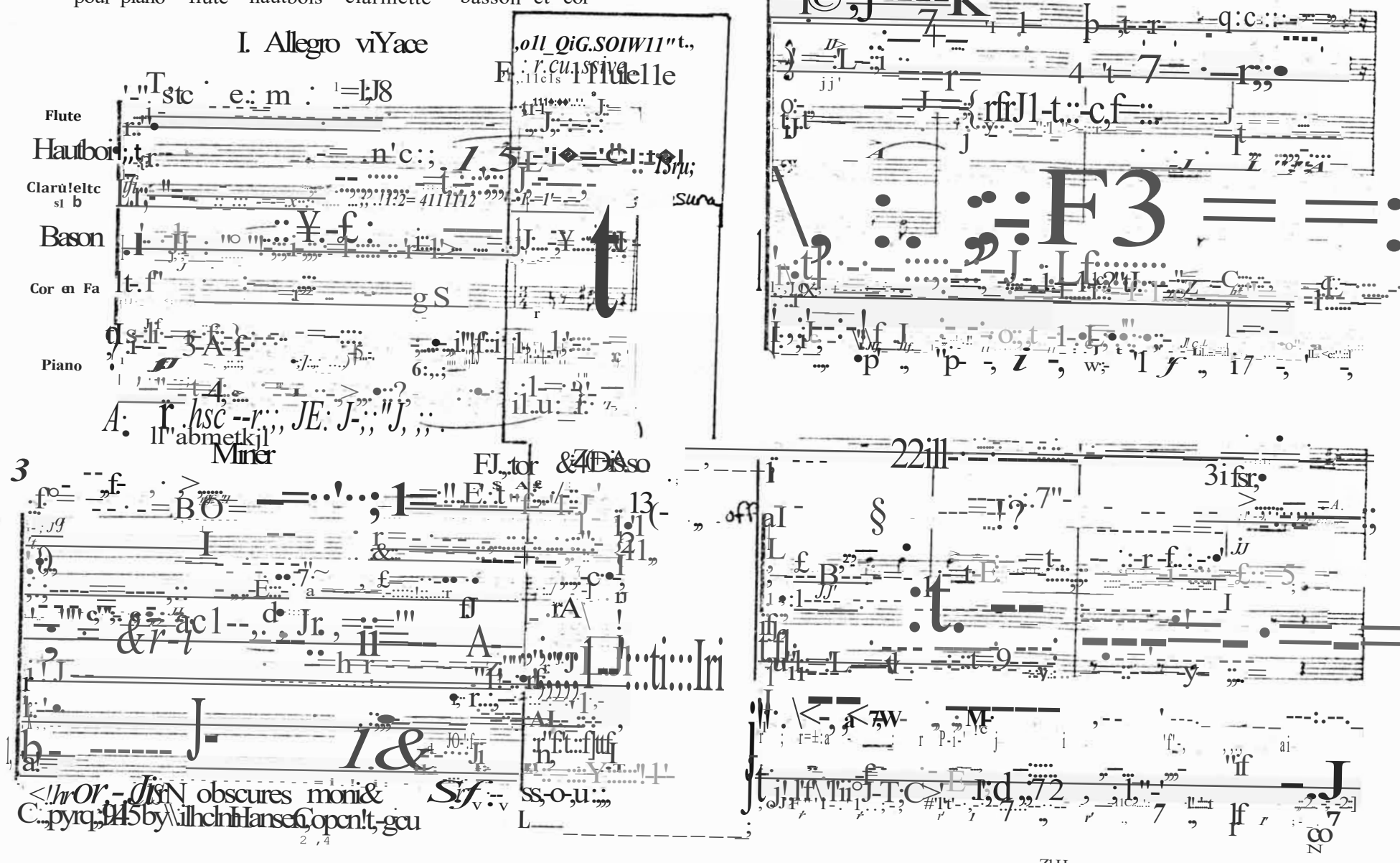
C is finally established in M.216 which initiates the final cadence passage. Mm.216-223 are harmonically and rhythmically static, employing separate ostinato patterns in the woodwinds and piano. The piano's harmonic progression is repeated every measure and separate harmonies could be interpreted on each beat, but the overall harmonic effect of both the piano and woodwind parts is of a IV_9 pedal (the combining of IV and I). The eight measures, Mm.216-223, of static harmony and basically static rhythm build from a piano to a triple forte dynamic level and add the element of dissonance in M.223 as the clarinet sounds B and C (the B dissonant with the other 3 parts) and the horn sounds C-D (the D dissonant with the IV7 harmony). A consonant 17 chord is sounded at . This cadence, a quasi-plagal cadence (IV-I) rather $IVg\text{-}1_7$, employs: 1) augmented rhythms (fromPto.J and *d* notes); 2) meter change to give the rhythmic flow an asymmetrical quality; 3) accent by a. dynamics - (ffff), b. texture, c. range - five octaves and a major 7th, and d. note - value-agogic stress.

Sextour - Francis Poulenc. Used by Permission of Lorenz Industries.

Sextuor

pour piano - flute - hautbois - clarinette - basson et cor

I. Allegro viYace



47)

No tonality established up to 8Bs

Sequential

Solo

ff

sff — p

Chromaticism helps obscure tonality

8Bs

Ambiguous, abrupt & Percussive Cadence

51)

ff

mf scc

sff

D#°

(+G+E)

55748

Descending line

55)

A harmonic minor scale

i — +IV D# — i — +IV D#

a

Augmented 4th (tritone) relationship

8C

59)

Quasi-Perfect Authentic

Pressez un peu

A harmonic minor

Thinned texture - 4 measures of rest aid caesura

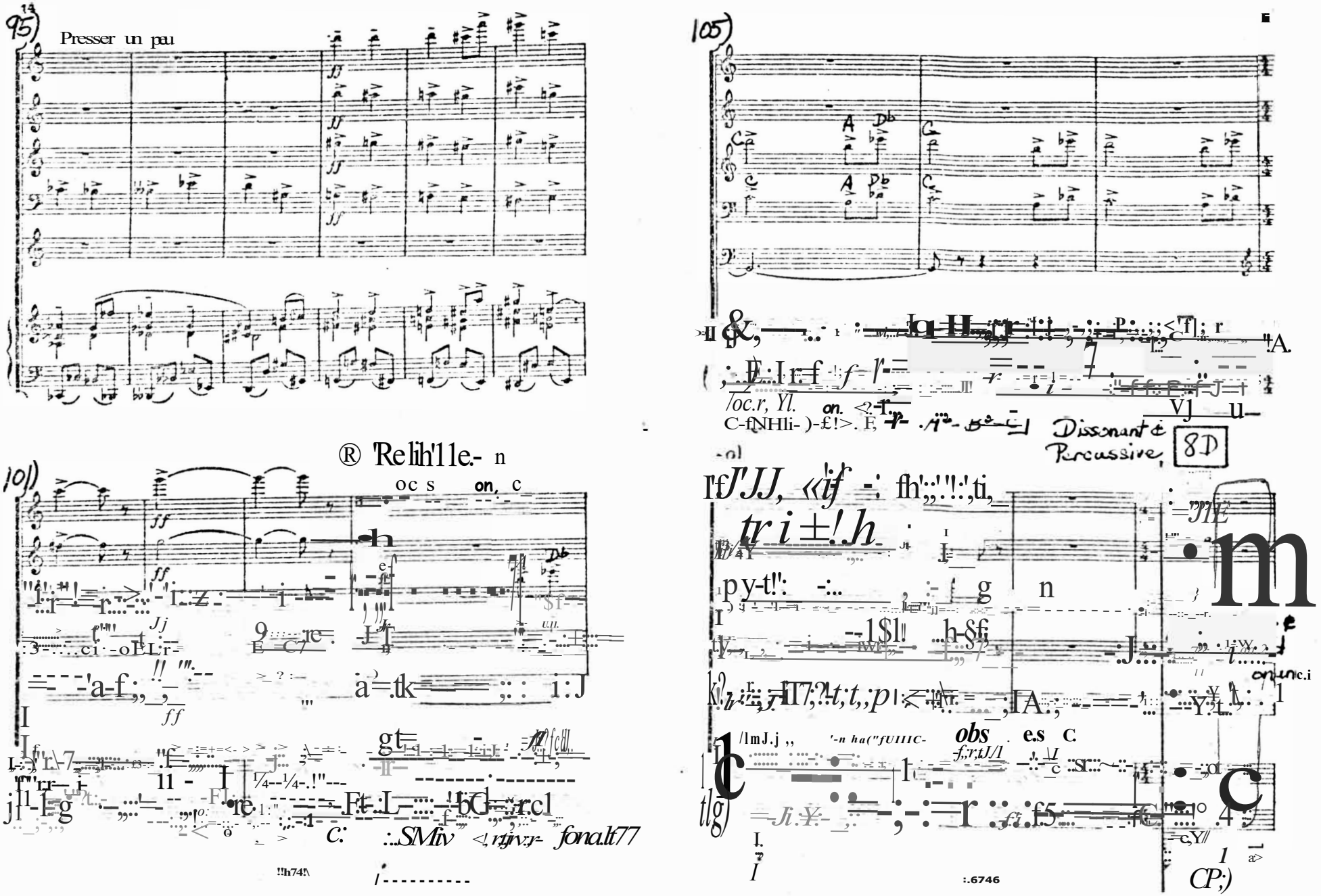
i

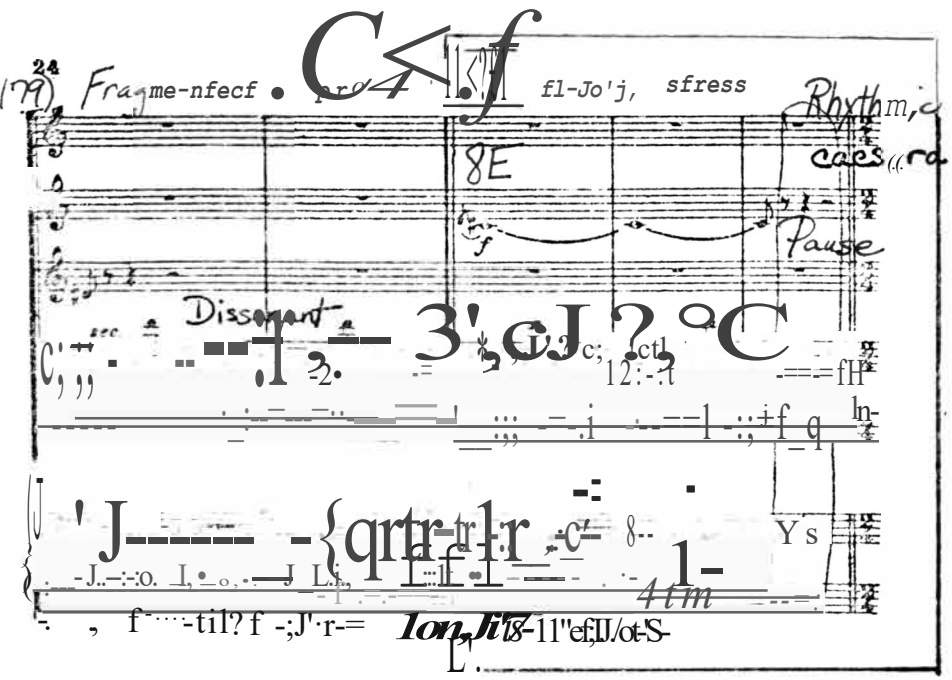
+II D#

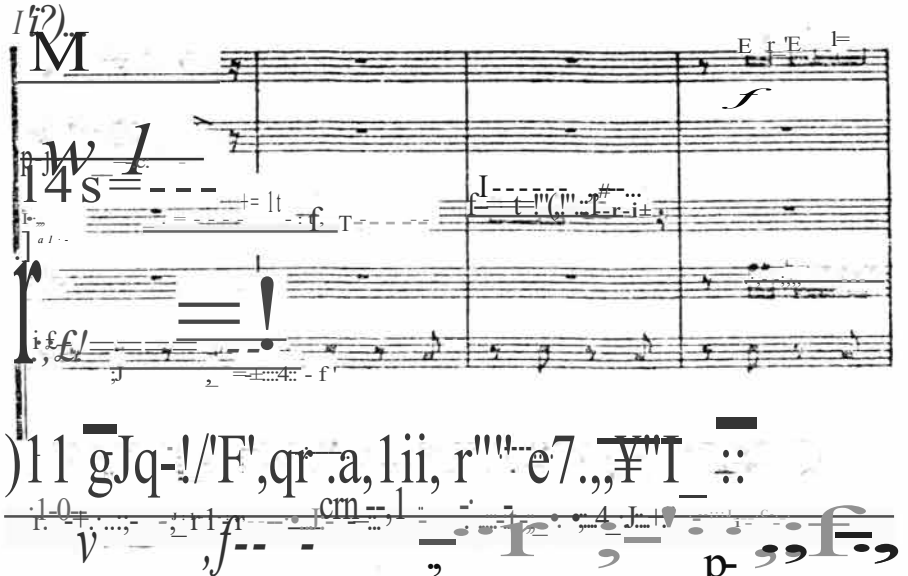
i

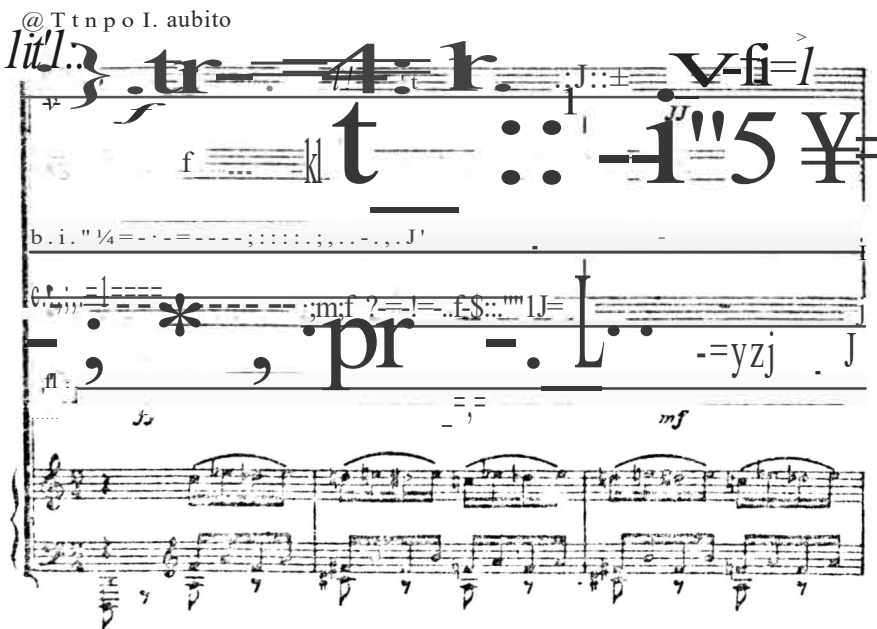
connecting passage to next section

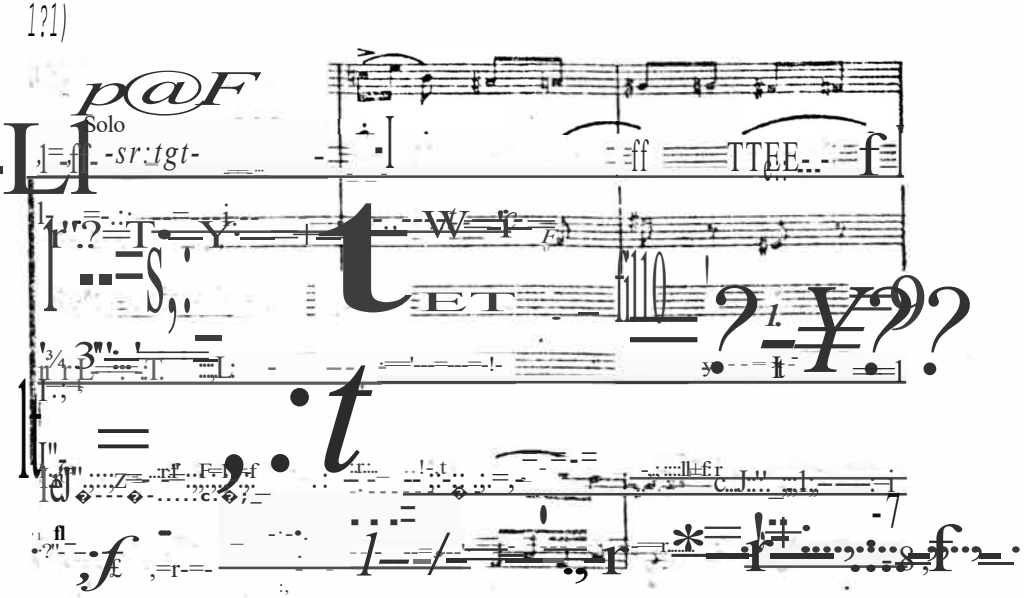
55745


95)
Presser un pau
105)
Dissonant &
Percussive,
8D
101)

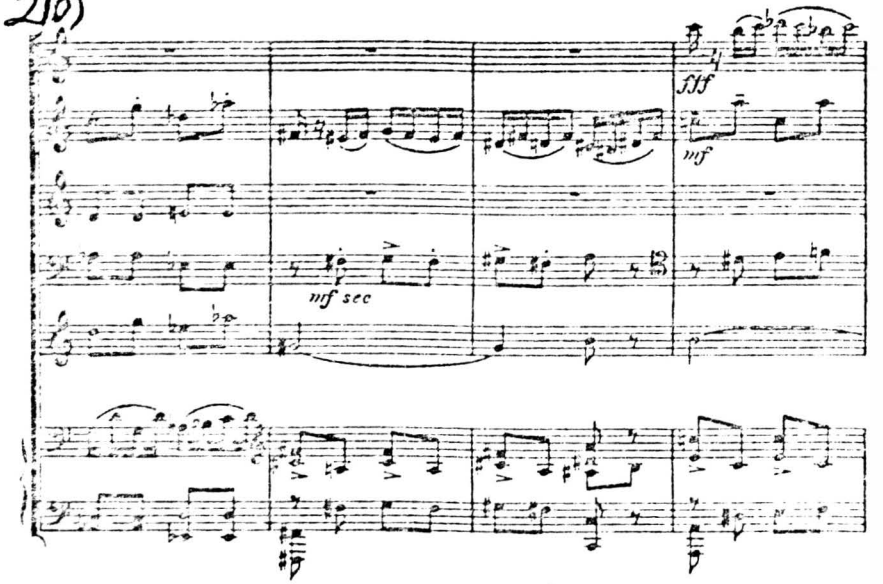

Fragme-nfecf
fl-Jo'j, sfress
Rhythm,
Pause
Dissonant



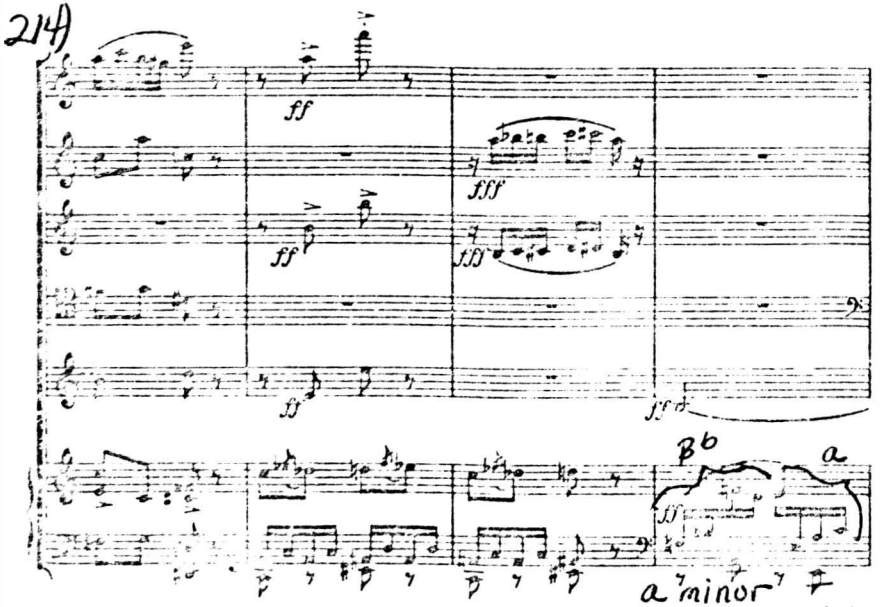

@ T t n p o I. aubito


Solo

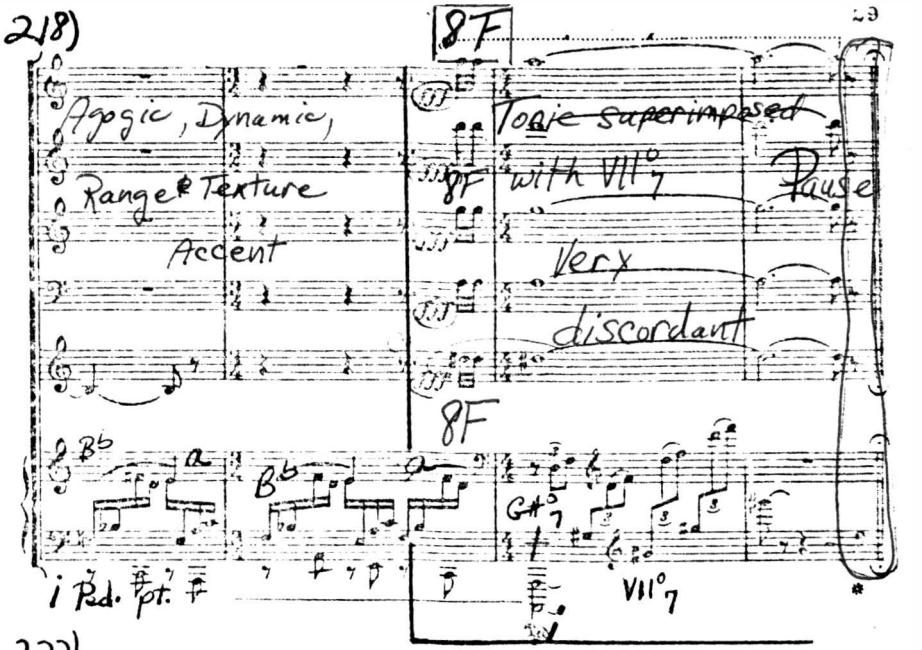
210)



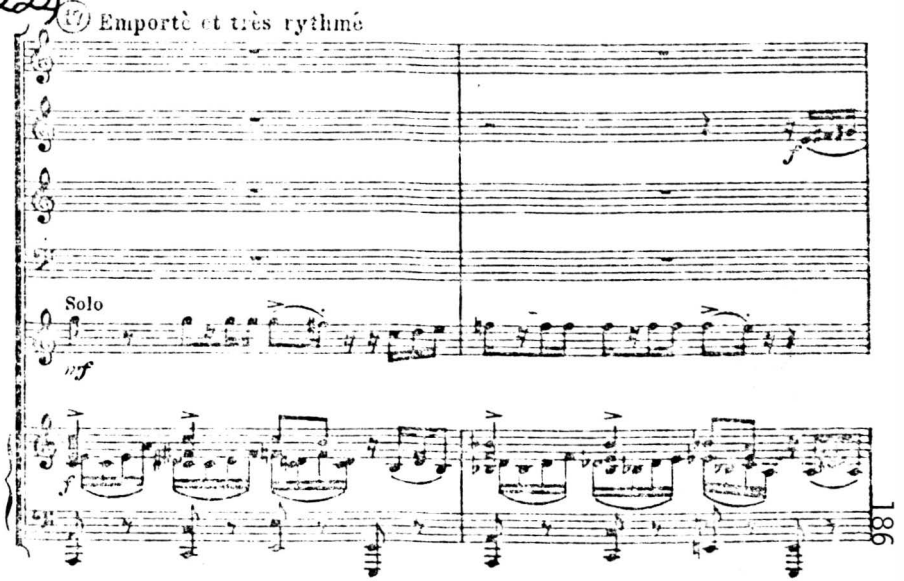
214)



218)



222)



186

242) (19)

Chromatic descent of minor triads

inf subito

am g#m gm

subito

a: i Pedal

244)

fff poss. Chromatic descent of diminished triads

a#° a° g#° b° a#° a° fff

i

246) Chromatic ascent to tonic

fff possible

Tonic Pedal Point

iv + G# - Dissonant Ostinato

ff

Tonic Pedal

8G

G# leading tone

leading tone (G#) + tetrachord

jusqu'au sans ralentir

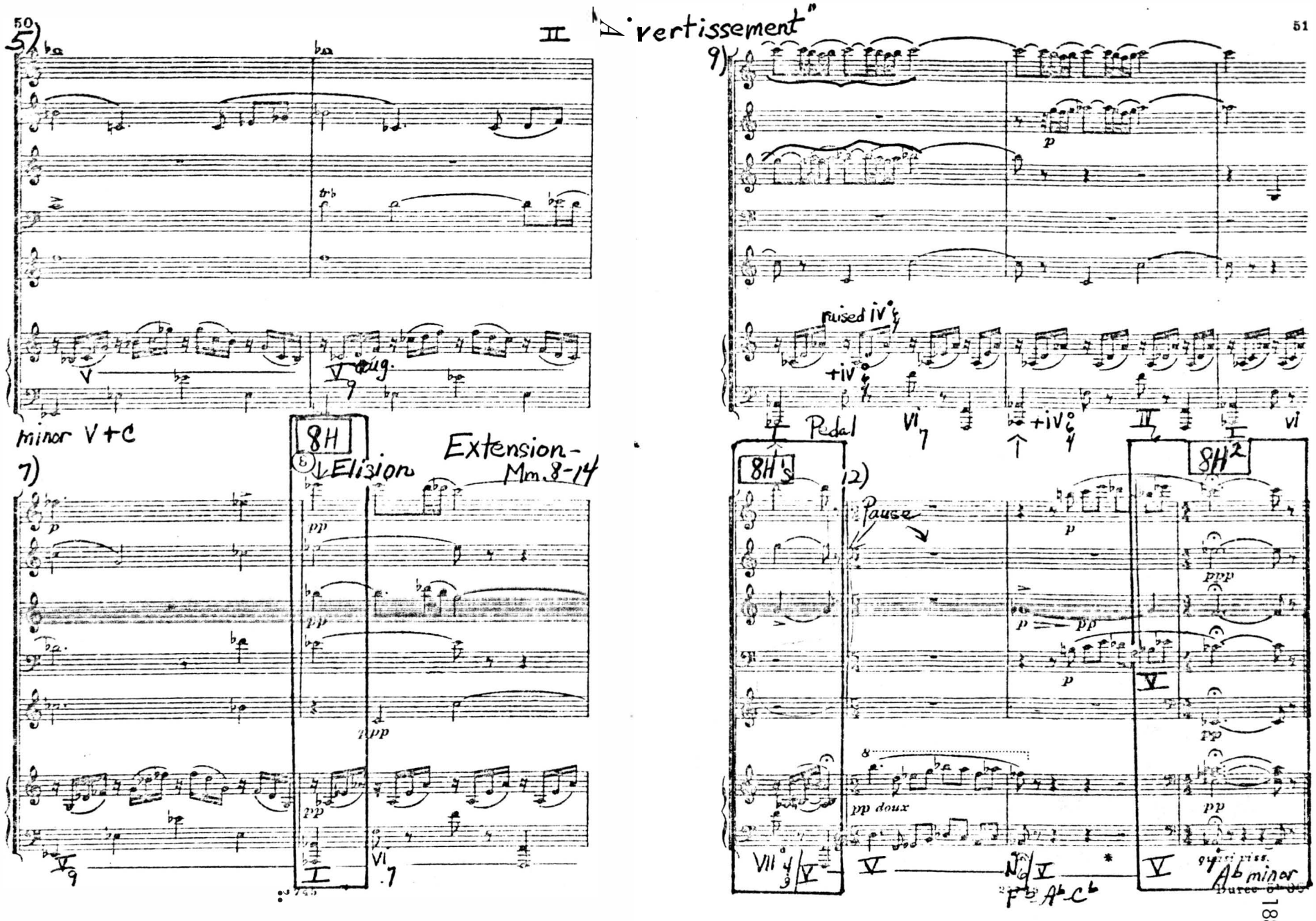
non-harmonic tone

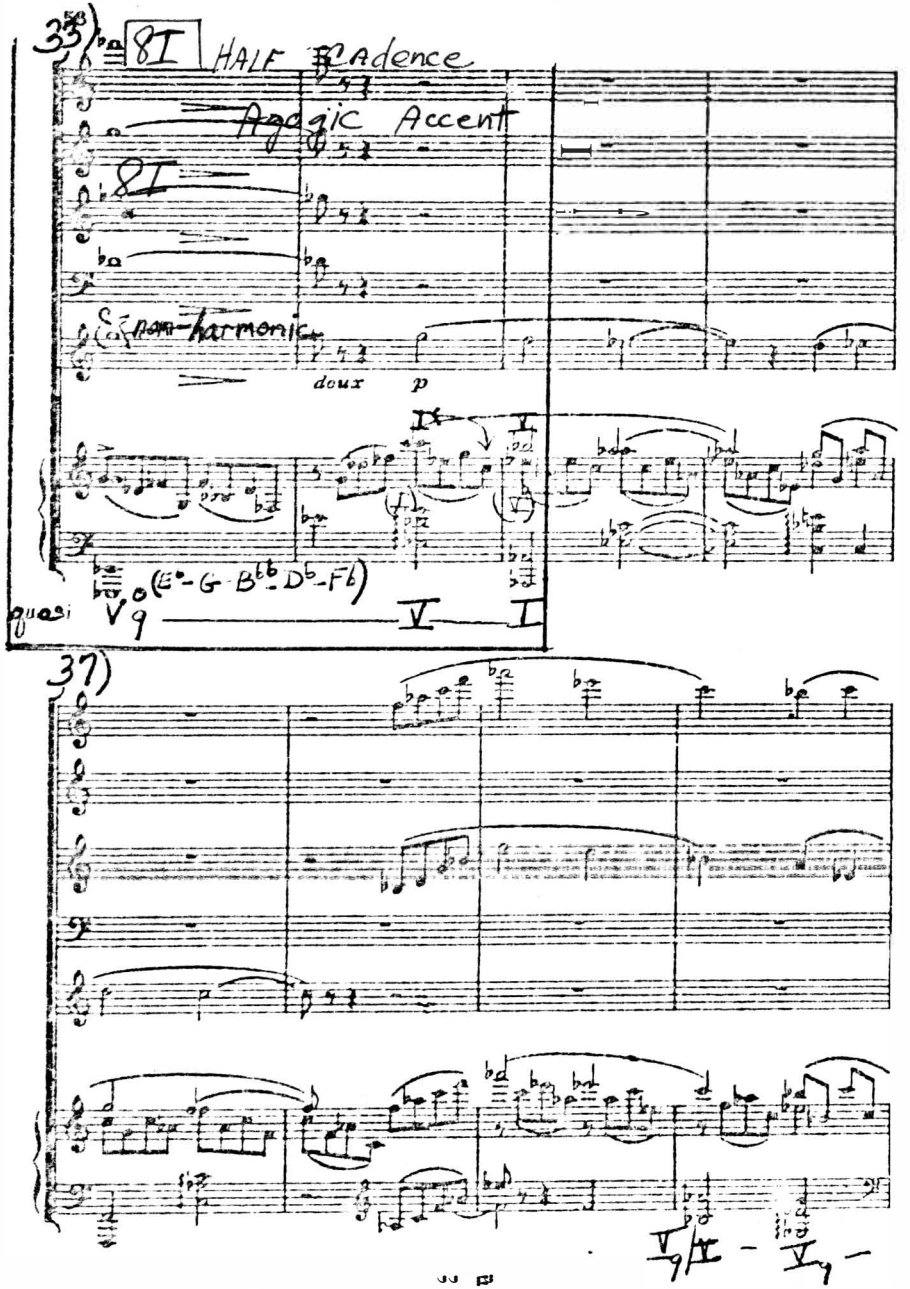
arpeggio-like

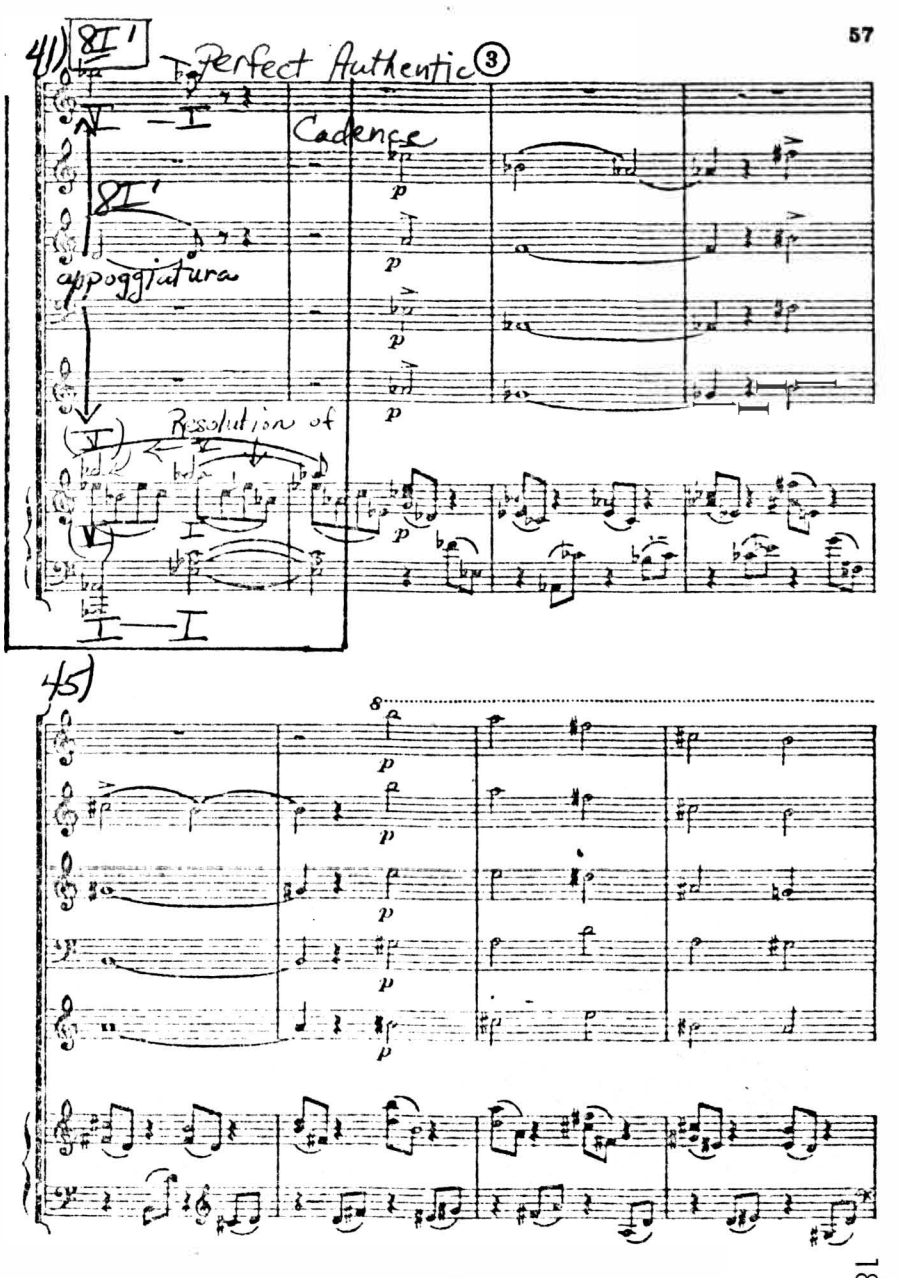
V (I) V (I) V (I) V

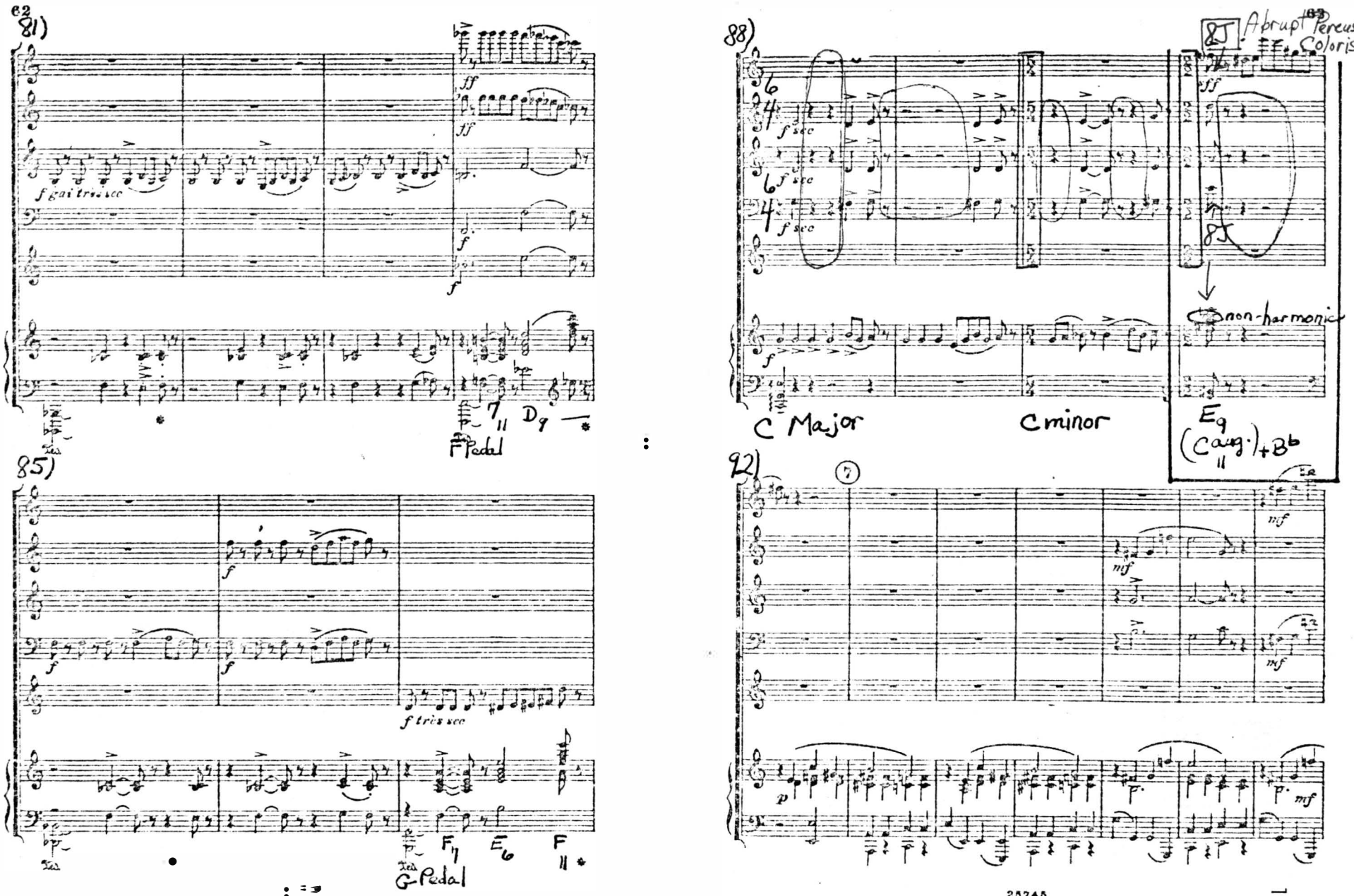
I

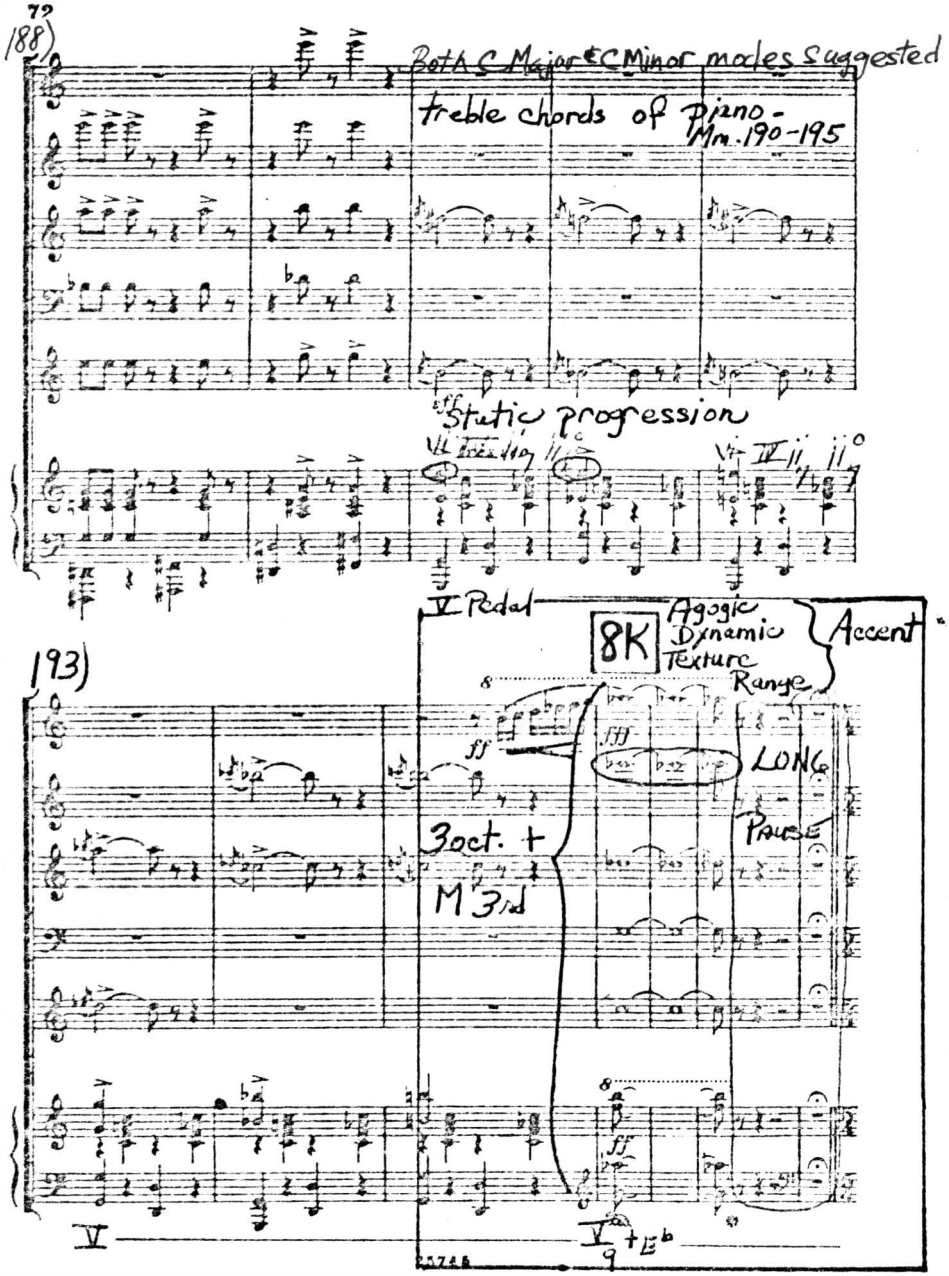
Durée 7' 30"

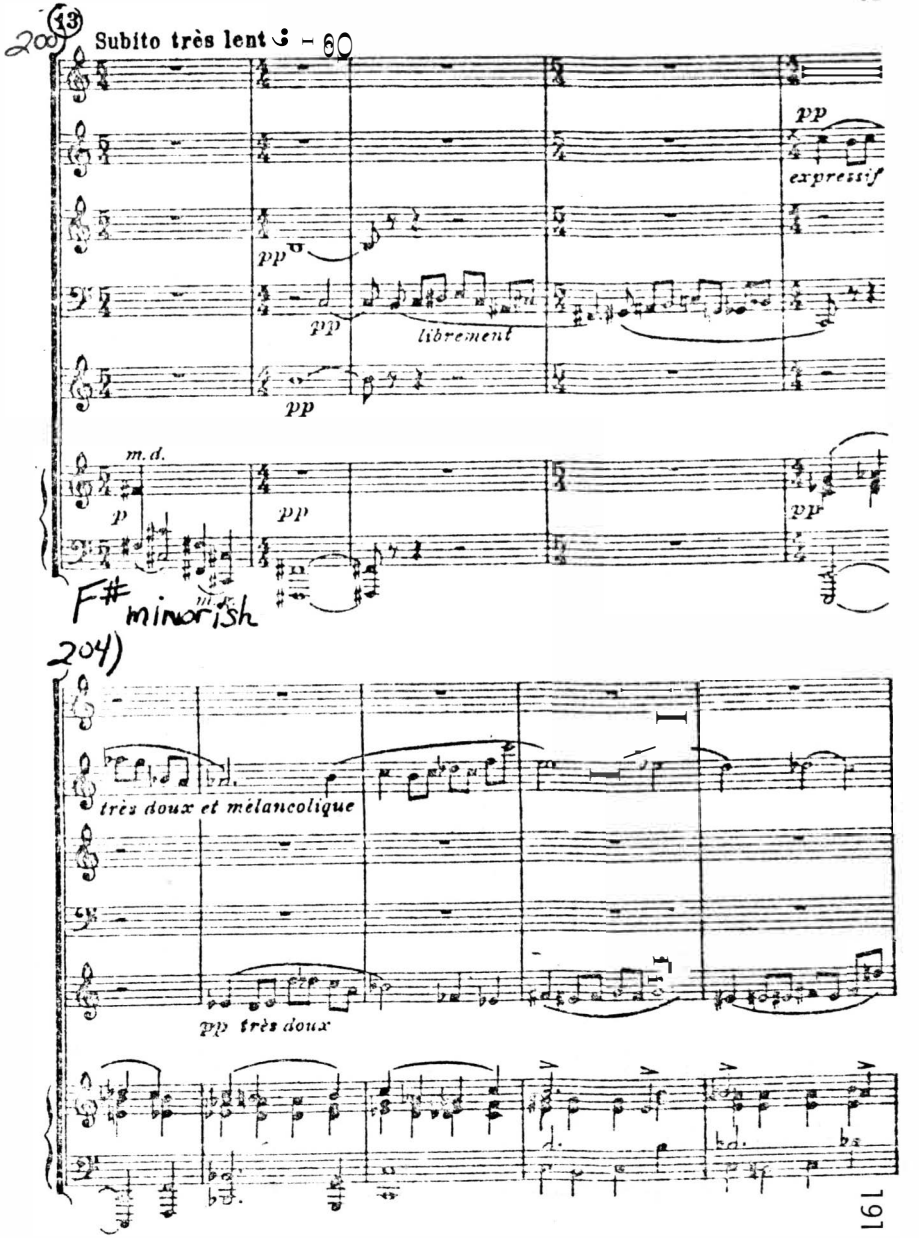

II
"Avertissement"
5)
V
V aug.
minor V+C
7)
8H
Elision
Extension - Mm. 8-14
pp
I
VI 7
9)
raised iv°
+iv°
Pedal
VI 7
+iv°
II
vi
8H's
12)
Pause
8H
ppp
pp doux
VII °/V
V
N/V
F Ab C
V
Ab minor

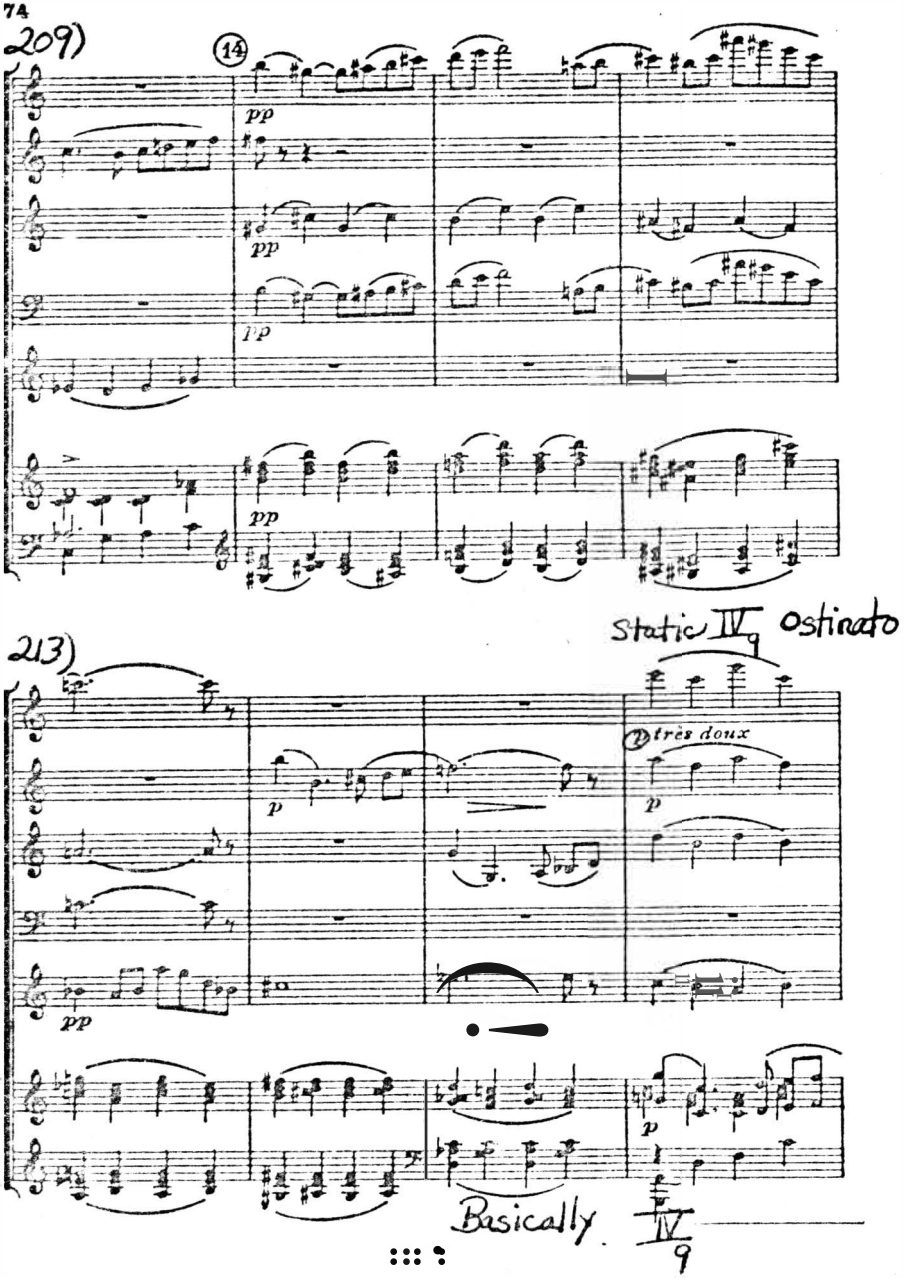

33)
8I
HALF Cadence
Agogic Accent
8I
Enharmonic
doux p
(E°-G-B♭♭-D♭-F♭)
quasi V9
V
I
37)
V9/IV
V9

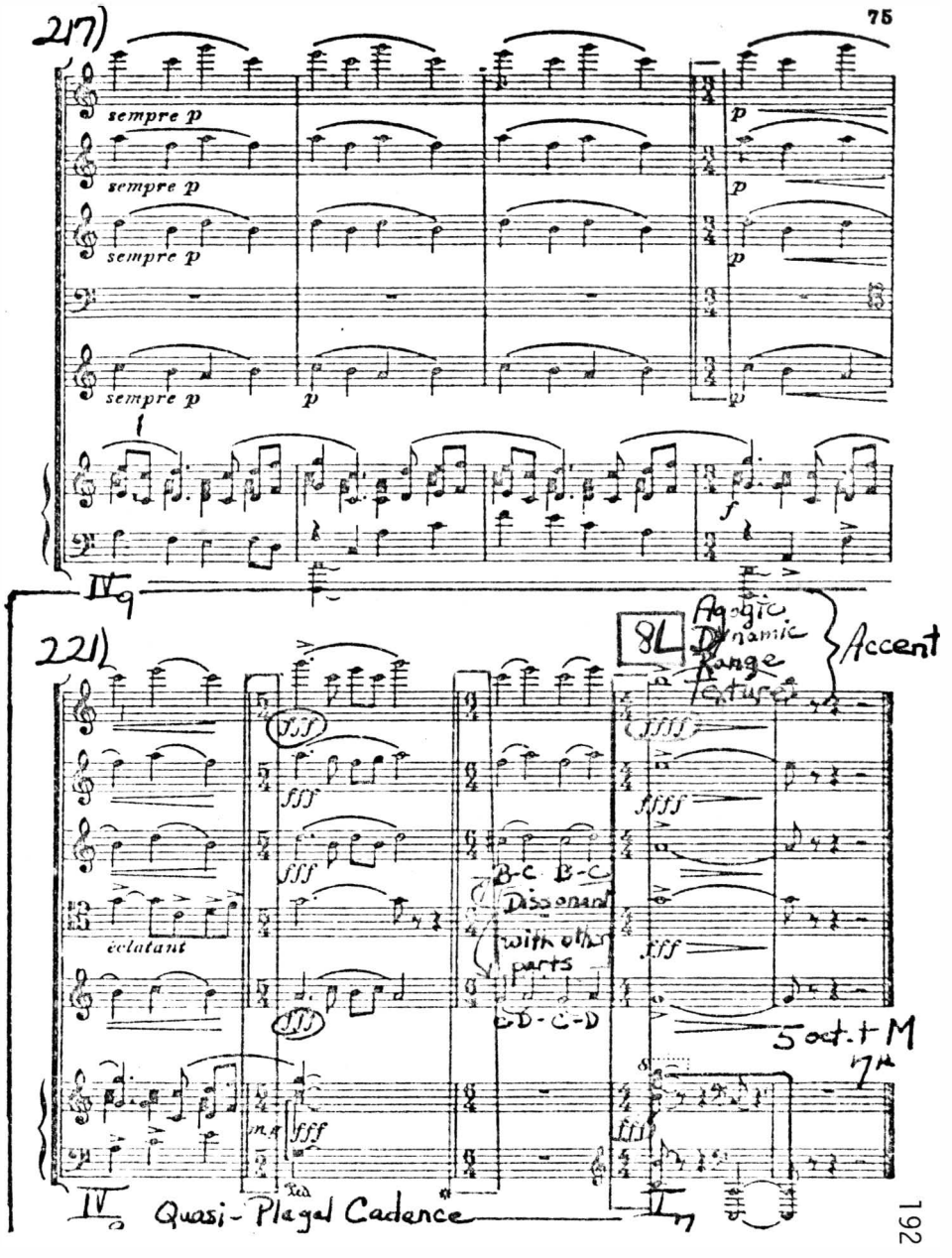

41)
8I'
Perfect Authentic ③
V
I
Cadence
8I'
appoggiatura
Resolution of
V
I
I
45)
8
p


82
81)
ff
ff
f gai très sec
f
f
7 11 D9
Pedal
85)
f
f
f
f très sec
F 11 E6 F 11
Pedal
88)
f sec
f sec
f sec
f
8J
Abrupt Percuss
Colorist
sff
8J
non-harmonic
C Major
C minor
E9 (Caug.)+B♭
11
92)
7
mf
mf
mf
p
p
mf


188)
Both C Major & C Minor modes suggested
treble chords of Piano -
Mm. 190-195
Static progression
193)
V Pedal
8K
Agogic
Dynamic
Texture
Range
Accent
LONG
PAUSE
3oct. +
M 3rd
V
V9 +Eb


200
13
Subito très lent ♩ = 60
pp
expressif
librement
m.d.
F# minorish
204)
I
très doux et mélancolique
pp très doux


209)
14
pp
pp
pp
pp
213)
Static IV9 ostinato
p très doux
p
pp
p
p
Basically
IV9


217)
sempre p
sempre p
sempre p
sempre p
p
p
p
f
IV9
221)
84
Agogic
Dynamic
Range
Texture
Accent
fff
ffff
éclatant
B-C B-C
Dissonant
with other
parts
C-D-C-D
5 oct. + M
7th
IV9
Quasi-Plagal Cadence
I7

Summary of Sextour

The Sextour, though basically traditional harmonically and rhythmically, incorporates twentieth-century elements such as ninth, eleventh, and sometimes thirteenth chord structures, which break down into the vertical juxtaposing of two diatonic chords of the same key, meter change to obscure the feeling of downbeats, and unresolved dissonance at cadence. The Sextour is full of modulations effected by the often chromatic vocabulary. The Sextet begins in A major; the first movement ends in A; the second movement begins in o^{b} and ends in A^{b} (the minor mode); the final movement begins on G chords (V or C), quickly shifting tonal centers and finally comes to rest on a C_7 chord at the end. The key scheme is untraditional; most of the cadences studied are untraditional and harmonically ambiguous, but the overall cadential sonorous effect of this work is traditional with forms of the dominant progressing to forms of the tonic. Poulenc[1]s frequently used cadential techniques in this work are: 1) pedal points and ostinato patterns in approaching cadences which results in a static harmonic flow; 2) thinned texture; 3) added rests, yielding fragmented passages; 4) abrupt, percussive cadence structures; and 5) much chromaticism.

Chart of Cadential Devices in the Works of Poulenc
(Total Cadences = 62)

Rhythmic Caesura (Pause)	Elision	Dissonant abrupt Percussive Ending	Harmonic Influence
Suite Francaise*	Suite Francaise*	Suite Francaise*	Suite Francaise*
1A	--	1D	1A (V_9-1)
1C[1]	Sextour**	3E	1B (ii_7-V)
1D	8H	7C - consonant C major	1C (I-V_5)
2D	(6%)	7D[1] - consonant G major (9%)	1C[1] (V-1)
2E[1]	2%/t**	Sextour**	2A (V-1)
2F		8A	2B (V/vi-vi)
3D[1]		8A[1]	3A (V-1)
6A		8B	3B (bVII-1)
6C		8D	3B[1] (V_7-I)
6E		8G (consonant	5A (i-V_7)
7C		8J	5B (V_7-i)
7D[1]		(38%)	6A (ii_7-V) or (v7/V-V)
7D[2] (28%)		16%***	

Chart of Cadential Devices in the Works of Poulenc (Cont.)

Rhythmic Caesura (Pause)	Striking Coloristic Effect	Melodic Influence Linear Motion	Agogic Accent	Harmonic Influence
Sextour**	Suite Francaise*	Suite Francaise*	Suite Francaise*	Suite Francaise*
SA	2C (V/III-III7)	3D	1B	6B (V-I)
8A[1]	2B final on i9=d9	4A	1C	6C (V-I)
SC	3D[1] tri-chord = I + 6vII + IV	7D	2A	6E (V5-i-V)
SE	superimposed	(7%)	2B	6F (V-I)
SF	3E (II + VI) superimposed	Sextour**	2c[1]	7A (ii7-V)
SH[1]	4B (V5(^{O}5th)	8G	2D	7B (ii-V)
81	4D (V7(^{O}5th) + m9	81[1]	2E	7C (V-I)
81[1]	5c d_{6}^{4} + (a)	(13%)	2F	7D (V_{6}^{4}-I_{6})
SK	5D = (V) D octaves + (E)	8%***	2G	7D1 (V-1_{6}^{4}-V)
(56%)	(17%)		3A	7D[2] (V-I)
35%***	Sextour**		3B	(48%)
	8D		3B[1]	Sextour**
	SJ (C 11) (13%) 16%***		3D	8G (V-I_{6}^{4}-I)
			4A	SH (V5/V-V-i)

Chart of Cadential Devices in the Works of Poulenc (Cont.)

Ultimate Cadence Sonority - Triadic Structure	Modal Usage	Agogic Accent	Harmonic Influence
Suite Francaise*	Suite Francaise*	4B	8P (V_9-I)
1A-C	1A-1C[1] (lydian color surrounding cadences)	4C	8L (IV9-I_7)
1B-G	20 - aeolian on D	40	(25%)
1C-G5	3A-30-mixolydian	5A	42%***
$1C^{1}$-C[5]	(17%)	5B	
2A-F	Sextour**	5C	
2B-d	8A and $8A^{1}$ - aeolian	50	
2C -e	8C - lydi an	6B	
2D-a_7	80 - locrian on c (piano)	60	
2El-A	(19%)	6E	
2F-a	19%***	6F	
2G-B^{b}		7A	
3A-F		7B	
3B-F		(59%)	

Chart of Cadential Devices in the Works of Poulenc (Cont.)

Ultimate Cadence Sonority - Triadic Structure		Agogic Accent
$3B^{1}$-F	$7D\text{-}C_{6}$	Sextour**
4C-D	7D1-G	8E
5A-d	$7D^{2}$-C	8F
5B-g	(63%) Sextour**	$8H^{2}$
6A-G	8G	81
6B-C	$8H^{2}$-a	8K
6c-C	81-A	8L
6D-F♯	81-C	(38%)
6E-G	(25%)	53%***
6F-C	53%***	
7A-G		
7B-G		
7C-C		

*Suite Francaise - 46 cadences
**Sextour - 16 cadences
***Combined% total cadences = 62

BELA BARTOK (1881-1945)

The music of Bela Bartok has been inspired and influenced by the Eastern European folksong idiom. Wanting to escape the bonds of the exhausted major-minor key system and wanting to revitalize music, Bartok set out to explore and record the peasant tunes of his native land, Hungary, along with those of Romania, Slovakia, Bulgaria, Yugoslavia, Turkey and Arabia. He internalized the spirit of folksong to such an extent that his music is naturally imbued with folkloristic elements. His music does not quote specific peasant tunes - it captures the free, spontaneous spirit of folksongs. His frequent use of 1) church modes; 2) pentatonic scale patterns and melodies; 3) melodies written within a narrow range which circle around a central note; and 4) repeated fragments of tunes on different beats of the measure, originate from folksong influence. Also, some predominant intervals used in Hungarian folksong, 2nds, 4th, and 7ths, find favor in Bartok's musical language. His frequent use of pedal points (as a type of drone bass which emphasizes the tonal character) stems from his passion for music of the peasantry - music from the core of the land. Other features characteristic of his music are: 1) the use of dual modality - the simultaneous use of major and minor of the same chord; 2) polymodality - several modes juxtaposed or layered; 3) superimposing of independent streams of chords upon one

another - bitonality or polytonality; 4) the use of chords built in fourths - quartal harmony; 5) the use of cluster chords, i.e. the alpha chord, to be discussed; 6) the use of parallelism (parallel 2nds, minor 3rds, perfect 4ths, minor 6ths, 7ths and 9ths); 7) percussive dissonance; 8) dissonant counterpoint (a dissonant fugal texture); 9) asymmetrical rhythms; and 10) continuous variation form. "...the pentatonic scales of the earliest folk music, the modes of oriental and medieval art and folk music and lastly, the major and minor scale idiom of European art music of the 17th, 18th, and 19th centuries, are stages on the road towards Bartok's complete integration of the deepest fundamentals of tonality with perfect formal proportion."[1] During the period of disintegration of the major-minor scale at the beginning of this century, Bartok theorized for himself principles of tonality which preserved a sense of center and yet created a new harmonic and melodic vocabulary. It was surprising to this writer to discover that Bartok had devised a theory of composition called the 'axis system'. This tonal and formal theory is very complex, especially concerning form. Mr. Erno Lendvai, in 1971, codified Bart6k's theory in the book, Bela Bartok. Bartok's theory is based on the principles of tonality, acoustics and equidistance; his theory of form is based on the geometrical principle of the Golden

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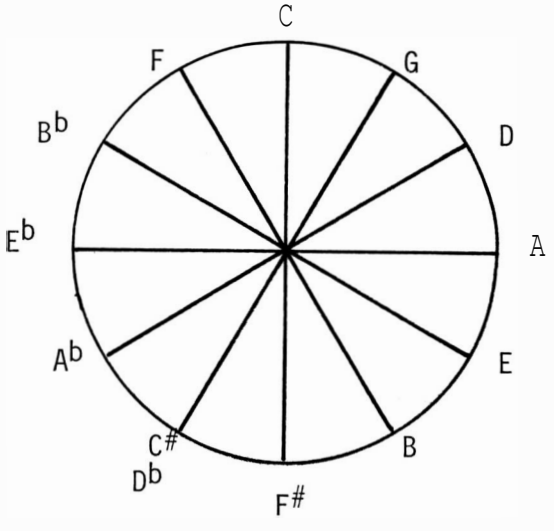
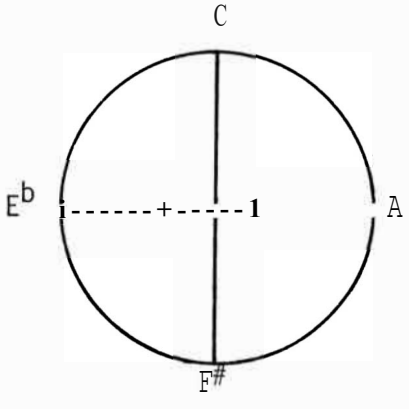
[1]Erno Lendvai, Bela Bartok (London: Stanmore Press Ltd. c. 1971), p viii Introduction by Alan Bush.

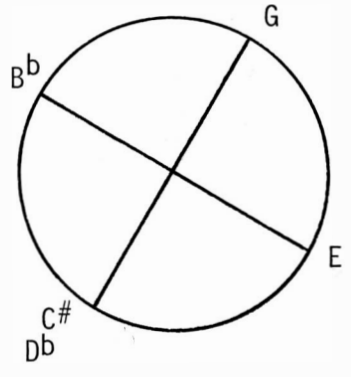
Section and on the numerical series called the Fibonacci Series. Bart6k's choice of intervals in constructing melodies and chords stems from these last two principles. A shortened paraphrase of Mr. Lendvai's exposition of Bartok's theory will follow.

The axis system, as related to classical tonal principles, takes the circle of fifths and places three pairs of axes upon it. Each pair of axes divides the circle into quarters with the four points serving as poles: Each of the three pairs of axes forms a function - the function of tonic, dominant, and subdominant.

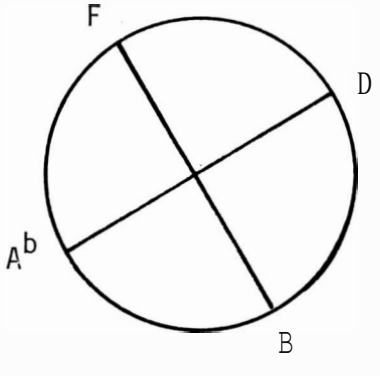




Tonic

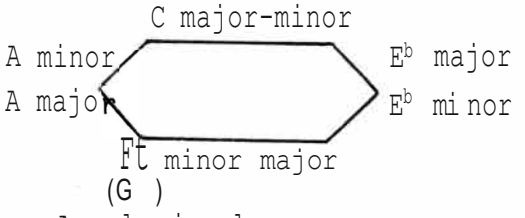


Dominant

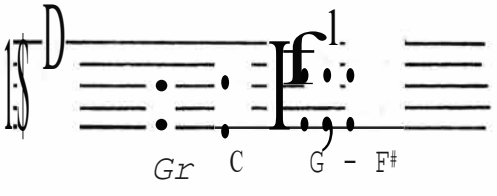


Subdominant

All four pitches or keys of one function are related and interchangeable. In Bartok's system the major and minor mode are interchangeable, that is they can be used alternately or simultaneously. For this reason, C's relatives are A and E^{b}. Since A's relative is both C and $F^{\sharp}$ and E^{b}'s relative is both C and G^{b} ($F^{\sharp}$), there is an affinity between C and $F^{\sharp}$. The $F^{\#}$ forms the counterpole relationship to C and



Lendvai says that "the pole-counterpole relationship is the most fundamental structural principle in Bartók's music. A pole is always interchangeable with its counterpole without any change in its function."[2] One of the unique features of Bartók's musical language is his resolutions to counterpole harmonies. Such resolutions have been given the term, 'Bartokean psuedo-cadences'.[3] For example, in a C major tonality, instead of A G_7 chord cadencing to a C chord, it can easily slide into an $F^{\sharp}$ chord. An inversion and an enharmonic spelling of a G7 harmony may be needed to supply smooth, logical voice leading to an $F^{\sharp}$ chord:



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[2] loc. cit., p. 4.

[3] loc. cit., p. 12-13.

The tritone relationship between the pole and its counterpole finds logic in principles of equidistance - that is, the equal division of the twelve semi-tones within the octave. The equal division of the twelve semi-tones into two parts results in the tritone. Whether the tritone is Cup to $F^{\sharp}$ or inverted, $F^{\sharp}$ up to C, there are six semi-tones in each. Equal division of the twelve semi-tones produces what Lendvai terms "neutral section points"[4], that is, intervals which serve as points of rest. The three functions, tonic, dominant, and subdominant, also find explanation in the equidistance principle. The equal division of the twelve chromatic tones into three parts results in an augmented triad: C-E-A^{b} - each pitch representing a function: T D S I-V-IV C-E-A^{b} The division of the octave into four equal parts creates a diminished triad, A-C-E^{b}-G^{b} ($F^{\sharp}$), or E-G-B^{b}-D^{b}, or B-D-F-A^{b}, representing the four poles of each function. "So, the tonal system resulting from the division of the chromatic scale into equal parts agrees completely with the axis system."[5] Besides sharing a relationship with tonality and equidistance, the axis system shares a relationship with acoustics. Principles of the overtone series further unify and tie together the four poles and the three functions. Lendvai states: "The theory of the axis system is also substantiated by the law of acoustics.

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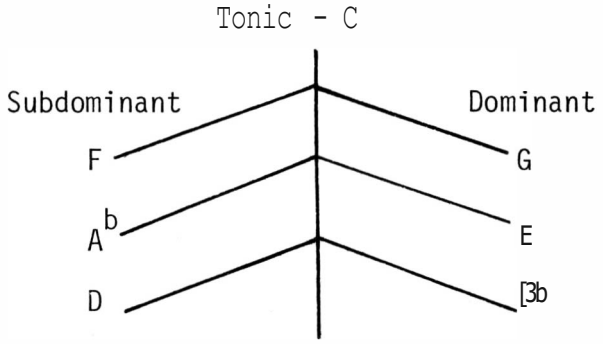
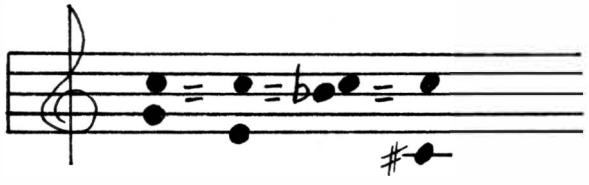
[4] ibid, p. 13.

[5] loc. cit., p. 15

Acoustically, arriving from the dominant to the tonic, is to reach the root from an overtone - all cadential relations rest on the principle of interconnection between roots and their overtones. Thus, the dominant of C is not only G, but also the next overtones E and B^{b}. Therefore the circle of tonic-dominant (and tonic-subdominant) relationships is expanded to include E-C and B^{b}-c = V-I, and F-C, A^{b}-c, and D-C = IV-I.[116]



Because Bartok's system allows four tones each to function as tonic, dominant, and subdominant, the harmonic vocabulary is greatly expanded and can be highly coloristic. For example, in a C major chord the G can be replaced by E, B^{b}, or $c^{\#}$ (D^{b}) without changing the tonal character of C. The four pitches of the same axis are interchangeable.



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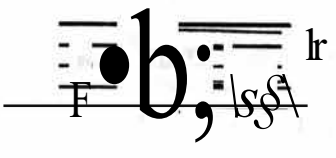
[6] loc. cit, p. 10.

Bartok's theory of tonal relationships involving possible substitutions and the interchangeability of pitches within the three functional domains (tonic, dominant, and subdominant) is easily comprehended. A more complex part of his theory, which helps determine the choice of intervals, chord structures, scales, and formal organization, involves the geometrical principle called the Golden Section, and the numerical series - the Fibonacci Series. These closely allied principles will be abbreviated GS and FS respectively. In this numerical series, FS, each number is the result of adding the two previous numbers: 2-3-5-8-13, etc. To the first five numbers, Bartok assigns an interval:

2 = Major 2nd
3 = minor 3rd
5 = perfect 4th
8 = minor 6th
13 = augmented 8th



These basically dominate Bartok's harmonic and melodic language. A favorite Bartok chord is the major-minor chord consisting of: minor 3rd- perfect 4th- minor 3rd, which constitutes a first inversion major chord with a minor third on top. The minor 7th can also be present. The position of this structure uses only FS numbers and does not contain characteristic intervals of the overtone system: Major 3rd, perfect fifth, and minor 7th. To explain the GS principle is difficult for an unmathematical mind, but it does merit significant attention. Lendvai states that this formal element is at least as significant in Bartok's music as

the 2+2, 4+4, 8+8 bar periods or the overtone harmonizations were in the Viennese classical style[7] "Golden Section means the division of a distance in such a way that the proportion of the whole length to the larger part corresponds geometrically to the proportion of the larger to the smaller part.[8] In other words, "... the value of the larger section is 0.618, hence the smaller part is 0.382. Thus, the larger part of any length divided into GS is equal to the whole length multiplied by 0.618 ..."[9] One might think that such a complex mathematical imposition upon form and interval lie relationships is unnatural, contrived, or mechanical. The GS of a circle of 360°, realizes an angle of 222.5° and one of 137.5°; this angle of 137.5° can be observed between branches and between leaves on the branches, besides finding this ratio in the structure of fir cones, the nautilus seashell, and many other organic objects of nature.[10] "We follow nature in composition, wrote Bartok,[11] and he was indeed directed by natural phenomena to his discovery of these regularities."[11] Lendvai, in discussing the GS says, "it is

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[7] loc. **Cit.,** p. 18.

[8] loc. cit., p. 11.

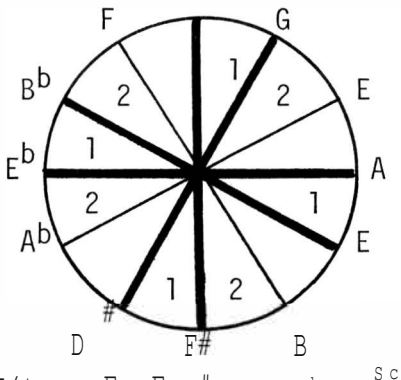
[9] loc. cit., p. 17.

[10] loc. Cit., p. 30.

[11] ibid, p. 30.

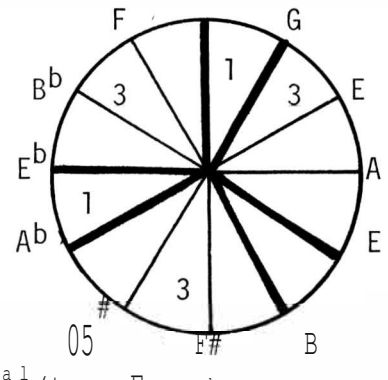
interesting to note that the Gs is always associated only with organic matter and is quite foreign to the inorganic world."[12] Folk music to Bartok was a phenomena of nature. Its formations developed as spontaneously as other natural organisms. Folk music, especially Hungarian folksong, frequently used pentatonic scales and patterns, and "pentatony is a Gs tone sequence",[13] says Lendvai: C - D - F - G - A - C . Bartok formed scales
M2 m3 M2 M2 m3
according to Gs ratios: 1:2, 1:3, and 1:5. The division of the circle of fifths into these ratios creates scale patterns:

1:2



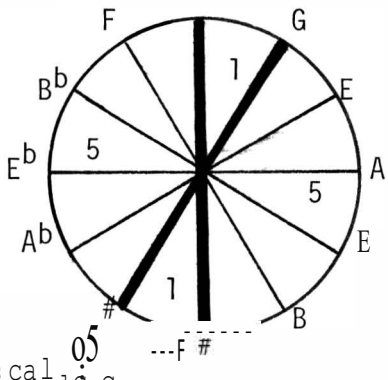
Scal (t-c#-Eb-E-F#-G-A-Bb-c)
alternating m2 & M2

1:3



Scal (t-Eb-E-G-Ab-B-C)
alternating m# & m2

1:5



Scal (C-C#-F#-G-C)
alternating m2 & P4

The Gs and Fs principles are 1) asymmetrical in nature; and 2) they constitute the material for Bartok's chromatic idiom. The Gs is realized in a characteristic Bartok chord known as the 'alpha' chord. The alpha chord is made up of all the tonic and dominant poles. It is a layering of tonic and dominant pitches and

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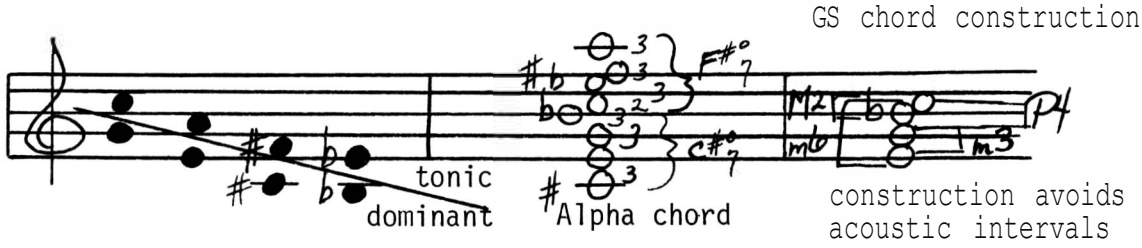
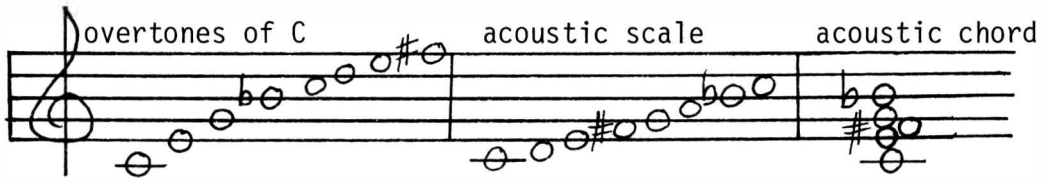
[12] loc. cit., p. 34.

[13] loc. cit., p. 57.

therefore is the merging of two diminished seventh chords, $C\#^{o}_{7}$ and $F\#^{o}_{7}$.



Bartók's chromatic system uses the intervals of the GS (2nd, 3rd, 5th, and octaves), the alpha chord, pentatony, and scale models of ratios 1:2, 1:3, and 1:5. A diatonic system also forms another harmonic and melodic language for Bartók. The use of an acoustic scale and chord is prevalent in Bartok's diatonic system which uses overtone intervals; 5ths, major 3rds, and minor 7ths. The acoustic or overtone scale: uses the raised fourth and



lowered seventh degree, (the 6th and 10th overtone). When Bartok uses the chromatic system, chords are spaced and positioned to avoid acoustic intervals. Lendvai adds that "Bartok's diatonic music is inspired by an optimism and serenity; his chromatic music by a dark, irrational and demonic passion."[14]

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[14] loc. cit., p. 82.

This shortened explanation of Bartok's tonal theory should be helpful in harmonic analysis of his works and will surely be of importance in studying cadential points. To determine whether Bart6k is using his diatonic or chromatic system, one must look to the intervals and decide whether they follow the principles of acoustics or whether they are predominantly the intervals of the Golden Section. Bart6k[1]s tonal structures definitely affect and influence his cadential endings.

Allegro barbaro

(1911)

This early piano work by Bartók is one of the first pieces to use percussive dissonance. Dissonant though the work is, it is very tonal. There is no question that f# minor is the tonal center, or tonic. Two of Bartók's favorite devices, ostinati and pedal point, are here combined toform the bass. This percussive, ostinato bass helps set the energetic, rhythmic character of the work and also strengthens the tonality. One of the main features which creates dissonance within the basically triadic vocabulary is a type of cross-relation, or better, a chromatic sounding of a tone, such as in M.11, beat 1, the B#'s (C) against the bass c#, M.35, the E#'s against F# in the bass, and M.36, Fx (double sharp) against G#. The enharmonic spelling, using B# instead of C and E# instead of F , visually evades the chromaticism, yet it is audibly apparent. The vertical harmony at M.11, beat 1, is a C major triad above the dominant, c# octaves. The beginning tonic, f# pedal and harmony is interrupted at M.7 with the dominant c# octaves in the bass, as it is at M.11 and 14, but the resulting diminished dominant, c#^{O} (V^{O}) passes so quickly that it is hardly noticed; the tonic harmony still dominates. The V^{O} adds a coloristic effect rather than producing a harmonic shift or progression. In Bartók's theory of

tonality, the B# (C-?) is tonally logical because it is the counterpole of the tonic, f#. Counterpoles are interchangeable without destroying the basic harmony in Bartók's theory. The tritone relationship between c# and G, Mm.7, 11, and 14, or the F# and C in Mm.14-15, creates dissonance and a special color effect, but it does not sabotage the tonality. This principle of the counterpole relationship is a fundamental concept in Bartok's axis theory. The harmonic progressions seem governed by the repetitive bass patterns. The right hand, stepwise melody, is quite independent of the bass, in that it uses its own various modally-influenced patterns. The entire melody, the upstem notes, from M.5 to the first full cadence at M.49 utilizes the aeolian mode. There is a difference of three sharps between the melodic pattern and the f# minor bass accompaniment. Bartók exploits white against black keys in this section and thus expands the harmonic spectrum. It is interesting that one perceives the melody and accompaniment as vertical structures - that is, the melody works with the ostinato bass; it is not heard as an independent horizontal stream above the bass even though it follows its own mode (aeolian). The bass strictly adheres to the phrygian mode from Mm.1-29 (F#-G-A-B-C#-D-E-F#), transposed in M.17 (C#-D-E-F#-G#-A-B-C#). It is apparent that bimodality exists in this work. Fascinating as the harmonic and modal analysis is, it is pertinent to scrutinize the cadences and describe the procedures used. A small 's' after the cadence number will designate a semi-cadence-

one which does not have as much finality as the full cadences.

Cadence ends on treble E, the dominant of the aeolian melody, and on bass $c^{\#}$, the dominant of the $f^{\#}$ tonic. The cadence at is felt because of 1) the melodic, stepwise motion descending to the E natural (the $E^{\#}$ acts as a leading tone from above, which gravitates toward its goal, E): 2) the augmentation of melodic rhythm, that is, the progressively longer note values approaching the cadence; 3) the agogic, metric (on the strong downbeat) and dynamic accent of the E octaves; and 4) the harmonic progression effected by the bass line from $f^{\#}$ minor modulating to the dominant, $C^{\#}$ minor, $\begin{matrix} i-V_{v-}\ v=i \\ f^{\#}-G^{\#\circ}-c^{\#} \end{matrix}$. After jlAs[the same melodic motive as in Mm.5-17 is now repeated with $c^{\#}$ minor serving as a temporary tonal center in Mm.19-34; the aeolian mode on 'a' is still present in the melody. Following [3} the bass introduces the diminished dominant of G# ($0^{\#O}$), or- the v^{O}/v (M.30), and progresses to a $G^{\#}$ chord in M.34. A modulation is not felt probably because the $G^{\#}$ harmony is disrupted by the melodic F double sharps (G) and by the alternate sounding of the $G^{\#}$ chord and $F^{\#}$ chord, Mm.34-49. The basic tonal progression in Mm.1-49 is: i-v-i or $f^{\#}$-$c^{\#}$-$f^{\#}$. The [I[J cadence is preceded by a section of relatively greater dissonance and tension, Mm.34-48. The cross-relation of F double sharp and $G^{\#}$, M.34, and $E^{\#}$ against $F^{\#}$, M.35, adds dissonance to the already dissonant white-black key relationship between the hands. The repeated right hand motive of up a major 2nd, down

a major 2nd (i.e. Mm.35-36, in brackets), played in ascending octaves and with increasing dynamics creates tension and expectation of release of that tension. [J]J is the point of repose following the build-up of activity. The melodic, stepwise descent to the $^{1}a^{1}$ octaves accompanied by the $f_{\#}$ minor chord sounds like a full cadence on i. The ending on the weak beat of the measure, M.49, beat 2), does not diminish the strong feeling of finality. The cadence is extended by an oscillating $f_{\#}$ minor chordal ostinato which strengthens the tonal center. The cadence at [I[]_ is affected by l) the repetition of the short melodic motive and alternation of the $G^{\#}$ and $F^{\#}$ bass sonorities; 2) the tension created by the cross-relationships ($E^{\#}$-F and Fx-G#); and 3) the melodic motion in M.49 descending conjunctly to the first degree, tonic, of the aeolian mode in the melody, which is the third of the tonic, $f^{\#}$, minor cadence chord. This section, from Mm.34-49, well exemplifies the technique of percussive dissonance, although the entire piece is percussive and somewhat dissonant. The section preceding [[[I is not very melodic; it uses melodic fragments or motives repetitiously in a percussive and rhythmic manner. The pounding, ostinato-like bass patterns function percussively while supplying the harmonic foundation. The [ill cadences and their respective phrases illustrate Bartok[1]s predilection for repeating melodic fragments, often with some variation on repetitions. Within this section, Mm.58-87, dual

modality is prevalent. At M.58, the $B^{\#}$s clash with the c# in the bass augmented A chord. The chromatic melody (Mm.58-61), spans the tritone, C down to $F^{\#}$. Here again, is the appearance of the pole-counterpole relationship, C and $F^{\#}$. The vertical sonority or harmony of Mm.58-60 is ambiguous. The augmented A chord sounds like a coloristic dominant, with the A (enharmonic Gx), acting as a raised fifth of a $c^{\#}$ major chord, progressing to the tonic, $f^{\#}$ triad at [Kl. Bart6k exploits the half-step or chromatic relationship of chords. The treble $B^{\#}$, E#, B# (Mm.58-60), sounds as if the $B^{\#}$ octaves should resolve upward and the A in the bass chord, downward, to form a root position dominant, but they do not resolve. Bartek uses this chromatic rendering to provide color, new harmonic effect, and a degree of ambiguity. It is an adaptation of a V-1 cadence with the final sonority getting emphasis on the second beat of M.61. This sounds like a full or final cadence because the $f^{\#}$ tonic chord is in root position and the melody ends on the f#, and then the tonic harmony is held for six measures, thus supplying agogic stress. Bartek could have proceeded to new ideas, but he chose to economize and to use this harmonic-melodic motive again, with variation. The same harmonic and melodic structures exist in Mm.67-70 with the melody expanded to include the notes a major 3rd higher (E down to $F^{\#}$ rather than C down to $F^{\#}$), spanning a minor 7th in a descending seale figure. The o:r:J cadence is identical with [TI].

Both fall on the second beat of the measure and are held for eleven beats as the f# ostinato bass pattern continues, thus allowing the musical texture to breathe and the harmonic movement to relax. The phrase at M.76 begins another 3rd higher, playing a dorian pattern built on f#, with a C major triad below - again the counterpo le harmony of f#. sounds like a semi-cadence largely because the melody line, the treble chord, ends on a first inversion triad with the third of the chord on top rather than the root. The phrase before the cadence uses the dorian scale on f# in the melody accompanied by an enharmonic spelling of an F major chord. The s# and E# in the bass chord, M.84, provide for logical and traditional voice leading, that is, each sharp should resolve upward to the f# cadence chord, but voice leading is not traditional. The B# and E# skip downward to a root position tonic. The cadence sonority is emphasized on the downbeat of M.88 as the bass jumps down to an f# minor chord and so expands the register and heightens the percussive quality. the cadence has the feeling of finality for a full cadence designation. The extension following, Mm.89-101, also incorporates a full cadence effected by, 1) reduction in dynamics; 2) ritardando, and 3) pause following the ultimate chord. ends on a very short note value, (J'), and on a very soft dynamic level, unlike the previous cadences discussed. Cadences j1C-1C31 all share common features: 1) agogic, dynamic, and textural accent; 2) the

ultimate chord on f# minor; and 3) all of their phrases use a juxtaposition of chromatic pitches (C# against s# (C). The ultimate chords of J1C-1C2J are felt on the second beat of the measure, whereas ill:] and ITI:J are felt on the downbeat. ill:] is notated like J1C-1C2J with the tonic resolution falling on beat 2, but aurally, the next downbeat is perceived as the ultimate cadence chord. The increased weight of added chord tones and the enlarged range aid the perception of this point, M.88, beat 1, as the ultimate sonority. The next section (Mm.101-150) is especially ambivalent tonally because of the chromaticism and fleeting tonalities. This secion is reminiscent of Debussy's style with the sliding into and out of distant harmonies. The cadences at is definitely a semi-cadence - one of weak weight. At an arrival or resolution is felt. Here, there is an harmonic resolution or landing on what now seems to be the momentary tonic. The contrapuntal approach (M.112) to finds its logical goal on the pitch, D. At M.112, the line, short as it is, helps to define a cadence. In Mm.114-120, the repetition up a 4th of the melodic and rhythmic material from Mm.101-107 signals a new phrase. The agogic weight on the melodic D provides momentary rhythmic release. It should be mentioned here also that not all cadences need to provide a break or pause in the rhythmic flow. The perception of 'arrival' of an ides is very important. A linear structure, as in M.112, will set up

an expectation of 'arriving' as well as a harmonic progression. At a linear and harmonic expectation is satisfied. The ultimate sonority, a 8 minor sixth chord with tied D above, is given a longer durational value before proceeding with the repeated material from Mm.101-107. The ITI] cadence could suffice as the ending of this section once the 89 chord is sounded on beat 1 of M.144, but as usual, an extended cadence is provided, having its own cadence at ill]. It is questionable whether to call beat 2 of M.143 the ultimate cadence sonority or beat 1 of M.144. The open c# octave in M.143 is ambiguous as to tonality until the chord is sounded on the next beat. The 89 sonority is approached by its dominant harmony, F#, thus creating another modified authentic cadence, V-I9. The fact that the 89 is the superimposing of a 8 major and F# major chord makes this cadence resolution bitonal. The merging of the tonic and dominant does not sound like a bitonal layer, but like a mildly dissonant vertical sonority. It is harmonically less stable than the DIJ cadences, but the rhythm and stepwise approach to ITI] give it a relatively final inflection. The extension ends on a more dissonant 8 sonority. The 89 (with major 7th and 9th) is changed to a diminished quality with minor 9th in M.149, descending to the minor 7th in M.150. The 1) augmented, homogenous rhythm; 2) diminuendo; 3) slowing tempo; and 4) rest following DII serve the cadential effect. The 8 diminished harmony is not quite as stable as the other cadence sonorities, but the rhythm is a

strong enough influence to give [I[] 'full' cadential status. Page six of the score is provided so that the music is complete and so that one can observe the on-goingness of the music. There is not enough harmonic or rhythmic weight or a definite feeling of 'arrival' within this section to indicate a cadence. The two final cadences definitely have a sound of finality which categorizes them as full cadences. The unrelenting rhythms from Mm.151-198 become even more tense at M.199 with a motoristic quasi-trill figure in octaves sounding for eight measures. The following lydian scale, M.207-210, ascends rapidly and with a crescendo and ends with a previous motive (that found at [I[I, a descending minor 3rd from B# (C) down to A). The D]J cadence is affected by all of the various accents: 1) agogic; 2) dynamic; 3) texture; 4) pitch; and 5) range. Again it is difficult to say whether the ultimate sonority is on the second beat of M.211 or the first beat of M.212 as the eight-voiced f# chord thunders in. It is a thrilling effect to end on open A octaves, M.211, and immediately give the cadence harmonic meaning by hammering out the f# triad on the following beat while encompassing a five-octave range which seems to indicate M.212, beat 1, as the ultimate chord. This is the most climactic cadence because it 1) is approached by a rapid scale in open octaves; 2) sounds the highest pitches in the work; 3) uses the densest texture of the entire work, 12-voiced; and 4) spans the largest range, 5 octaves+ a minor 3rd. An extension of the tonic ostinato

continues for eight measures, reducing dynamic level, texture and range. An f# chord percussively ends the work abruptly on eighth notes. The highest A octaves drop out at M.220 and the final cadence sonority ends in the low bass register, preceded and followed by rests. The only cadence at all similar in technique is which also ends an extension. The rests, thinned texture, and percussive, short rhythms are the elements which produce the cadential effect at ITBJ.

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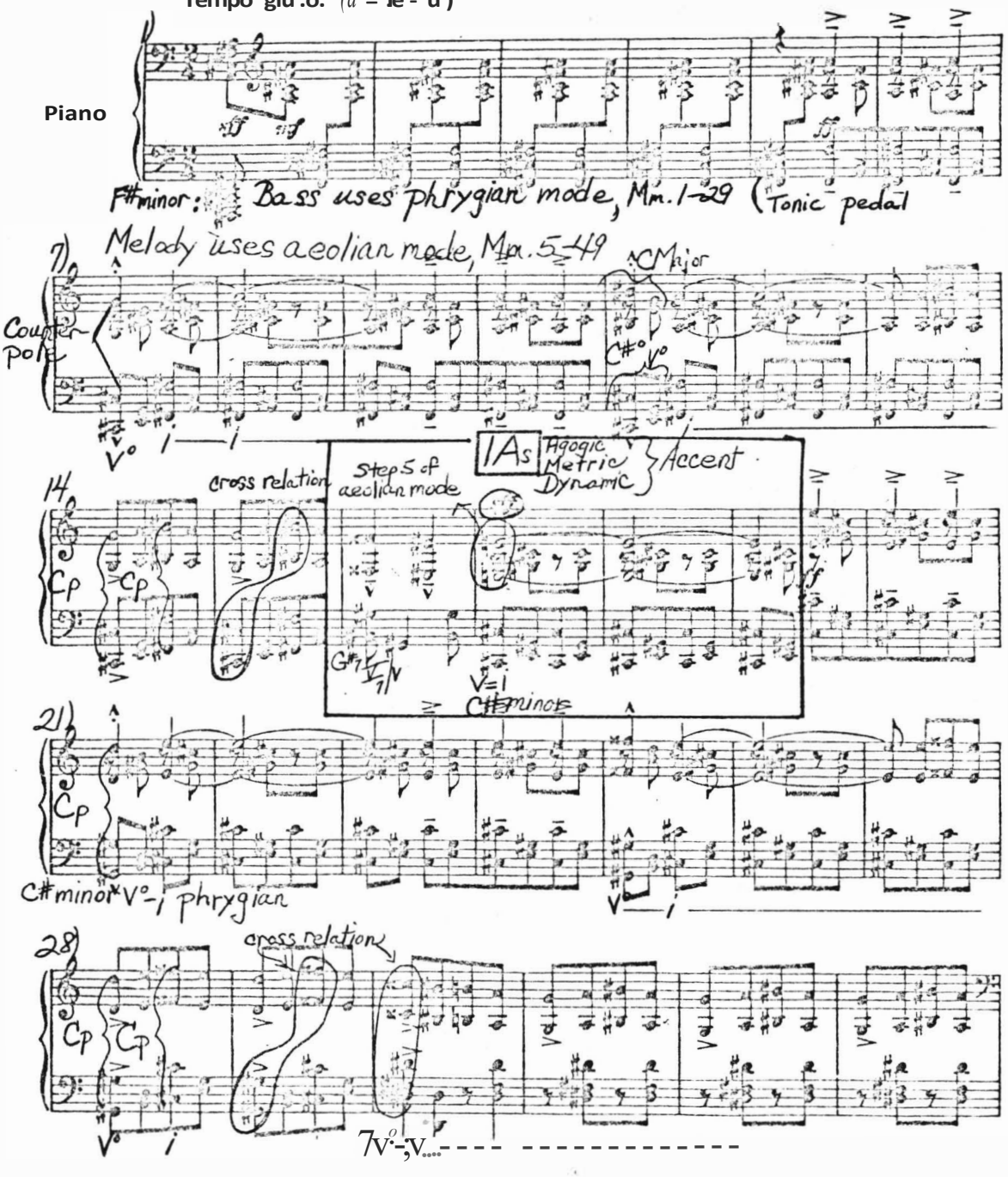
2

Alleq;ro barbaro

q,=-COtLnter:pol

Bela Bartok

Tempo giu .o. (d = re - u)



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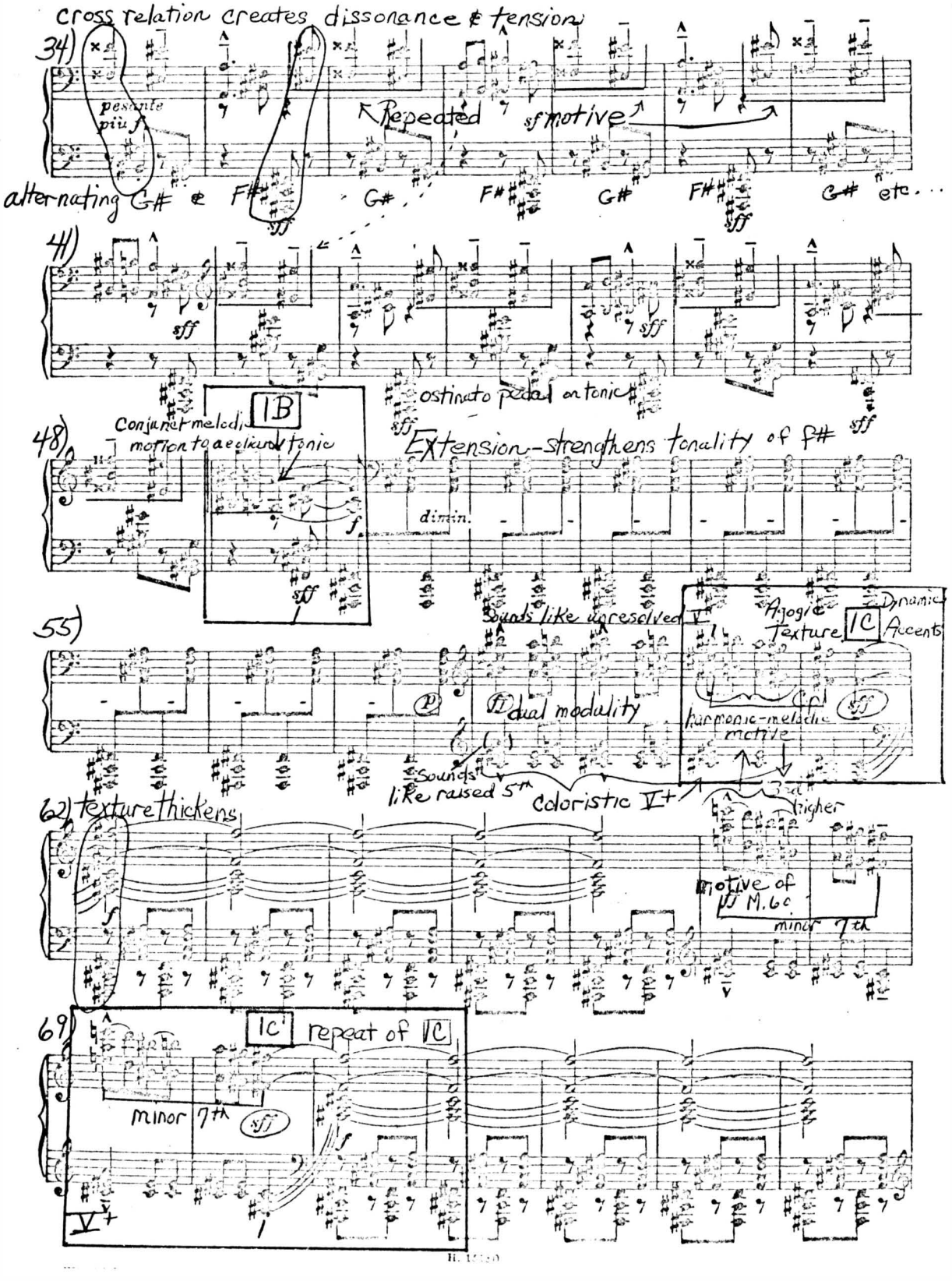
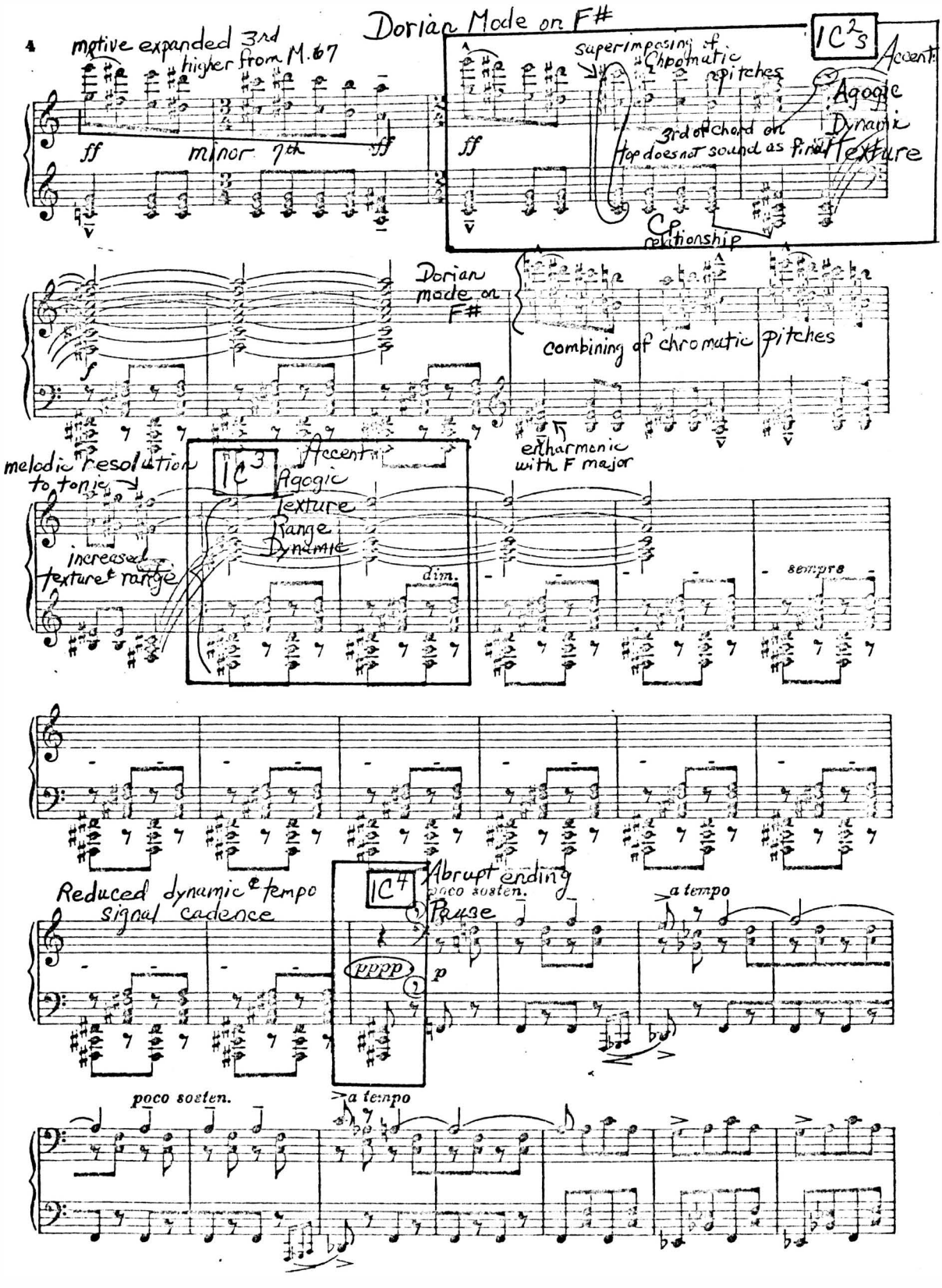
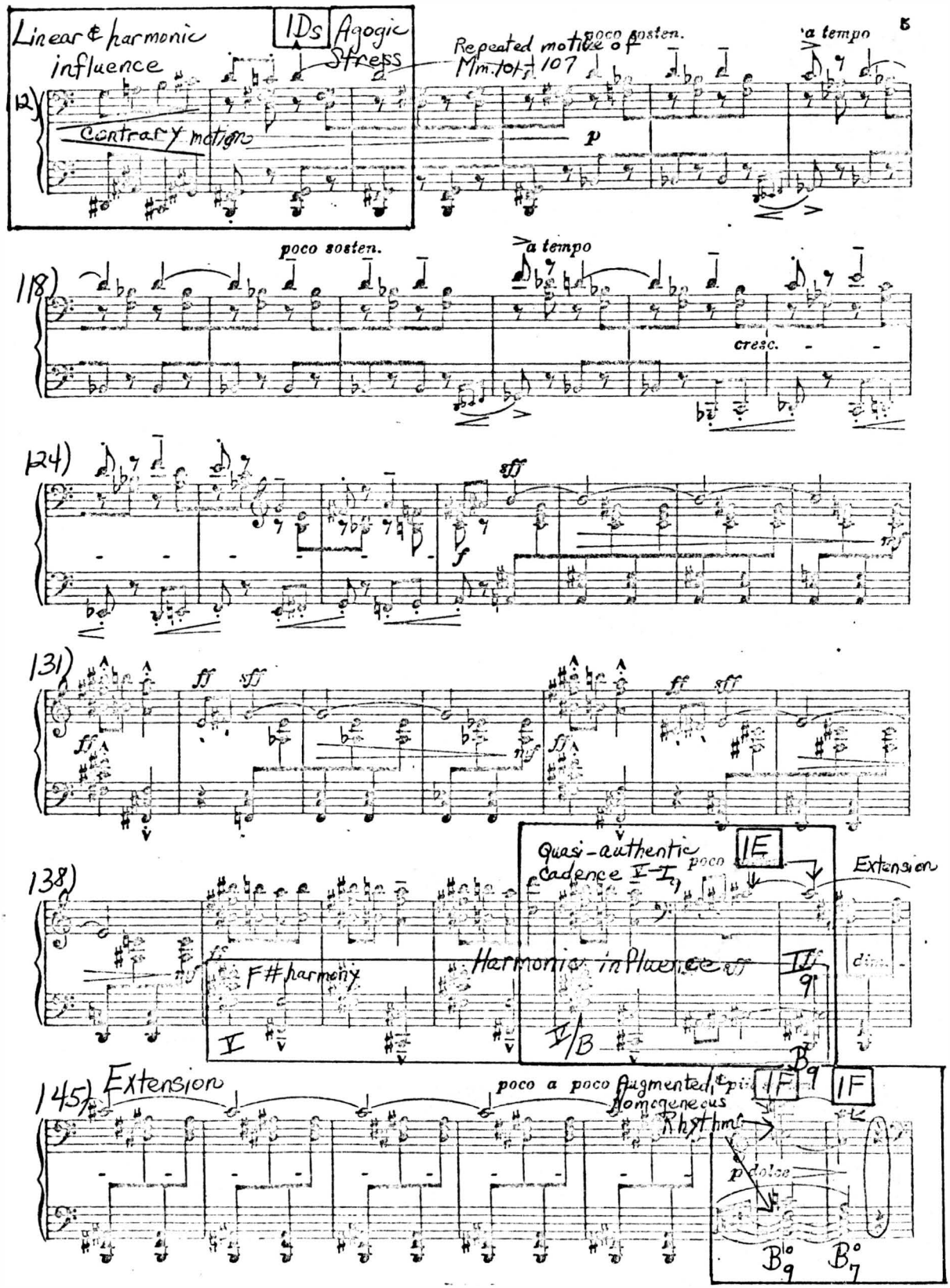
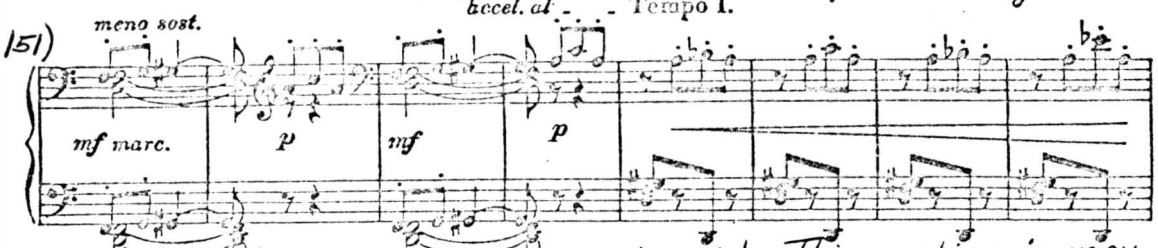

cross relation creates dissonance & tension
34)
pesante più f
Repeated sf motive
alternating G# & F#
G#
F#
G#
F#
G#
etc...
sff
41)
sff
ostinato pedal on tonic
IB
Conjunct melodic motion to & from tonic
48)
Extension - strengthens tonality of f#
dimin.
Sounds like unresolved V
Agogic
Texture
IC
Dynamic Accents
55)
dual modality
harmonic-melodic motive
Sounds like raised 5th
Coloristic VI+
3rd higher
62) texture thickens
motive of M. 60
minor 7th
69)
Ic'
repeat of IC
minor 7th
V+

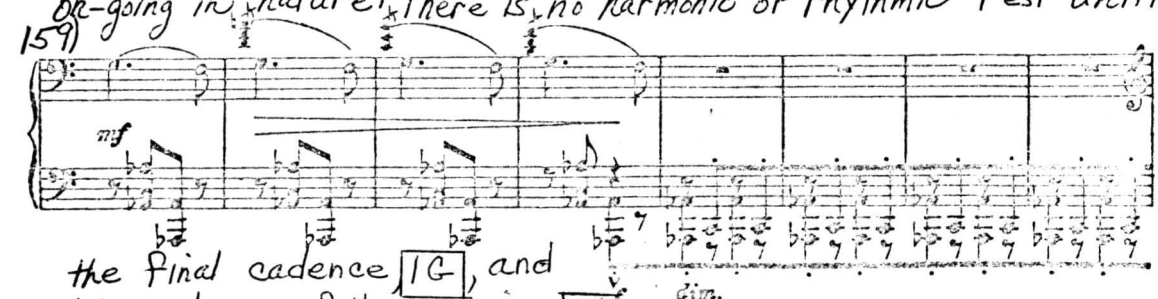

Dorian Mode on F#
motive expanded 3rd higher from M.67
ff
minor 7th
ff
superimposing of Chromatic pitches
IC 2 3
Accent
Agogic
Dynamic
Texture
ff
3rd of chord on Hop does not sound as first
CP relationship
Dorian mode on F#
f
combining of chromatic pitches
melodic resolution to tonic
enharmonic with F major
IC 3
Accent
Agogic
Texture
Range
Dynamic
increased texture range
dim.
sempre
Reduced dynamic & tempo signal cadence
IC 4
Abrupt ending
poco sosten.
Pause
pppp
p
a tempo
poco sosten.
a tempo


Linear & harmonic influence
IDs
Agogic Stress
Repeated motive of
Mm. 101 - 107
poco sosten.
a tempo
5
12)
Contrary motion
p
poco sosten.
a tempo
118)
cresc.
124)
sff
f
131)
ff
sff
fff
Quasi-authentic cadence V-I
poco
IE
Extension
138)
F# harmony
Harmonic influence
V
V/B
IV
9
B
IF
IF
Extension
145)
poco a poco Augmented, Homogeneous Rhythm
p dolce
B°9
B°7

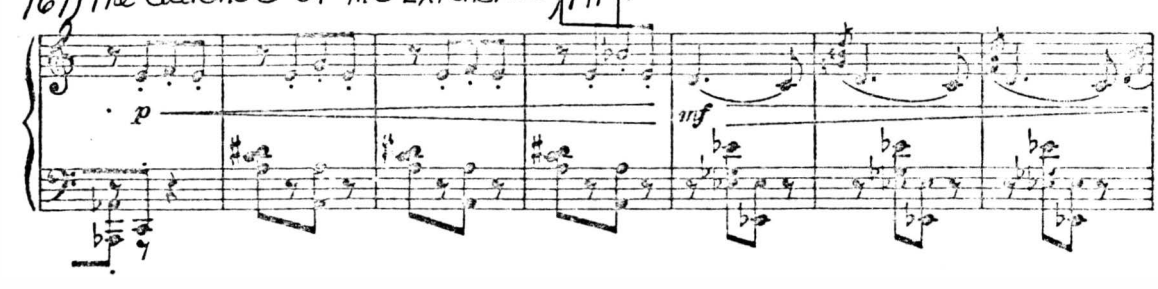
6 There are numerous tempo and textural and dynamic changes on this

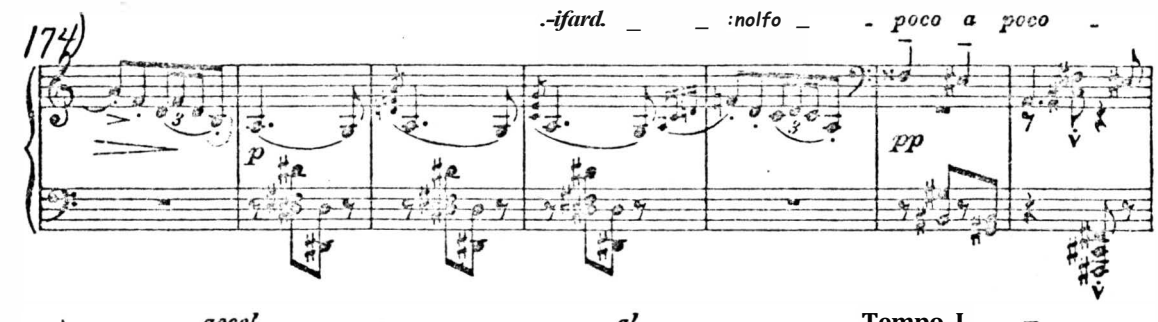


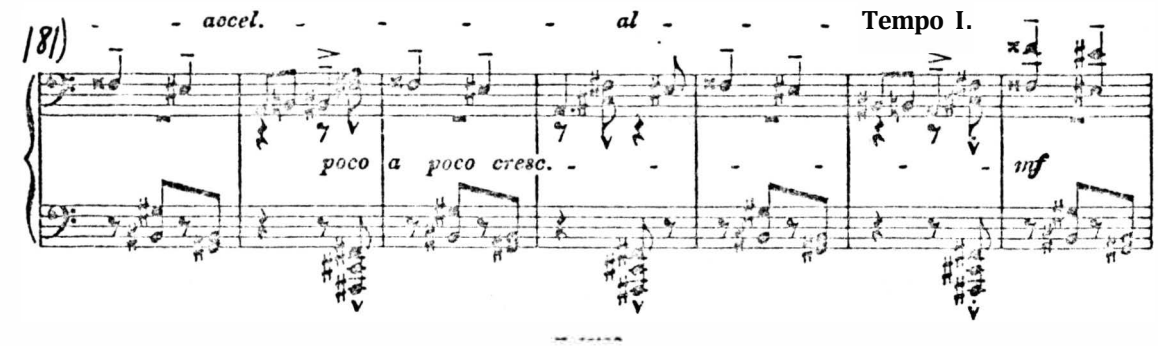
page, but there are no cadesural points. This section is very



the final cadence [1G], and







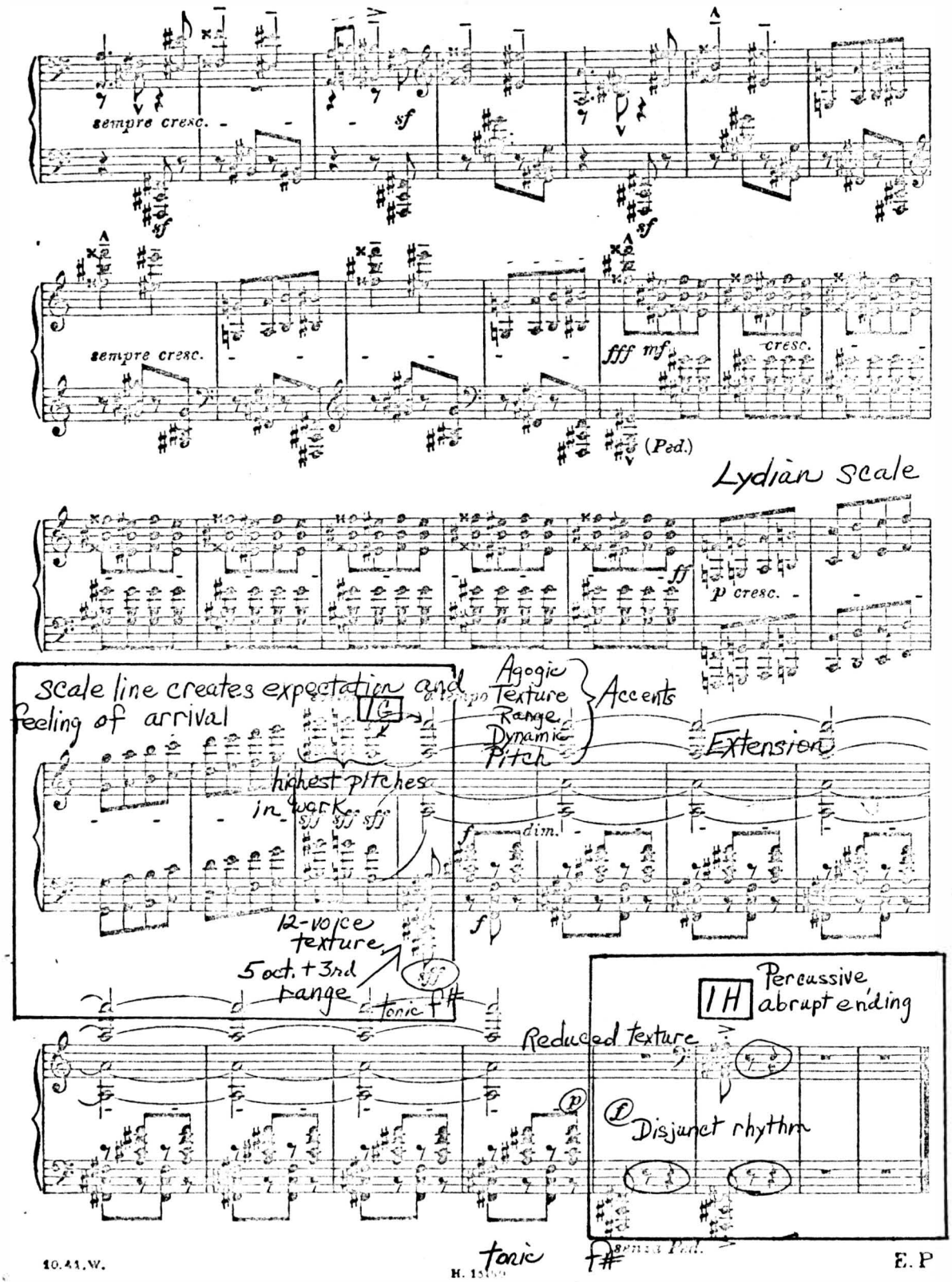

sempre cresc.
sf
sempre cresc.
fff mf
cresc.
(Ped.)
Lydian scale
ff
p cresc.
scale line creates expectation and feeling of arrival
highest pitches in work
sff sff sff
Agogic
Texture
Range
Dynamic
Pitch
Accents
Extension
f
dim.
f
12-voice texture
5 oct. + 3rd range
sff
tonic f#
IH
Percussive abrupt ending
Reduced texture
p
f
Disjunct rhythm
tonic f#
Sempre Ped.

Chart of Main Cadential Factors in Allegro barbaro

The cadences in Allegro barbaro are basically brought about by three main elements: harmony, rhythm, and melody or linear motion. Other factors do contribute to the cadential effect, but these three categoriesaremost influential. If the element plays an important part in determining a point as an ultimate cadence sonority, that cadence is listed beneath that category.

HARMONY	RHYTHM	MELODY - LINEAR MOTION
$1A_S$	$1A_S$	$1A_S$
		1B
1C	1C	1C
$1c^1$	$1c^1$	$1c^1$
$1c^2$	$1c^2$	$1c^2$
$1C^3$	$1C^3$	$1C^3$
	$1C^4$	
,OS (bass implies harmony)		$1D_S$
1E	1E	
	1F	
		1G
	1H	

Concerto For Orchestra

(1944)

The Concerto For Orchestra, written and first performed in 1944, was Bartok's final contribution to the repertoire of great modern masterpieces. He titled the orchestral work a 'concerto' because of the soloistic or concertante manner in which he treated single instruments or instrument groups. This large work is heterogeneous in nature - that is, it incorporates many diverse elements such as 1) tonal percussion (a treatment of non-percussive instruments in a percussive way); 2) beautiful lyric melodies; 3) fugal treatment of melodies including the use of canon; 4) a section in chorale style; 5) melodic and harmonic parallelism; and 6) passages of frenzied activity sounding uncontrollably energetic and requiring truly virtuosic playing. It should be pointed out at the onset of this analysis that this writer considers the terms 'cadence' and 'caesura' to have differing connotations. As with the Hindemith analysis, the analysis of Concerto For Orchestra will interpret some phrase endings as pure caesuras, that is, as a definite break in or cessations of the rhythmic flow; and some endings as cadences, having some harmonic or melodic influence, with or without a rhythmic pause. In the Concerto For Orchestra, the technique of 'cutting' (as seen in Ives), will be discussed. This procedure plays a dominant role in delineating sections in this Bartok work.

The phrase ending is termed a caesura because Bartok here supplies a pause in the rhythmic flow. The solo line in the flute ends on what appears to be a descending G_{11} arpeggio. The favored tritone relationship is employed as the flute descends from c# down to G. The c#, according to Bartók's axis theory, belongs to the G major triad and does not destroy the tonality of G. c# is the counterpole of G and can be the substitute for G, thus adding harmonic variety. Besides the rests following contributing factors to this caesura are: 1) the descending motion of the flute; and 2) the diminuendo in the flute line. The E pedal point, beginning again at 35 in the strings, reiterates the tonal center and imitates the intervallic structure of the opening motive built of perfect fourths and seconds. Bartok uses this type of arpeggiated ostinato pattern in the bass for many sections of the work. There is intervallic variation in the broken chord figure, but the downbeat sounding of the tonic, E, pervails in this section. The [I[] cadence has a more final cadential effect due chiefly to the harmonic and melodic writing. The brass trio sounds the cadence at []]] on the progression, i-VII-i. This cadence incorporates a modal quality because of the lowered major VII chord positioned as the penultimate chord. The major VII triad, Dt, belongs to the minor mode on E, and it does provide a smooth progression to the tonic. The basic harmonic progression in the brass section is: iv-i-VII-i. Bartók's

theory would call this cadence a V-1, authentic cadence, because the 5th and 7th partial of a tone (for E that would be G♯ and D), can serve as the dominant (see Introduction, p. 203). Not only B-E, but G♯-E and D-E constitute a V-1 cadence. Aurally it has the effect of an authentic cadence. The augmented rhythm (from sixteenth notes to eighth and half notes), the prolongation of the tonic harmony after []]] plus, the rests in the brass parts strengthen this altered authentic cadence. A frequently used cadential procedure found in Ives' scores is also found in the Concerto For Orchestra, and that is the technique termed 'cutting'. Mr. Samson, in his dissertation, Music.!!! Transition, states that the cutting technique is "analogous to cinematic inter-cutting" which is the "juxtaposition and superposition of sharply differentiated and strongly characterized material. "[15] The caesura uses this technique. The eighth rests and breath sign (') produce so slight a break that a rhythmic pause is not felt. One does hear the measure at as the end of the previous idea as a result of the following factors: 1) the repetition of the five-note scale of a tritone (E^b up to A) begun thirteen measures before (the E^b up to A sounds the counterpole relationship favored by Bartek); 2) the successive entrance of higher-ranged instruments on this tritone scale which results in an expanding texture; 3) the expanding range; 4) the ascending direction of the line coupled with the crescendo and accelerando; and 5) the "nervous" bass ostinato which generates added tension

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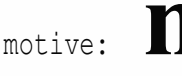
[15] Jim Samson, Music in Transition 'A study of tonal expansion and atonality, 1900-1920 TNew York: W.W. Norton & Company, Inc., 1977), p. 46.

and thus, an expectation of termination of this tension. Termination of tension is so abrupt that a true rhythmic break is not felt. The scale outling a tritone ends and a new passage begins with greatly reduced texture, on a tritone scale, followed by a dotted motive:  . The terms cadence and caesura do not seem appropriate for this [5] example. Maybe the term 'termination' would better describe the ending of this section or phrase. Terminating an idea by the 'cutting technique' does not supply a definite feeling of finality. The phrase ends of this procedure have more of a semi-cadence quality to them. With the cutting procedure comes the element of surprise. Anticipation may be generated, as it is in the material preceding , but the ending of a section is a surprise because of the sudden shift of material involved in the procedure. Example [II] is similar to with the rising scale outlining a tritone expanding the range and ending abruptly. This is not only a termination of the phrase, but also a definite rhythmic break for all instruments. The measure of rest following [IQ] is the most important factor in determining a caesura and a feeling of finality, and so [II] is considered a full cadence. Example [III] illustrates the vertical juxtaposition of the end of one phrase and the beginning of another. The string section sounds a G7 chord, resolving the 7th, F, just after the first trombone begins a new phrase. There is no rhythmic break and a melodic or harmonic resolution in the strings is not noticed because of the simultaneous sounding of

the trombone's solo line. This, unlike DJ, is not a back-to-back placement of different material, but an overlapping of two ideas - one idea which is ending in the strings and another idea which is beginning in the trombone. Both and are applications of the cutting technique. *!JI]* also employs the juxtaposition of a phrase end and a phrase beg·inning. *[IT]* is perceived as an elision. The distinction between two types of cutting procedures may be suggested here. One type might be referred to as a vertical cutting, as in examples and [!!] where two ideas are happening simultaneously or vertically (one idea ends, the other begins). The other type might be called horizontal cutting, similar to . where two differing ideas are placed back-to-back or side-by-side with no rhythmic break between. The vertical cutting procedure may also be called an elision (this was a chief cadential feature in Debussy's works). 01J carries more of a fina7 fee7i*ng than* does *[!9* because of the descending, slowing and softening line in the flute, followed by the sustained open 5ths in the strings and horns. The next section has no definite cadences, caesuras or 'cut' phrases, but this section illustrates harmonic suspension and repose while the successive sounding of the melodic motive begins in elision in various orchestral sections. This section ends at [[1. The slowing tempo from 224 (page 11) through 230 produces the terminating point on the last eighth note of 230 rather than on

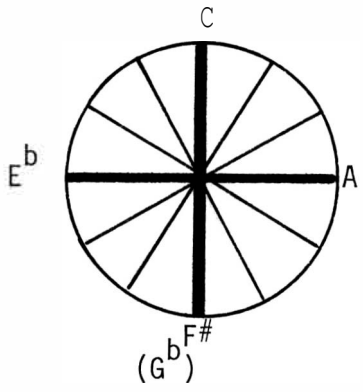
the first beat of 231, as it would appear. The interpretation of this by the conductor E. Leinsdorf creates a very slight pause before the new tempo indication at 231. Example [}]] still creates the effect of horizontal cutting even though there is a slight rhythmic pause. Although there is a break mark (') at [IE], the break is very short and there is not much of a pause in the rhythmic flow. The abrupt ending of this flurry of contrapuntal lines (which combine to form a section of dissonant counterpoint), is placed immediately beside the new section at 272, marked Tranquillo. The ending at [8] is not aurally realized until the new section begins, therefore the cutting technique is evident at this juncture also. [I[] combines all three cadential criteria, creating an interesting cadence. A very rhythmic and harmonically active approach to the $G^{\#}$ octaves helps create a dramatic effect as the open $G^{\#}$ octaves are sounded and sustained spanning a 5-octave range. 1) The fff dynamic level; 2) the extremely high range; 3) the prolongation of the $G^{\#}$'s; and 4) the progression of $G^{\#}$ to A (plus E) resolving on the downbeat in eighth notes, all contribute to the dramatic, climactic effect of this cadence. It is an abrupt ending which combines all three cadential procedures: 1) rhythmic pause; 2) harmonic resolution (here also melodic); and 3) cutting. There is a definite rhythmic break of two eighth notes in the brass and woodwind section and a very slight breath for the strings, although the string section proceeds

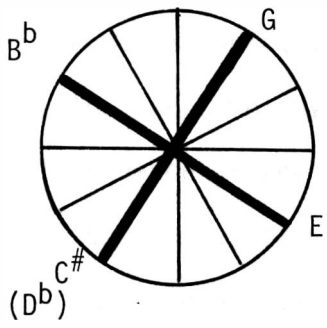
immediately into the contrasting section and displays the technique of cutting. The melodic progression of a tone resolving up a half step (leading tone to tonic), has the harmonic significance of V-I. All three cadence-producing factors, all equally important, give this point DI] the status of a cadence. The rhythmic prolongation of G♯ octaves sets up an expectation; the eighth note A octaves plus 5th, resolve it. The harmonic/melodic resolution of G♯-A completes a harmonic expectation and the inmediate sounding of the new material in the violins produces the effect of cutting. One needs to listed to this cadence repeatedly to hear this combining of cadential techniques. It is fascinating that all three can work together effectively and dramatically (especially since cutting and rhythmic pause seem contradictory). The first movement ends on a modified v-i cadence at DIJ. When observing the score visually at 514, one might think this to be a semi-caesura. The rests at 514, which greatly reduce the texture, act as an articulation in the brass section which begins a familiar melody (previously heard in imitative style in a brass ensemble), that closes the movement in a march-like manner. The strings and woodwinds enter for the last two measures and play a descending 5-note scale from C to G♭ (counterpole relationship), creating a G♭ major triad above a dominant, C, pedal, progressing to an F minor triad. Bartok often uses a major chord a half-step away from the tonic as the

penultimate chord. Explanation of the ^{b}rr sonority as the penultimate chord will soon follow. This predilection for 5-note scale passages spanning a tritone (the pole-counterpole relationship) is used here, descending from C to G^{b} and then to F on the down$_{b}$eat. The penultimate harmony of the dominant pedal C under a G^{b} major triad is heard very $_{b}$riefly and the harmonic effect is that of V-i, (C-f). The s^{b}, A^{b}, and G^{b} of the 5-note scale at 520, add color to the percussive and $_{b}$asically V-i cadence. One can draw a correlation $_{b}$etween this G^{b} penultimate triad over C and Bartok[1]s axis theory. Considering the G^{b};c triad $_{b}$y itself, one realizes that it is a frequently used harmonic construction in Bartok[1]s music. It com$_{b}$ines tonic and dominant poles. The C and G^{b} ($F^{\sharp}$) are considered tonic axis tones; the s^{b} and o^{b} $_{b}$elong to the dominant axis. Actually, this two layer harmonic construction is logically explained in Bartok[1]s theory. The counterpole of C, $F^{\sharp}$ or G^{b}, is interchangea$_{b}$le with C without destroying the C tonality, especially since C is present as the lowest tone of the chord. If E and G were used with the C root, a 'pure[1] dominant harmony of F would result. Bartok merely su$_{b}$stitutes the counterpoles of E and G for these two pitches, resulting in s^{b} and o^{b}. The harmonic function is not changed at all. What the counterpole tones do for the C triad is to add variety through color. By studying the tonic and dominant axes, one can understand the logical construction of this chord at [IT].

Counterpoles are interchangeable C - E - G = C - B^{b} - D^{b} + Gb

Tonic Axis





Dominant Axis

Lendvai draws a correlation between the layering of tonic and dominant axes and the progression of chords in traditional harmonic cadences. "The two layers (tonic and dominant) correspond to the root and overtone relation of classical harmony ... The authentic (cadential) connected chords require that the root of the first chord becomes an overtone of the chord following. (Classical harmony calls these connection notes.)..." [16] One might disagree with this correlation, but it is an interesting analogy. It is also not only interesting, but surprising, that the [IT] cadence does, in fact, produce a V-i cadential quality. Bartok's theory proves true - the substituting of chord tones with their counterpoles does not destroy the basic tonality.

Movement II, subtitled, "Game of Pairs", provides excellent examples of parallelism employed between various pairs of instruments playing at their designated interval. The movement begins with a drum beating a characteristic rhythm of this section and then the instrument-pairs enter successively sounding their

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[16] op.cit, p. 44

catchy melodies in parallel motion. All of the cadences in this movement are basically traditional with strong harmonic, melodic and rhythmic movement. The bassoons play the first melody in parallel 6ths. [!!:I is a strong authentic cadence on the tonic, 0, ornamented by a turn on the penultimate sonority, with stepwise melodic motion to the ultimate 0 chord on the downbeat. The harmonic movement is a minor vii to major I. There are various shifts in tonal centers following O!J. The oboes, playing in 3rds, cadence (with the aid of their melodic stepwise ascending line) on F# and o# which are sustained for four measures, giving [I0 rhythmic e111phasis. An 1authentic1 cadence quality exists at - is tonally ambiguous because of the chromaticism in the parallel 7ths between the clarinets. The half-note, 0, at , with its high register, and because of its repetition from 52-54, seems to function as the tonal center. Another quasi-authentic cadence is felt. The muted trumpets, playing parallel 2nds, cadence in drum-like fashion reiterating the characteristic rhythms heard in the drum at the beginning of the movement. D!:J appears to end on the tonic, 0, melodically aided by the F#1s and c#1s in the trumpet line. A type of V-I or vii-I cadence results with a unison 0 sounding as the ultimate sonority. The drum connects this part with the chorale by brass ensemble at 123. The 11L-1L31 cadences end on the downbeat on a type of tonic chord. [!I:] employs a 4-3

suspension which delays the resolution until the last quarter-note beat before the new phrase. The $c^{\#}$ in the first trombone resolves to Bon the second beat of 134 and it is here that the tension is resolved and the ultimate sonority is felt, but its sounding is abrupt. [D2J and IT[:] anticipate the ultimate sonority which provides the chorale with more ·cadential rhythmic variety. Modulation takes place within the chonale, but all the end cadence sonorities employ a type of authentic cadence:

DI:] = V7 - ii - I = V7 - i

$f^{\#}$ r $C^{\#+5}$ - B $d^{\#}$ r $g^{\#}$

DI:] = bvII - I = bvII$_7$ - I

E7 - F A^b 4/3 - B^b

The final cadence of movement II, at [Iffl, uses a different technique - that of building the final chord by successively adding chord tones in different instruments. At 246 the strings simultaneously play the acoustic scale (discussed in the Introduction), beginning on different pitches, and thus setting up a dissonant flourish, serving as a coloristic effect before sounding the tonic D triad at 248. The rhythmic interplay (248-252) between the trumpets and strings adds vitality to the cadence progression:

I-V7+ D - I - bVII- VII+ - V+D -!7

D ___ A + C }
C D D
A + F + additive
D effect

As the tonic sounds, progressively higher pitches of the chord are added. The penultimate chord combines the tonic D plus $F^{\#}$ with the dominant A and E, but a dominant function and quality are preserved. The final sonority is a seventh chord - rather unorthodox in traditional terms, although it provides a fresh harmonic slant to the often used *V-I* cadences; *(The* I_7 was also found as ultimate cadence chords in Poulenc's piano suite). *The* cadential extension repeats the D_7 chord in 'drum-like' fashion, with the drums echoing the rhythms heard at the beginning of the movement. The beginning and ending of the "Game of Pairs", is treated percussively. This movement is very tonal and basically diatonic with smooth harmonic progressions and melodic voice-leading. The final chord is not as harmonically stable as the $f^{\#}$ minor triad of Movement I, but the 7th adds variety to the tonic. In this movement, it is the instrumental color and parallel writing that are of paramount interest.

The "Elegia" presents an ethereal mood and the music seems to float or to be in a state of suspension until the piccolo sounds a rhythmic line at 29, and the dotted rhythm, *kl_(U* is echoed. The texture is reduced and the piccolo concludes this section sounding the characteristic interval of the 4th. The phrase end at [!]] is solely a rhythmic break - a caesura; there is no harmonic significance. Cadence [}]] is melodically influenced. The sustained tonic (E) in the violins is approached

by step from above (previous page not shown) and held as the woodwinds strengthen the E minor tonality with a descending E natural minor scale. A percussive landing on open E octaves for the final sonority has dramatic effect. The caesura has a linear influence and also a rhythmic one with the pause follow-;ng the staccato E eighth notes at [IQ]. The techniques used at the phrase endings at , [IQ], and [IB], are visually apparent. The chart following this analysis categorizes the cadences according to the main techniques employed. The caesura is difficult to describe. A harmonic progression in 2nds, of second inversion chords, at 120, approaches an A major triad which is sustained. Above this A5 tonality is sounded 4 intermittent B's by the piccolo which ends by trilling on B and C with an A# turn before ending on the B. The string section drops out to leave the piccolo to finish the movement. It is a dissonant cadence containing ambiguity. The melodic fragment in the piccolo (echoing its first tones, M29) merely dies away. The final cadence of the fourth movement sounds a version of the main melodic motive (an inversion version), successively in the oboe, bassoon, and piccolo. This descending B major scale pattern suggests a harmonic progression and also strengthens the tonic B. The harmonic movement of this motive (143-5, 147-7, and 147-9) is: I-vi-V-IV-V-1. As the piccolo finishes this motive, the bass and cello enter on modal degrees: G(VI) - D(l11 or i5) - A(VII or v) - B (I). The modal inflection suggested in the low

strings is a favority technique of Bart6k, and it adds variety and expands the harmonic vocabulary. [DJ concludes abruptly with the B major triad percussivley, but softly, repeated in the woodwinds. [DJ is basically a cadence of harmonic support with the melodic line contributing its influence also.

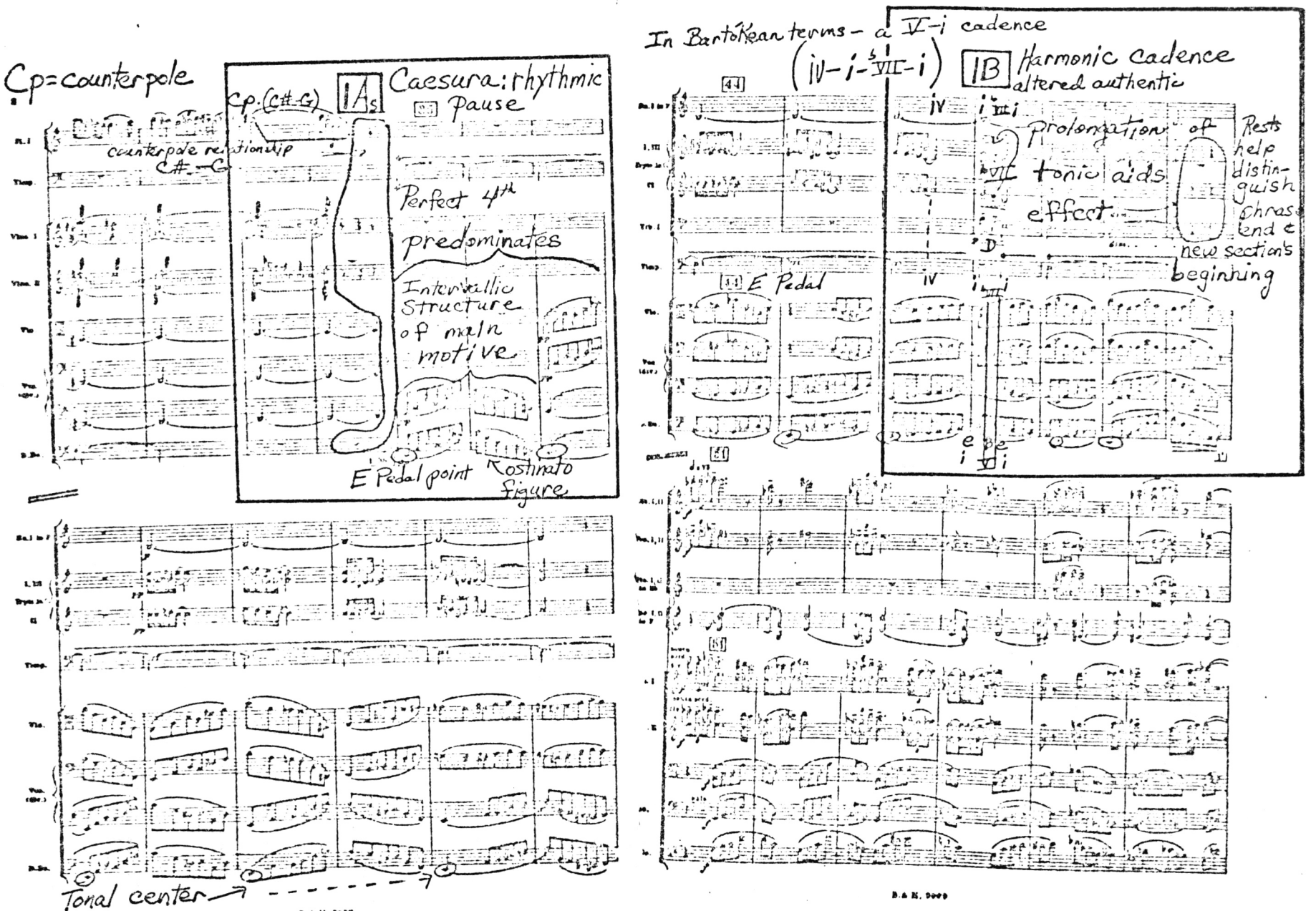
The "Finale" displays the best examples of the cutting technique. With this procedure, the element of elision is often present. [!YI appears to be elided, but aurally it is not elided because the A^{b}s in the violins are not heard when the bassoon melody begins. Bartok treats this bassoon melody fugally and uses the procedure of stretto (the entry of each succeeding voice occurs after a shorter time intenal), to produce the effect of accelera.ndo. The o::EJ example is the best illustration of cutting in this work. There is such a sudden shift of tonality, tempo, mood, and material that the measure at 161 sounds out of place. The factor of elision does exist, at least visually, as the five woodwinds conclude their imitative interplay at 161, but the sharply contrasting material beginning at 161 captures all one's attention and obscures the elided effect. The point at o::EJ provides as much surprise as, or more surprise than any other point in the work. The technique of cutting is an exciting way to end one section and begin another, mostly because it does add the element of surprise and it is cadentially economical. At 173 there is an excellent example of parallelism in the strings.

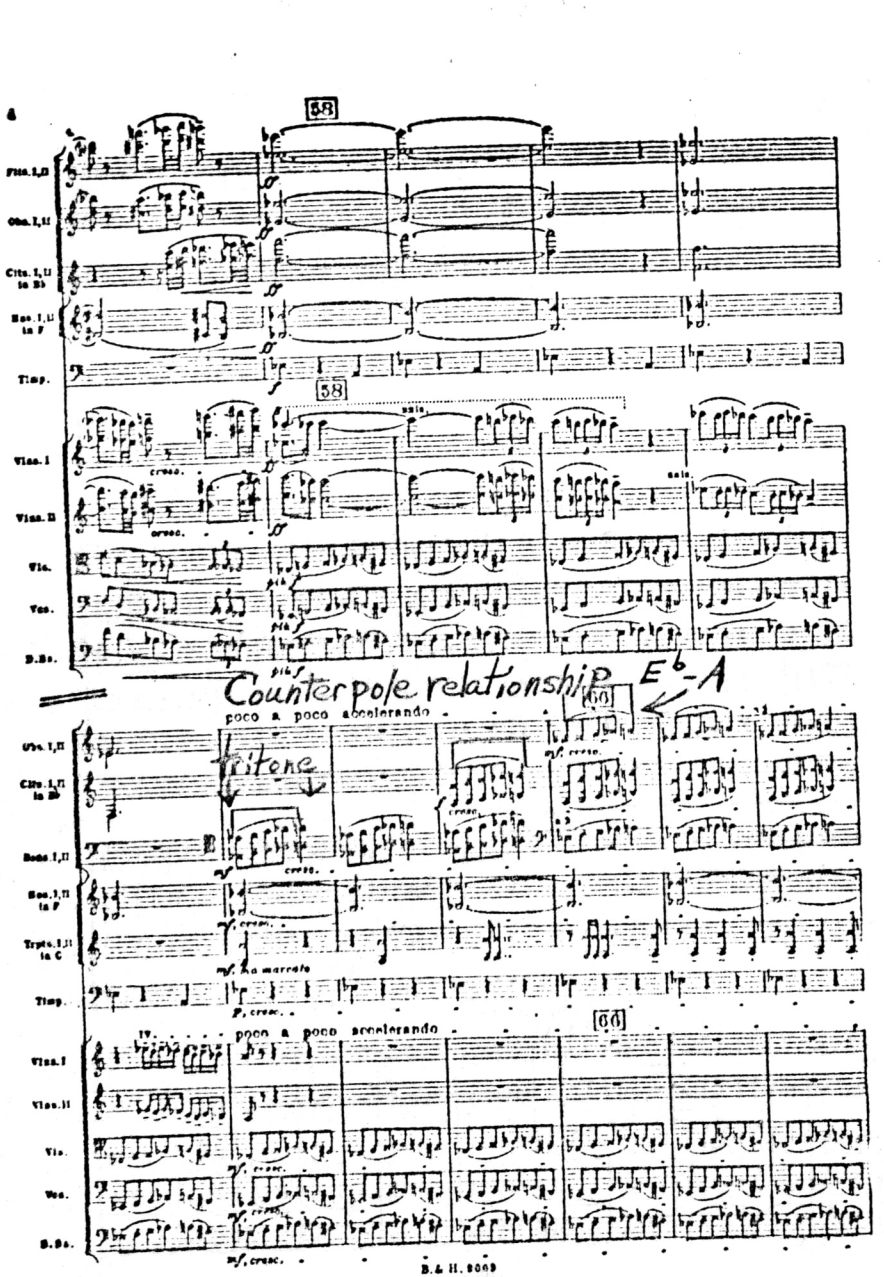
These twelve measures (175-186) employ a stream of major triads in second inversion. Parallelism like this obscures and even annihilates tonality. (Debussy is a master of this type of writing.) Example [!K1 uses elision to end the parallelism in the strings as the woodwinds begin a new figure. The cutting procedure is not as drastic here as it was at -ITH]because the strings' final o^b triad at 188 blends with the o^b tonality above. Example [ill is visually clear - it employs a lengthy break in the rhythmic flow. The approach to the [ill caesura is percussive and also dissonant. C and E^b major triads are combined. A mixture of tonic and dominant axis tones results:

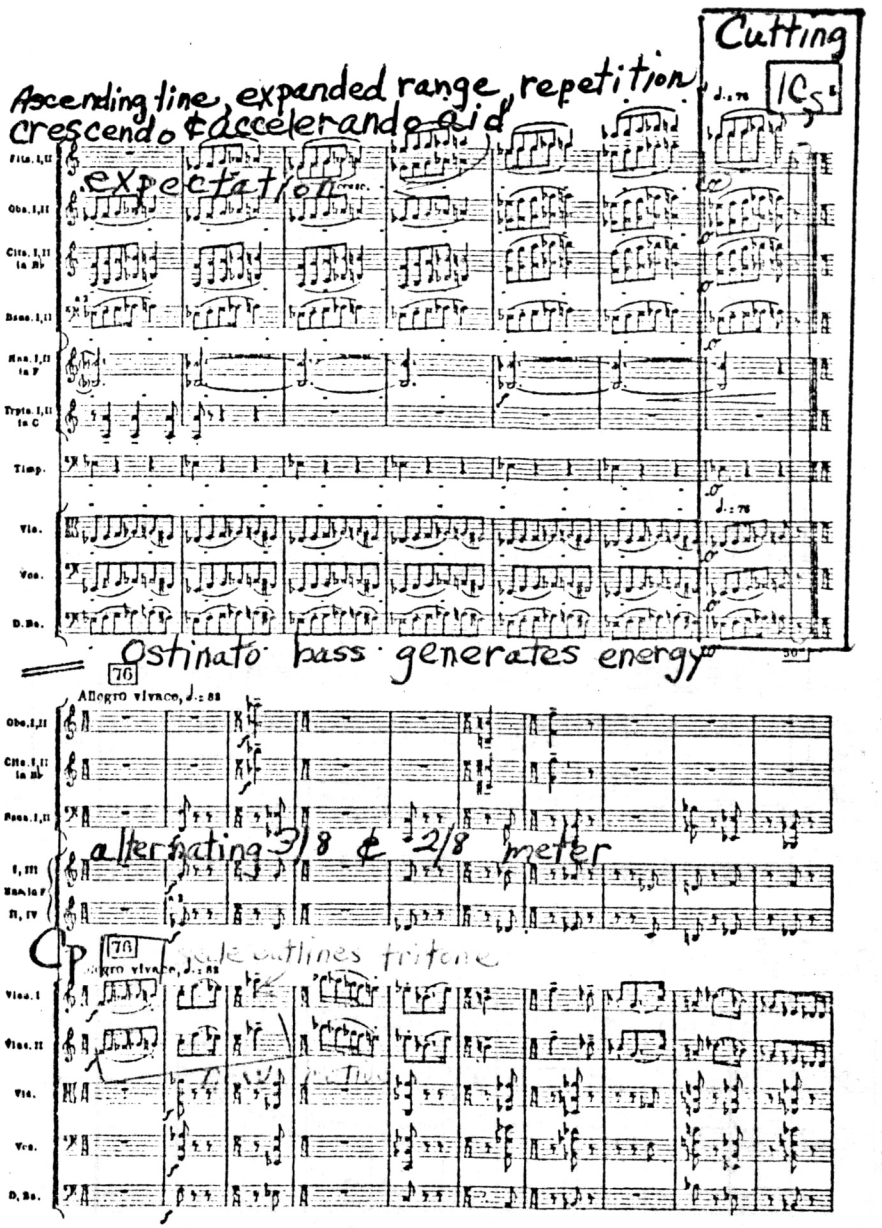
C - E - G
E^b G B^b
to ic DomJant
axis tones

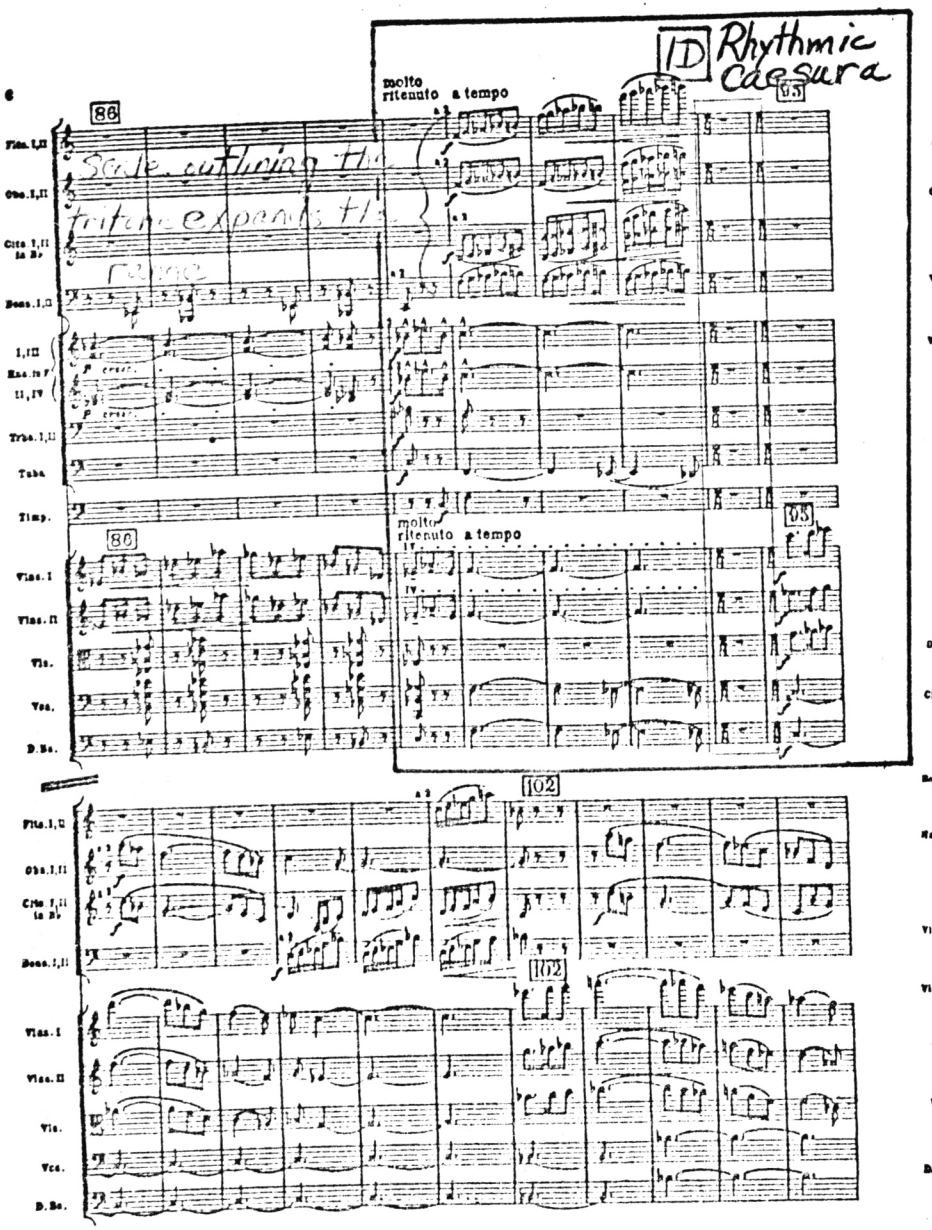
The ending at [ill is abrupt but it is anticipated by the percussive brass chords. The [IT! cadence uses 1) harmonic elements, especially a. the broken chord patterns on v; in the woodwinds and strings (609) and b. the half notes in the brass section (616-624) sounding the V harmony and then progressing to the tonic, F major, triad at 625; 2) melodic factors - the lydian scale and the direction of the melodic line up to F; and 3) rhythmic elements - the rapid scale flourish up to the fortissimo F major chord. The 1) crescendo; 2) the heavy texture; 3) the fortissimo; 4) the extremely high pitch; and 5) the large range of five octaves and a 5th, contribute to the climactic effect of this final cadence.

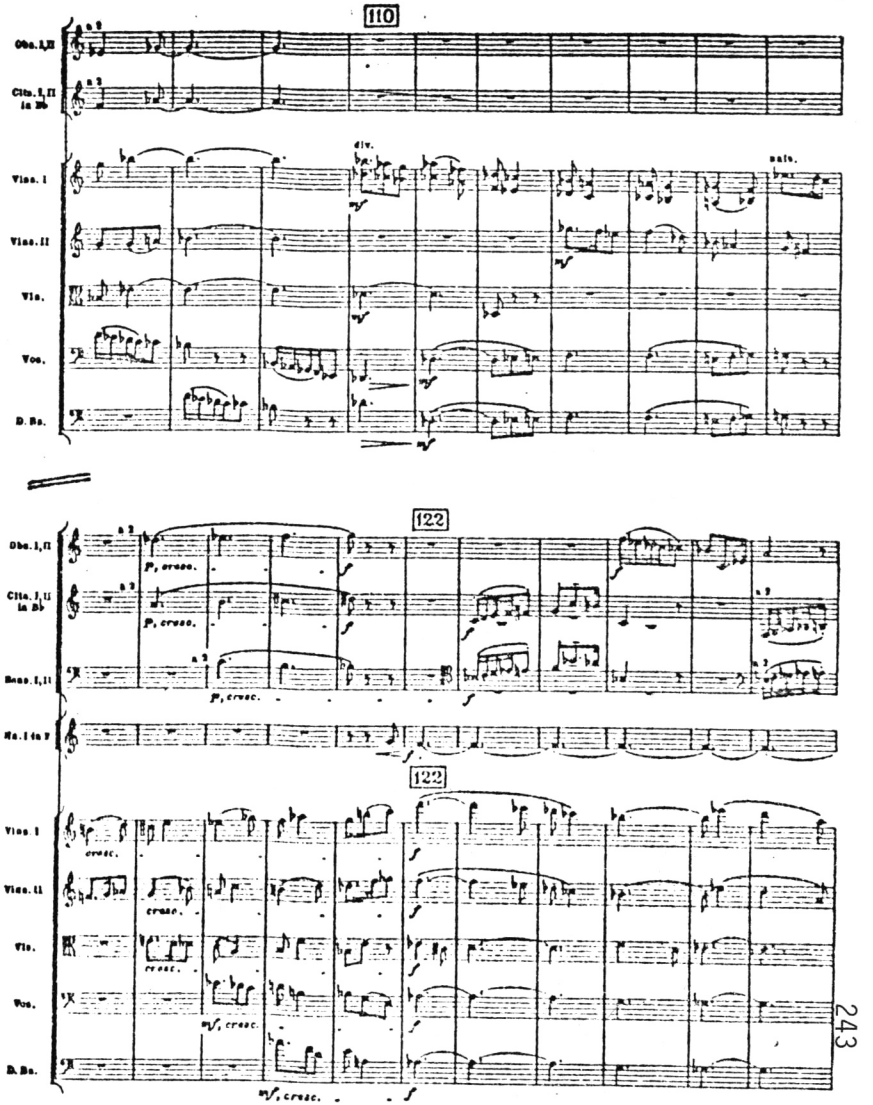
Concerto for Orchestra - Béla Bartók. "Reproduced by permission of Boosey & Hawkes, Inc."

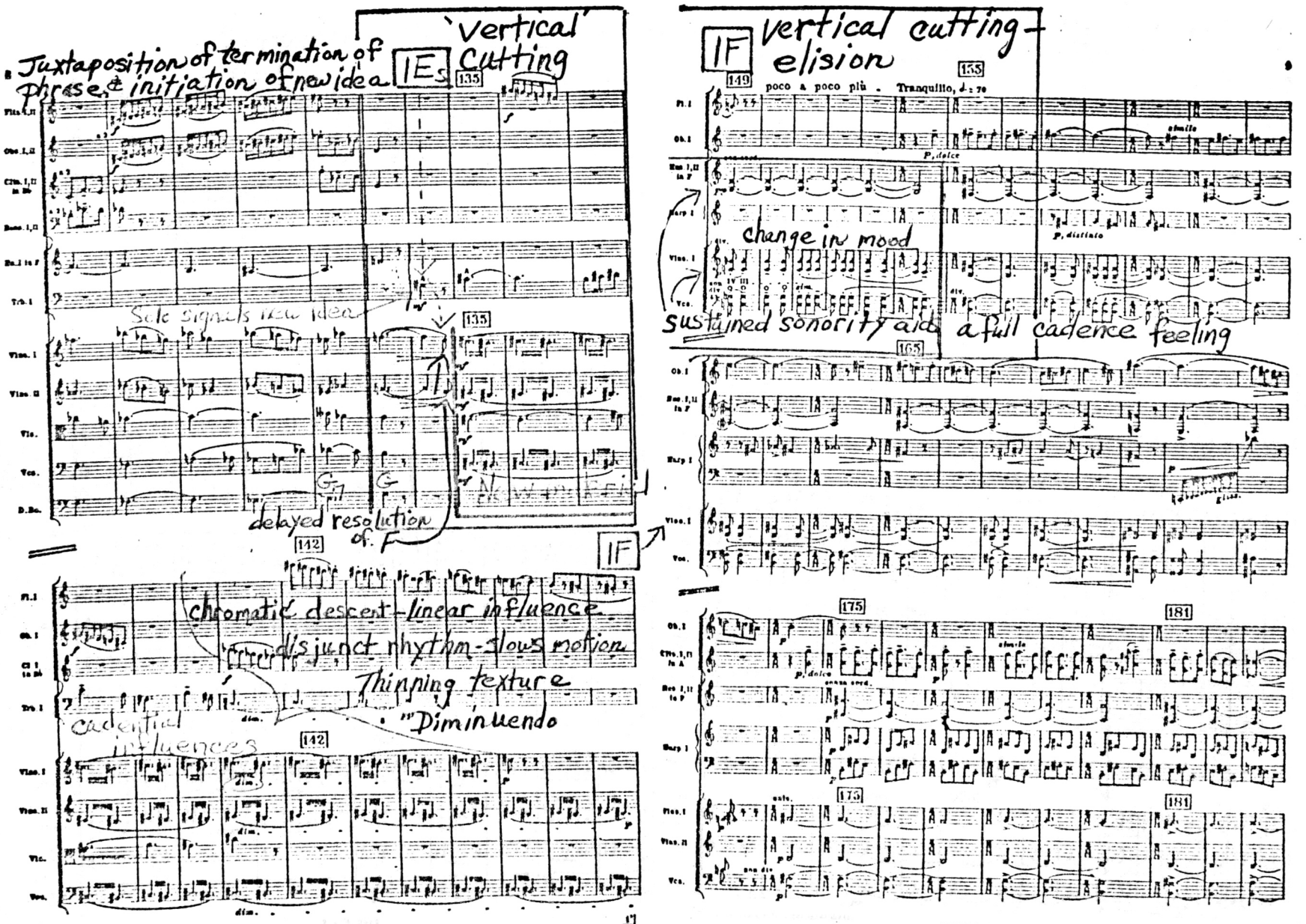

Cp=counterpole
Cp.(C#-G)
1As
Caesura: rhythmic
Pause
counterpole relationship
C#-G
Perfect 4th
predominates
Intervallic
Structure
of main
motive
E Pedal point
Ostinato
figure
Tonal center
In Bartókean terms - a V-i cadence
(iv-i-♭VII-i)
1B Harmonic cadence
altered authentic
Prolongation of
tonic aids
effect
Rests
help
distin-
guish
phras
end e
new section's
beginning
E Pedal

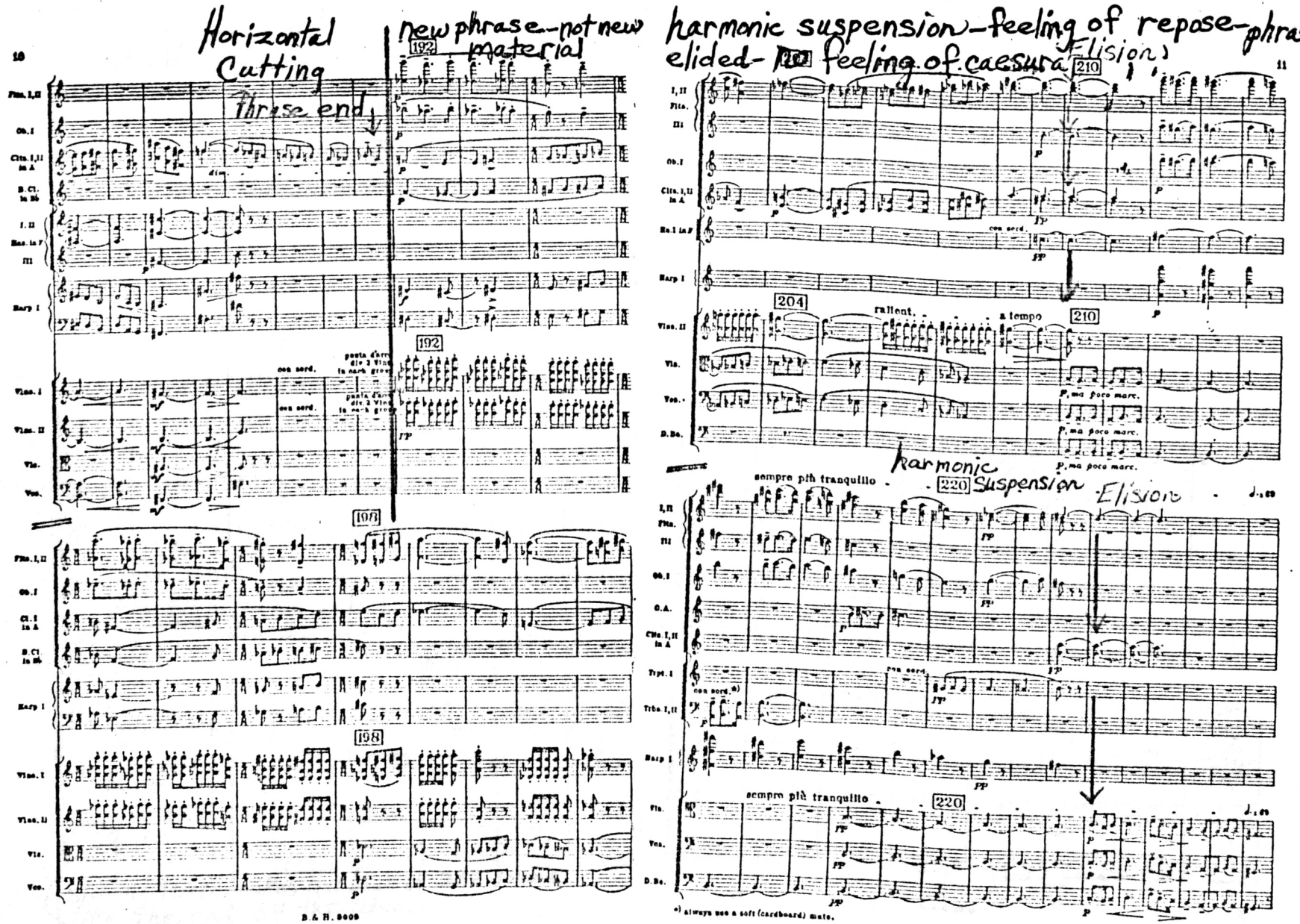

58
Counterpole relationship E♭-A
poco a poco accelerando
tritone
60
61
poco a poco accelerando
B.& H. 9009

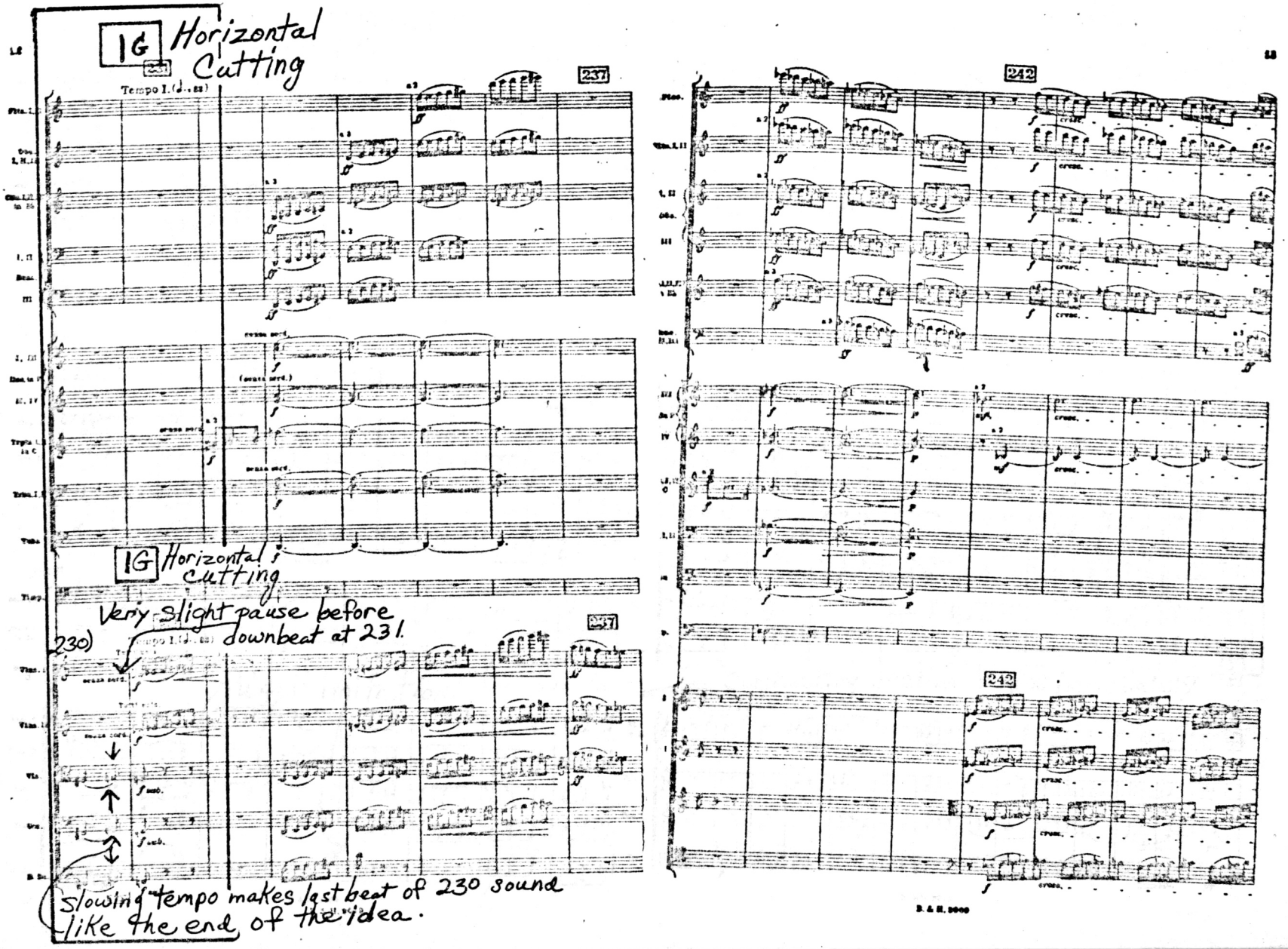

Ascending line, expanded range, repetition
crescendo & accelerando aid
Cutting
expectation
Ostinato bass generates energy
76
Allegro vivace, ♩.= 88
alternating 3/8 & 2/8 meter
CP
76
Allegro vivace, ♩.= 88
scale outlines tritone
B.& H. 9009

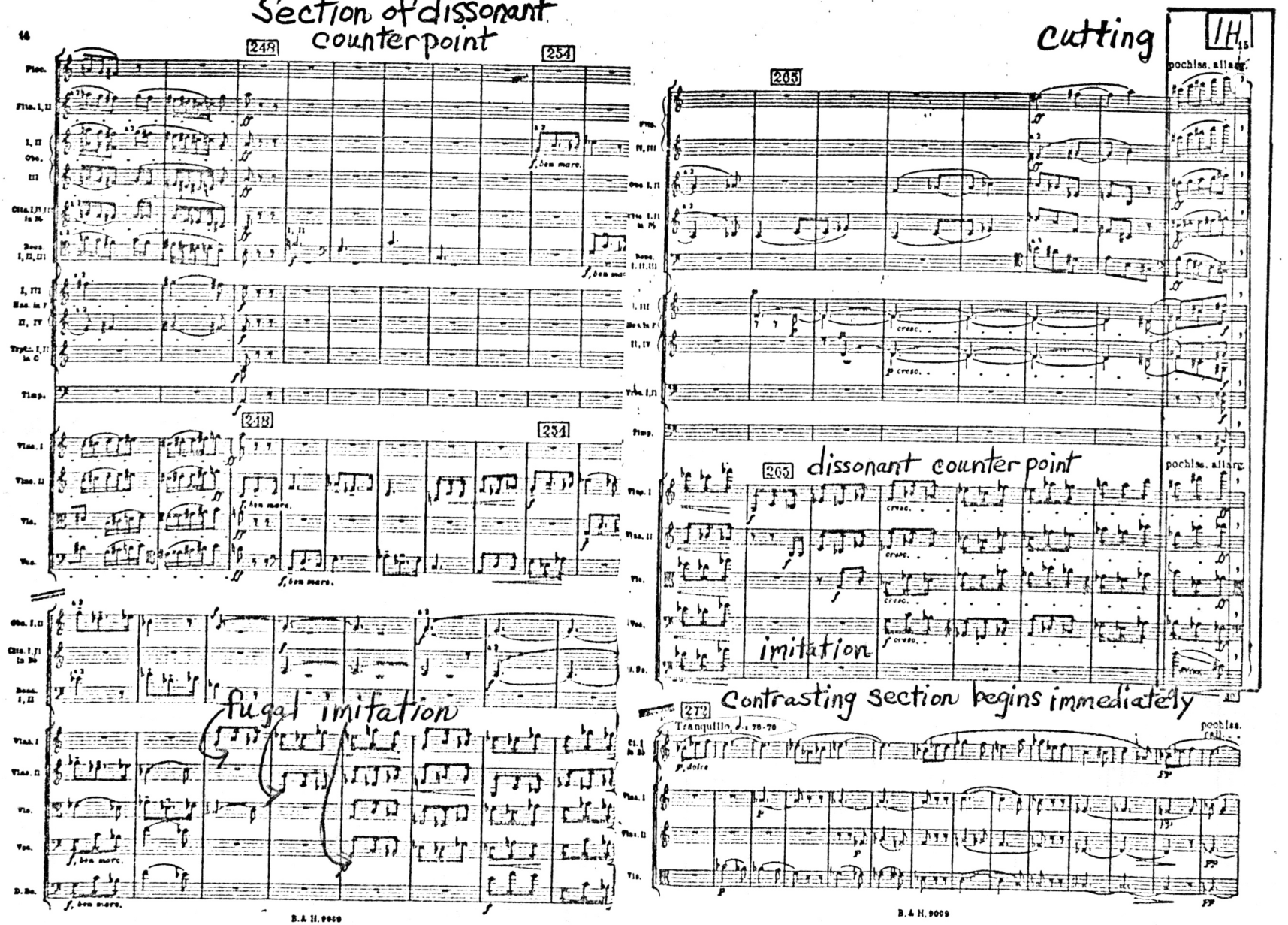

1D Rhythmic Caesura
molto ritenuto a tempo
86
93
102
Fltes. I, II
Obs. I, II
Clts. I, II in B♭
Bsns. I, II
I, III Hns. in F
II, IV Hns. in F
Trbs. I, II
Tuba
Timp.
Vlns. I
Vlns. II
Vla.
Vcs.
D. Bs.

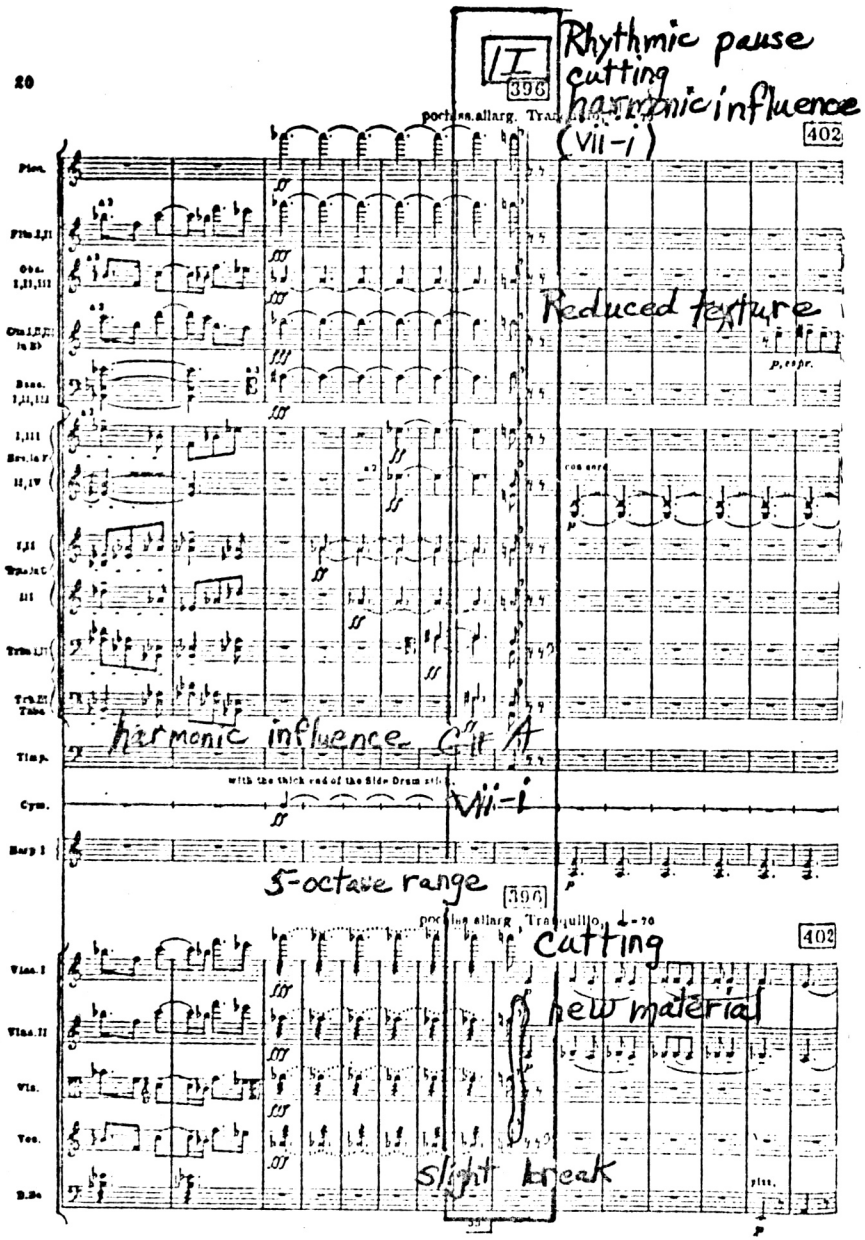

110
122
Obs. I, II
Clts. I, II in B♭
Bsns. I, II
Hn. I in F
Vlns. I
Vlns. II
Vla.
Vcs.
D. Bs.
div.
unis.
P, cresc.
cresc.
mf, cresc.

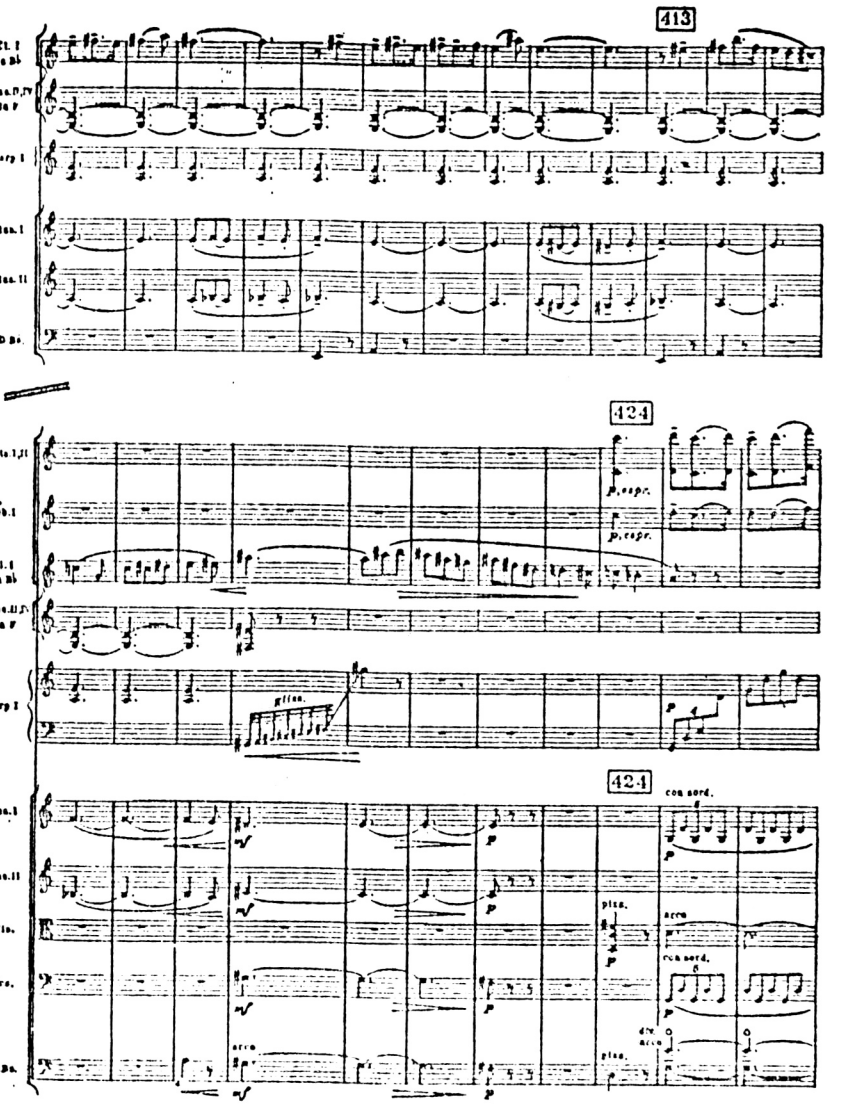

Juxtaposition of termination of Phrase & initiation of new idea
IE
'vertical' Cutting
135
Solo signals new idea
delayed resolution of F
142
chromatic descent - linear influence
disjunct rhythm - slows motion
Thinning texture
"Diminuendo
cadential influences
IF
vertical cutting + elision
149
poco a poco più . Tranquillo, ♩= 76
153
change in mood
sustained sonority aids
a full cadence feeling
163
175
181
B & H. 9069

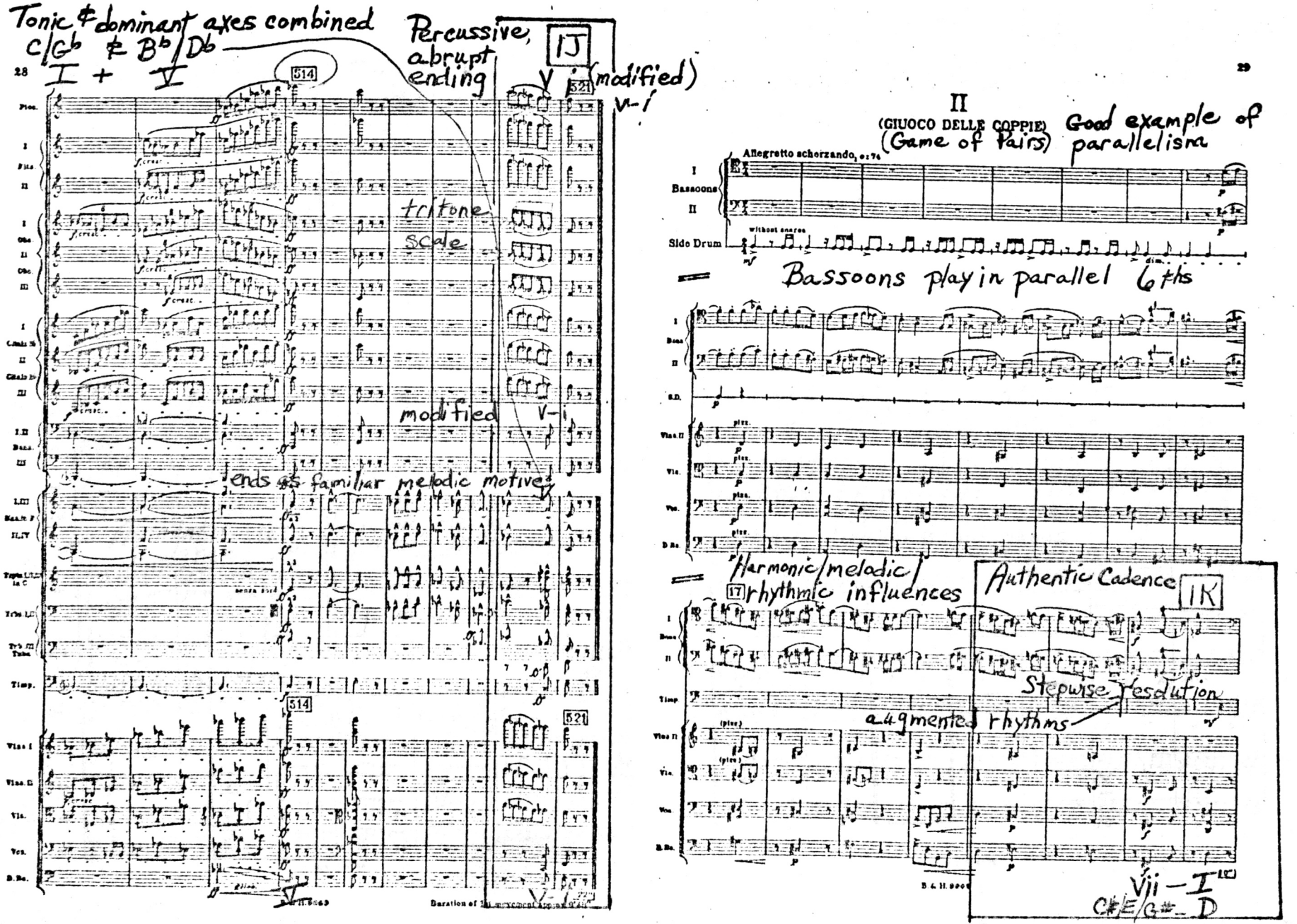

Horizontal Cutting
Phrase end
new phrase-not new material
harmonic suspension-feeling of repose-phrases elided-
feeling of caesura
(Elision)
harmonic Suspension
Elision
sempre più tranquillo
rallent.
a tempo
con sord.
senza sord.
10
11
192
198
204
210
220

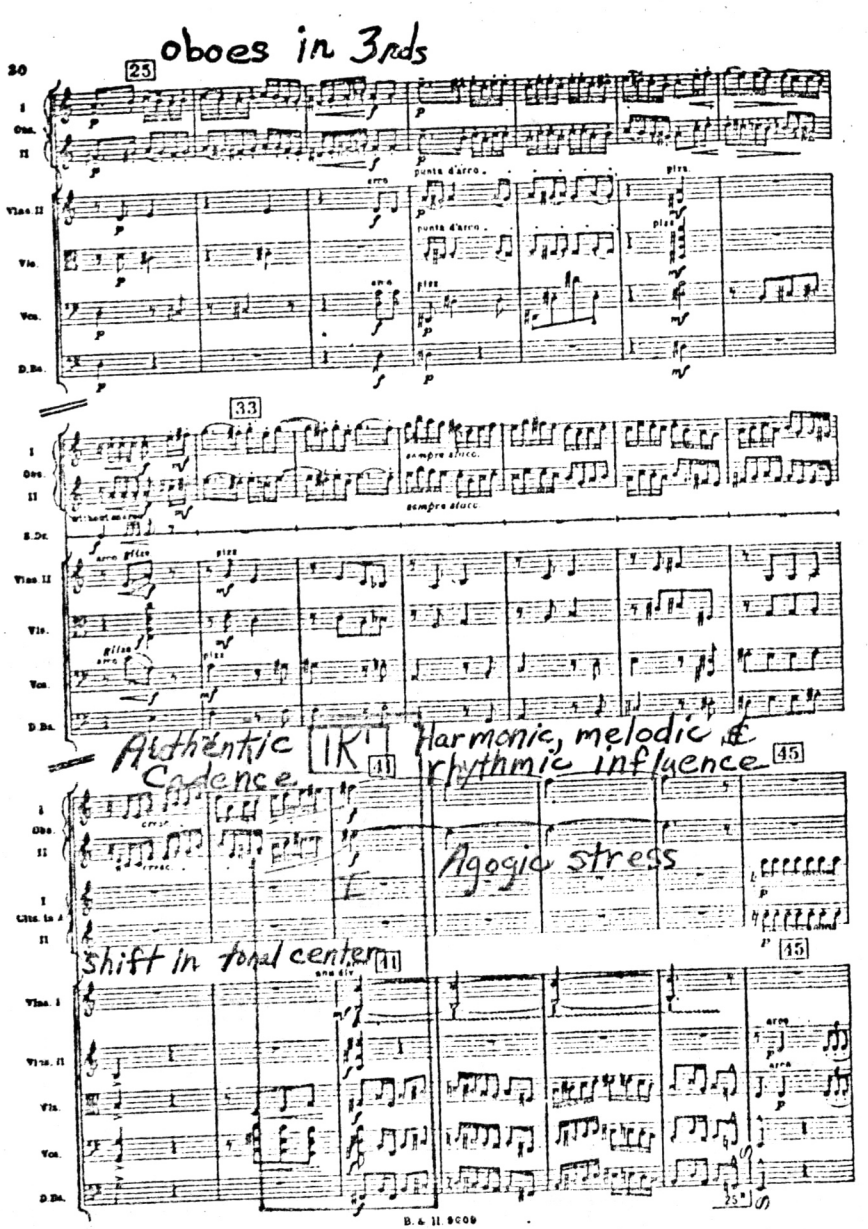

1G Horizontal Cutting
Tempo I.
237
242
1G Horizontal cutting
Very slight pause before downbeat at 231.
230)
Slowing tempo makes last beat of 230 sound like the end of the idea.

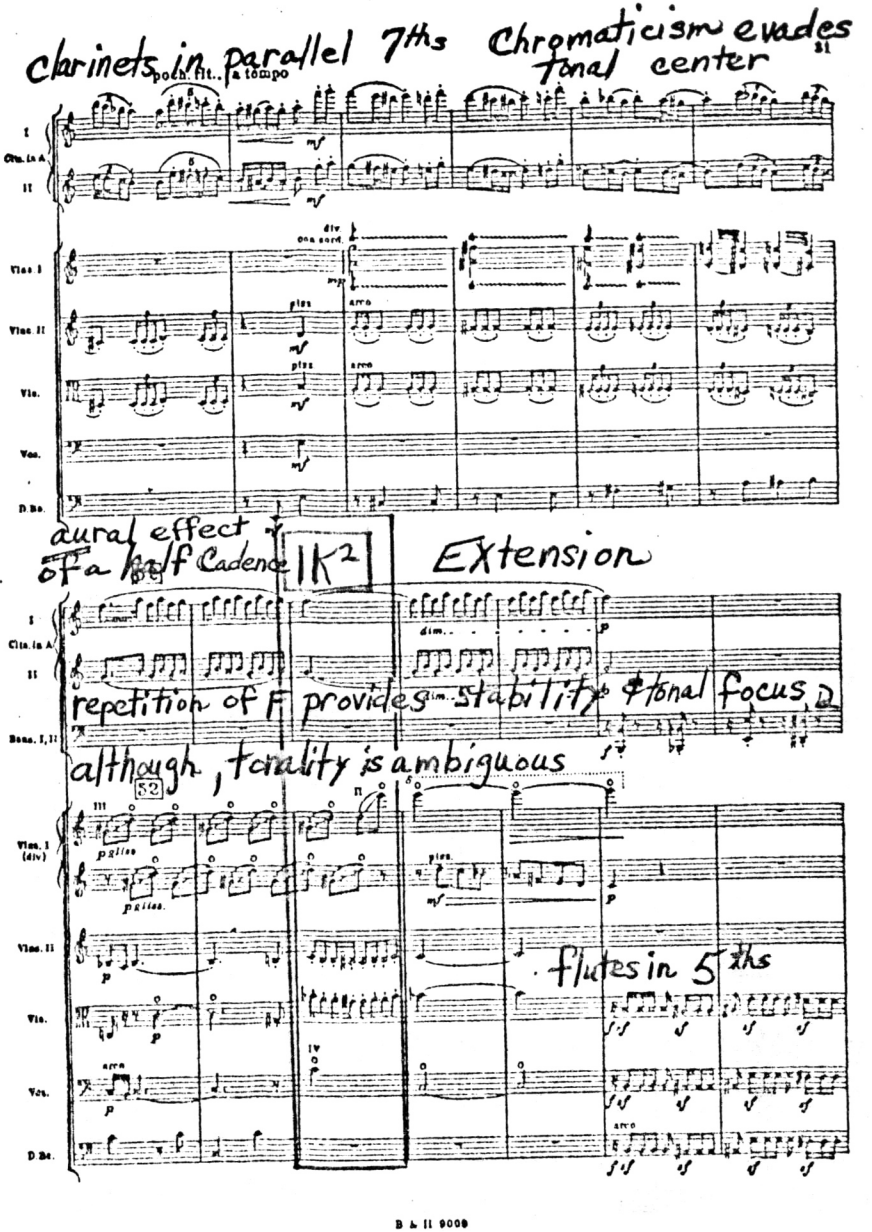

Section of dissonant counterpoint
cutting
fugal imitation
dissonant counter point
imitation
Contrasting section begins immediately

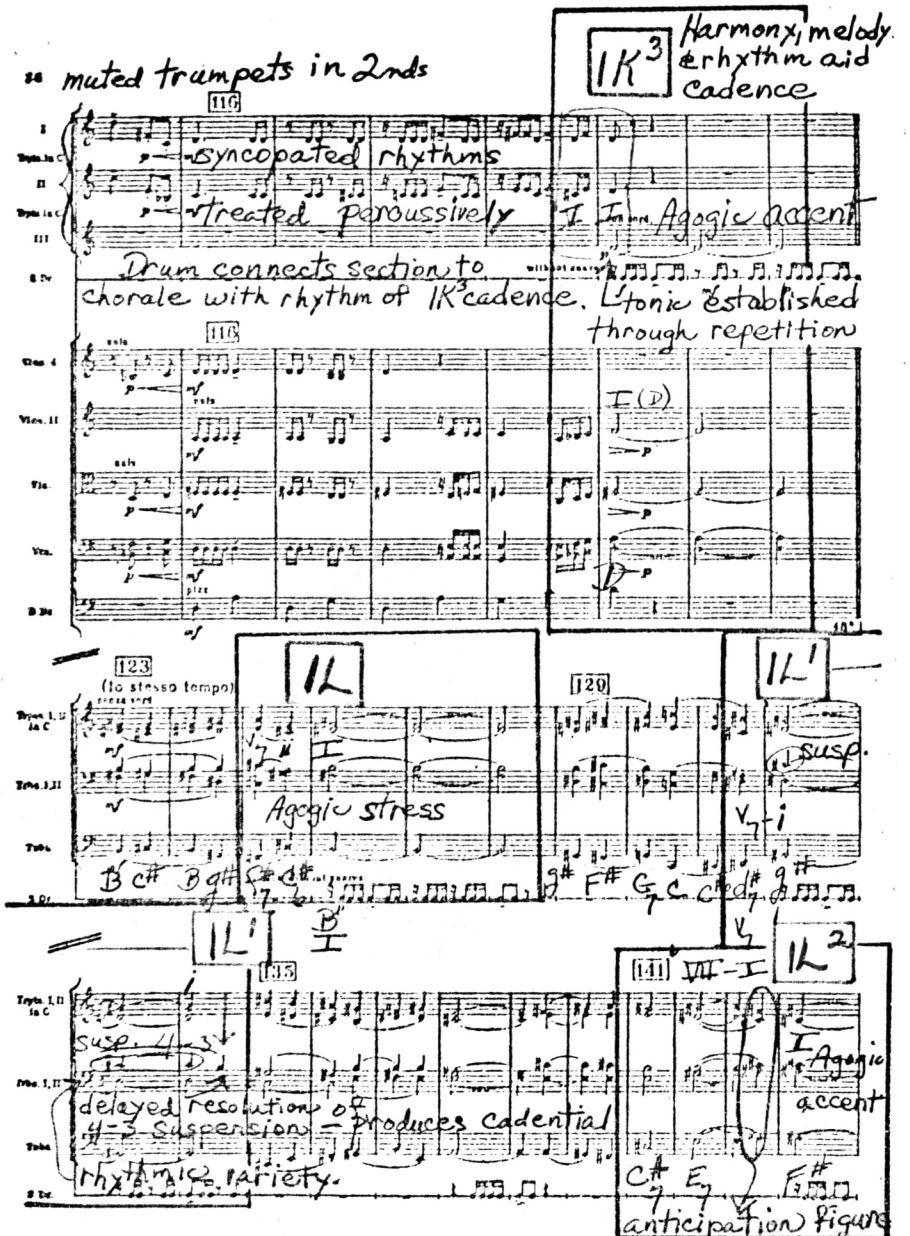

I
396
Rhythmic pause cutting
harmonic influence
(VII–i)
402
Reduced texture
harmonic influence G#/A
VII–i
5-octave range
396
cutting
new material
slight break
402

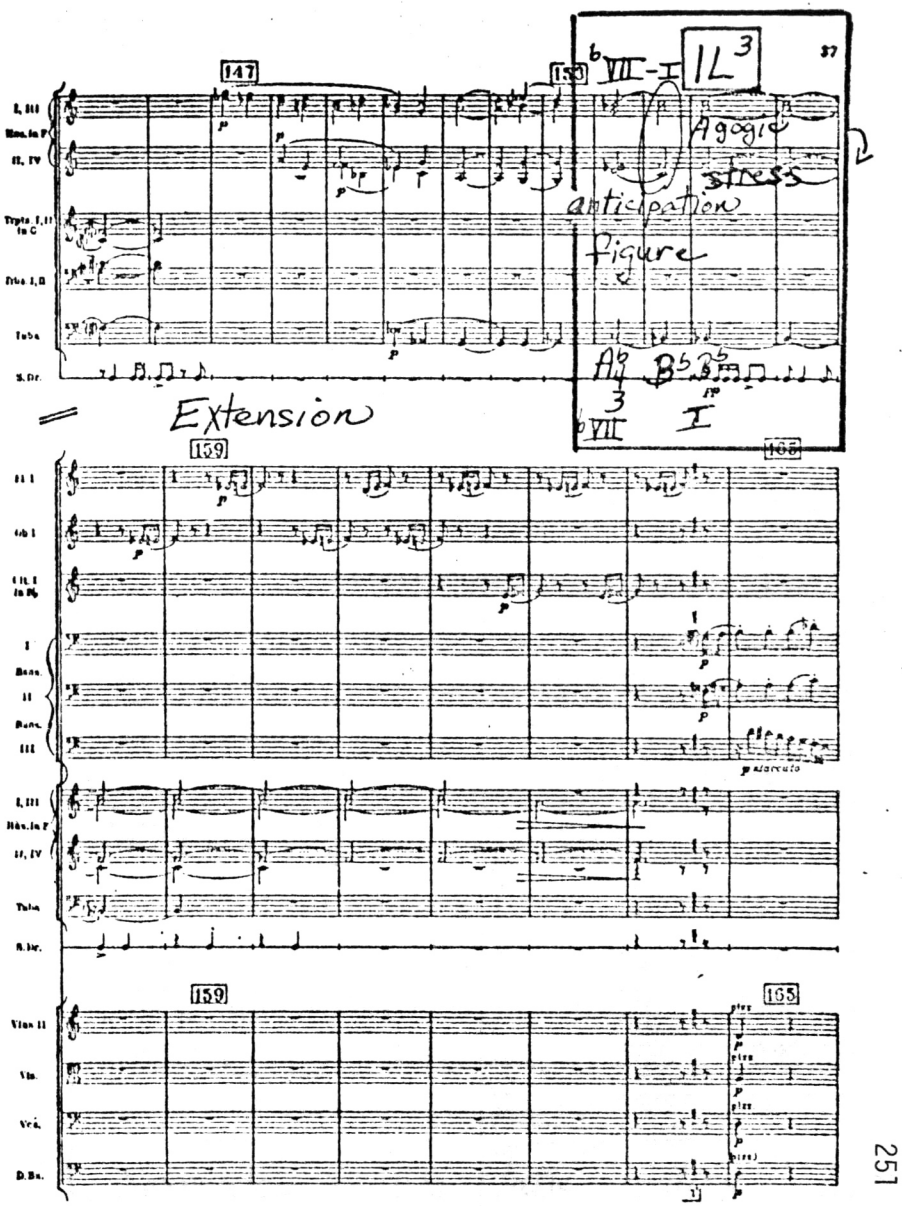

413
424
424

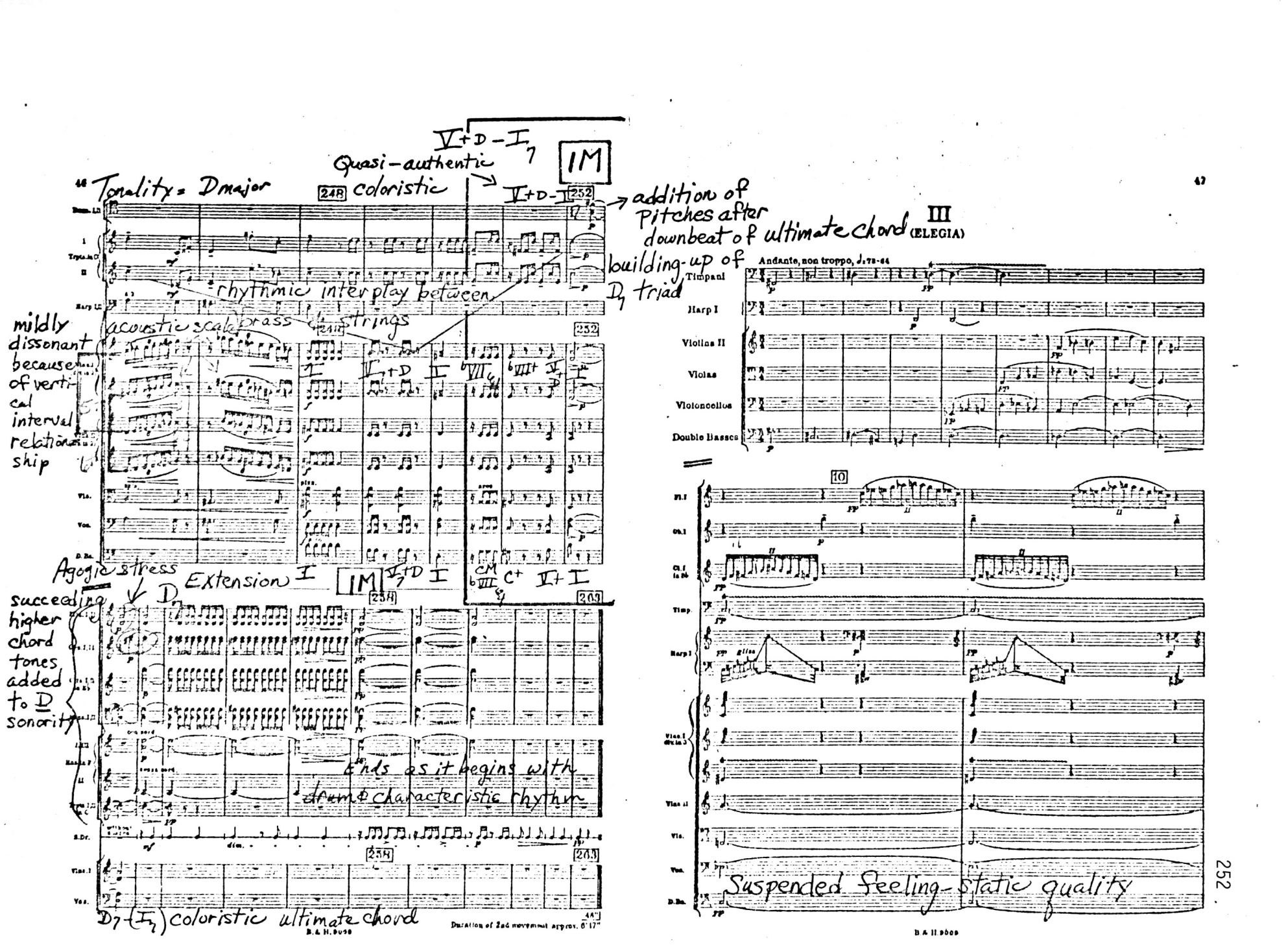

Tonic & dominant axes combined
C/Gb & Bb/Db
I + V
Percussive, abrupt ending
IJ
V (modified) V-i
28
514
521
tritone scale
modified V-i
ends as familiar melodic motive
II
(GIUOCO DELLE COPPIE)
(Game of Pairs)
Good example of parallelism
Allegretto scherzando, ♩=76
Bassoons
Side Drum
Bassoons play in parallel 6ths
Harmonic/melodic rhythmic influences
17
Authentic Cadence
IK
Stepwise resolution
augmented rhythms
Vii – I
C# E G# D
29
249


oboes in 3rds
23
33
Authentic Cadence
1K1
41
Harmonic, melodic & rhythmic influence
45
Agogic stress
Shift in tonal center
11
15

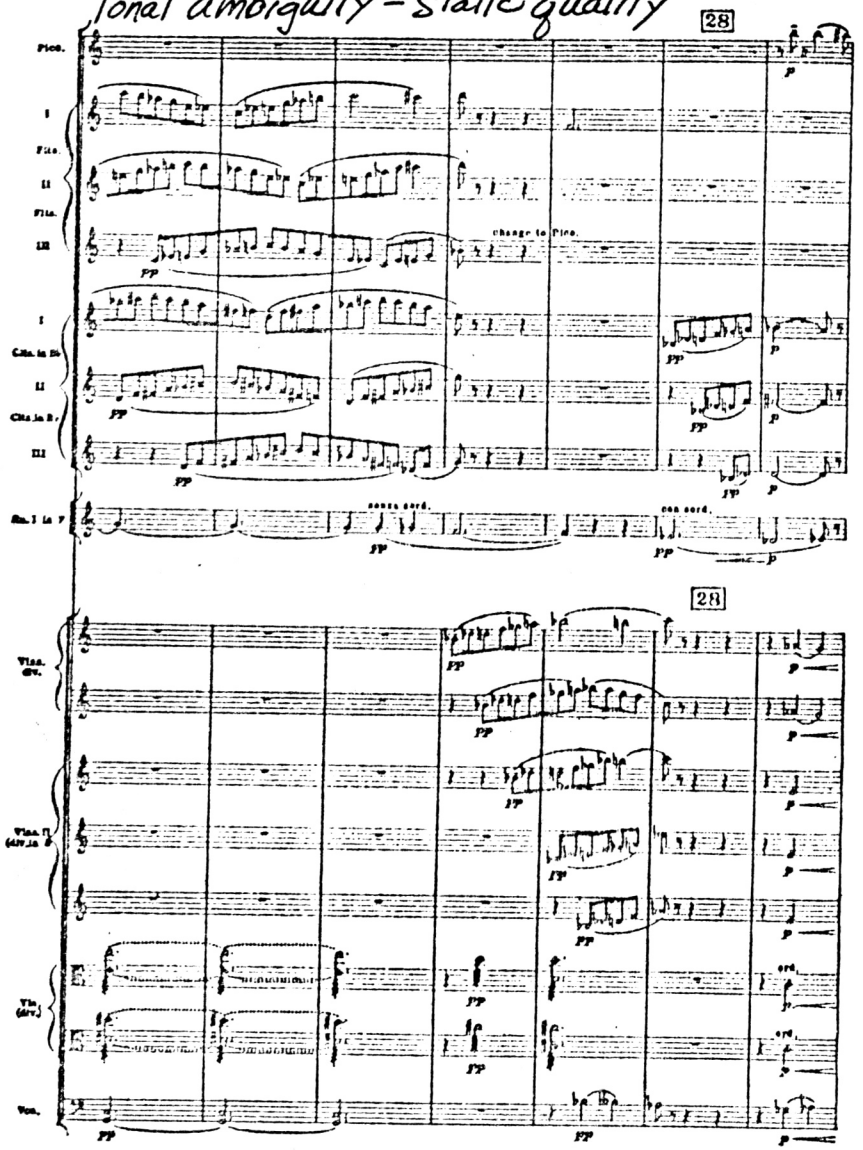

clarinets in parallel 7ths
Chromaticism evades tonal center
51
aural effect of a half Cadence
1K2
Extension
repetition of F provides stability & tonal focus
although, tonality is ambiguous
52
flutes in 5ths


muted trumpets in 2nds
1K3 Harmony, melody & rhythm aid cadence
116
syncopated rhythms
treated percussively
I
Agogic accent
Drum connects section to chorale with rhythm of 1K3 cadence. I tonic established through repetition
123
(lo stesso tempo)
1L
129
1L1
susp.
Agogic stress
V7+i
1L1
133
141
VII-I
1L2
I
Agogic accent
susp. 4-3
delayed resolution of 4-3 suspension produces cadential rhythmic variety.
anticipation figure


147
150
bVII-I
1L3
Agogic stress
anticipation figure
Extension
159
168
159
165

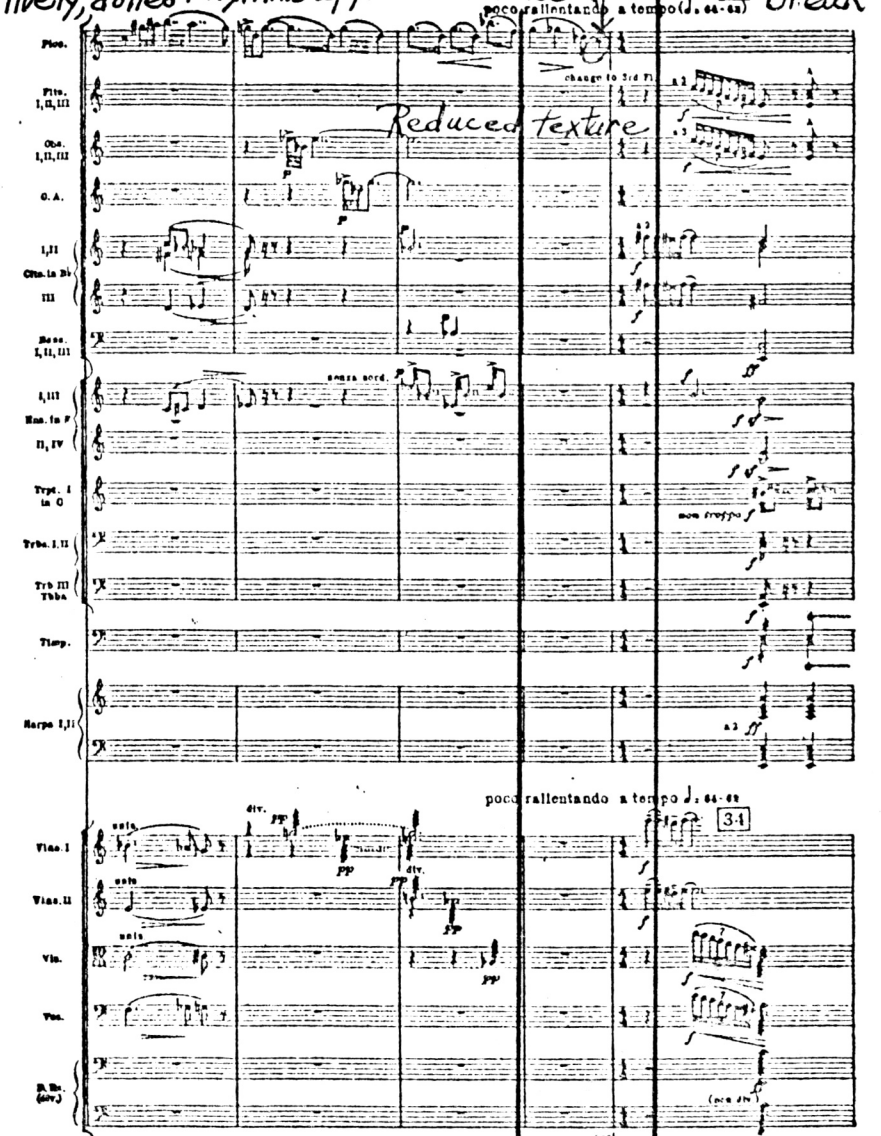

46
Tonality = D major
248
252
V+D – I7
IM
Quasi-authentic
coloristic
V+D – I
addition of pitches after downbeat of ultimate chord
building-up of D7 triad
rhythmic interplay between
acoustic scale brass
strings
mildly dissonant because of vertical interval relationship
Agogic stress
D7
Extension I
IM
V+D
I
cM
C+
V+ I
succeeding higher chord tones added to D sonority
Ends as it begins with drum & characteristic rhythm
D7 (I7) coloristic ultimate chord
B. & H. 9058
Duration of 2nd movement approx. 6'17"
47
III
(ELEGIA)
Andante, non troppo, ♩= 72-66
Timpani
Harp I
Violins II
Violas
Violoncellos
Double Basses
10
Suspended feeling-static quality
B. & H. 9058
252

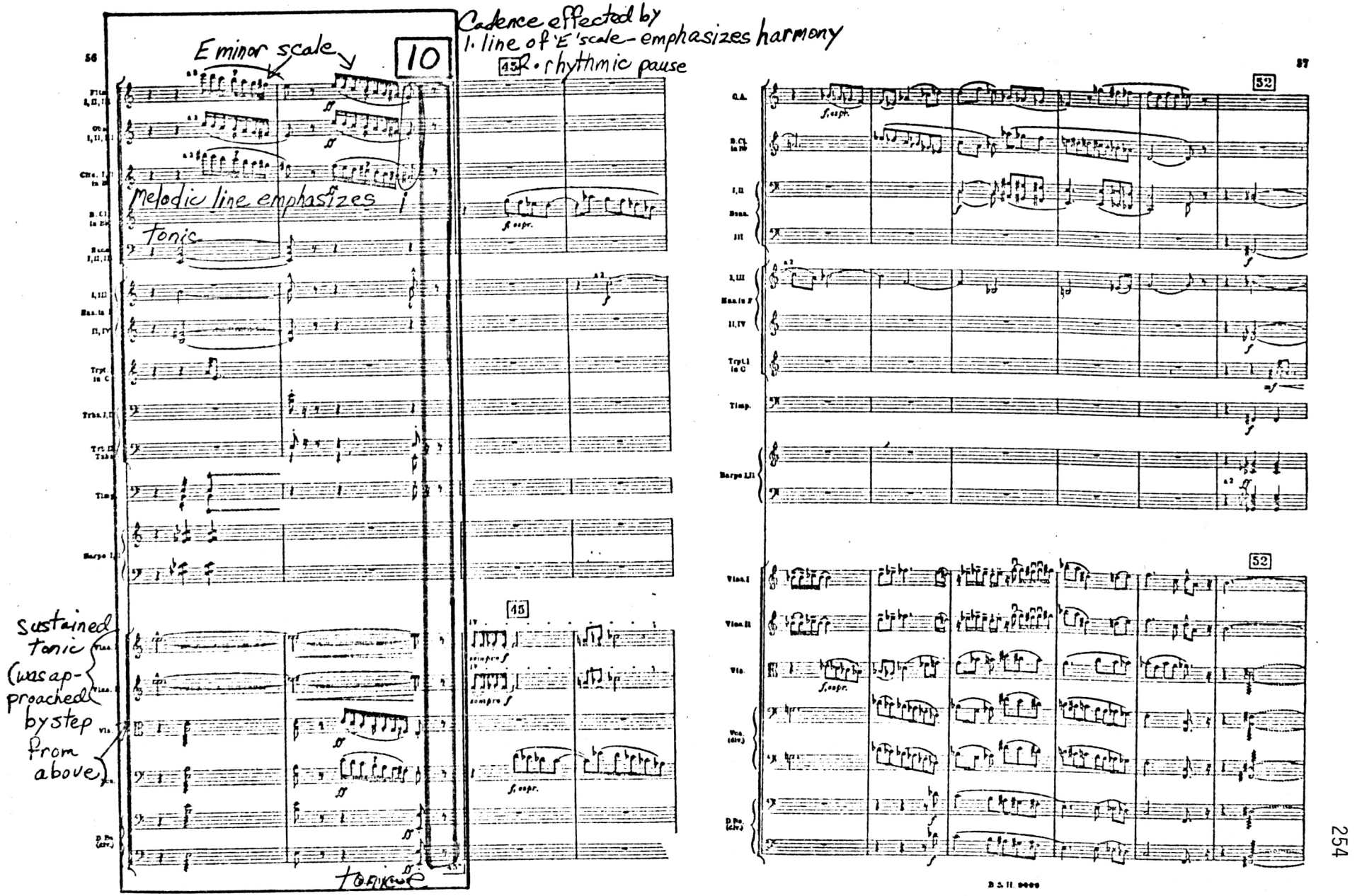
Tonal ambiguity - static quality

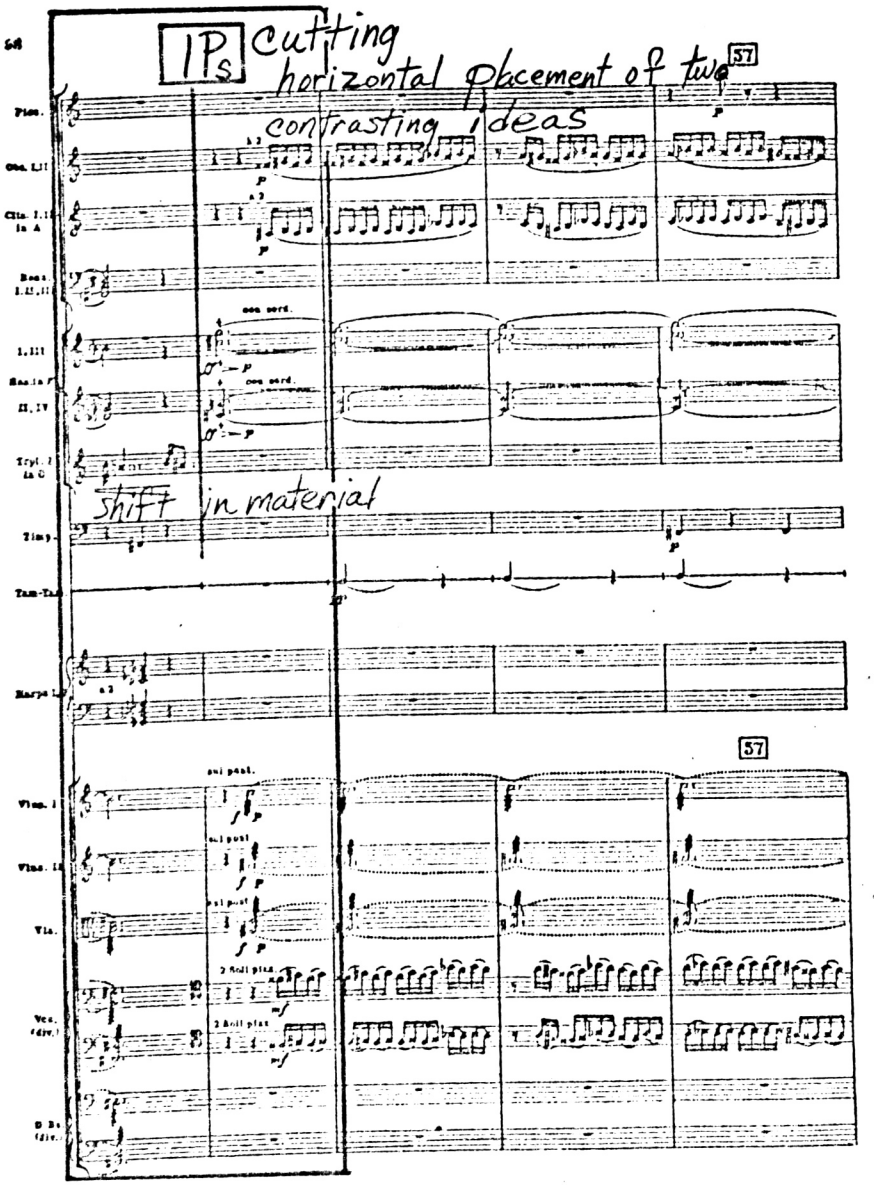


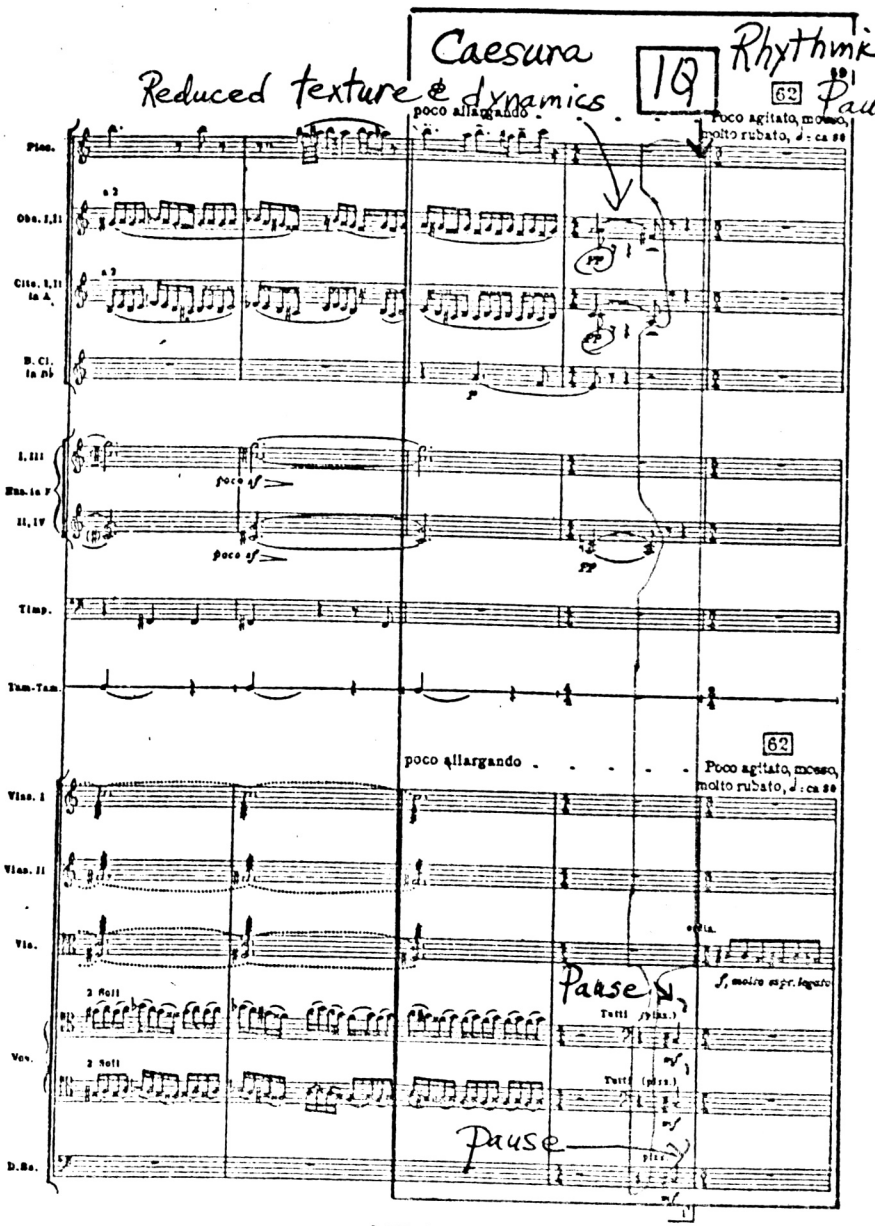
lively, dotted rhythms approach cadence

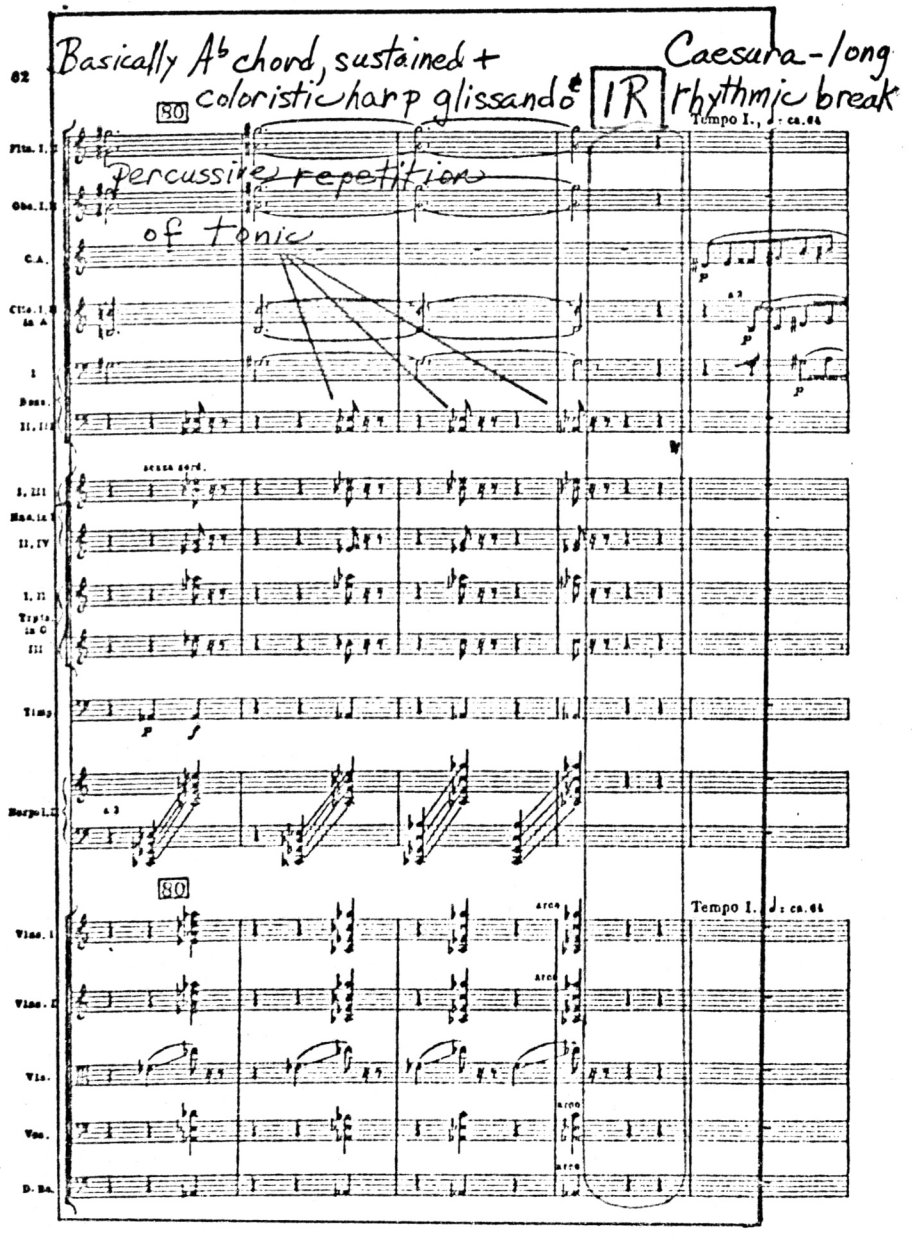
IN Caesura - rhythmic break

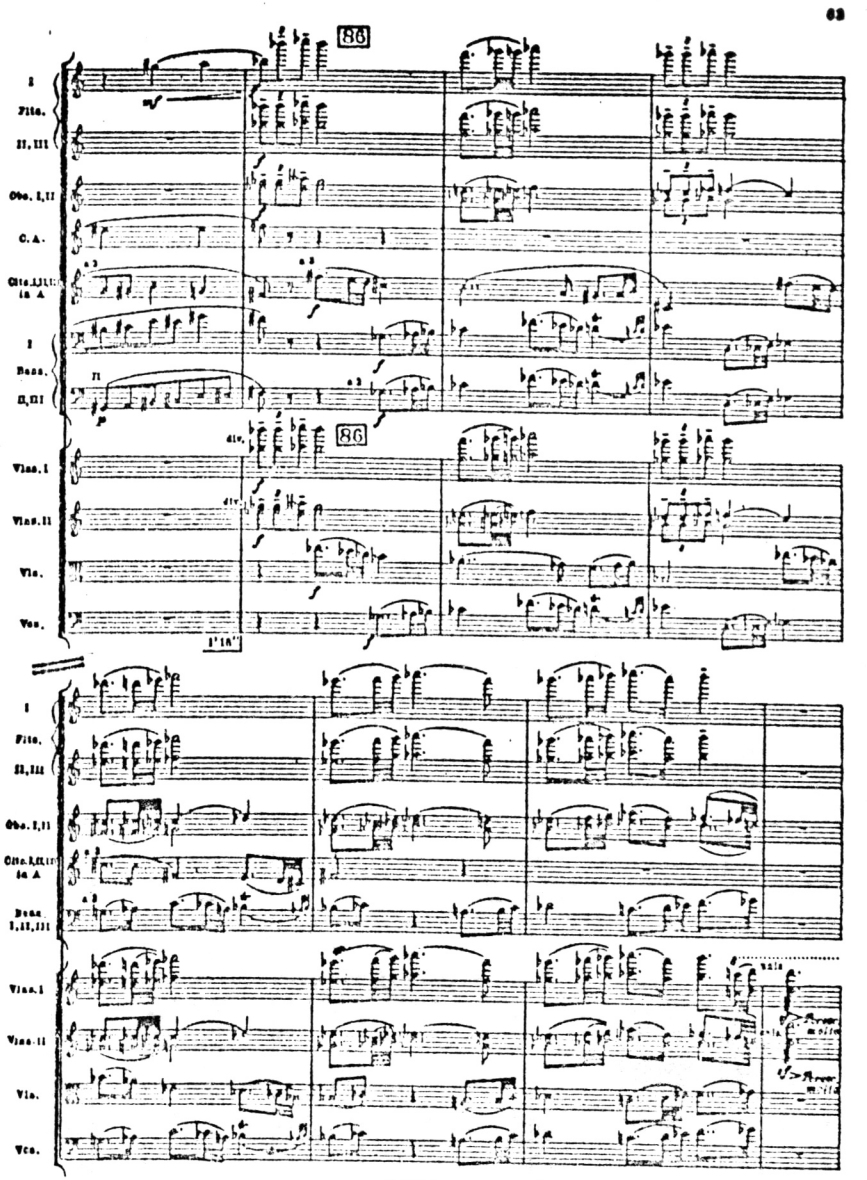


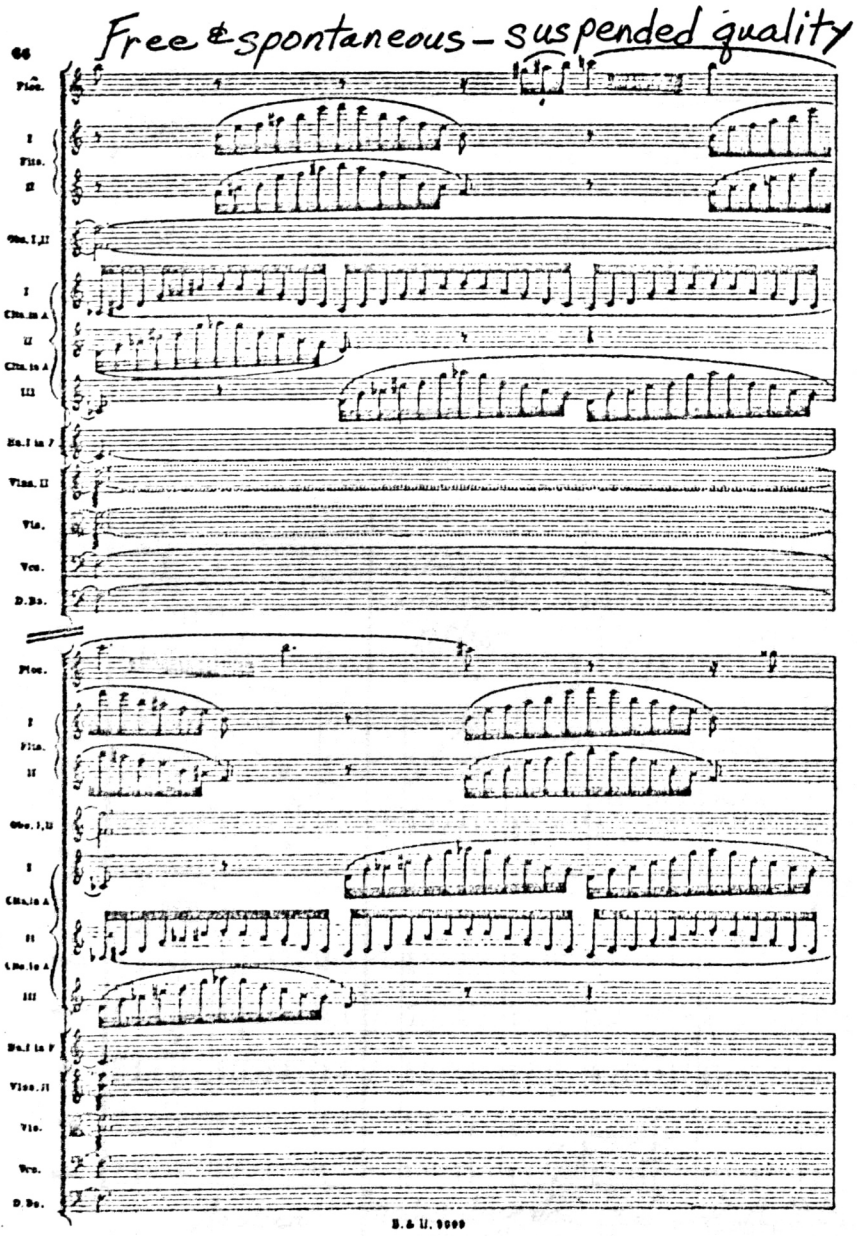

56
E minor scale
10
Melodic line emphasizes tonic
Cadence effected by
1. line of 'E' scale - emphasizes harmony
45R • rhythmic pause
45
sustained tonic (was approached by step from above)
tonic
57
52
52
D.S. II. 0000

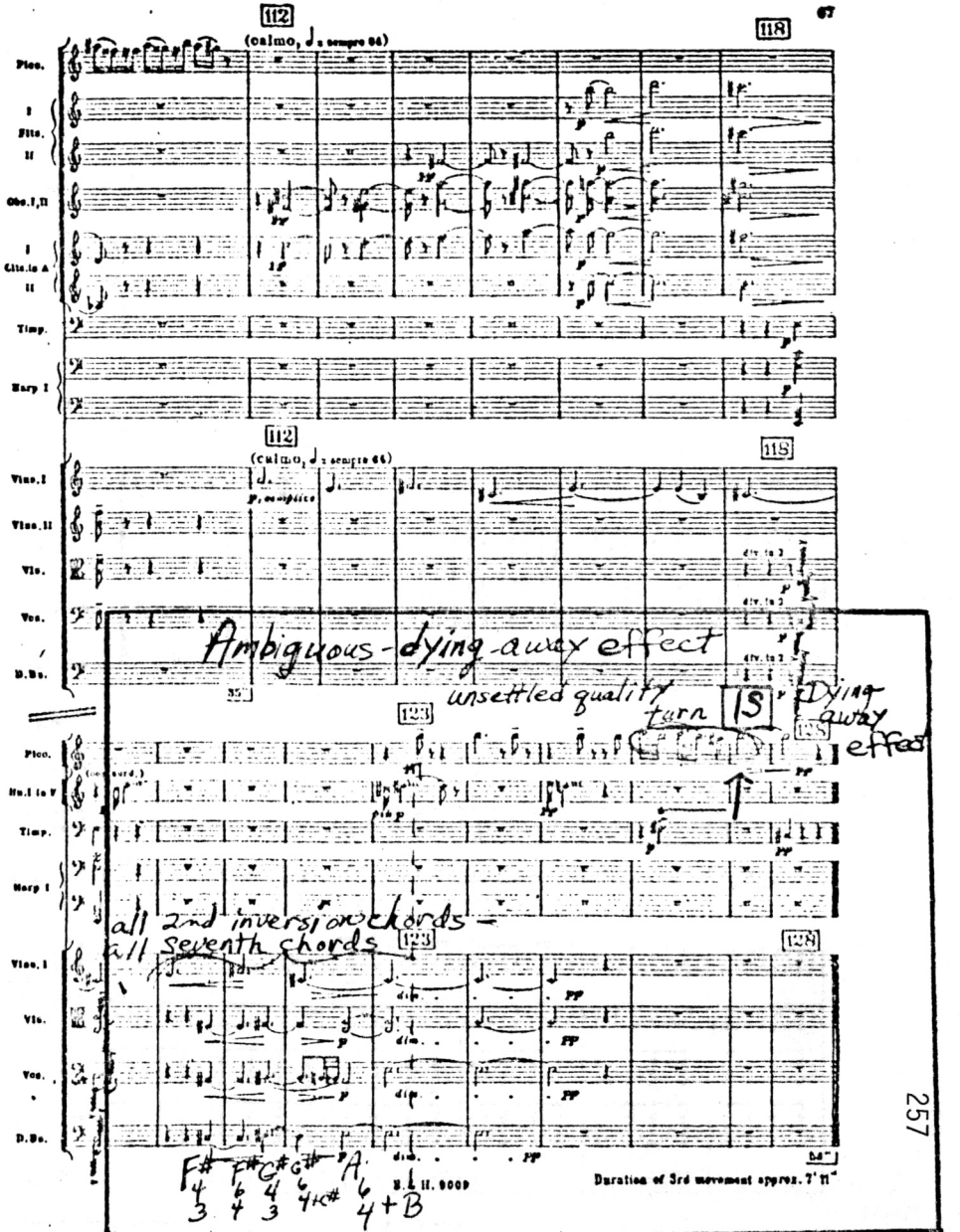

IPs
cutting
horizontal placement of two
contrasting ideas
shift in material
57
Pic.
Ob. I,II
Cls. I,II in A
Bsns. I,II,III
I, III
Hns. in F
II, IV
Tpt. I in C
Timp.
Tam-Tam
Harps I,II
Vlns. I
Vlns. II
Vla.
Vcs. (div.)
D.Bs. (div.)
sul pont.
2 flatt.
B. & H. 9009

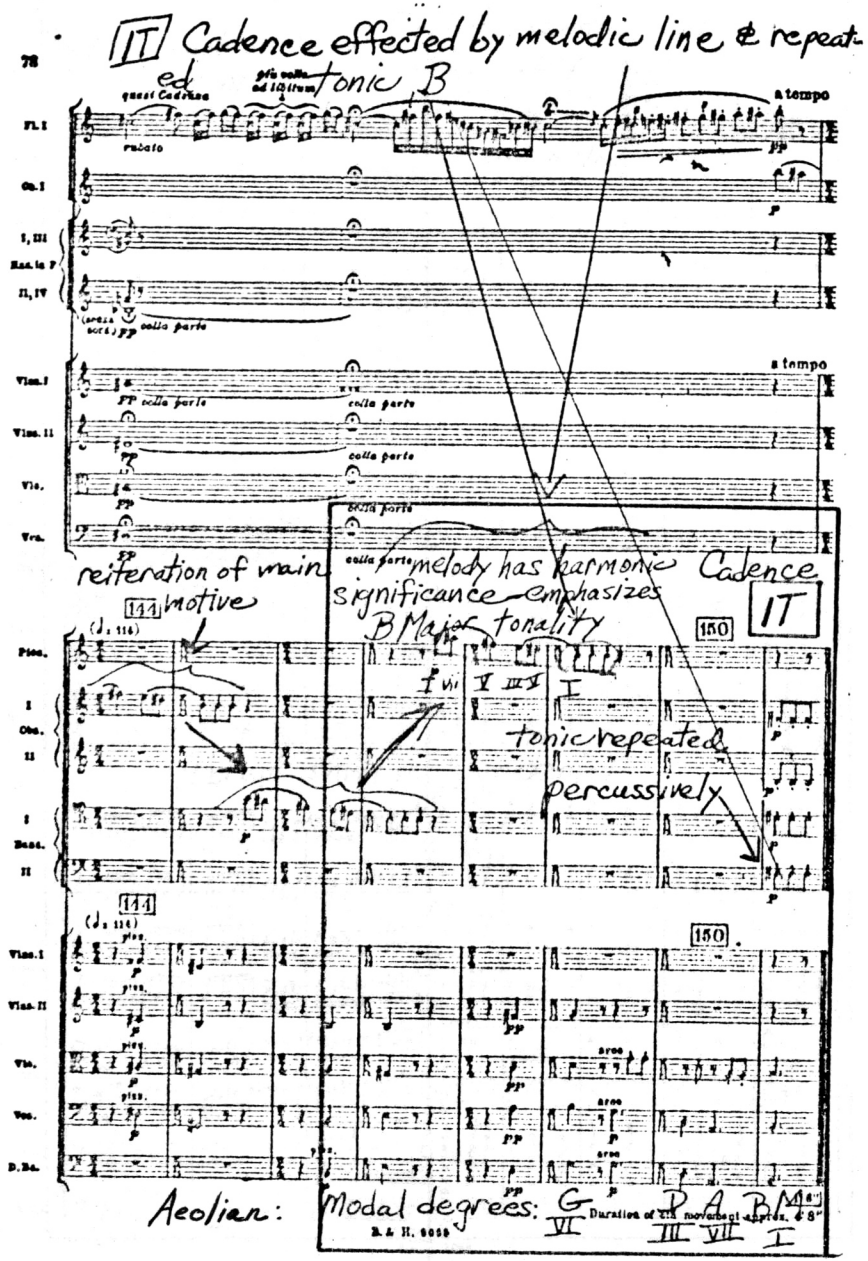

Caesura
19
Rhythmic
Pause
Reduced texture & dynamics
62
poco allargando
Poco agitato, mosso, molto rubato, ♩ ca 88
Pic.
Ob. I,II
Cls. I,II in A
B. Cl. in Bb
I, III
Hns. in F
II, IV
poco sf
Timp.
Tam-Tam
Vlns. I
Vlns. II
Vla.
Vcs.
D.Bs.
Pause
Tutti (plus.)
2 flatt
sul pont.
B. & H. 9009

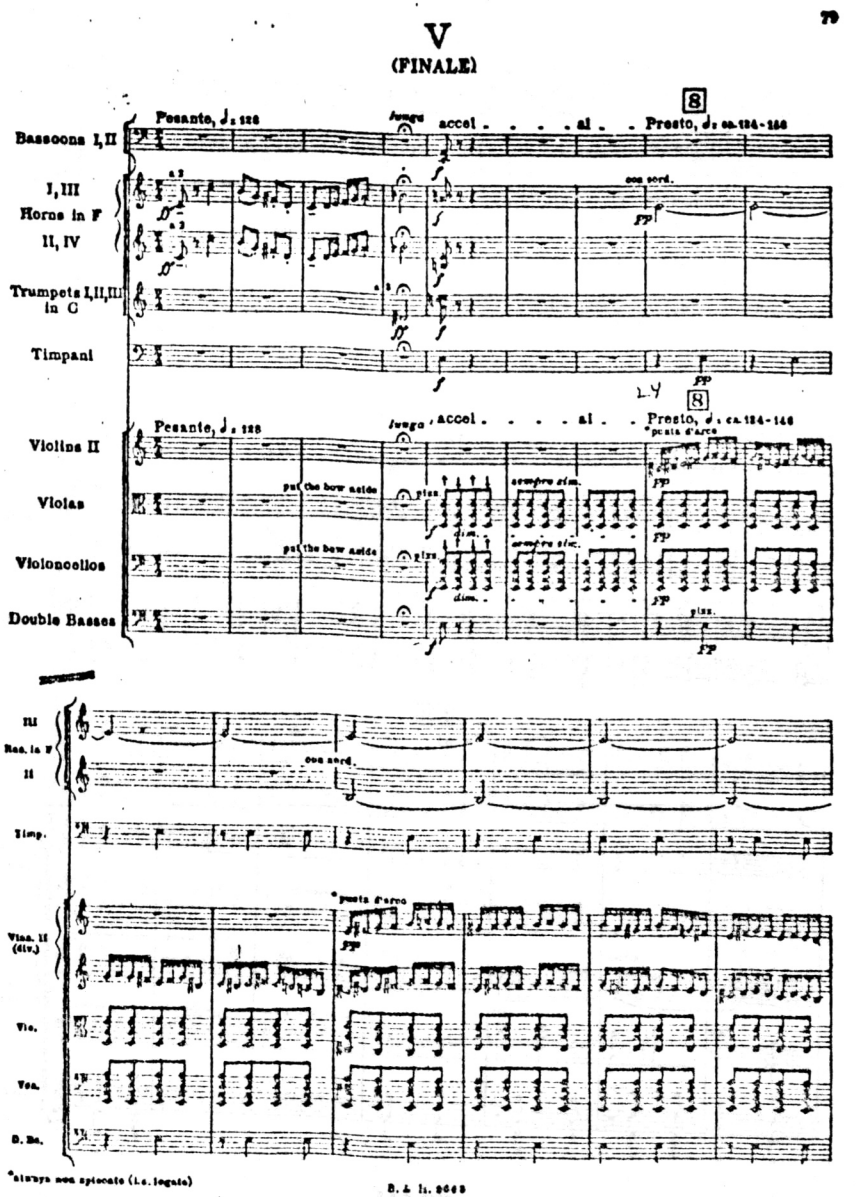

82
Basically Ab chord, sustained + coloristic harp glissando
80
1R
Caesura - long rhythmic break
Tempo I., ♩ = ca. 66
percussive repetition of tonic
Fltes. I, II
Obs. I, II
C.A.
Clts. I, II in A
I
Bsns.
II, III
sons sord.
I, III
Hns. in F
II, IV
I, II
Trpts. in C
III
Timp
Harps I, II
80
Tempo I. ♩ = ca. 66
arco
Vlns. I
Vlns. II
Vla.
Vcs.
D. Bs.
B. & H. 9009

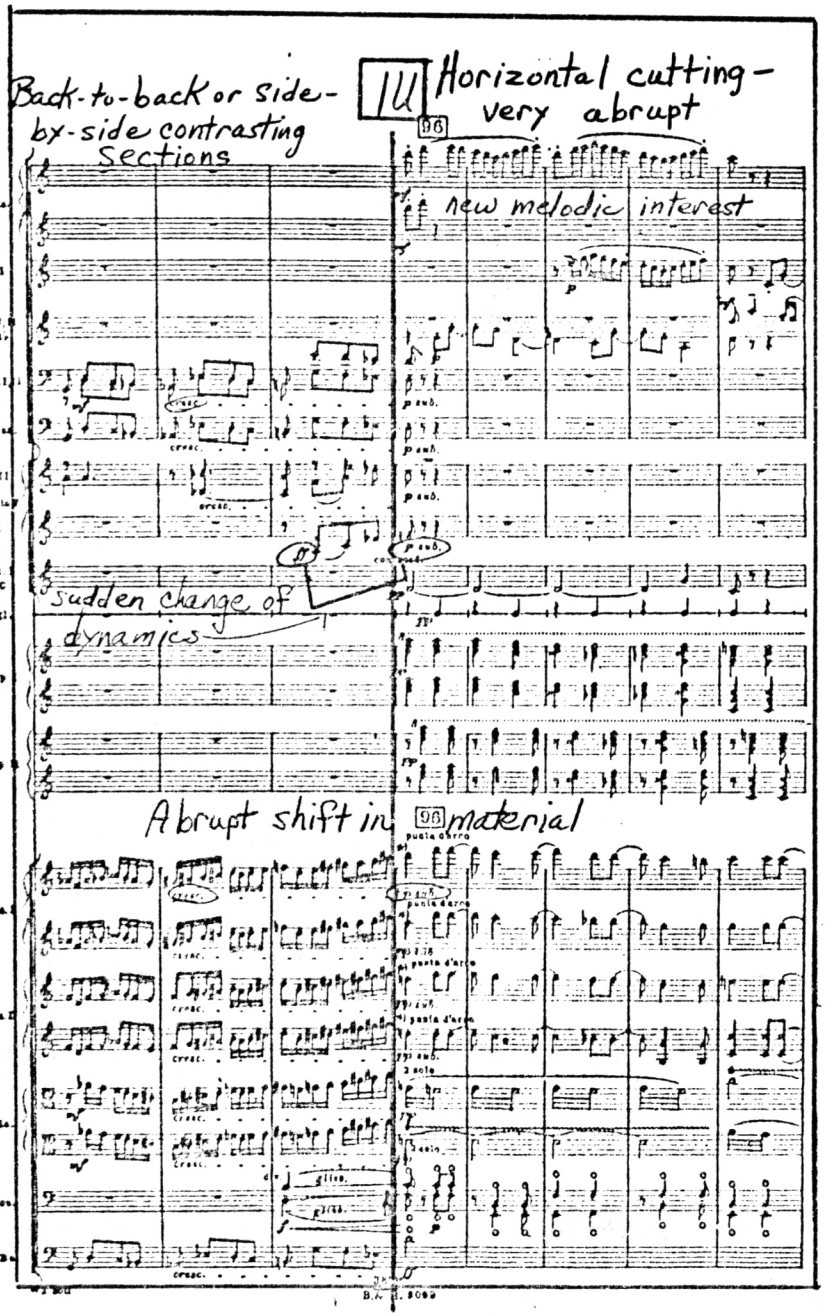

83
86
I
Fltes.
II, III
Obs. I, II
C.A.
Clts. I, II, III in A
I
Bsns.
II, III
86
div.
Vlns. I
Vlns. II
Vla.
Vcs.
I'll 8"
I
Fltes.
II, III
Obs. I, II
Clts. I, II, III in A
Bsns. I, II, III
Vlns. I
Vlns. II
Vla.
Vcs.
B. & H. 9009

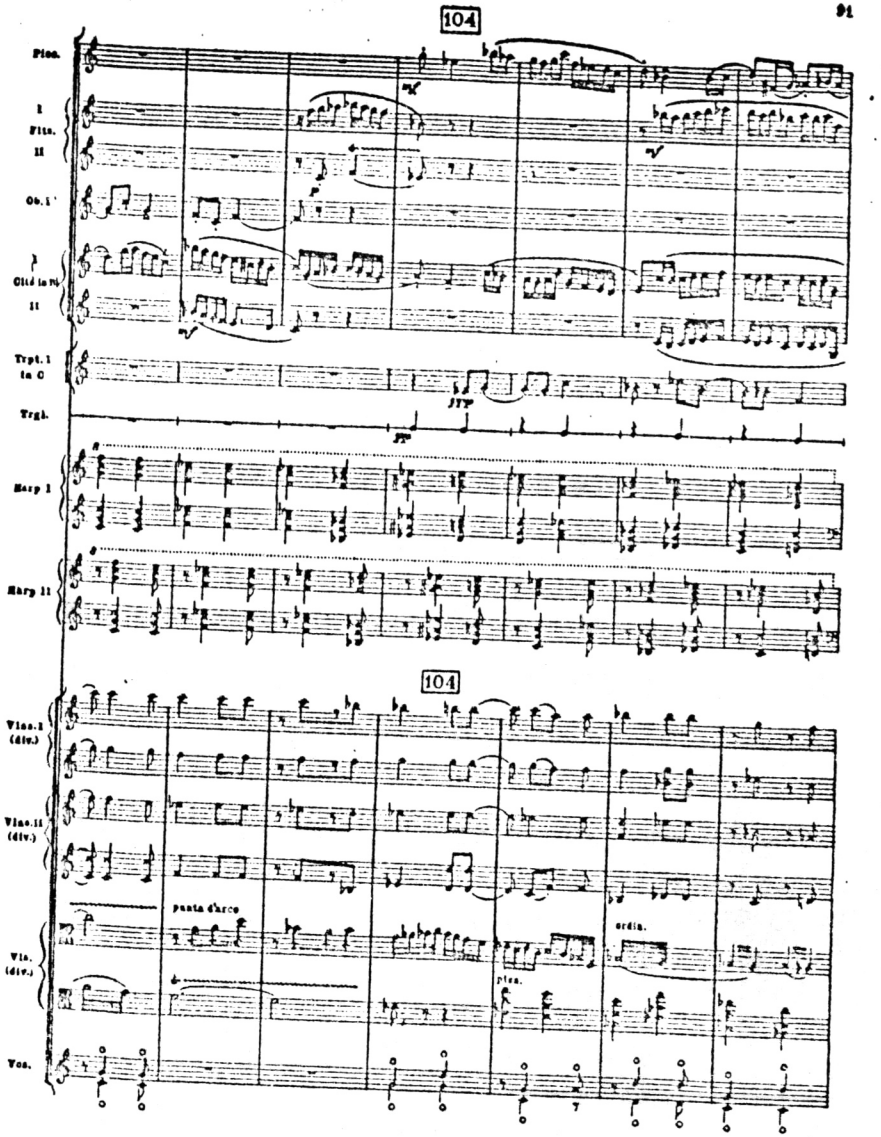

Free & spontaneous – suspended quality
Picc.
I
Flts.
II
Obs. I, II
I
Cls. in A
II
Cls. in A
III
Bn. I in F
Vlns. II
Vla.
Vcs.
D. Bs.
B. & H. 9009


112
(calmo, ♩ = sempre 66)
118
Picc.
I
Flts.
II
Obs. I, II
I
Cls. in A
II
Timp.
Harp I
Vlns. I
Vlns. II
Vla.
Vcs.
D. Bs.
Ambiguous – dying away effect
unsettled quality
turn
123
Dying away effect
all 2nd inversion chords –
all seventh chords
F# 4 3 F# 6 4 G# 4 3 G# 6 4+C# A 6 4+B
B. & H. 9009
Duration of 3rd movement approx. 7' 11"


IT Cadence effected by melodic line & repeat-
ed tonic B
reiteration of main motive
melody has harmonic significance emphasizes B Major tonality
Cadence IT
tonic repeated percussively
Aeolian:
Modal degrees: G P A B M
VII III VII I
Duration of the movement approx. 4'8"
B. & H. 9059

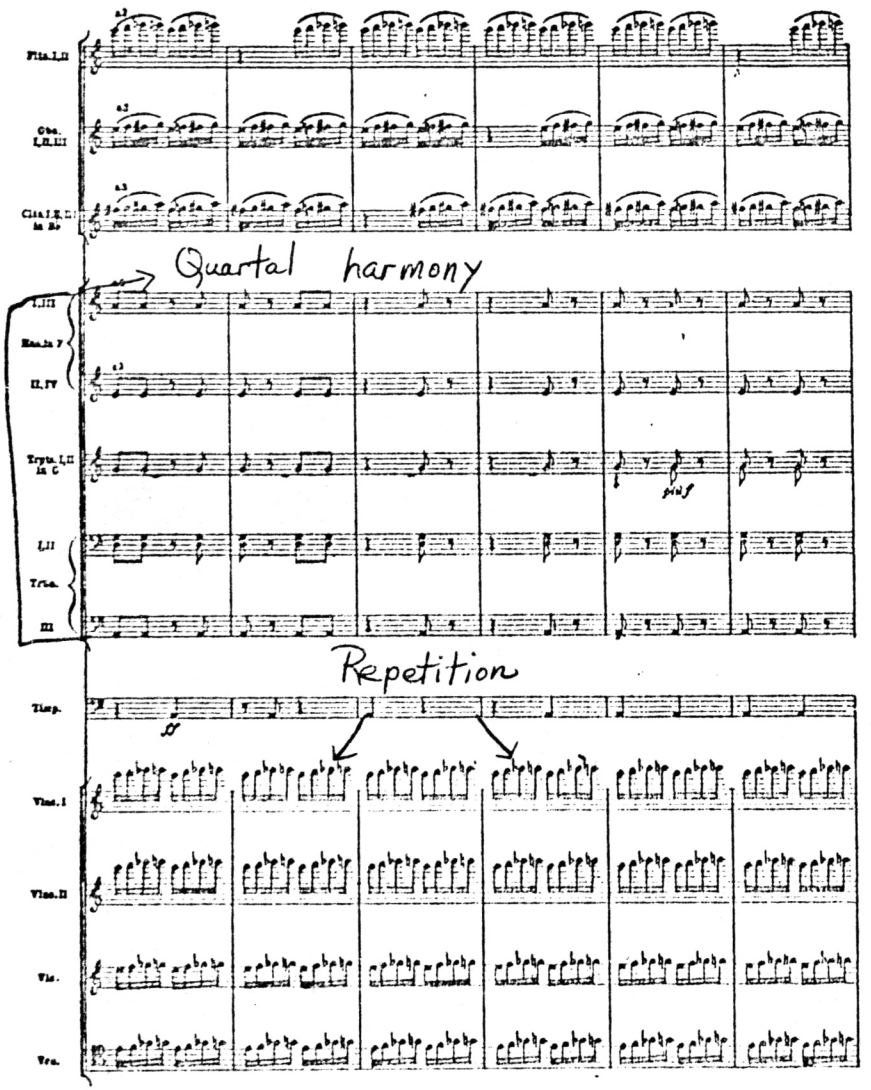

V
(FINALE)
Pesante, ♩. 128
Adagio
accel. . . . al . . Presto, ♩. ca. 124-144
Bassoons I, II
I, III
Horns in F
II, IV
Trumpets I, II, III in C
Timpani
Violins II
Violas
Violoncellos
Double Basses
con sord.
put the bow aside
sempre stac.
pizz.
arco
* always non spiccato (i.e. legato)
B. & H. 9059


Back-to-back or side-by-side contrasting sections
IU
Horizontal cutting – very abrupt
new melodic interest
sudden change of dynamics
Abrupt shift in material



Frenzied activity requires release of tension

Repetition of motive signals a cadence or phrase end

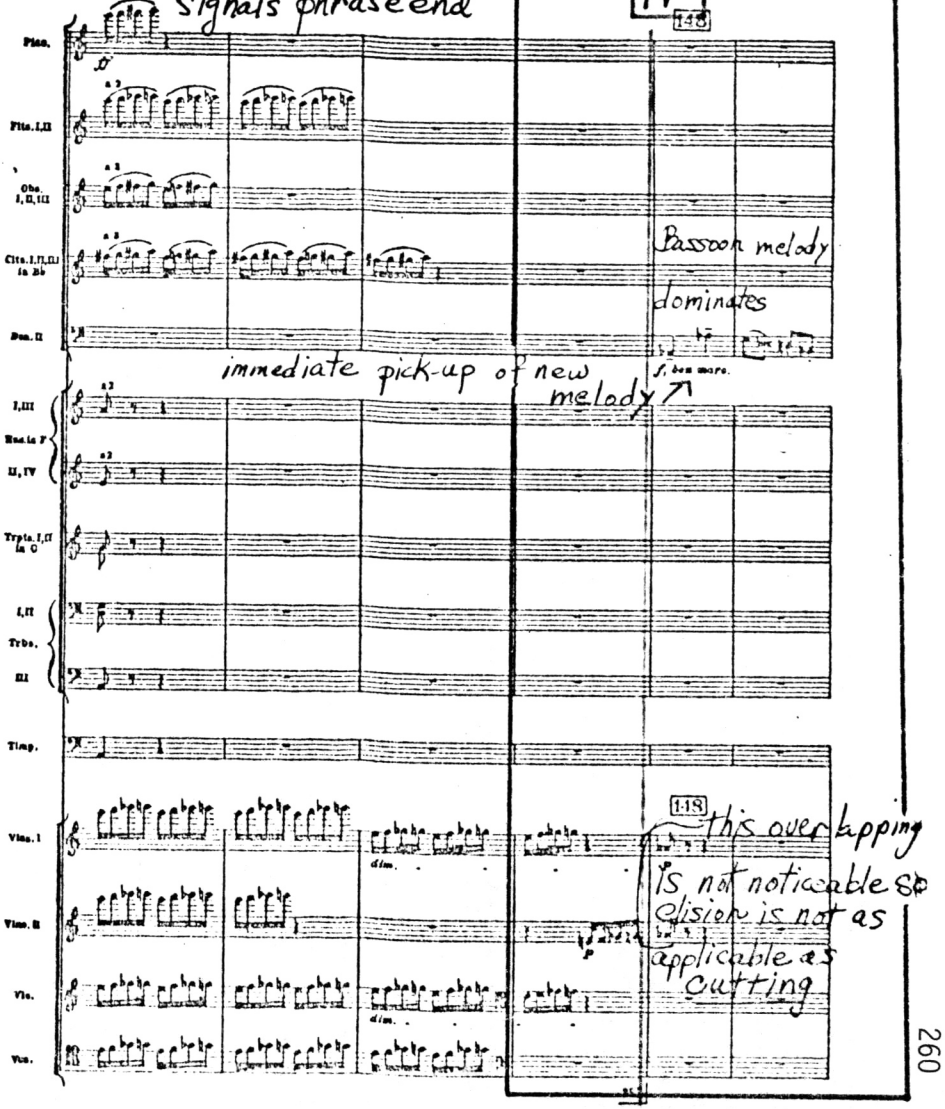


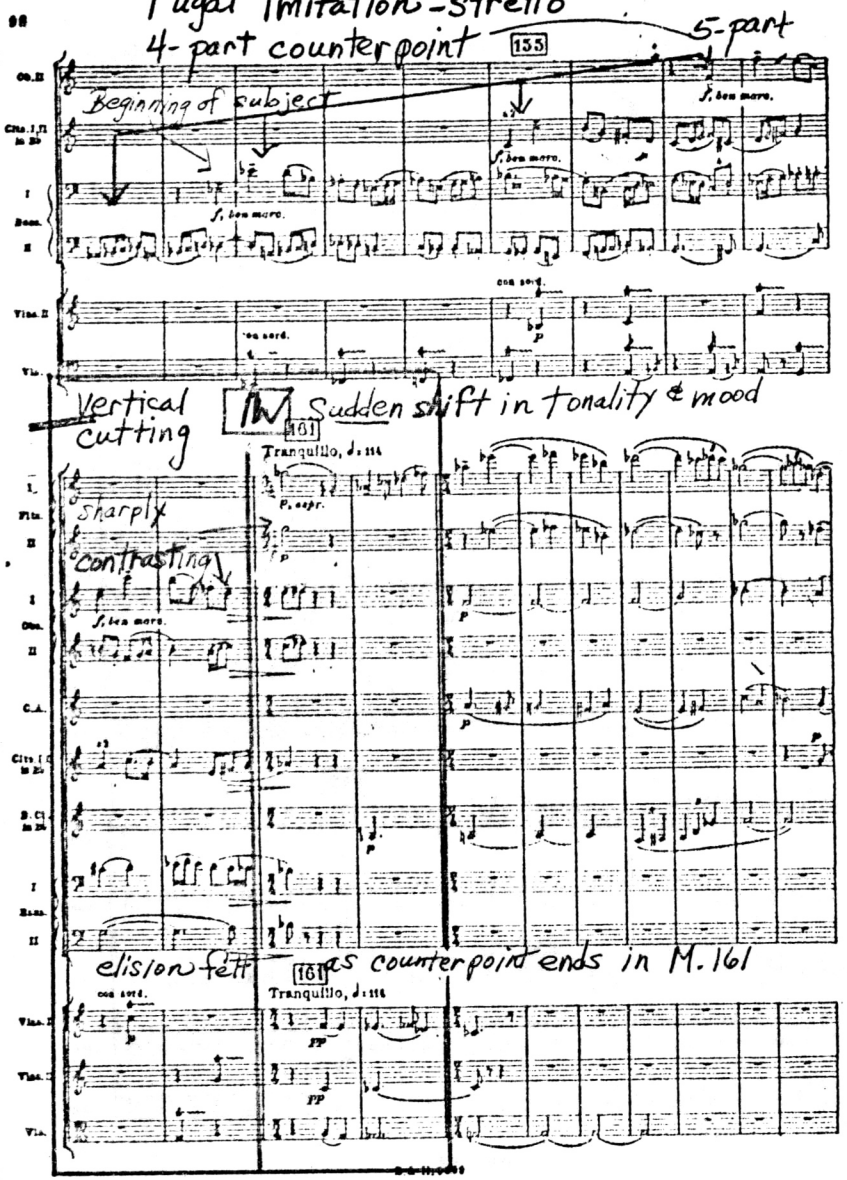
Reduction in texture & dynamics signals phrase end

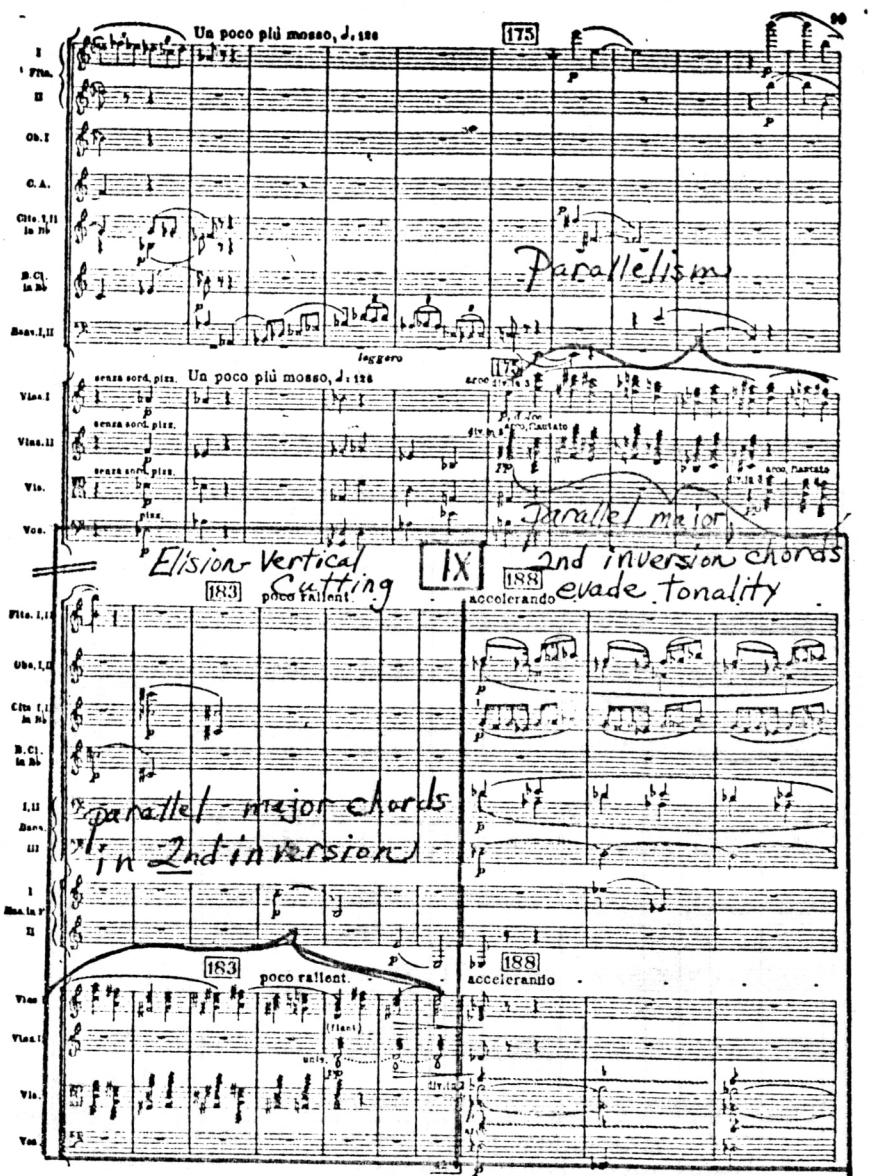
Elision = Vertical cutting

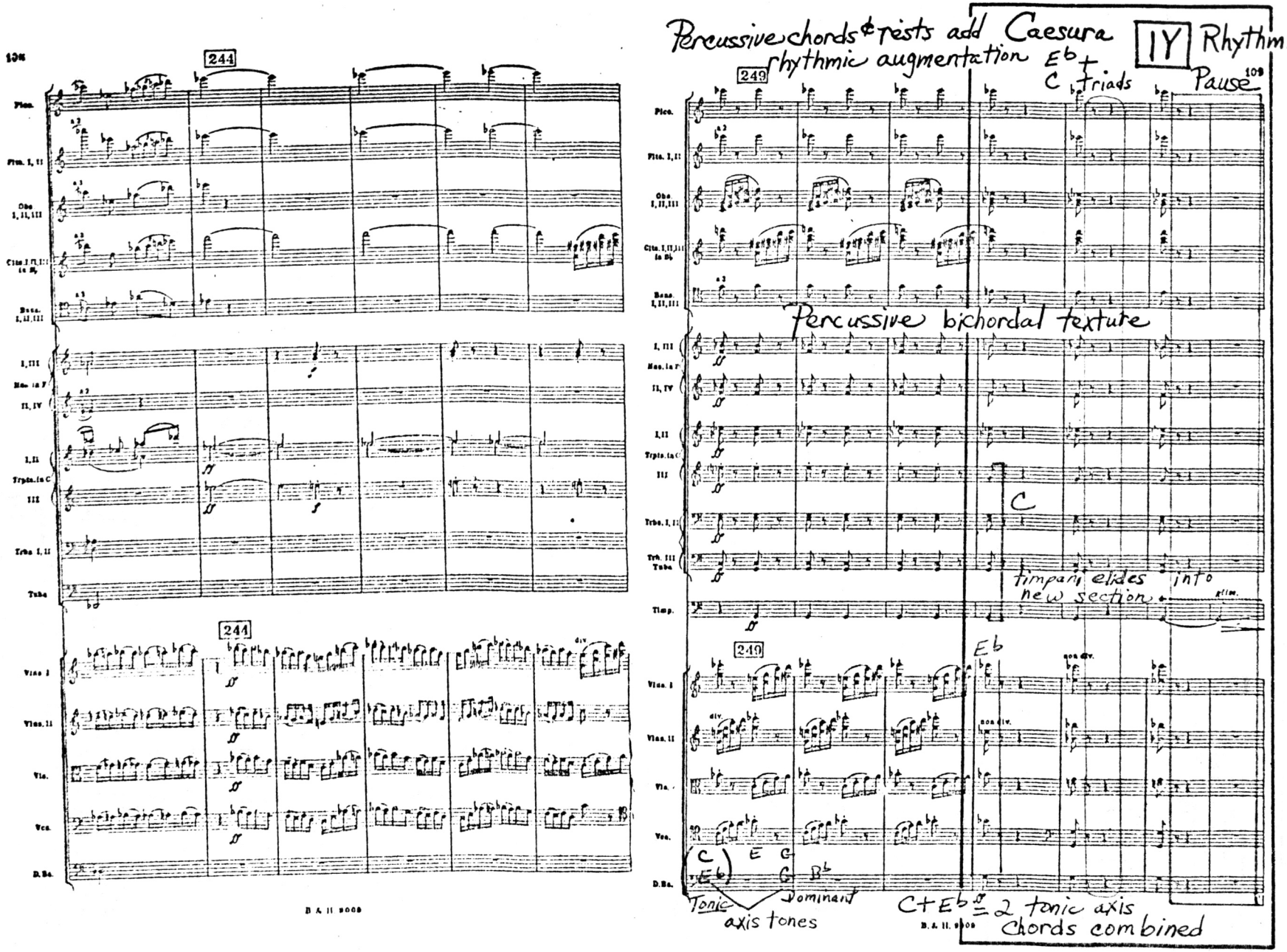
IV

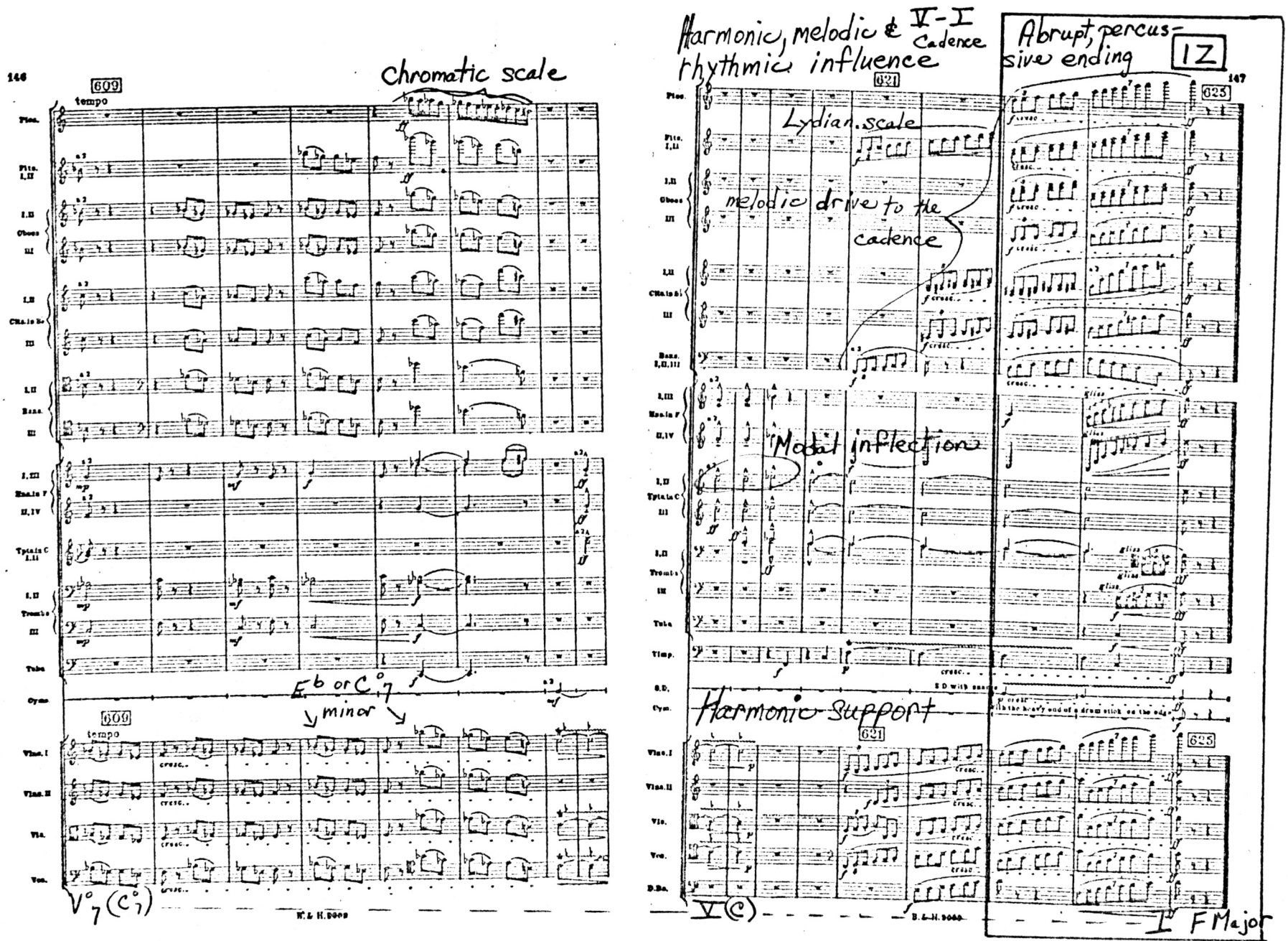
148




Fugal imitation - stretto
4-part counterpoint
133
5-part
Beginning of subject
vertical cutting
IV
161
Sudden shift in tonality & mood
Tranquillo, ♩= 116
sharply contrasting
elision felt
161
as counterpoint ends in M. 161
Tranquillo, ♩= 116


Un poco più mosso, ♩= 126
175
Parallelism
Un poco più mosso, ♩= 126
Parallel major
Elision Vertical Cutting
183
poco rallent.
IX
188
2nd inversion chords evade tonality
accelerando
parallel major chords in 2nd inversion
183
poco rallent.
188
accelerando


Percussive chords & rests add Caesura
IY Rhythmic Pause
rhythmic augmentation
Eb + C triads
Percussive bichordal texture
timpani elides into new section
C + Eb = 2 tonic axis chords combined
Tonic axis tones
Dominant
244
249


146
609
tempo
Chromatic scale
Fl.
Fls. I, II
I, II Oboes III
I, II Cl. in B♭ III
I, II Bsns. III
I, III Hns. in F II, IV
I, II Tpts. in C III
I, II Trombs III
Tuba
Timp.
E♭ or C° 7
minor
609
tempo
Vlns. I
Vlns. II
Vla.
Vcs.
V° 7 (C° 7)
B. & H. 9008
harmonic, melodic & rhythmic influence
V-I Cadence
Abrupt, percussive ending
12
147
623
621
Lydian scale
melodic drive to the cadence
Modal inflection
Harmonic Support
V (C)
I F Major

Summary

A brief summary, in list form, of Bartók's cadential techniques used in each work is provided on the two charts. One can see that Bartók uses the various methods of concluding phrases with about the same frequence. Tonal implications play a major role in Bartók's cadential procedures. Harmonic and melodic movements to the cadences are very important in his style. All of the eleven 'harmonic' cadences are authentic in nature and quality. It might be surprising that in such tonal music, the interval of the tritone is used frequently. In Bartók's music, it is actually a fundamental building block. This traditionally very dissonant and carefully handled interval helps make this distinctive harmonic and melodic language a trademark of the composer. Another characteristic feature of Bartók's music is the use of many fourths, melodically and harmonically (quartal harmony). A frequent cadential feature is the stepwise approach to the ultimate cadence sonority, with the penultimate chord progressing either up or down a second (sometimes a minor second; other times a major second). Both of the last two features, quartal construction and stepwise cadential motion, are also characteristics of Hindemith's style.

Bartók's tonal theory, the axis theory, is, of course, an outgrowth of his practice. Bartók did not intend to share a

'theory' of his tonal principles. The codification of this theory by Mr. Lendvai is intellectually stimulating and interesting and many of the basic premises of the theory are embodied in the two works studied. The theory does help explain Bartók's harmonic usages. His harmonic language is intrinsically colorful because the theory (and Bartók's creativity) provides for so many versions of one chord. For example, the C major triad can add the tones $F^{\#}$ (G^{b}), $C^{\#}$ (D^{b}), and $A^{\#}$ (B^{b}), or use any of those tones as substitutes for E and G. Authentic (cadential) progressions (V-I) are given a wider range also since the tonic chord can be preceded by a G, E, or B^{b} triad. A root progression of either G-C, E-C, or B^{b}-C, will satisfy a V-I cadential effect, because all three roots (G, E, and B^{b}) are overtones of the tonic C. The axis theory is logical and it is helpful in analyzing cadential progressions, but the theory does not make the music what it is. The music is beautifully spontaneous and full of life, enriched with harmonic color, very contemporary and yet very tonal. Bartók is truly a master of composition!

Chart of principle cadential procedures
in Bartok's Concerto For Orchestra

Rhythmic Pause Caesura	Harmonic Resolution Cadence Progression		Linear Approach Melodic Cadence	Cutting Technique Termination	Type*
$1A_S$ (dies away)	1B	i-VII-i		1Cs	H
1D				1E	V
1I	1I	vii-i		1F	V
1N	1J	V-i (uses a Bartók V)		1G	H
1O	1K	vii-I	1K	1H	H
1Q	1L	v-ii-I	$1K^1$	1I	H
1R	$1L^1$	v_7-i	$1K^2$	$1P_S$	H
1S (dies away)	$1L^2$	VII_7-I	$1K^3$	1U	h
1Y	$1L^3$	^bVII-I	1O	1V	H
1Z	1M	V_7+D-I	1S	1W (best example)	H
	1T	VI-III-VII-I	1Z	1X	V
	1Z	V-I			
31%**		34%	22%	34%	

* H = horizontal, V = vertical
** Approximate percentages are listed under a ranking of cadential technique usage.

A cadence is listed under a category only if that element has a principle effect upon that cadence. The other factors may be involved in a cadence, but only with minor influence.

Chart of Cadential Factors in Bartók's Music

Allegro barbaro
Total Cadences - 12

Rhythmic Caesura	Harmonic Influence	Melodic Influence Linear Motion	Percussive Abrupt Ending
$1C^4$	1A(V_7 v-v=i)	1A	$1C^4$
(8%)	1C(quasi V-i)	1B	1H
	$1C^1$(quasi V-i)	1C	(17%)
	$1C^2$(^bV-i)	$1C^1$	
	$1C^3$(^bVII-i)	$1C^2$	
	1D (II-I+6th)	$1C^3$	
	1E ($V-I_9$)	1D	
	58%	1G	
		(67%)	

Chart of Cadential Factors in Bartok's Music (Cont.)

Allegro barbaro
Total Cadences = 12

Cutting	Agogic Accent	Modal Usage	Ultimate Cadence Sonority-triadic structure
-	1A	1A-phrygian (bass) aeolian (melody)	1A - $c^{\#}$
	1C		1B - $f^{\#}$
	$1C^1$	1B-aeolian	1C - $f^{\#}$
	$1C^2$	$1C^2$-dorian on F	$1C^1$- $f^{\#}$
	$1C^3$	1G - lydian	$1C^2$- $f^{\#}$
	1E	(33%)	$1C^3$- $f^{\#}$
	1E		$1C^4$- $f^{\#}$
	1F		1D - B_9+ 6th
	1G		1E - B
	(75%)		1F - B°
			1G - $f^{\#}$
			1H - $f^{\#}$
			(100%)

Chart of Cadential Factors in Bartók's Music

Concerto for Orchestra
Total Cadences = 32

Rhythmic Caesura	Harmonic Influence	Melodic Influence Linear Motion	Percussive Abrupt Ending
1A (dies away)	1B (i-VII-i)	1K	1C
1D	1I (vii-i)	$1K^1$	1H
1I	1J (V-i) (use of Bartók V)	$1K^2$	1J
1N		$1K^3$	1Y
1O	1K (vii-i)	1O	1Z
1Q	1L (v-ii-I)	1S	(16%)
1R	$1L^1$ (v_7-i)	1Z	16%*
1S (dies away	$1L^2$ (VII_7-I)	(22%)	
1T	$1L^3$ (^bVII-I)	34%*	
1Z	1M (V_7-I) (+D)		
(31%)	1T (VI-III-VII-I)		
25%*	1Z (V-I)		
	(34%)		
	41%*		

* % in both works - combined total cadences = 44.

Chart of Cadential Factors in Bartók's Music (Cont.)

Concerto for Orchestra Total Cadences = 32			
Cutting	Agogic Accent	Modal Usage	Ultimate Cadence Sonority-triadic structure
1C H	-	1M - mixolydian	1B-e
1E V		$1L^3$ - mixolydian	1I-a
1F V		1T - aeolian	1J-f
1G H		1Z - lydian	1K-D
1H H		(13%)	$1K^1$-$F^{\#}$
1I H		18%*	$1K^2$-D
1P H			1L-B
1U H			$1L^1$-$g^{\#}$
1V H			$1L^2$-$F^{\#}$
1W H (best example)			$1L^3$-B^b $1M\text{-}D_7$
1X V			1T-B
(34%)			1Z-F
25%*			(41%)
H - horizontal (25% 8/32) V - vertical (9% 3/32)			57%*

*-% in both works - combined total cadences = 44.

IGOR STRAVINSKY (1882-1971)

Introduction

Igor Stravinsky has been called the 'founder of neo-classicism', which is "a style of music composition that emerged in the early 1920's as a reaction against romanticism, impression, and atonality. Neo-classicism was characterized by a return to the spirit, forms, techniques, and ideals of the seventeenth and eighteenth-century music."[1] Even as early as Stravinsky's three famous ballets, The Firebird, Petroushka, and The Rite of Spring, his style greatly contrasted with the above mentioned styles. He had an aversion towards the term 'atonality' and especially towards the twelve-tone music of the Viennese composers. While his music is sharply dissonant, colorful, and rhythmically complex, it maintains tonal centers which Stravinsky calls "poles". His concept of tonality has much in common with that of Bartók. In Stravinsky's book, Poetics of Music, he states "...there is an eternal necessity of affirming the axis of our music and to recognize the existence of certain poles of attraction. This general law of attraction is satisfied in only a limited way by the traditional diatonic system. The function of tonality is completely subordinated to the force of attraction of the pole

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[1]Fink, Robert and Ricci, Robert. The Language of Twentieth Century Music A Dictionary of Terms. New York: Schirmer Books, c. 1975, p. 57.

of sonority. All music is nothing more than a succession of impulses that converge toward a definite point of repose. This is true of Gregorian Chant as of a Bach fugue, as true of Brahms' music as of Debussy's...So our chief concern is not so much what is known as tonality as what one might term the polar attraction of sound, of an interval, or even of a complex of tones..."[2] The term 'polarity' or polar attraction is a basic concept concerning cadences in Stravinsky's music - as it also is in Bartók's music. This principle of tension-relaxation deals with the pulling toward a pole or a tonal domain. Stravinsky's arrival at a tonal center may or may not result in a type of rhythmic break, but the element of harmonic repose can be sufficient to give a point the status of a cadence without a rhythmic breath. Harmonic repose and rhythmic repose can be and often are independent. It is interesting that Stravinsky thinks in terms of tonal poles, as does Bartók, but Stravinsky does not discuss a theory of polarity; he merely states that the principle is at work in his music. It will be evident that the repetition of a tone is a chief means of establishing a tonal center. Ostinato patterns also help assert a tonal domain and are used extensively in his works. Other prevalent factors in Stravinsky's music include: 1) the use of non-synchronous pulse groups[3] - syncopation by

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[2]Stravinsky, Igor, Poetics of Music. Cambridge, Massachusetts: Harvard University Press, 1970, p. 47-48.

[3]Ricci, Robert, from lecture in 20th Century Techniques Class. Kalamazoo, Michigan: Winter 1977 (3/29/77).

displaced accents, constantly shifting accent, and the use of rests; 2) melodic cell writing - "small perimeters of melody focus on certain notes (much reiteration is employed in this static technique)";[4] 3) bitonality - bi-chordal structures and textures (e.g., C major + $F^{\#}$ major in the 'Petroushka chord'); 4) tonal percussion - (technique of non-percussive instruments used percussively, such as the heavy down bow accents on chords in the strings in The Rite; 5) harmonic parallelism - the parallel movement of chords which tends to blur a key center (extracted from Debussy's style); 6) frequent meter change (the definition of metrical modulation attributed to Elliott Carter in the 1950's, seems to apply - 'metrical modulation' = the smooth transition from one meter to another through the use of a common note value or a pulse that remains constant);[5] 7) heterophony - simultaneous variation in many parts which combine in a large sound mass - results in loss of clarity; 8) stratification[6] - related to heterophony - large blocks of sound in layers work independently and oppose each other; 9) sectional form - blocks followed by blocks (the form is often generated by textural elements - little or no transition between sections - produces a choppy, abrupt effect; sectional form is realized by the 10) technique of cutting; cutting can produce

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[4]ibid

[5]ibid

[6]ibid

11) shifted tonality - the sudden displacement of an old center by a new one; 12) colorisitic effects produced by glissandi, fluttertongue and harmonics; and 13) motor rhythms - a term often applied to Stravinsky's rhythms (relies on #1, #4, and #6 discussed above).

In this writer's opinion it is, above all other characteristics; 1) rhythm; and 2) simplicity and beauty of melodic line which are truly basic Stravinskian traits and trademarks. It is melody which Stravinsky deems supreme and which shapes the music. Analysis proves that rhythm and melody are Stravinsky's forte.

Petroushka

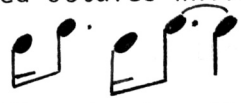
This famous ballet of 1911 seems straight-forward, clear and unconfusing and yet it offers many passages of ambivalent material which may have more than one interpretation. Analysis will reveal that most of the cadences in Petroushka use the element of tonal percussion along with melodic influence.

Cadence [1A] is influenced by 1) melody; 2) harmony; and 3) rhythm. This chordal texture and basically homogeneous rhythm coupled with melodic motion aid the expectation of a phrase end. All sections of the orchestra including percussion, come to rest rhythmically and harmonically at [1A]. Here is illustrated an excellent example of a typical Stravinsky melody - one which encompasses a small range and which is created out of melodic fragments and repeated over and over, stressing the tonal center through repetition. Monotony is overcome by 1) the interspersing of 3/4 meter at asymmetrical points within the basically 2/4 meter, and 2) the slight variation in the melodic motive (sometimes a shorter repetition and an asymmetrical spacing between the motive and 3) the shift in the tonal pole (G) from the first appearance of this chordal material (two pages earlier, not shown) to the phrase preceding [1A] (C). The tonal pole at first is G; a G minor tonality, with semi-cadence on G major,

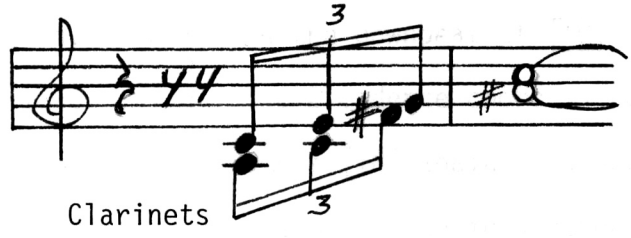
prevails until C is stressed (top of score page 32). The melodic/rhythmic motive is suddenly transposed down a fifth to C minor and the final cadence sonority is a C major triad. The chord progression preceding [1A] is a succession of seventh and ninth chords which add color. There is no feeling of bitonality here. The seventh and ninth chords sound like vertical entities and give the impression of parallelism. Stravinsky uses the one melodic/rhythmic motive in a type of imitative counterpoint. The oboes, horns and harp proceed one measure ahead of the other instruments with the motive. There is a motivic interplay caused by this displacement of the motive by one measure. This displacement also results in the seventh and ninth chords. It is interesting that this quasi-contrapuntal treatment produces a homogeneous-sounding texture. The phrase preceding [1A] is perceived as a chord progression with melody getting principle focus rather than a contrapuntal phrase. The homogeneous rhythm gives this section a feeling of parallelism. The penultimate sonority, G minor-seven (g_7), provides a strong root and harmonic progression to the final C major chord. The brass section agogically and dynamically strengthens the cadence with the six beats of sustained C major harmony while employing a crescendo on the chord. The melody encircles the tonic C, never going farther than a 4th (the largest interval) and sounding the 7th (B) and 2nd (D), degree before ending on C. The suddenly reduced texture at [1A] also delineates the caesura. Throughout the analysis of Stravinsky's scores, it

will be evident that the triad often is his central harmonic reference point. The [1B] cadences are basically traditional, with melody being the principal influence. The solo in the first and second clarinets (top of the score) is clearly in B^b major with straight-forward dominant and tonic harmony supporting it. The rests following [1B] also aid the caesural effect. The triangle, a color device, connects the clarinet melody to another tune, folk-like in character, and acts as a color bridge of static rhythm. All three [1B] cadences employ a basically V-I progression. The shift in orchestral color for the solo lines also delineates phrases and phrase ends. After [$1B^1$] as the trumpet begins the solo, dissonance is added by the parallel 2nds in the strings and bassoons. At rehearsal number 14 the opening motive of the ballet appears, increasing rhythmic variety. From [$1B^1$] to [$1B^2$] the sound is typical of Stravinsky's layering technique or technique of additive construction. Important melodic and rhythmic motives are vertically combined giving 1) new interpretations to the motives while supplying 2) unity to the work. This layering of sound creates a desired programatic effect also. With the two triads superimposed (C minor and F major at rehearsal number 14) and with the independent rhythmic streams corresponding to their respective harmonic and melodic layers, a picture is brought to mind of the din and activity of a fair - the setting of the ballet. [$1B^2$] also cadences with a V-I progression, but both cadence chords contain the added tone, G.

The rests and change of texture following [1B²] are helpful cadential factors also. Within sections of this work Stravinsky rarely supplies a complete rhythmic break or pause for all the instruments. At least one instrument or section begins a new phrase immediately after or at the same time the ultimate cadence sonority is sounded. This procedure is apparent at [1B²], [1C], and [1D]. Even though the new phrase begins as the [1B²] cadence ends, it does not have a truly elided effect as in Debussy's music, probably because of the change in texture and instrumentation and the finality of the V-I progression. Example [1C] illustrates one of Stravinsky's favorite devices for terminating an idea or section. The technique of cutting is a dominant procedure in Stravinsky's early music. There is a complete shift in rhythmic and harmonic character and in texture and articulation. The syncopated E and D octaves in the strings displays a Stravinsky musical trait. This trait is the production of rhythmic articulation by organizing the accents in asymmetrical, shifting patterns. Each measure after rehearsal number 17 contains a different number of beats until the elided cadence at [1D] begins the 3/4 meter for six measures. The different accent patterns create an atmosphere of spontaneity - of rhythmic uncertainty, of unharnessed energy which is truly a Stravinsky feature. Example [1D] does not have the same 'horizontally cut' effect of [1C]. The strong downbeat chord on D at rehearsal number 18 terminates

the preceding syncopated octaves while beginning a new section with the main motive:  , gaining the center of attention. Cadence [1E] ends abruptly and percussively on fff open $F^{\#}$ octaves spanning a six-octave range. The full texture preceding [1E] ends quickly on the last part of the measure (29) with the percussion section drumming away for six measures and ending as the $F^{\#}$ octaves are sounded at [1E]. A rather humorous effect is provided by having the contra bassoon singly sounding the lowest $F^{\#}$ after the other instruments have rested for three beats. Three beats of rest follow the lone bassoon note indicating a significant rhythmic break. This cadence offers a glimpse of the coming Petroushka motive with its symbolic reference to Petroushka's dual nature. The tritone relationship (C-$F^{\#}$) is separated by the six measures of the percussion's rhythm, but the basic tritone quality is there and foreshadows the duality of Petroushka's character. The caesura at [1F] is an interesting percussive, chordal rendering. The layers of sound converge and merge on the syncopated pandiatonic chord encircled in the score, with G serving as the root. This thickly-textured chord combines all seven diatonic pitches of C major in a vertical sonority. The following syncopated fff chord combines tones from the tonic (C), dominant (G), and subdominant (F) chords and proceeds to a C major sixth chord on the downbeat. A strong harmonic motion from G to C is felt thus giving this cadence

harmonic and rhythmic significance. The C added sixth chord is repeated again on the downbeat of the next measure (not shown). The [1G] caesura is another abrupt sounding of a percussively played ultimate cadence chord. The measures preceding [1G] employ the characteristic bitonal vocabulary of the work - namely the use of black ($F^{\#}$) and white (C) major triads known as the 'Petroushka chord'. The superimposition of $F^{\#}$ major under C major forms the motive applied to and designating the character of Petroushka. The position of the triads ($F^{\#}$ first inversion and C root position) results in three 2nds and one minor 3rd - sounding mildly dissonant:



It is interesting to know that Stravinsky devised this harmonic/rhythmic structure to serve a programatic function as well as a colorful harmonic nuance and unifying device. As Eric White states in his book, Stravinsky - The Composer and His Works, "This combination ($F^{\#}$ and C) with all its clashes and ambiguities provides the clue to the two conflicting elements in Petroushka's character - the puppet and the human."[7] This motive accompanies Petroushka in his role in the many scenes of the ballet. Following

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[7]White, Eric W. STRAVINSKY The Composer and his Works (24 Russell Square, London: Faber and Faber) c. 1966. p. 161.

the clarinets' sounding of the motive is the horizontal juxtaposition of the $F^{\#}$ and C triads, providing a dissonant backdrop to the piercing disjunct melody in the cornets, trumpets, and trombones, which also use the $F^{\#}$ and C chord tones in melodic fashion. Attention is focused upon this brassy melody. The cornets, trumpets, and trombones approach the ultimate D chord by sustaining an $F^{\#}$ major chord. The tonal ambiguity of this section is further heightened by the coloristic tremolos in the upper woodwinds and strings. This rapid oscillation between the tones of the $F^{\#}$ and C triads creates a rhythmic uncertainty as well as harmonic haziness. This full bitonal texture is resolved harmonically and rhythmically on the downbeat at [1G] on a clear, unadulterated D major triad. The D cadence chord is reminiscent of the beginning tonality. Example [1H] again is a percussive, chordal ending to an energetic, almost frantic section. The measures approaching [1H] are thick-textured and coloristic, using trills, rapid runs and arpeggios, pizzicato and bowed string parts. The five percussive vertical blocks played before the ultimate [1H] chord apply the technique of pandiatonicism. The seven diatonic tones of C major are here combined vertically or superimposed; this diatonic unrestricting of the combination of tones of the C scale is the purpose and function of pandiatonicism. Traditional harmonic functions and progressions are not applied. With only the diatonic tones forming the tonal

vocabulary, the harmonic language is limited, but free from the classical ways of handling the diatonic mode. At [1H] is sounded a B diminished seventh chord which is positioned to appear as a D diminished triad with added sixth (B) - the latter is likely to be the better interpretation. Only the solo clarinet in B^{b} and the first flute sound the foreign tone, 'B^{b}'. The homogeneous playing of this D° + 6th (B) chord is given: 1) metric; 2) dynamic; 3) pitch; and 4) textural accent. The texture is immediately reduced, but there is no rhythmic break after [1H]. The cornets and trumpets carry over their pitches as the first clarinet plays a melodic extension to the cadence. This extension acts as a bridge to the next section. There is a very slight break before the piano plays a flourish and initiates the next section. The final cadence of the ballet, [1I], illustrates a merging of characteristic features of the work. This final page uses a bi-harmonic backdrop for the bitonal Petroushka motive to make its concluding appearance. The slowly oscillating D major-$C^{\#}$ diminished oboe figure accompanied by the horns in their D major pattern might seem strange against the solo trumpets' sounding an F minor-arpeggiated chord - $E^{b}{}_{\frac{6}{4}}$ - $F^{\#}$ major - C back to F minor just before the Petroushka motive. This upper D major harmony is reminiscent of the ballet's beginning tonality of D. The D major harmony is superimposed with a contrasting, tonally far-removed chord, such as the $f_{\frac{6}{4}}$ at rehearsal

number 132, the $E^{b}_{6\ 4}$ four measures later and an $F^{\#}$ major chord ending on a single note, C in the piccolo trumpet part. Two harmonic layers are superimposed producing a dual harmonic or bitonal background for the further contrasting bitonal motive known as the Petroushka chord. An enharmonic spelling (B^{b}-D^{b}-G^{b}-B^{b}) for the originally $F^{\#}$ major triad is used here against the C major triad. One last, loud statement of Petroushka's dual nature (puppet and human) is made here with a contrasting, soft *echo in the horns on the C major sonority. The final motive* sounds the characteristic tones $C^{\#}$ - ($D^{\#}$) - C - $F^{\#}$ in a rhythmically and intervallically disjunct fashion. The quarter rests in the last two measures provide a dramatic dying-away effect, appropriate to the programatic aspect of the work. [II] employs: 1) bi-harmonic structures (such as a solo line tonally far-removed from the triadic structure in the accompaniment; 2) the interplay of the C major and $F^{\#}$ major triad that makes up the Petroushka motive; 3) the fff sounding of the Petroushka motive with an enharmonic spelling of the $F^{\#}$ triad; 4) sharp, dynamic contrast and 5) a final soft disjunct and fragmented rendering of the featured tritone relationship depicting the character of Petroushka. Many of Stravinsky's favored techniques are used on this final page: 1) bitonality; 2) texture dominated and controlled by the melody; 3) the fragmentation and repetition of the chief motivic figure played by trumpets (many prominent melodies are given to

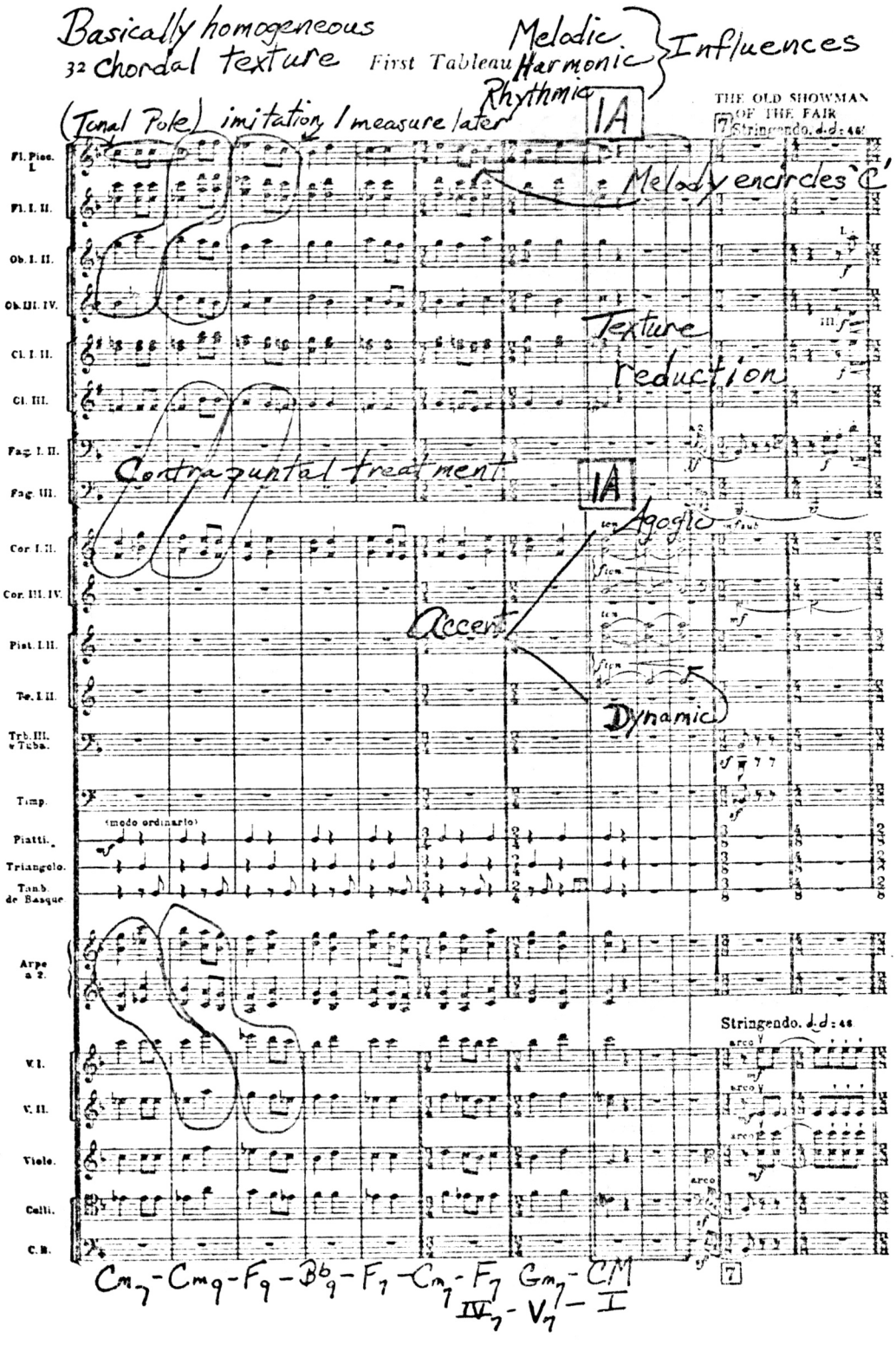
the brass instruments in this work); and 4) a percussive sonority on the downbeat (at the sfff) as the Petroushka motive sounds.

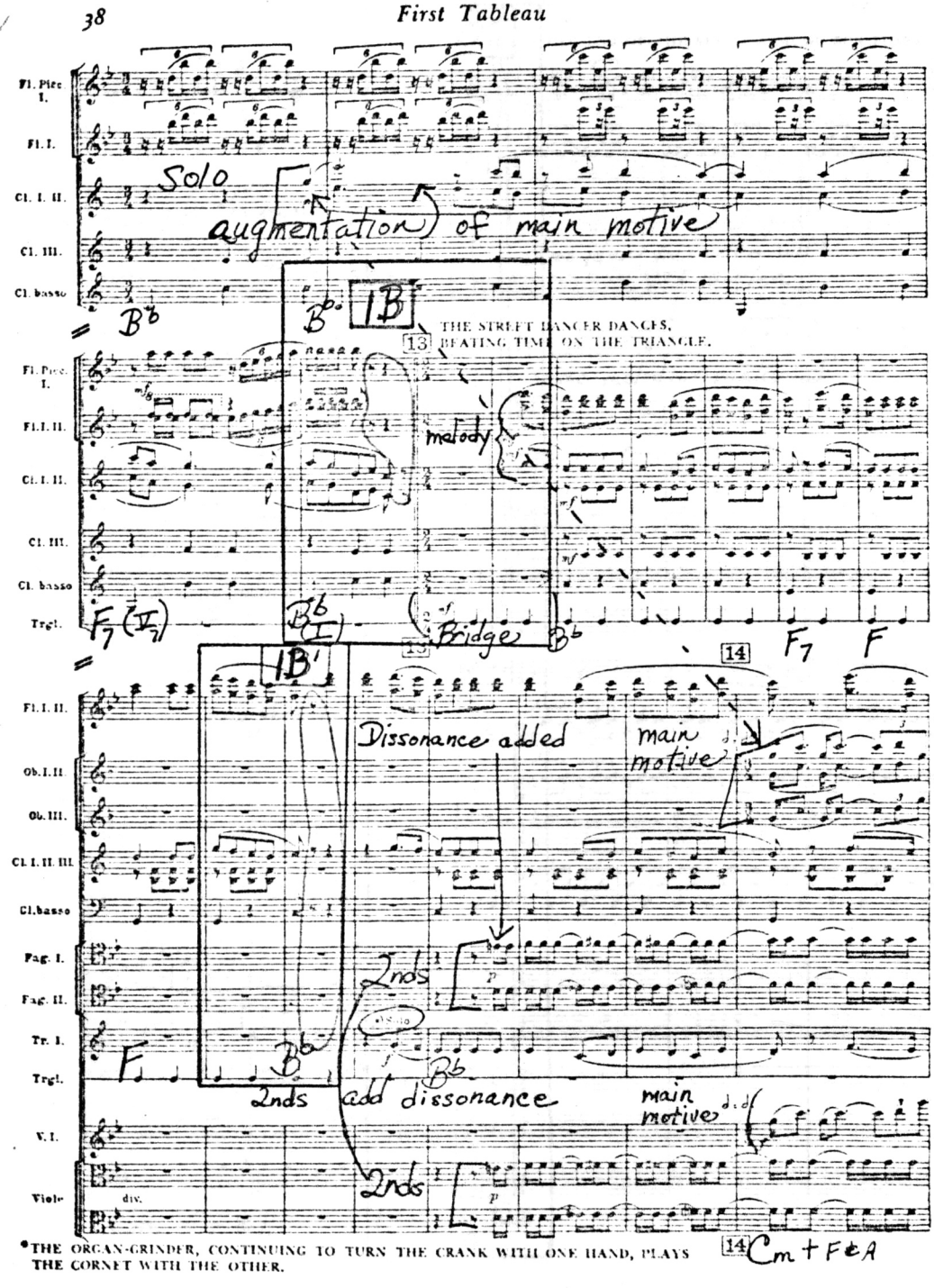
The work of Petroushka is an excellent example of Stravinsky's gift of creating unceasing melody; that is, for endowing melody with organic potential. The entire piece revolves around the melodies and their superimpositions, juxtapositions, and reinterpretations. The melodies seem to grow naturally out of the harmonic fabric - it is the melodic material which gives this work meaning and charm, even above the dynamic rhythms.

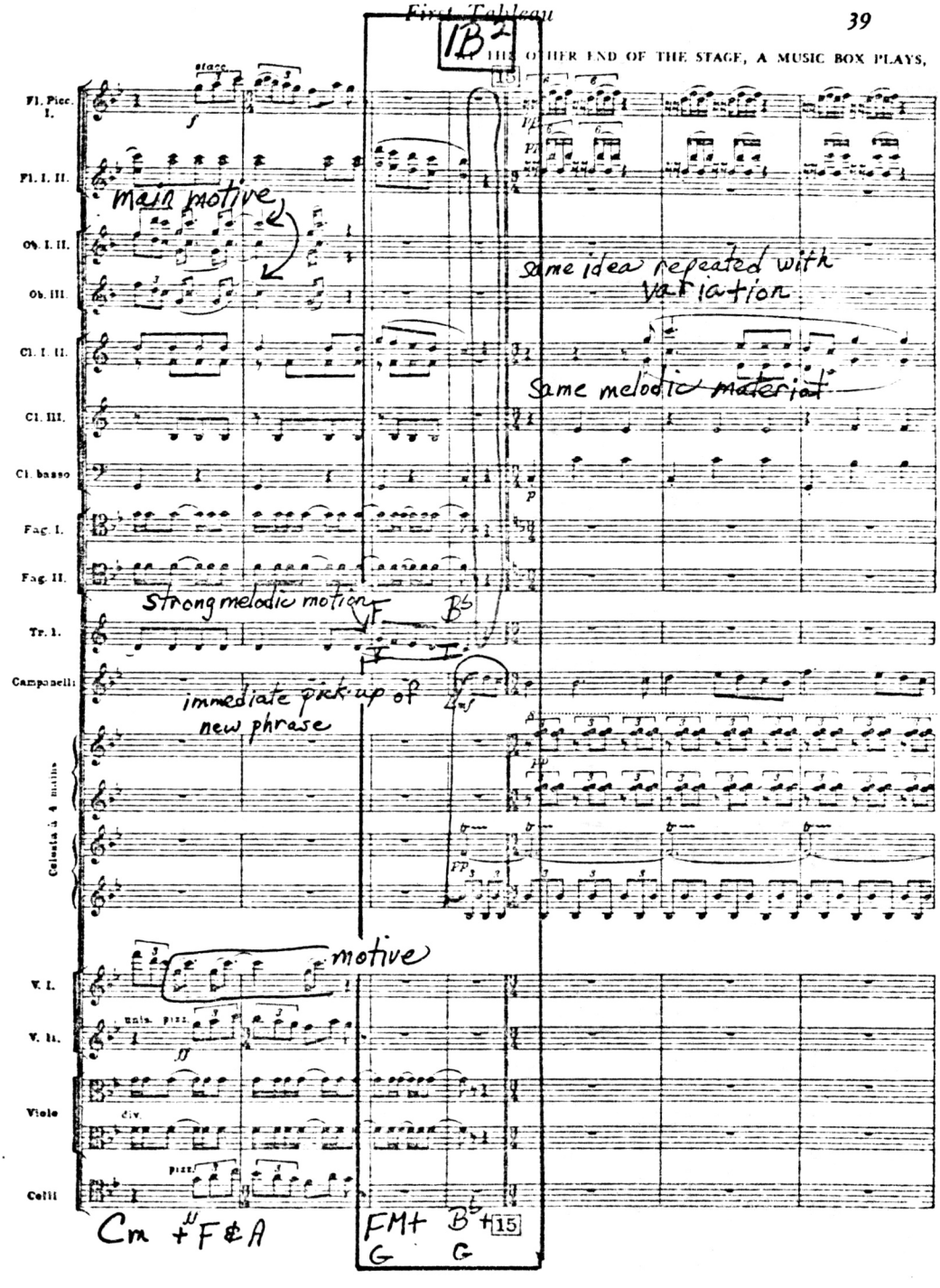
Petroushka - Igor Stravinsky

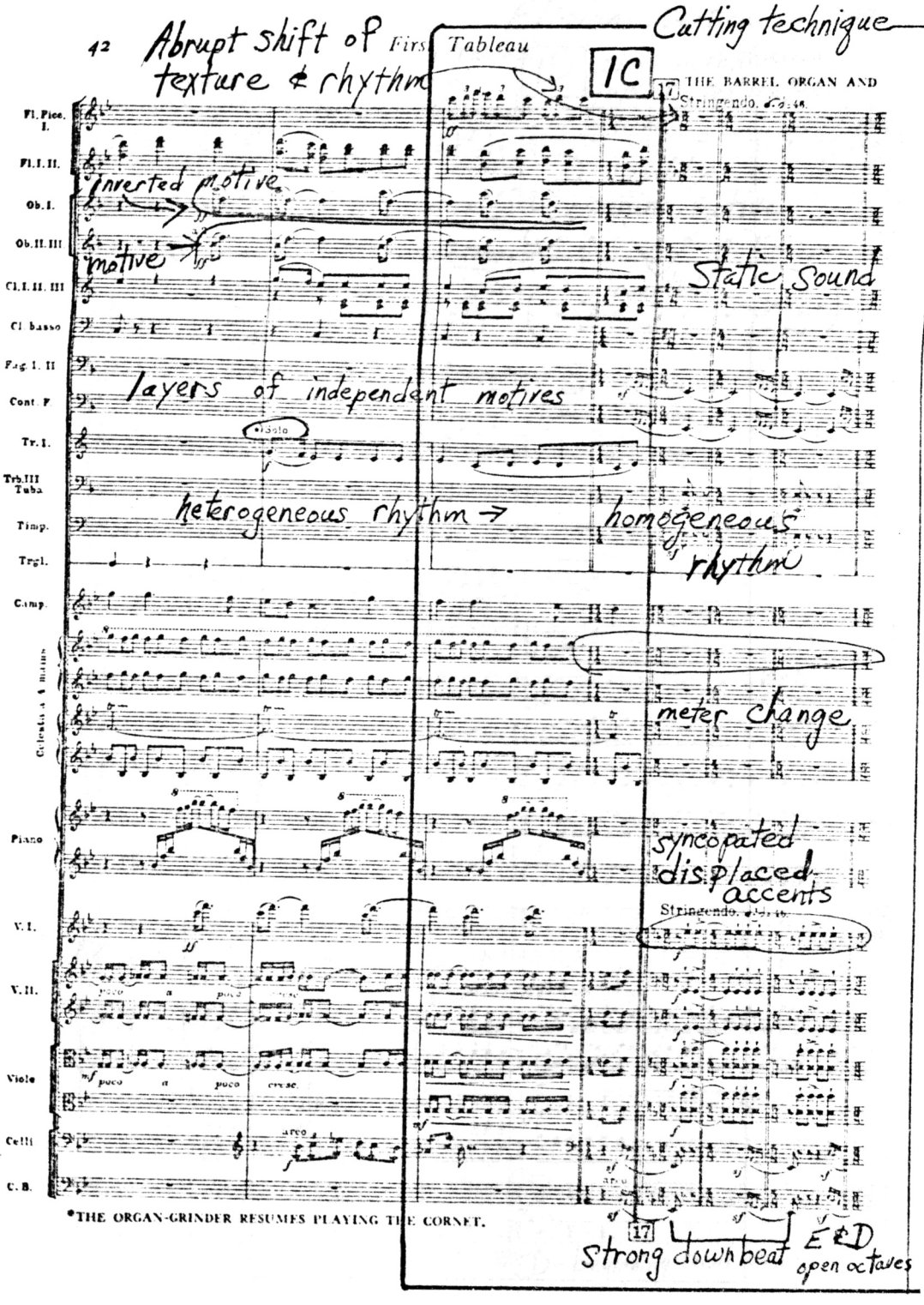
Stravinsky's Petroushka, Norton Critical Score, Edited by Charles Hamm. Copyright (C) 1967 by W. W. Norton & Company, Inc., New York, N.Y. Selections are used with the permission of the publisher.

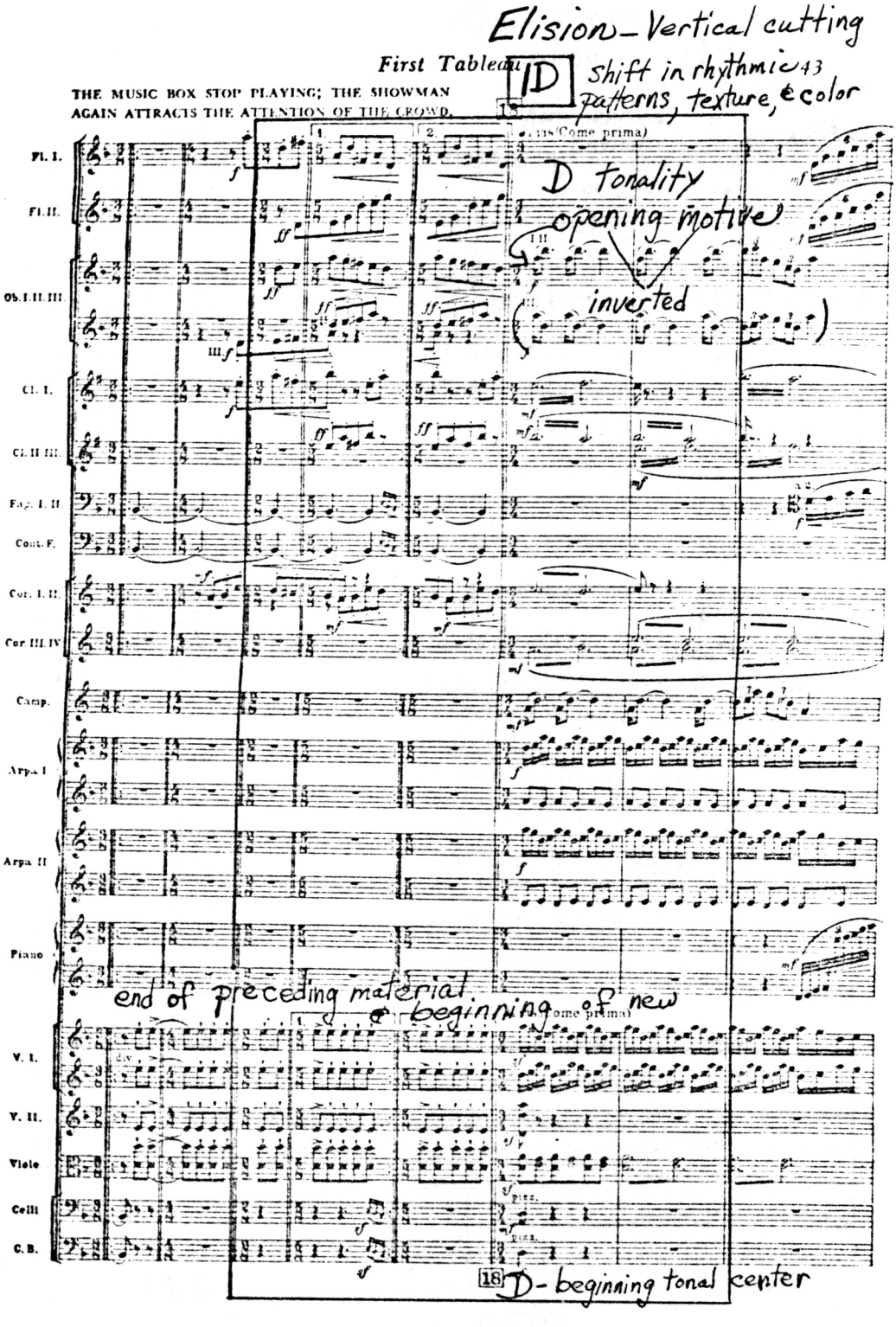
Petroushka

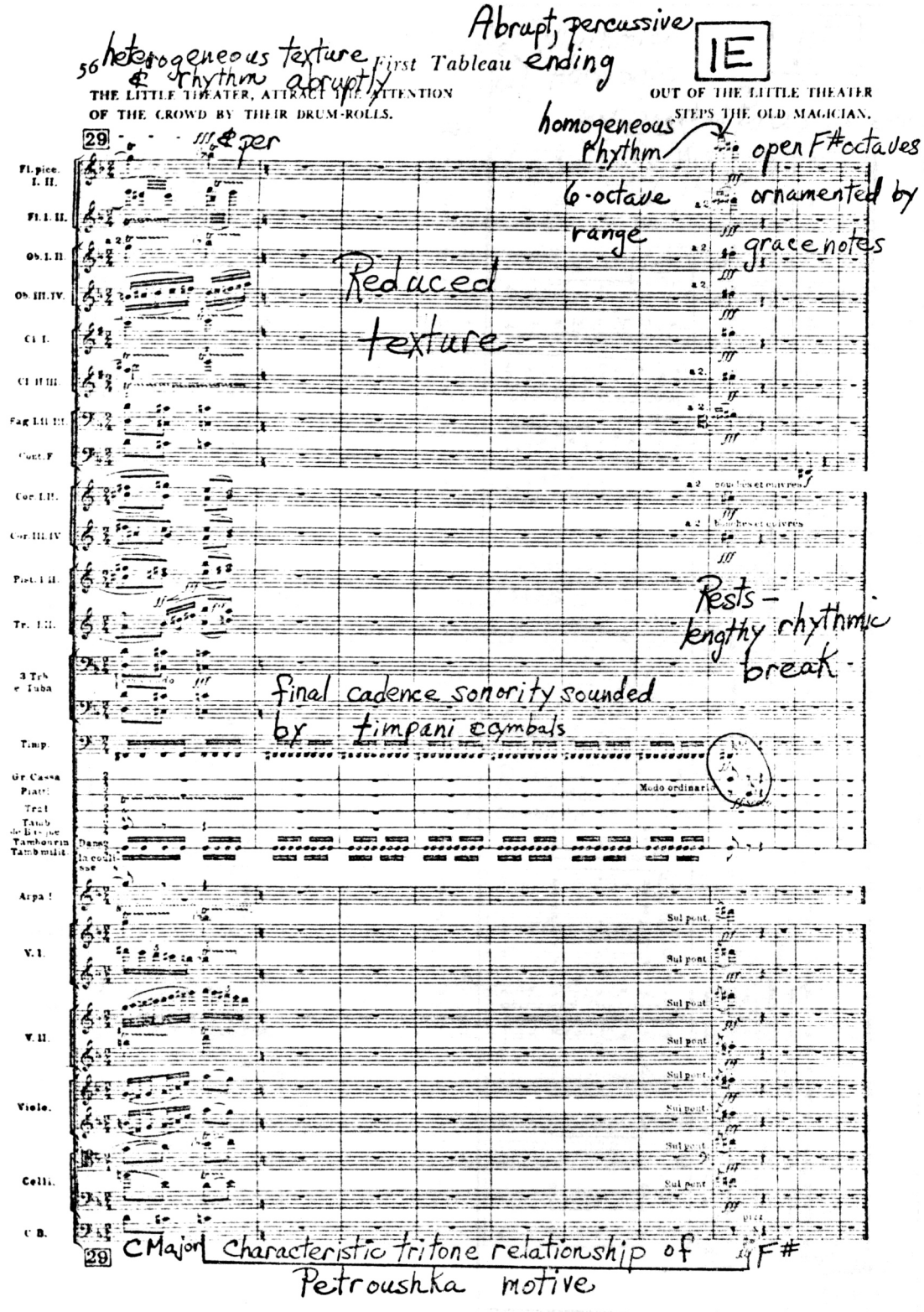

Basically homogeneous
32 chordal texture
First Tableau
Melodic
Harmonic
Rhythmic
Influences
(Tonal Poke) imitation 1 measure later
1A
THE OLD SHOWMAN OF THE FAIR
Stringendo. ♩.♩ = 46
Melody encircles 'C'
Texture
Reduction
Contrapuntal treatment
1A
Agoglo
Accent
Dynamic
(modo ordinario)
Stringendo. ♩.♩ = 46
Cm7 - Cmq - Fq - Bbq - F7 - Cm7 - F7 Gm7 - C M
IV7 - V7 - I

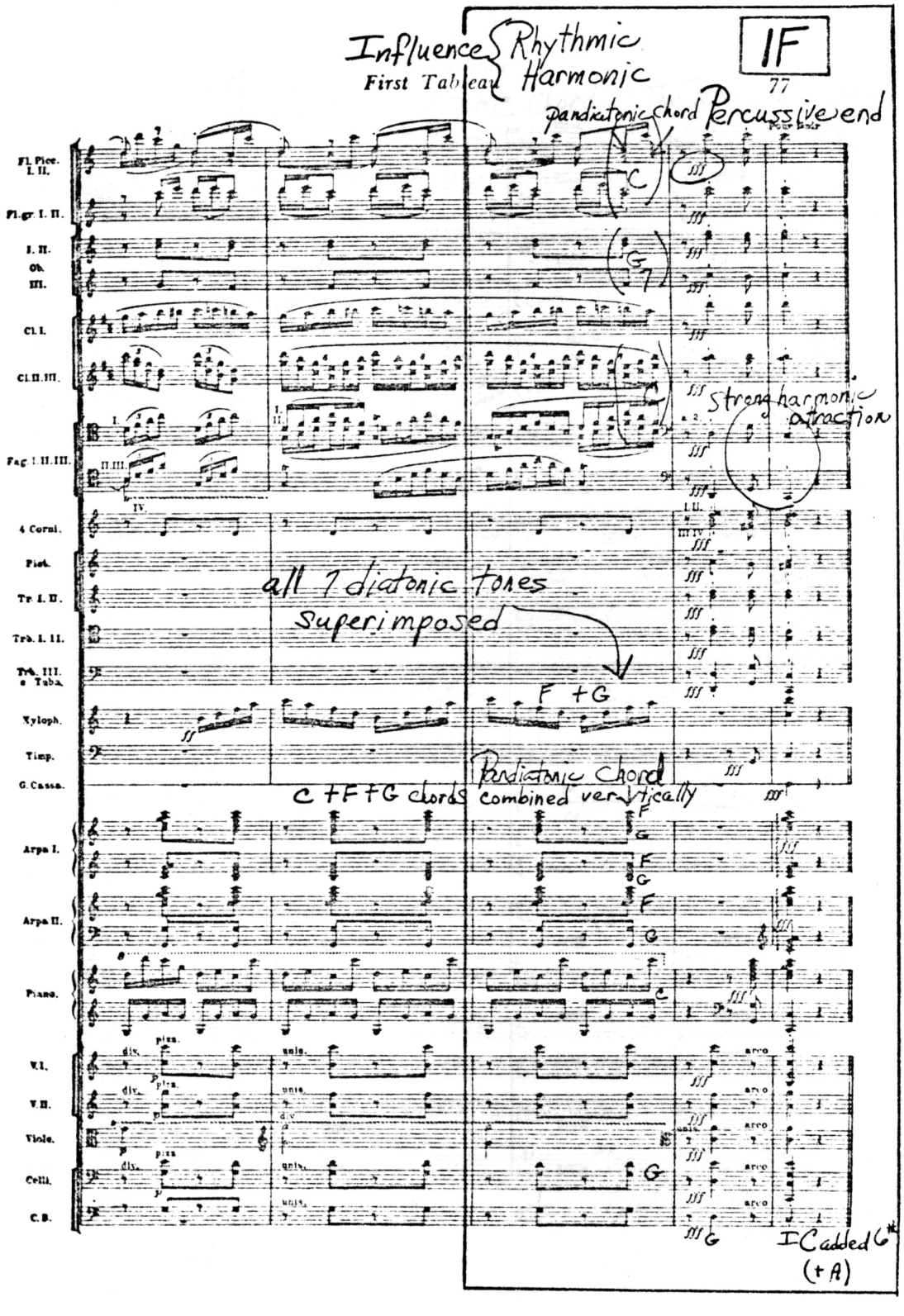

38
First Tableau
Fl. Picc I.
Fl. I.
Cl. I. II.
Cl. III.
Cl. basso
Solo
augmentation of main motive
B♭
B°
1B
13
THE STREET DANCER DANCES, BEATING TIME ON THE TRIANGLE.
Fl. Picc. I.
Fl. I. II.
Cl. I. II.
Cl. III.
Cl. basso
Trgl.
melody
F7 (V7)
B♭ I
Bridge
B♭
14
F7
F
1B'
Fl. I. II.
Ob. I. II
Ob. III.
Cl. I. II. III.
Cl. basso
Fag. I.
Fag. II.
Tr. I.
Trgl.
V. I.
Viole
Dissonance added
main motive
2nds
add dissonance
main motive
2nds
div.
F
B♭
2nds
*THE ORGAN-GRINDER, CONTINUING TO TURN THE CRANK WITH ONE HAND, PLAYS THE CORNET WITH THE OTHER.
14
Cm + F♯A

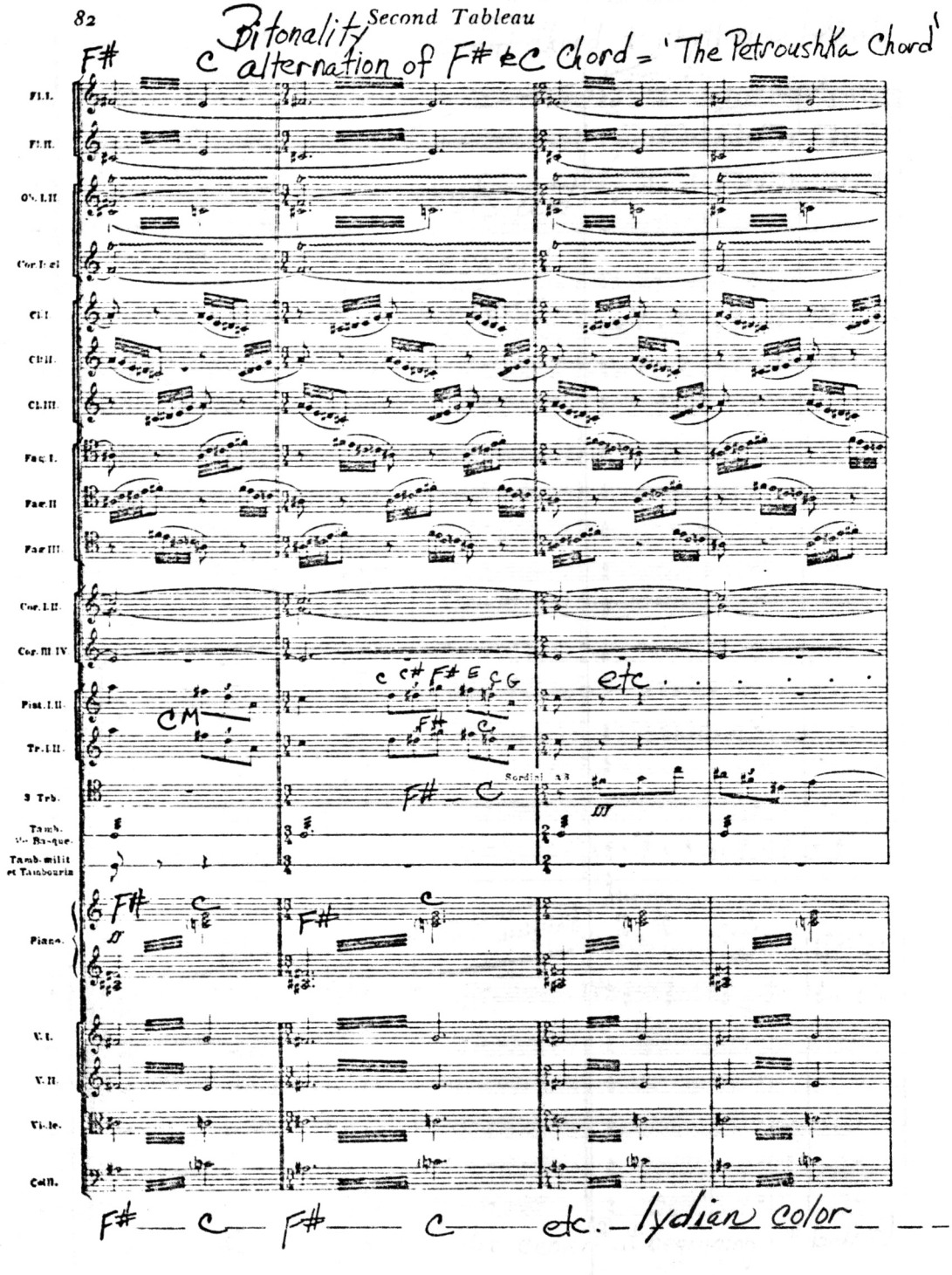

First Tableau
39
AT THE OTHER END OF THE STAGE, A MUSIC BOX PLAYS,
1B 2
15
Fl. Picc. I.
Fl. I. II.
Ob. I. II.
Ob. III.
Cl. I. II.
Cl. III.
Cl. basso
Fag. I.
Fag. II.
Tr. I.
Campanelli
Celesta à 4 mains
V. I.
V. II.
Viole
Celli
main motive
same idea repeated with variation
same melodic material
strong melodic motion
F
B♭
immediate pick-up of new phrase
motive
Cm + F & A
FM+ G
B♭+ G
15

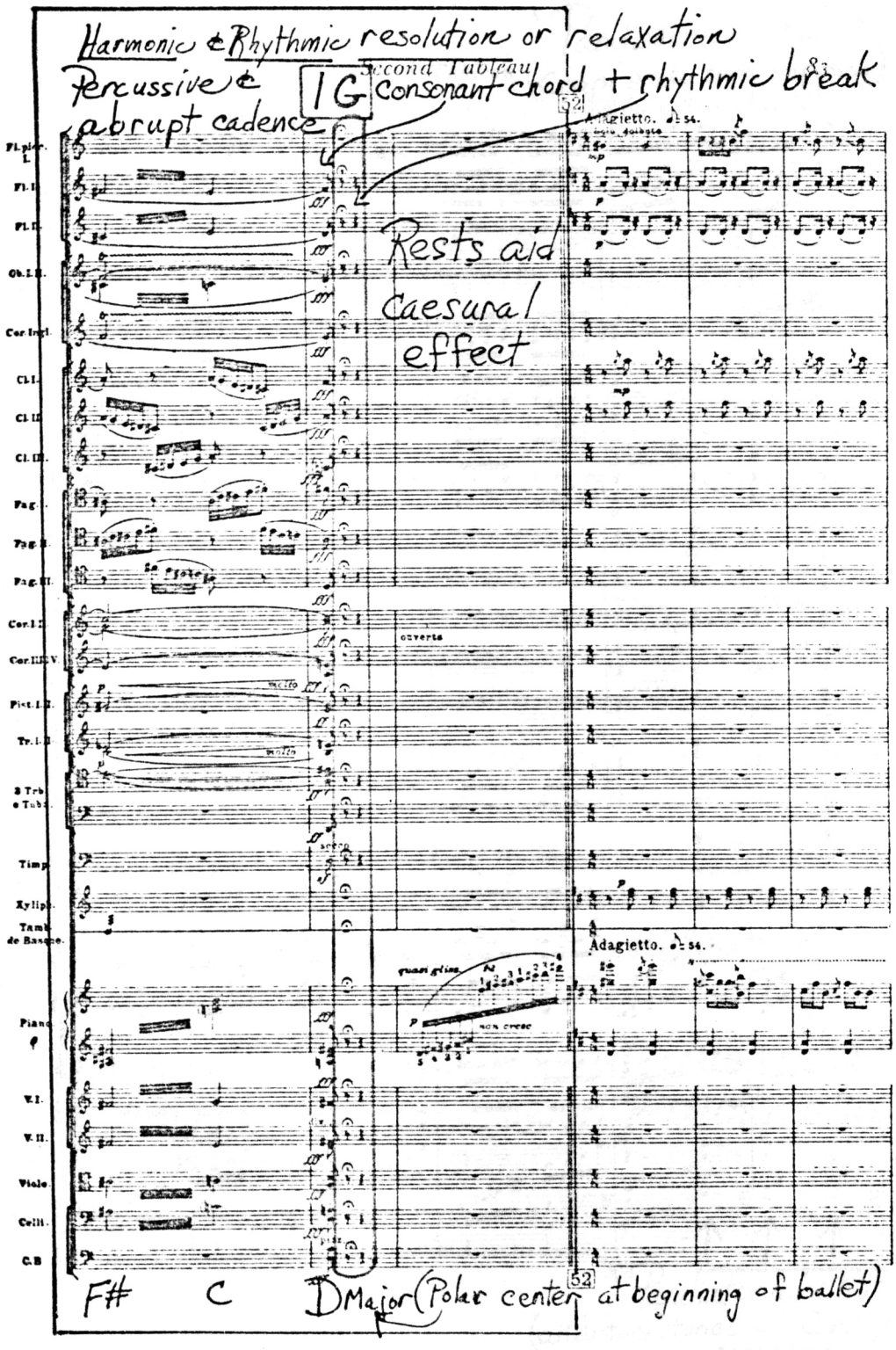

12
Abrupt shift of texture & rhythm
First Tableau
Cutting technique
1C
17
THE BARREL ORGAN AND
Stringendo.
Fl. Picc. I.
Fl. I. II.
Ob. I.
Ob. II. III
Cl. I. II. III
Cl. basso
Fag. I. II
Cont. F
Tr. I.
Trb. III Tuba
Timp.
Trgl.
Camp.
Celesta e Harm.
Piano
V. I.
V. II.
Viola
Cell
C. B.
inverted motive
motive
Static Sound
layers of independent motives
heterogeneous rhythm →
homogeneous rhythm
meter change
syncopated displaced accents
Stringendo.
poco a poco cresc.
arco
*THE ORGAN-GRINDER RESUMES PLAYING THE CORNET.
17
strong downbeat
E & D
open octaves

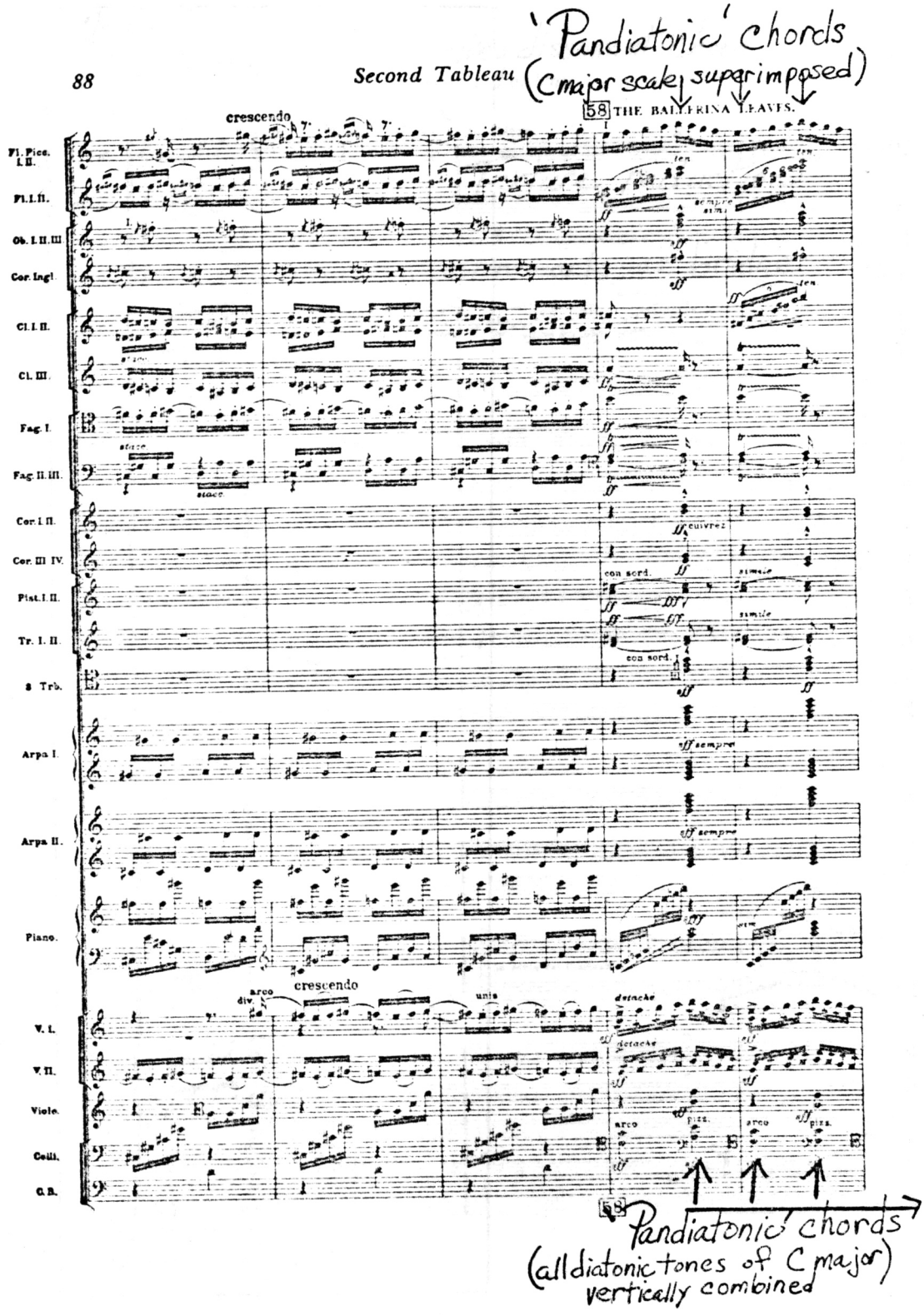

Elision – Vertical cutting
First Tableau
D
shift in rhythmic patterns, texture, & color
THE MUSIC BOX STOP PLAYING; THE SHOWMAN AGAIN ATTRACTS THE ATTENTION OF THE CROWD.
D tonality
opening motive
inverted
end of preceding material
beginning of new
18 D – beginning tonal center

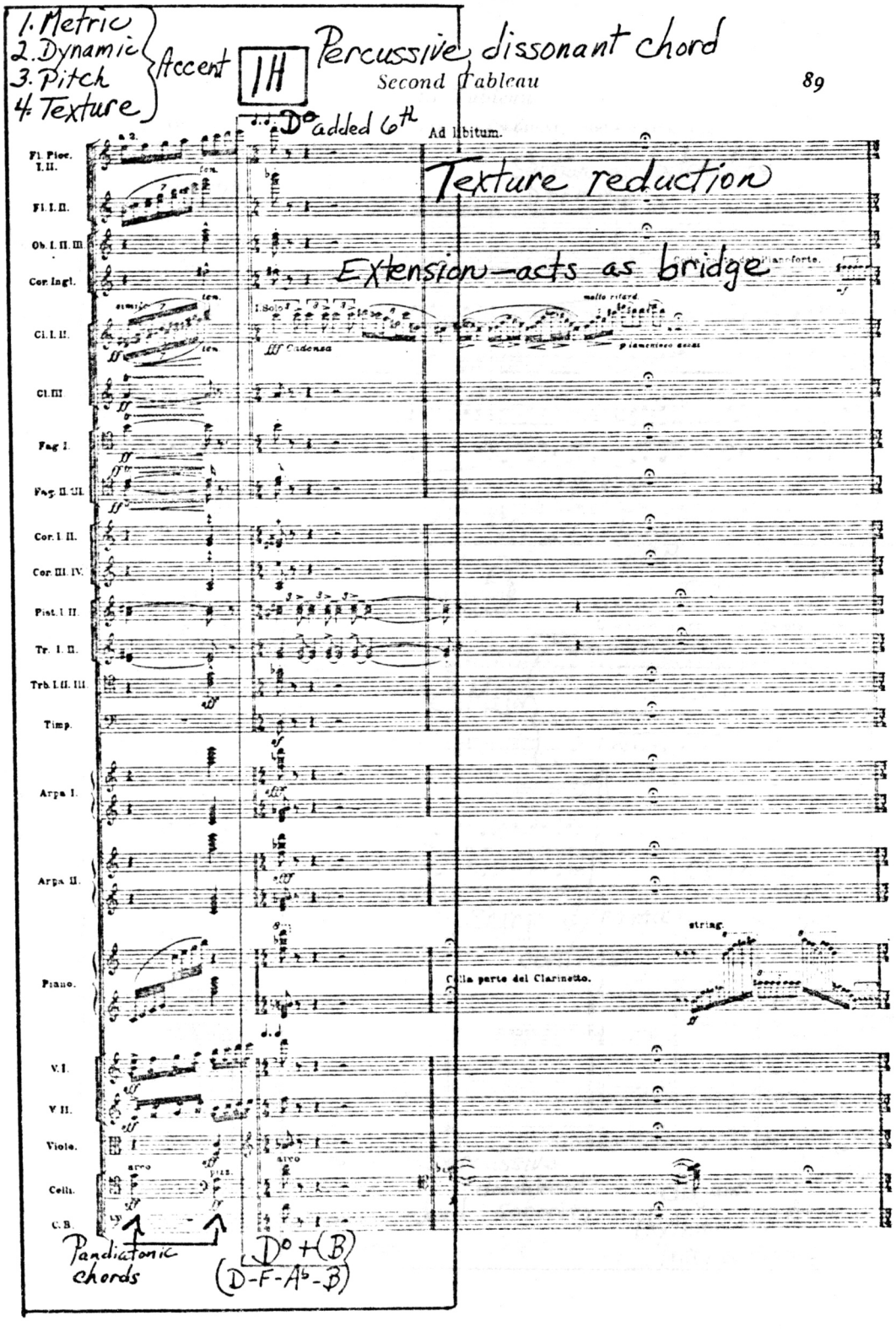

56
heterogeneous texture & rhythm abruptly
First Tableau
Abrupt, percussive ending
1E
THE LITTLE THEATER, ATTRACT THE ATTENTION OF THE CROWD BY THEIR DRUM-ROLLS.
OUT OF THE LITTLE THEATER STEPS THE OLD MAGICIAN.
29
ff & per
homogeneous rhythm
open F# octaves
6-octave range
ornamented by grace notes
Reduced texture
Rests - lengthy rhythmic break
final cadence sonority sounded by timpani & cymbals
Modo ordinario
Sul pont.
29
C Major
Characteristic tritone relationship of F#
Petroushka motive

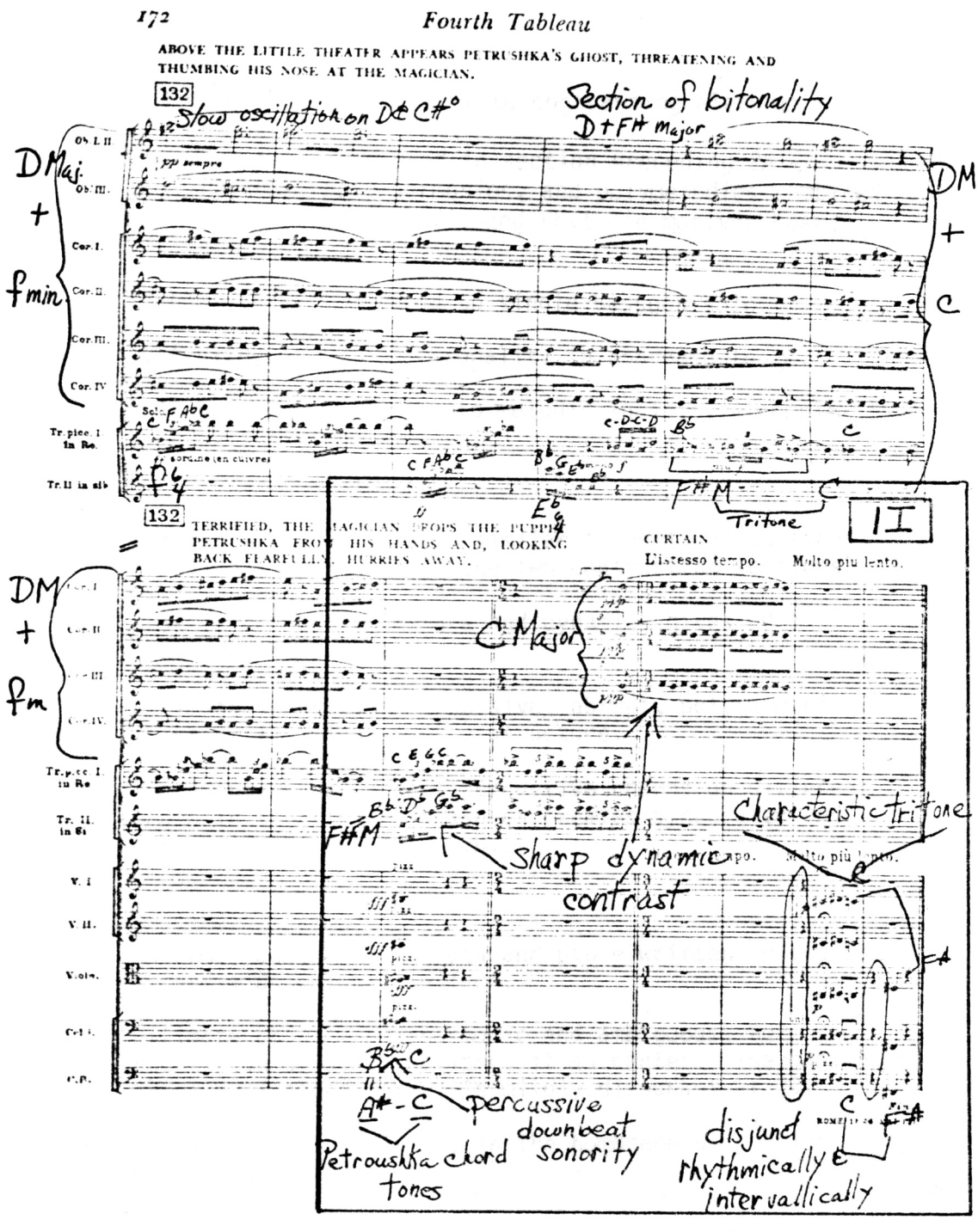

Influence { Rhythmic / Harmonic
First Tableau
IF
77
pandiatonic chord
Percussive end
Strong harmonic attraction
all 7 diatonic tones
superimposed
F + G
Pandiatonic chord
C + F + G chords combined vertically
I C added G#
(+ A)
Fl. Picc. I. II.
Fl. gr. I. II.
I. II.
Ob.
III.
Cl. I.
Cl. II. III.
Fag. I. II. III.
4 Corni.
Piet.
Tr. I. II.
Trb. I. II.
Trb. III. e Tuba.
Xyloph.
Timp.
G. Cassa.
Arpa I.
Arpa II.
Piano.
V. I.
V. II.
Viole.
Celli.
C. B.


82
Second Tableau
Bitonality
F#
C alternation of F# & C Chord = 'The Petroushka Chord'
Fl. I.
Fl. II.
Ob. I. II
Cor. I. II
Cl. I
Cl. II.
Cl. III.
Fag. I.
Fag. II
Fag. III
Cor. I. II.
Cor. III. IV
Pist. I. II.
Tr. I. II.
3 Trb.
Tamb. & Bruge.
Tamb. milit. et Tambourin
Piano.
V. I.
V. II.
Vcle.
Cb.
C M
C C# F# E G G
etc.
F#
C
Sordini
F# C
III
F# C F# C etc. Lydian color


Harmonic & Rhythmic resolution or relaxation
Percussive & abrupt cadence
I G consonant chord + rhythmic break
Second Tableau
Rests aid caesural effect
Adagietto. ♩= 54.
Adagietto. ♩= 54.
F# C D Major (Poker center at beginning of ballet)


'Pandiatonic' chords
(C major scale superimposed)
88
Second Tableau
58 THE BALLERINA LEAVES.
crescendo
Fl. Picc. I. II.
Fl. I. II.
Ob. I. II. III
Cor. Ingl
Cl. I. II.
Cl. III.
Fag. I.
Fag. II. III.
Cor. I. II.
Cor. III. IV.
Pist. I. II.
Tr. I. II.
3 Trb.
Arpa I.
Arpa II.
Piano.
crescendo
V. I.
V. II.
Viole.
Celli.
C. B.
58
'Pandiatonic' chords
(all diatonic tones of C major)
vertically combined


1. Metric
2. Dynamic
3. Pitch
4. Texture
Accent
1H
Percussive, dissonant chord
Second Tableau
89
D° added 6th
Ad libitum.
Texture reduction
Extension—acts as bridge
Fl. Picc. I. II.
Fl. I. II.
Ob. I. II. III.
Cor. Ingl.
Cl. I. II.
Cl. III
Fag. I.
Fag. II. III.
Cor. I. II.
Cor. III. IV.
Pist. I. II.
Tr. I. II.
Trb. I. II. III.
Timp.
Arpa I.
Arpa II.
Piano.
V. I.
V. II.
Viole.
Celli.
C. B.
Cadenza
molto ritard.
pianissimo
string.
Della parte del Clarinetto.
arco
pizz.
Pandiatonic chords
D° + (B)
(D-F-A♭-B)


172
Fourth Tableau
ABOVE THE LITTLE THEATER APPEARS PETRUSHKA'S GHOST, THREATENING AND THUMBING HIS NOSE AT THE MAGICIAN.
132
Slow oscillation on D♭ C♯°
Section of bitonality
D+F♯ major
DMaj. + fmin
DM + C
Ob. I, II
Ob. III.
Cor. I.
Cor. II.
Cor. III.
Cor. IV
Tr. picc. I in Re.
Tr. II in sib
sempre
sordine (en cuivre)
TERRIFIED, THE MAGICIAN DROPS THE PUPPET PETRUSHKA FROM HIS HANDS AND, LOOKING BACK FEARFULLY, HURRIES AWAY.
CURTAIN
L'istesso tempo.
Molto più lento.
Tritone
II
DM + fm
C Major
Tr. picc. I in Re
Tr. II. in Si
F♯M
Sharp dynamic contrast
Characteristic tritone
V. I
V. II.
Viole.
Vcl.
C.B.
A♯-C
Petroushka chord tones
percussive downbeat sonority
disjunct rhythmically intervallically

The Rite of Spring - 1913

Outline of Cadential Techniques

2A

1. Cutting - immediate shift to contrasting elements.
2. Layering technique used in section preceding 2A - poly-rhythms, poly-harmonies, and polymelodies combined and superimposed (melodic and rhythmic motives heard earlier).
3. 25-part texture reduced to single Bassoon solo.
4. No feeling of meter or tonality in approach to 2A.
5. From harmonic confusion to melodic lucidity - complexity to simplicity.

2B

1. Cutting - elided effect; similar to vertical cutting - trilling flutes connect the two contrasting sections.
2. Drastic change in texture and dynamics gives 2B a 'cut' quality.
3. Ultimate sonority = percussive, abrupt, polyharmonic (C major + F minor = $F^{\#\circ}$) structure.
4. Placement of the 28-part percussive chords on different beats in the final 3 measures creates syncopated and jagged rhythm preceding 2B.

2C

1. Rhythmic caesura - fermata and pause written in score. Ritard aids caesural effect.
2. Ultimate chord - polyharmonic and ambiguous, but repetition of B^{b} establishes it as center. The basically B^{b} sound + added tones, is mildly dissonant at 2C.
3. Parallelism is exhibited in the homogeneous section before 2C.

2D

1. Cutting - clarinets' and flutes' trilling connect contrasting sections.

2. Ultimate sonority - abrupt, percussive, thick-textured sff chord.

3. Approach to 2D = dissonant arpeggiated flourish - thick dissonant and percussive chords to soft melodic solo.

2E

1. Caesura - rhythmic break. Rests are essential to delineate cadence.

2. Ultimate sonority - abrupt and dissonant.

3. Heterogeneous texture (polyharmonic and sounding cacophonous) preceding 2E.

2F

1. Rhythmic caesura - pause after final sonority. Rests essential.

2. Ultimate sonority - abrupt, percussive polyharmonic chord.

3. Texture preceding 2F - heterophony = layers of sound, building in volume.

4. On-going, motor rhythms contribute to element of surprise when section abruptly ends.

2G

1. Cutting + pause. The following section is so very contrasting that even with a pause after 2G, the effect is that of cutting - placing extremely different material back-to-back.

2. Abrupt ending to predominant melody - no harmonic or melodic resolution.

2H

1. Caesura - abrupt cessation of rhythmic, intervallic, and coloristic motive. Rhythmic pause before new contrasting section.

2. Rhythmic interest = non-synchronous pulse groups - asymmetrical rhythms, polymeters (shifting meters) and displaced accents. Many rests create disjunct rhythm.

3. The section following 2H illustrates various Stravinskian features:

   a. homogeneous, chordal texture of static harmony and rhythm;
   b. frequent change of meters producing asymmetrical patterns and evading a regular downbeat;
   c. repetition of a tonally important pitch, which yields
   d. tonality by assertion.

2I

1. Quasi-cutting - drastic shift in texture, dynamics and material, but the same tonal sphere and static, regular beat retained.

2. A dissonant, chordal accompaniment plus 8-part brass melody approaching 2I. Melody ends abruptly, without resolution.

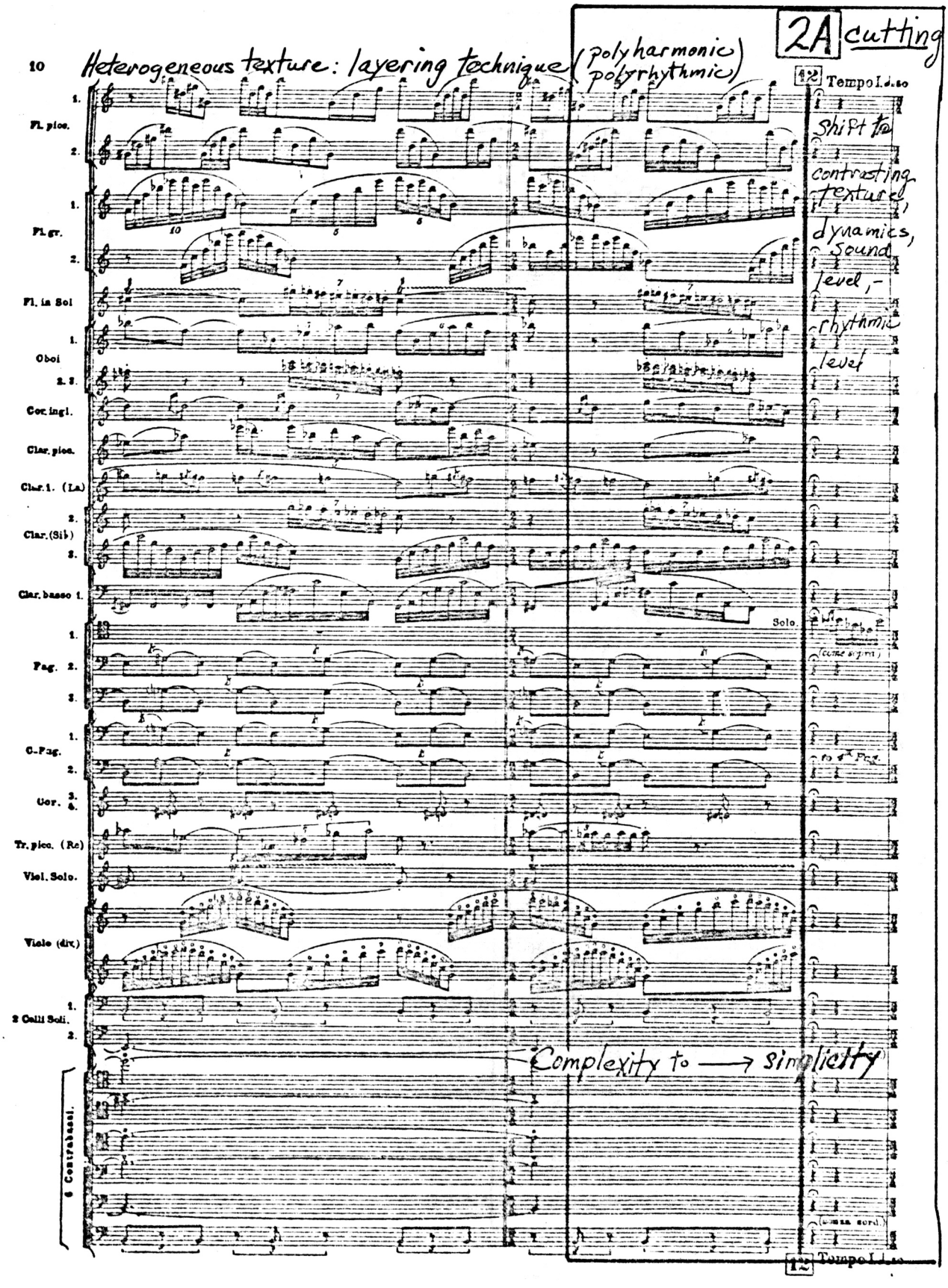
2J

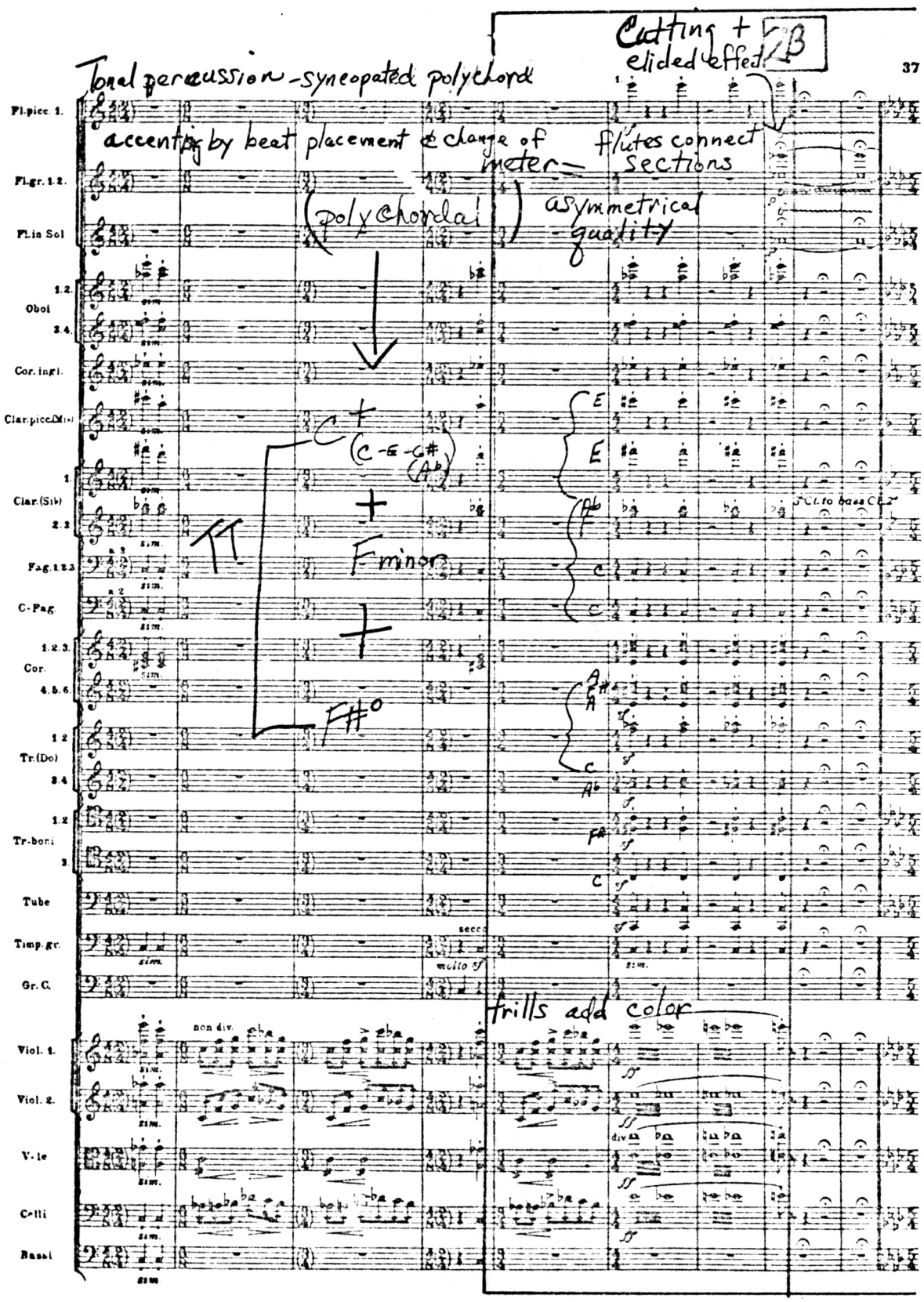
1. Final cadence - abrupt, percussive cessation - immediately approached by coloristic figuration.

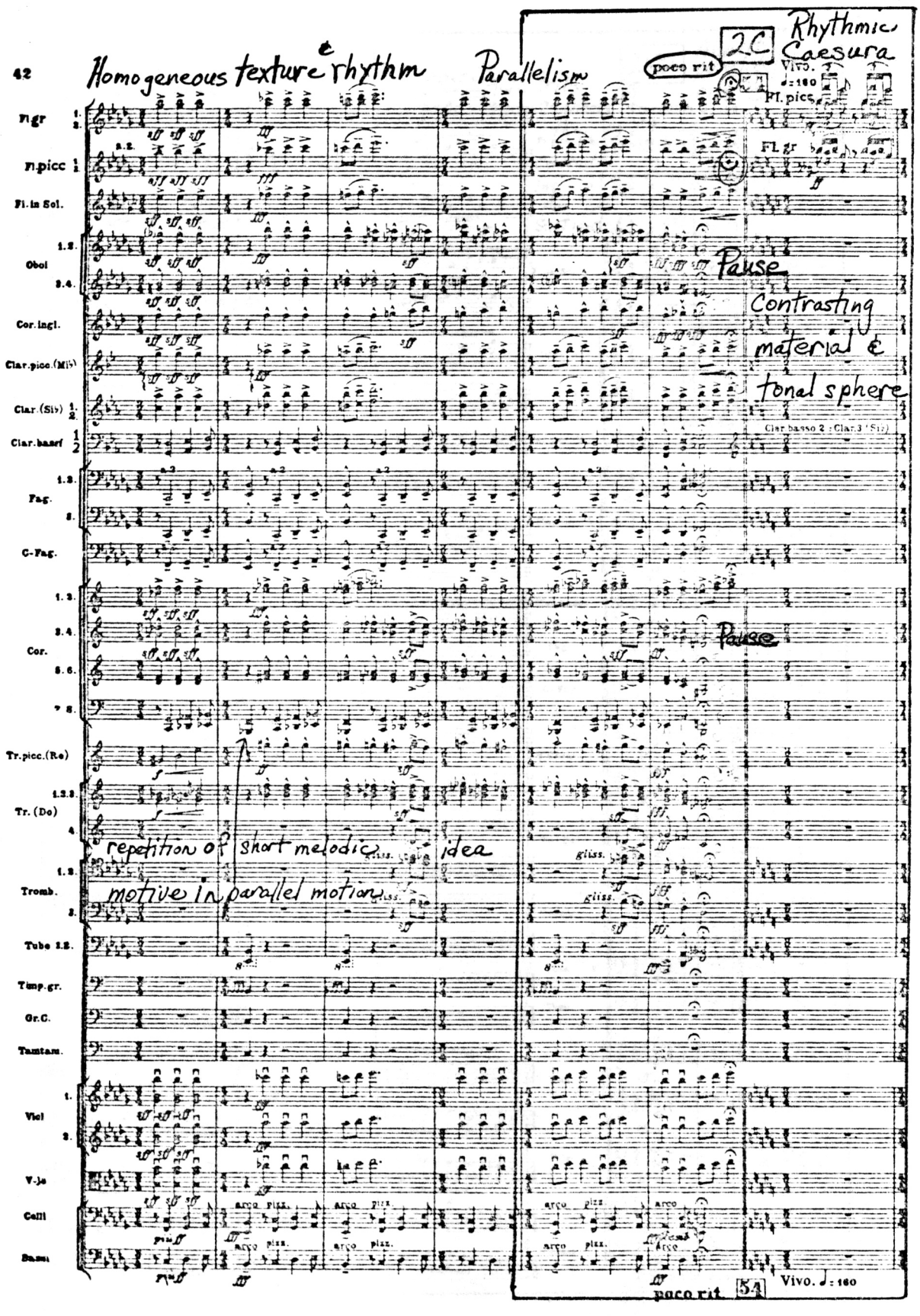
2. Ultimate sonority - polyharmonic, percussive and discordant chord.

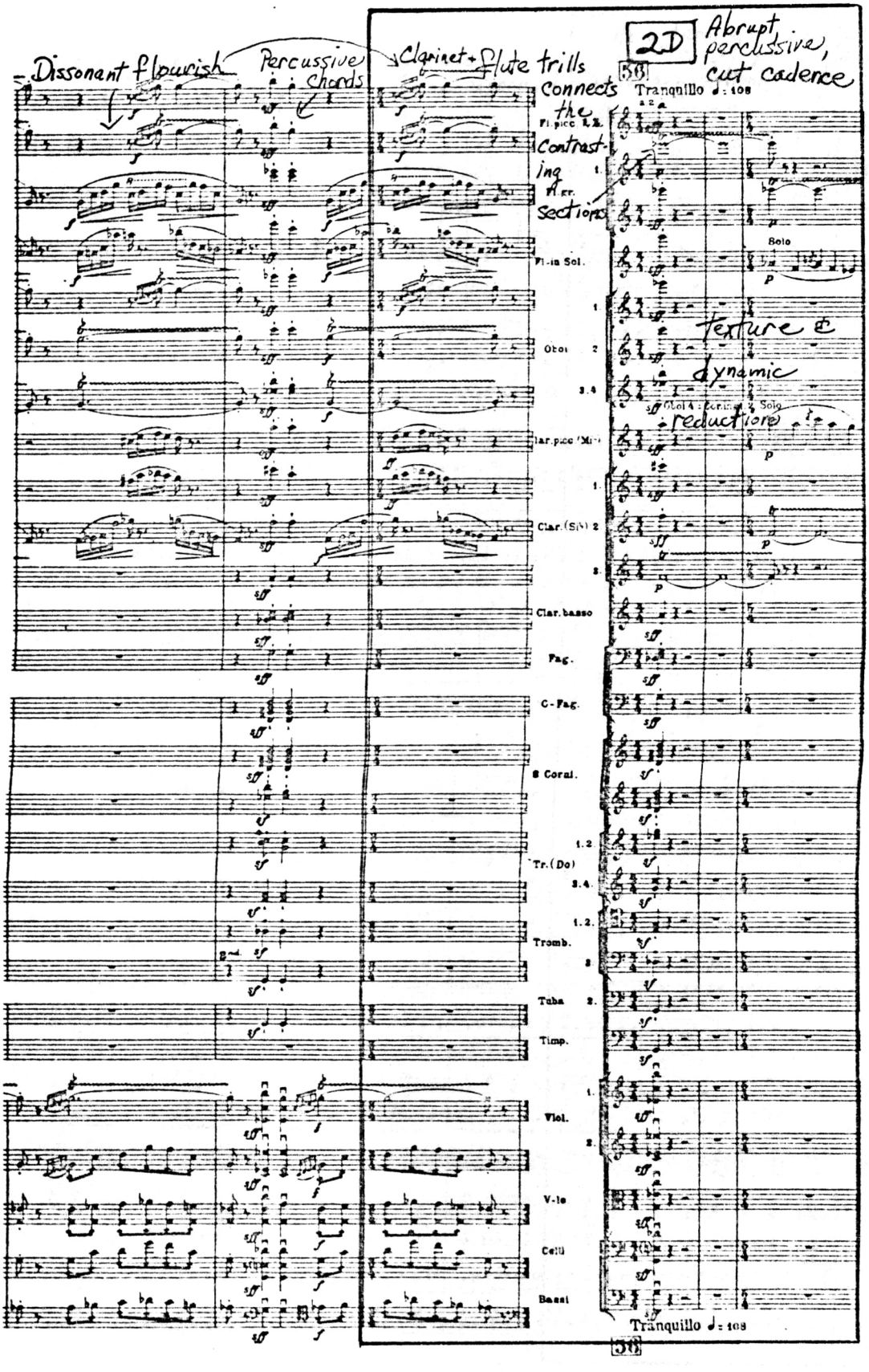
3. Typical asymmetrical rhythms and accents in percussive, chordal texture precede cadence 2J.

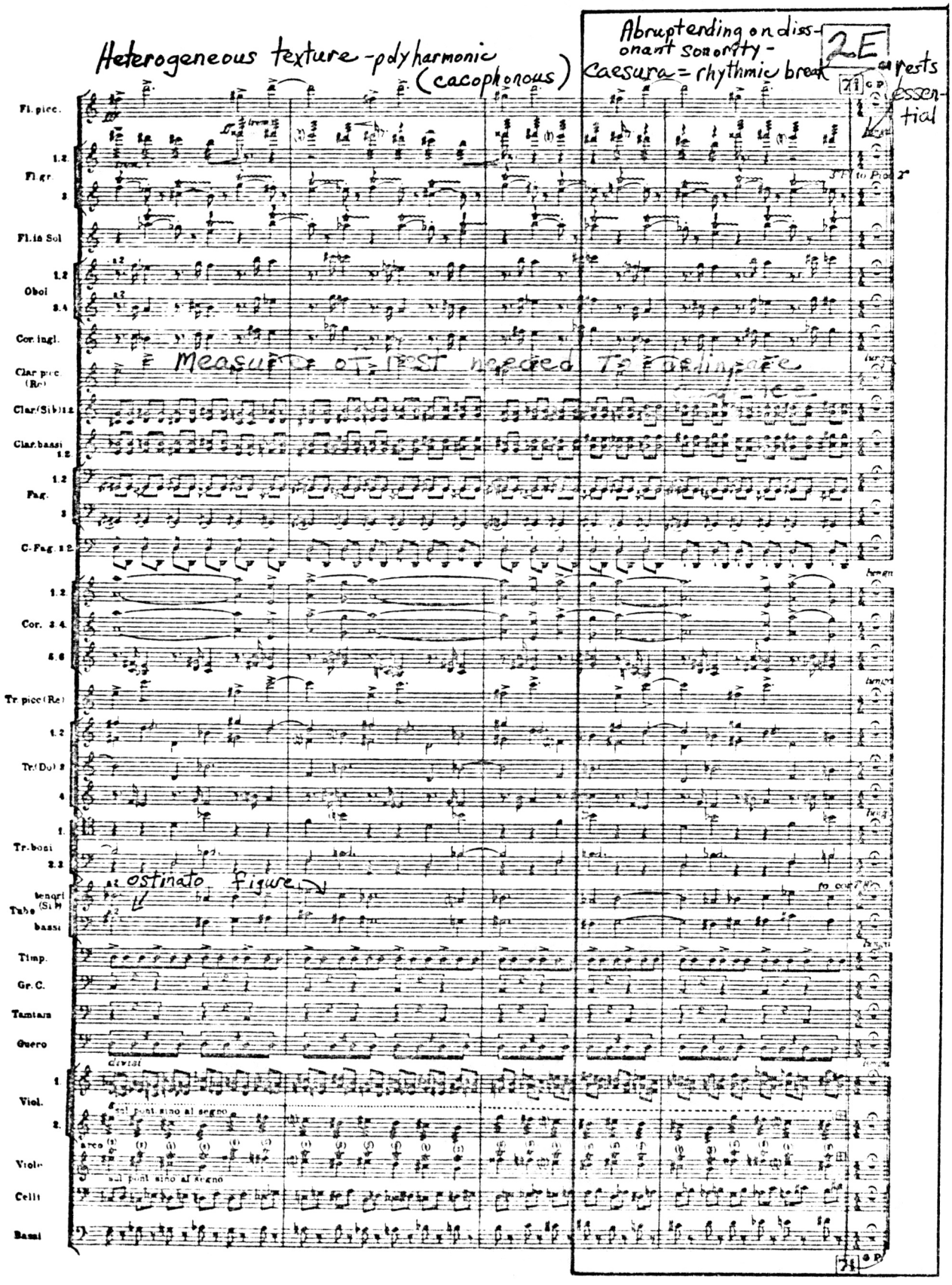
The Rite of Spring - Igor Stravinsky. "Reproduced by permission of Boosey & Hawkes, Inc."

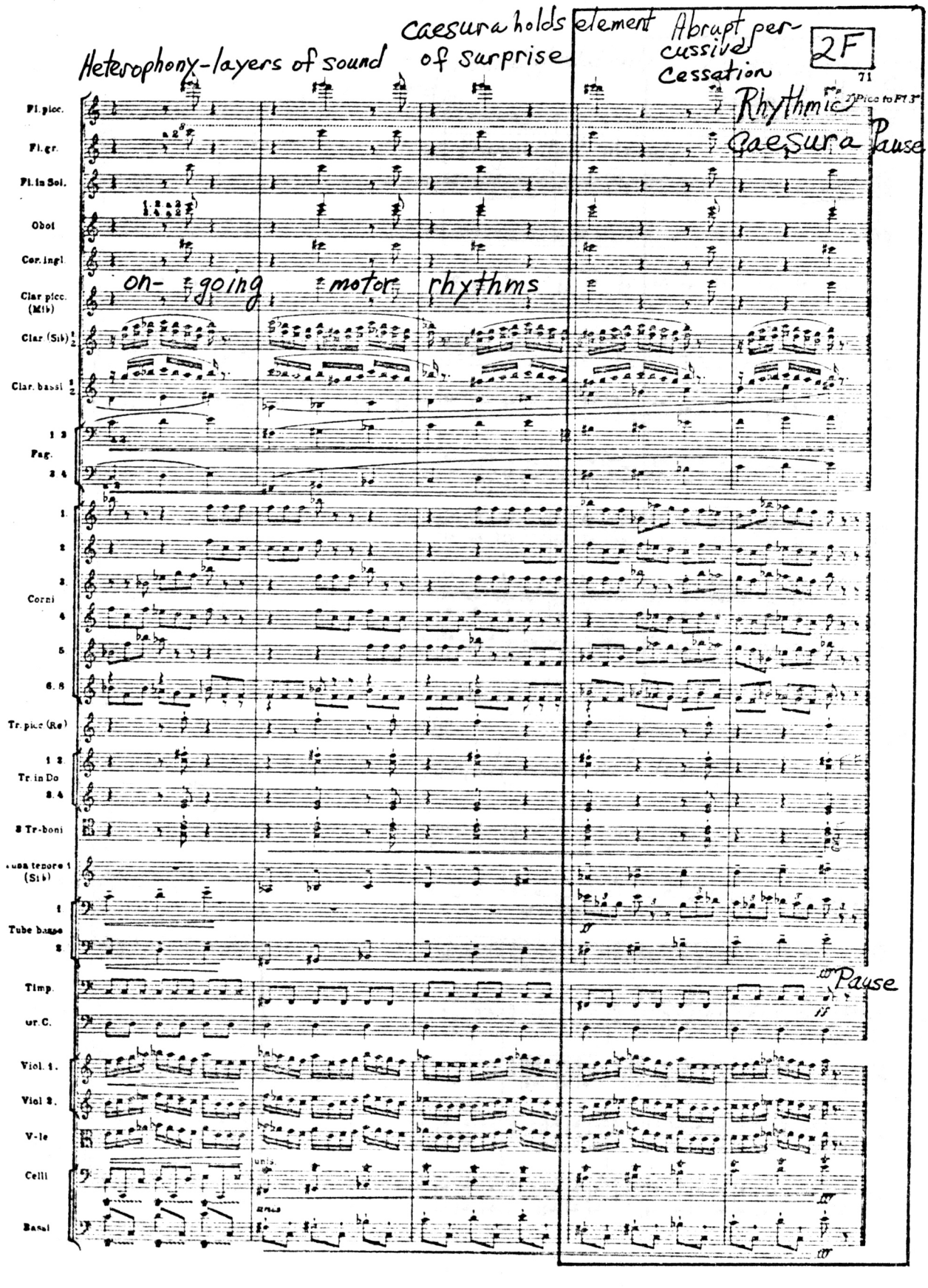

2A cutting
10
Heterogeneous texture: layering technique (polyharmonic polyrhythmic)
42 Tempo I.mo
Shift to contrasting texture, dynamics, sound level, rhythmic level
1. Fl. picc.
2.
1. Fl. gr.
2.
Fl. in Sol
1. Oboi
2. 3.
Cor. ingl.
Clar. picc.
Clar. 1. (La)
2. Clar. (Sib)
3.
Clar. basso 1.
Solo.
1. Fag.
2.
3.
1. C.-Fag.
2.
Cor. 3. 4.
Tr. picc. (Re)
Viol. Solo.
Viole (div.)
1. 2 Celli Soli.
2.
6 Contrabassi.
Complexity to → simplicity
42 Tempo I.mo

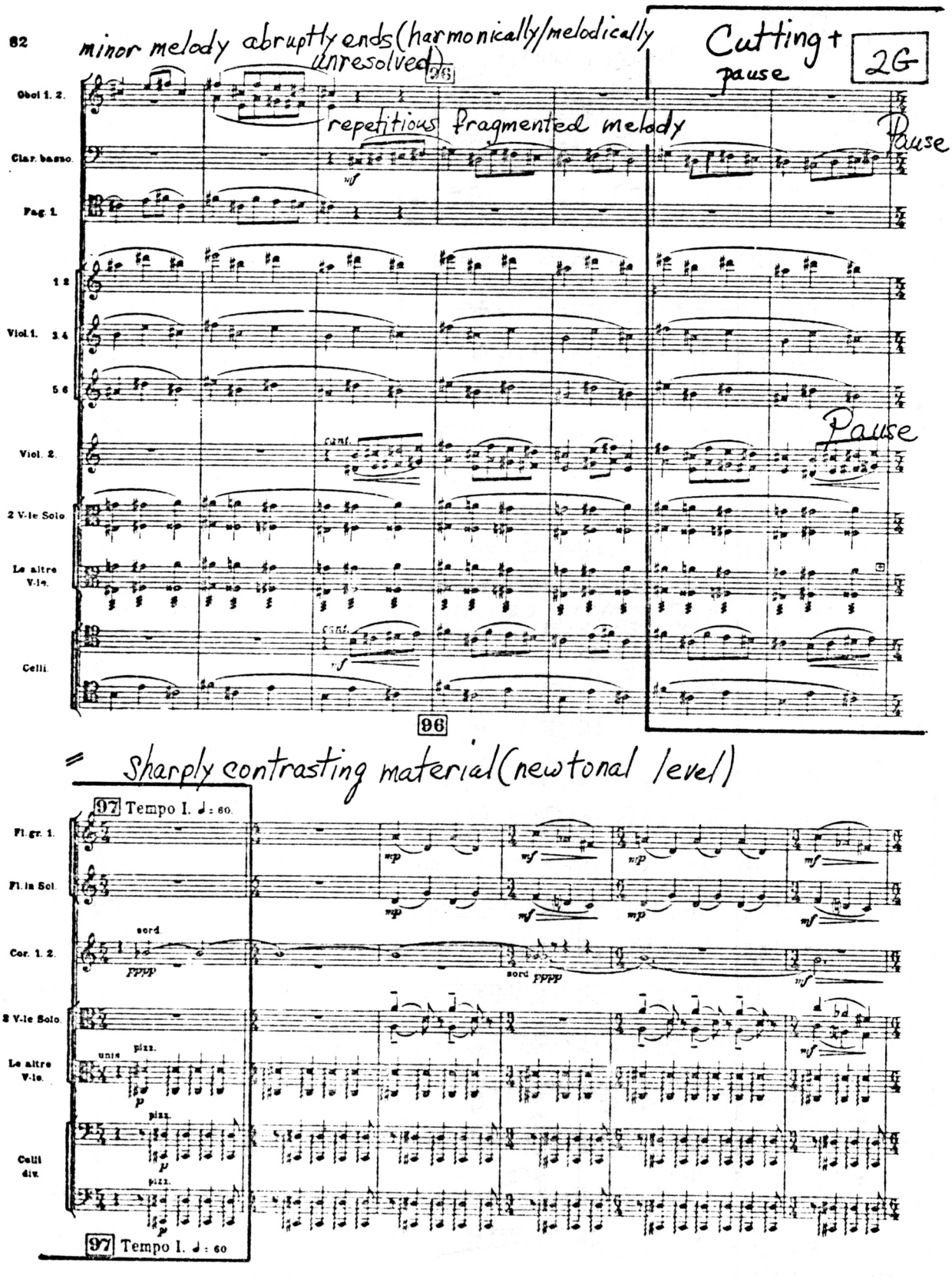

Tonal percussion - syncopated polychord
accenting by beat placement & change of meter
(polychordal)
asymmetrical quality
flutes connect sections
Cutting + elided effect
37
C
(C-E-G#-(A♭))
+
F minor
+
F#°
trills add color
Fl.picc. 1.
Fl.gr. 1.2.
Fl.in Sol
1.2.
Oboi
2.4.
Cor. ingl.
Clar.picc.(Mi♭)
1
Clar.(Si♭)
2.3
Fag. 1.2.3.
C-Fag.
1.2.3.
Cor.
4.5.6.
1.2
Tr.(Do)
3.4
1.2
Tr-boni
3
Tube
Timp.gr.
Gr.C.
Viol. 1.
Viol. 2.
V-le
Celli
Bassi

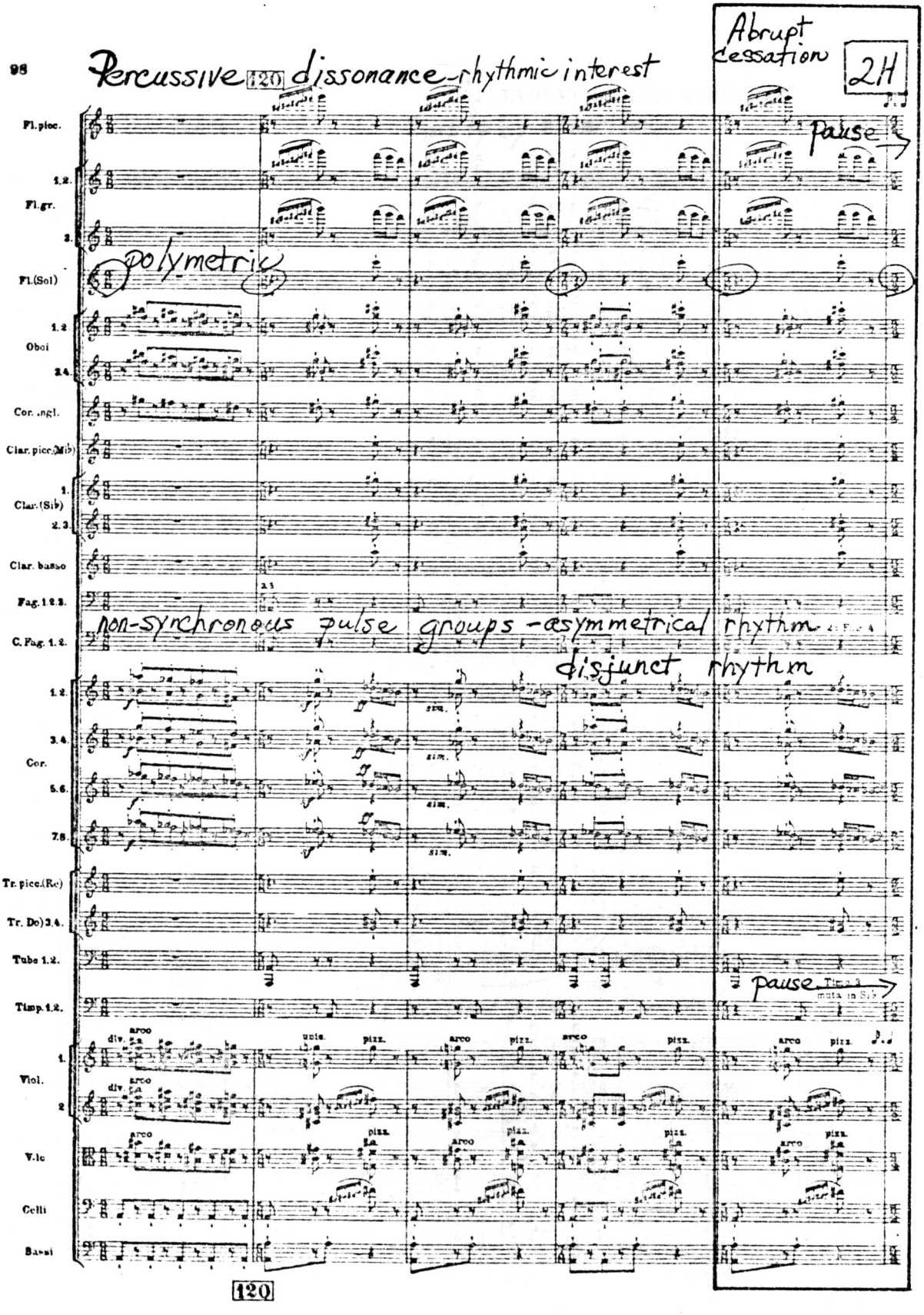

42
Homogeneous texture & rhythm
Parallelism
poco rit
2C
Rhythmic Caesura
Vivo. ♩= 160
Fl.picc.
Fl.gr
Pause
Contrasting material & tonal sphere
Cl.ar.basso 2 : Clar.3 (Si♭)
Pause
repetition of short melodic idea
motive in parallel motion
gliss.
arco pizz.
poco rit
54
Vivo. ♩= 160

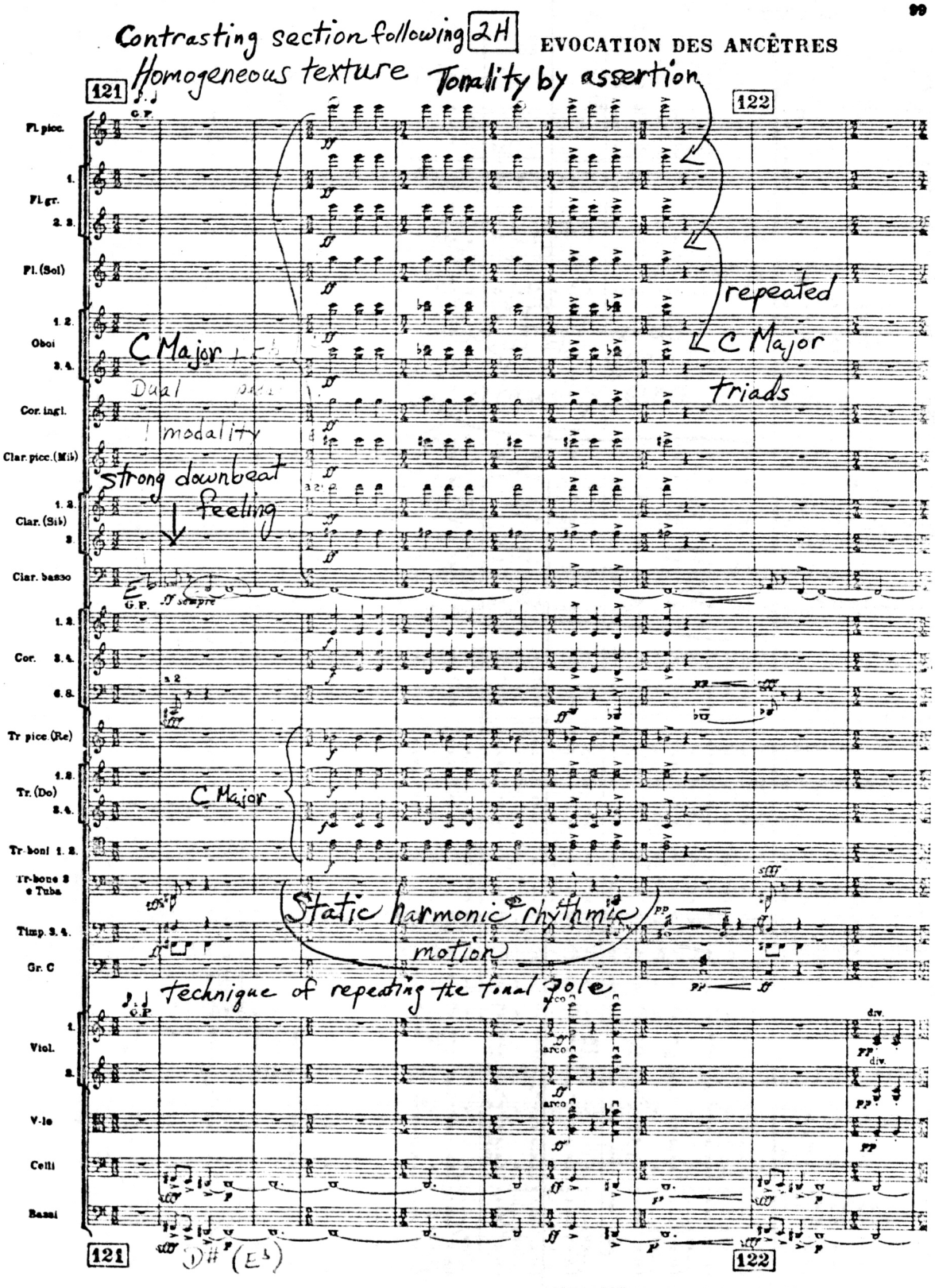

Dissonant flourish
Percussive chords
Clarinet + flute trills connects the Contrasting sections
2D
Abrupt, percussive, cut cadence
texture & dynamic reductions
56
Tranquillo ♩ = 108
Fl. in Sol.
Ob.
Clar. (Si♭)
Clar. basso
Fag.
C-Fag.
S. Corni
Tr. (Do)
Tromb.
Tuba
Timp.
Vlni.
V-le
Celli
Bassi
Solo
Tranquillo ♩ = 108
56

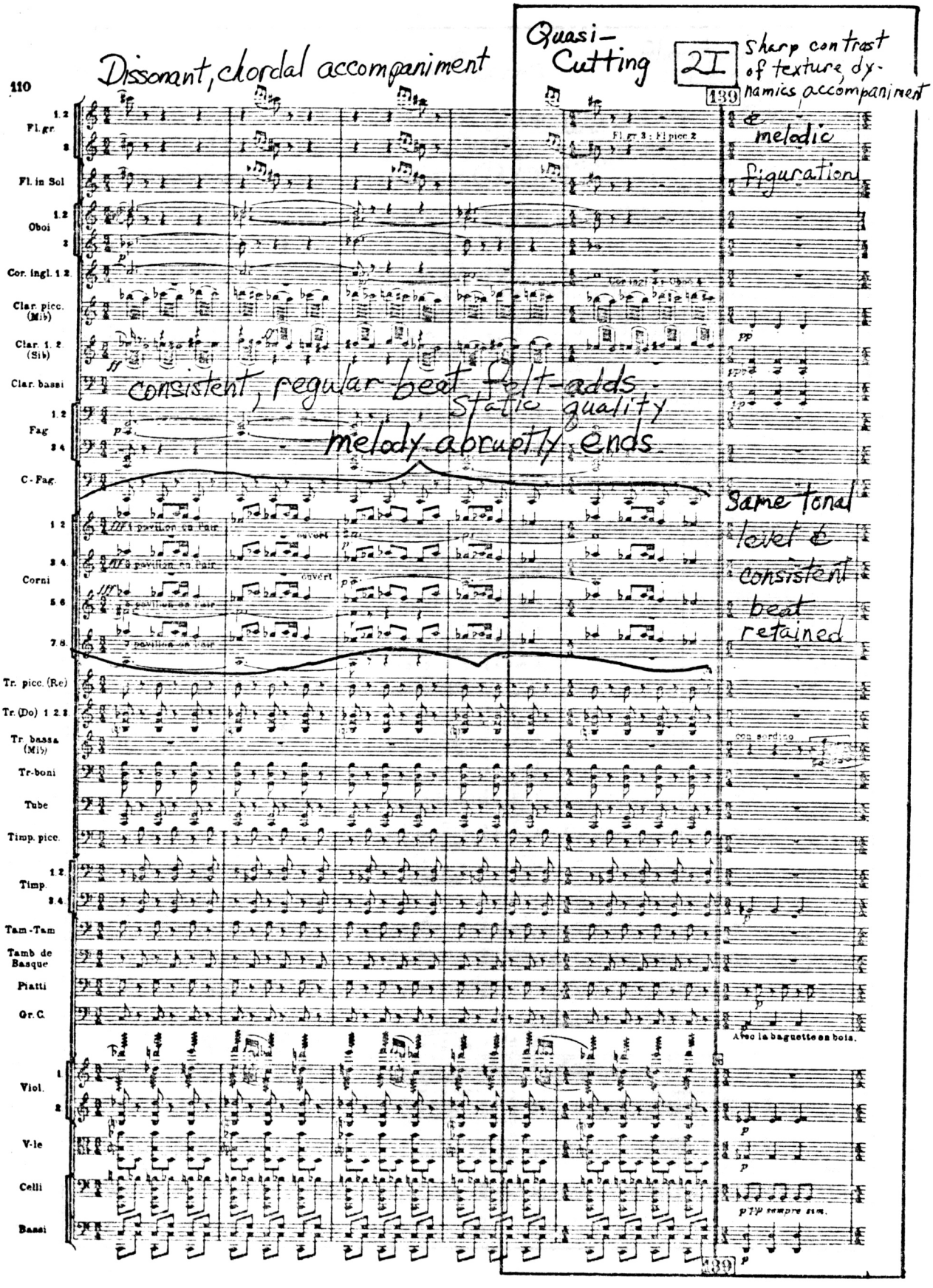

Heterogeneous texture - polyharmonic (cacophonous)
Abrupt ending on dissonant sonority - caesura = rhythmic break
2E
71
Measure of rest needed to end piece
ostinato figure
Fl. picc.
Fl. gr.
Fl. in Sol
Oboi
Cor. ingl.
Clar. picc (Re)
Clar (Si♭)
Clar. bassi
Fag.
C-Fag.
Cor.
Tr. picc (Re)
Tr (Do)
Tr.-boni
Tuba
Timp.
Gr. C.
Tamtam
Guero
Viol.
Viole
Celli
Bassi
sul ponti sino al segno
arco
sul ponti sino al segno
71

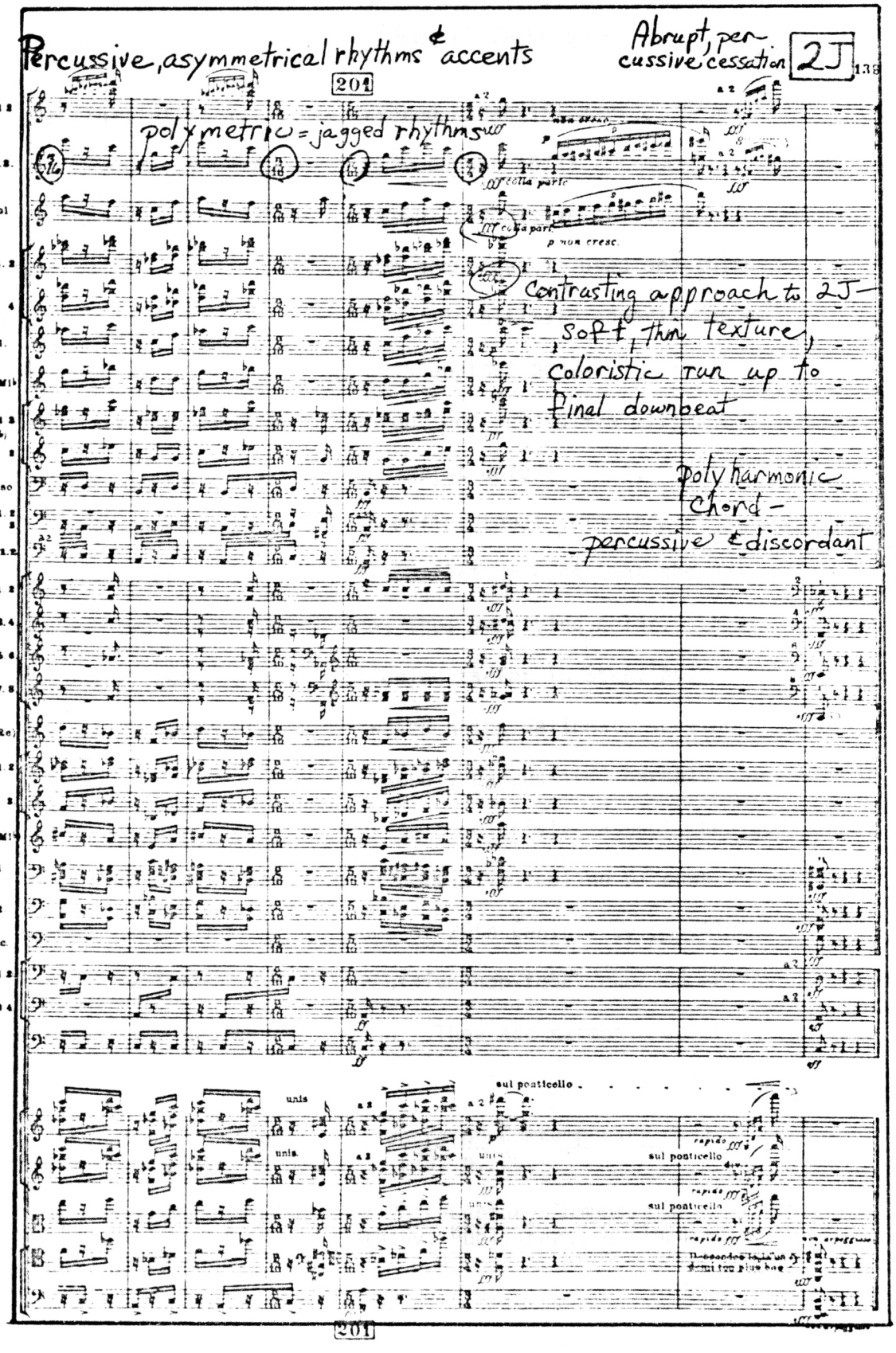

Heterophony-layers of sound
caesura holds of surprise
element Abrupt percussive Cessation
2F
71
Rhythmic Caesura Pause
Pause
on- going motor rhythms
Fl. picc.
Fl. gr.
Fl. in Sol.
Oboi
Cor. ingl.
Clar picc. (Mib)
Clar (Sib) 1 2
Clar. bassi 1 2
1 2
Fag.
3 4
1.
2
3.
Corni
4
5
6. 8
Tr. picc (Re)
1 2
Tr. in Do
3. 4
3 Tr-boni
Tuba tenore 1 (Sib)
1
Tube basse
2
Timp.
Tr. C.
Viol. 1.
Viol 2.
V-le
Celli
Bassi


82
minor melody abruptly ends (harmonically/melodically unresolved)
96
Cutting + pause
2G
repetitious fragmented melody
Pause
Pause
Oboi 1. 2.
Clar. basso.
Fag. 1.
Viol. 1.
1 2
3 4
5 6
Viol. 2.
2 V.le Solo
Le altre V.le.
Celli.
96
= Sharply contrasting material (new tonal level)
97 Tempo I. ♩ : 60.
Fl. gr. 1.
Fl. in Sol.
Cor. 1. 2.
sord
2 V.le Solo.
Le altre V.le.
unis
pizz.
Celli div.
97 Tempo I. ♩ : 60


98
Percussive 120 dissonance - rhythmic interest
Abrupt cessation
2H
Fl. picc.
1.2.
Fl. gr.
2.
Fl. (Sol)
polymetric
pause
1.2
Oboi
2.4.
Cor. ingl.
Clar. picc. (Mib)
1.
Clar. (Sib)
2.3.
Clar. basso
Fag. 1.2.3.
C. Fag. 1.2.
non-synchronous pulse groups - asymmetrical rhythm
disjunct rhythm
1.2.
3.4.
Cor.
5.6.
7.8.
Tr. picc. (Re)
Tr. Do) 3.4.
Tube 1.2.
Timp. 1.2.
pause
muta in Sib
1.
Viol.
2
div.
arco
unis.
pizz.
V.lc
Celli
Bassi
120


99
EVOCATION DES ANCÊTRES
Contrasting section following 2H
Homogeneous texture
Tonality by assertion
121
122
Fl. picc.
Fl. gr.
Fl. (Sol)
Oboi
Cor. ingl.
Clar. picc. (Mib)
Clar. (Sib)
Clar. basso
Cor.
Tr picc (Re)
Tr. (Do)
Tr boni
Tr-bone e Tuba
Timp.
Gr. C
Violi.
V.le
Celli
Bassi
C Major
Dual modality
strong downbeat feeling
repeated C Major triads
C Major
Static harmonic & rhythmic motion
Technique of repeating the tonal role
D# (Eb)


Dissonant, chordal accompaniment
Quasi-Cutting
21
Sharp contrast of texture, dynamics, accompaniment & melodic figuration
110
139
consistent, regular beat, felt-adds static quality
melody abruptly ends
Same tonal level & consistent beat retained
Fl. gr. 3 : Fl. picc. 2
Cor. ingl. 2 : Oboi 2
Fl. gr.
Fl. in Sol
Oboi
Cor. ingl. 1 2
Clar. picc. (Mib)
Clar. 1 2 (Sib)
Clar. bassi
Fag
C.-Fag.
Corni
Tr. picc. (Re)
Tr. (Do) 1 2 3
Tr. bassa (Mib)
Tr-boni
Tube
Timp. picc.
Timp.
Tam-Tam
Tamb de Basque
Piatti
Gr. C.
Viol.
V-le
Celli
Bassi
con sordino
Avec la baguette en bois.
pp sempre sim.


Percussive, asymmetrical rhythms & accents
Abrupt, percussive cessation
2J
138
201
polymetric = jagged rhythms
Contrasting approach to 2J — soft, thin texture, coloristic run up to final downbeat
polyharmonic chord — percussive & discordant
Fl. picc. 1 2
Fl. gr. 1 2
Fl. in Sol
Oboi 1 2
Cor. ingl. 3 4
Clar. picc. (Mi)
Clar. (Si)
Clar. basso
Fag. 1 2
C-Fag. 1 2
Corni 1 2
3 4
5 6
7 8
Tr. picc. (Re)
Tr. (Do) 1 2
Tr. basso (Mi)
Tr-boni 1 2 3
Tube 1 2
Timp. picc.
Timp. 1 2
3 4
Gr. C.
Viol. 1
Viol. 2
V-le
Celli
Bassi
unis
sul ponticello
rapido
201

Summary of Stravinsky's Cadential Techniques

The chart of Stravinsky's favored cadential devices reveals his frequent use of rests - rhythmic pauses (57%), change of texture and/or color (52%), and abrupt percussive chords at caesural points (48%). The cutting technique is used one-third of the time in the cadences studied. An ultimate sonority on a homogeneous, heavily-voiced chord is another prevalent cadential element. Sixty-percent of the abrupt and percussive ultimate cadence sonorities employ a dissonant structure - Vinton calls this "atonal chordality"[8] - which defies tonal reference or tonal implications. Of the forty-percent of consonant chordal sonorities, two use an added tone, thus supplying color. Color is a principal concept and functioning factor in Stravinsky's scores. It is very often color which helps delineate sections and pinpoint cadences. Even the purely percussive, harshly dissonant cadence sonorities provide a coloristic aspect, besides supplying rhythmic vitality and a pervasive feeling of power. Dallin says in his book Techniques of 20th Century Composition that "clusters [those thick, percussive non-tonal chords] neither sound active nor demand resolution. They add harmonic color."[9]

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[8]John Vinton, Editor. Dictionary of Comtemporary Music: Boston, Mass. Allyn and Bacon. 1970, p. 30.

[9]Leon Dallin, Techniques of 20th Century Composition. Dubuque, Iowa. Wm. C. Brown Company, Publishers, c. 1964 (9th printing), p. 77.

It is interesting to note that the chordal dissonance displayed in Stravinsky's works does not have the atonal effect that linear dissonance holds. Schoenberg's dissonant texture (more often linear than chordal) is definitely atonal. Where Schoenberg uses chordal structures the close spacings, prevailing construction in seconds and augmented and diminished intervals, and the use of a different pitch for each note makes the sonorities much more dissonant than the widely-spaced chords (composed of fewer different pitches) of Stravinsky. During analysis of Petroushka and The Rite of Spring it was discovered that Stravinsky's cadences incorporate the element of surprise. The cadences using the cutting technique and also those using a dissonant, percussive, abruptly-sounding sonority result in an audibly surprising effect on the listener. The sudden shift to contrasting material in the cutting technique and the use of rests after the abrupt and percussive chords are the only signals of a cadence - and these signals are realized after they have happened. In these two cadence types, harmonic and/or rhythmic factors do not set up expectations in the listener (see example [2E] and [2F] from The Rite). The aspect of 'arrival' is not realized until the music has passed the point of arriving. The word 'cadence' seems an inappropriate term for the cessation of material of the cutting technique. 'Termination' or merely 'cessation' better describes the event. The term caesura is more appropriate for those points using rhythmic pause (rests, fermata, etc.) than is the word

cadence, but since this paper deals with cadential procedures, it is assumed that the term cadence is understood in its many ramifications. The two Stravinsky works that were analyzed illustrate a basic compositional procedure in his music: the resolution of dissonant harmony and motoristic, heterogeneous rhythms is merely the sudden cessation of each. The quality of spontaneity pervades Stravinsky's music. The effect of spontaneity is often realized through the use of the asymmetrical placement of heavily-accented chords. The occurrence of many passages of disjunct rhythms and syncopations is descriptively explained by Austin in Music In The 20th Century: "his beats are often marked by a thud in the accompaniment while the main melody has a gasp of silence, and the motions of the melody occur as syncopated accents of the second or third unit within the beat."[10] It truly is the rhythmic articulations and accents which are organized in asymmetrical, shifting patterns that give this music a free, spontaneous, almost power-driven quality. It seems ironic that this asymmetrically organized music produces a rather static effect. This is what Salzman says about this static quality in The Rite: "this quality of disassociated insistence combined with a striking use of chordal (non-contrapuntal), dissonance, produces the effect of an aribtrary motionless, elemental power, but in actual fact every gesture is carefully calculated and the dynamic

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[10]William Austin, Music in the 20th Century: New York: W. W. Norton & Company, Inc., c. 1966, p. 258.

articulation of the whole is almost schematic."[11] It does seem ironic that what produces an aribtrary and spontaneous effect is actually "carefully calculated and schematic."[12] This pattern of asymmetrically placed, accented, percussive chords is freqently used in the approach to a cadence or caesura. Knowing this fact might lessen the element of surprise at cadence points. The experienced listener of Stravinsky (of this period of his music) can use the appearance of such patterns as a signal of a possibly ensuing cadence - of the cessation of the material.

To conclude, it is pertinent to consider Stravinsky's statement from his Poetics of Music: "All music is nothing more than a succession of impulses that converge towards a definite point of repose."[13] The traditional view that a cadence results at a point of repose harmonically and/or rhythmically does not always hold true in Stravinsky's music (or in the music of the other composers herein). The rhythmic on-goingness, the motoristic and disjunct rhythms, the syncopations, the chordal dissonance, the heterophonous textures produced by the layering technique, the variety of instrumental color, the simple melodies and the tonally straightforward homophonous sections all combine to make Stravinsky's music innovative and uniquely his own.

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[11]Eric Salzman, Twentieth-Century Music: An Introduction. New Jersey: Prentice-Hall, Inc., c. 1974, p. 29.

[12]ibid.

[13]Igor Stravinsky, Poetics of Music. English translation by Arthur Knodel and Ingolf Dahl. Preface by George Seferis. Cambridge, Mass.: Harvard University Press. 1970, p. 49.

Chart of Cadential Devices in Stravinsky's Works
(Total Cadences = 21)

Cutting Technique	Rhythmic Caesura	Abrupt Percussive Ending	Sharp texture and/or color change	Agogic Accent
1C	1B	1E (1 pitch consonant)	1A	1A
1D-elided = vertical cutting	$1B^2$	1F consonant chord	$1B^2$	2A
2A	1E	1G consonant chord	1C	(10%)
2B + elided effect	1F	1H dissonant	1D	
2D - elided effect	1G	1I soft $F^{\#}$ single pitch	1G	
2G + pause	1I (fragmented cadence)	2D dissonant	1H	
2I (quasi-cutting)		2E dissonant	2A	
(33%)	2B	2F dissonant	2B	
	2C	2H dissonant	2C	
	2E	2J dissonant	2D	
	2F	(48%)	2I	
	2G		(52%)	
	2H			
	(57%)			

Chart of Cadential Devices in Stravinsky's Works (Cont.)

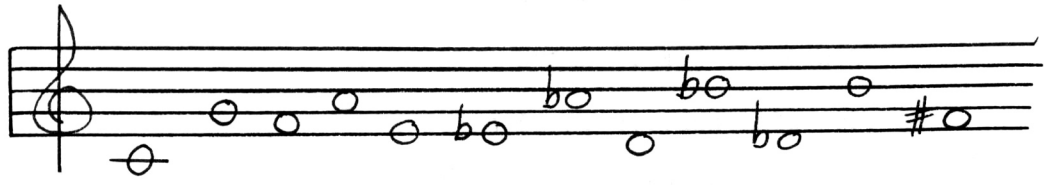
Homogeneous Approach to Cadence	Heterogeneous Approach to Cadence	Modal Usage	Ultimate Cadence Sonority =Triadic Structure
1A	$1B^1$	1G (lydian = Petroushka chord)	1A g_7 -C v_7 -I
1B	$1B^2$	1I (lydian = Petroushka chord)	1B F_7 -B^b V_7 -I
1H	1C	(10%)	$1B^1$ F -B^b V -I
1I	1D		$1B^2$ F+ -B^b (G) V+ -I coloristic
2B	1E		
2C	1F		1F C -C+(A) V -I+6th)
2G	1G		1G C -D ^bVII-I mixolydian
2I	2A		
(38%)	2D		(29%)
	2E		
	2F		
	2H		
	2J		
	(62%)		

PAUL HINDEMITH
1895-1963

Introduction

Paul Hindemith, theorist, teacher, conductor, and composer, is a major figure in twentieth-century musical thought; first, for having devised a new theory of harmony - a neo-tonal system, and second, for composing a myriad of works for almost every medium. He is termed a neo-classicist because of his reaction against late romanticism and its subjective expression and his predilection for objectivity and his striving for clarity of line, texture, and form. His contrapuntal-linear style is largely influenced by the writing of Reger, also a great contrapuntist. It was the early works of Hindemith that followed the Brahms-Reger-contrapuntal tradition, often with free use of dissonance and chromatic lines which suggested the underlying tonal shape and direction. By 1927, his musical style changed to one of simplicity and clarity, which was the objective of the movement known as Gebrauchsmusik. Initiating this movement toward simplicity, Hindemith advocated music for practical, everyday use - music for the amateur, free of technical difficulties and suitable for almost any ensemble. Gebrauchsmusik was a turning-away from the individualism of romanticism toward a return to the pre-nineteenth century bonds existing between composers, performers, and audiences. It was Hindemith's objective, as Kemp stated in his book, Hindemith,

"to seek out an organized musical language which would embrace both twentieth-century harmonic developments and the vocabulary of traditional harmony"[1]. Hindemith said that the conventional harmonic system makes no room for many tone combinations which exist in the musical realm and that our complicated system cannot account for numerous sonorities. Via acoustical principles, "He first constructs a new 'scale' suited to both melodic and harmonic purposes. This is derived from an examination of the overtone series and is called Series I:"[2]



In Craft of Musical Composition, Vol. 1 Theory, Hindemith says: "the key and its body of chords is not the natural basis of tonal activity. What nature provides is the intervals. Rather, now we have a free hand to give the tonal relations whatever aspect we deem fitting. We are no longer prisoners of the key."[3] Hindemith devised a new system which ranked chords according to their intervallic construction. The six chord groups are laid out in the following chart. As the chord groups progress toward

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[1]Kemp, Ian. Hindemith (New York: Oxford University Press, 1970), p. 35.

[2]Ibid.

[3]Hindemith, Paul. Craft of Musical Composition, Vol. 1 Theory (New York: Associated Music Publishers, 1945, p. 91

group VI they become increasingly dissonant, containing more elements (intervals) of tension. The closer a chord group is to group I, the more it gravitates toward a central tonality. The groups progress: I-III-V-II-IV-VI, going from most consonant to most dissonant. Intervals are first put into rank, strongest to weakest:

Fifths	
Fourths	Seconds
Thirds	Sevenths
Sixths	Tritones

This intervallic ranking provides the basis for determining chord roots and chord values. All chords are divided into two main groups: those without tritones - Group A, and those with tritones - Group B, which are, in turn, divided into subgroups. The ranking of intervals tells one that Group A chords must be higher ranking chords because they lack the ambiguous tritones which tend to decrease the stability of a chord. The subdivision of chords, listed and defined below, are laid out as Hindemith did them.

As the chord types descend through their various classifications, beginning with Group A, to subgroup I_1-III-V, to Group B, to subgroup II-IV-VI, the chord values decrease, that is, the strongest and most stable and independent chords progress to less stable chords, intervallically and tonally speaking. Such a system allows for distinction between chord values and intensities. With this system, the rise and fall of harmonic tension of a progression of chords can be shown. In other words, this system can differentiate between various degrees of consonance and

Table of Chord Groups

A-Chords without Tritones	B-Chords Containing Tritones
I. Without 2nds or 7ths 1. Root & bass tone identical 2. Root lies above the bass tone	II. Without minor 2nds or 7ths The tritone subordinate a. With minor 7th only. Root and bass tone identical b. With major 2nds &/or minor 7th. 1. Root & bass identical 2. Root above bass 3. With more than one tritone
III. Containing 2nds and/or 7ths 1. Root & bass same 2. Root lies above bass	IV. Containing minor 2nds &/ or major 7ths 1. Root & bass tone same 2. Root lies above bass
V. Indeterminate Example: superposed fourths	VI. Indeterminate, Tritone Predominating

dissonance. Since all the chords have their places in the system, they have their prescribed values and harmonic intensity levels.

Hindemith does indicate that there are two types of chord which are uninterpretable: 1) chords with so many tones that individual units hardly count, and 2) those with so few tones and so spread out that it is difficult to perceive them as harmonic entities. Except for such chords, all chords are assigned to certain values and intensity levels. The rise and fall of harmonic intensity levels, the shift of harmonic gravity - of harmonic tension - is termed 'harmonic fluctuation'. Hindemith's classification of chords permits harmony to be described as descending (a higher value chord progressing to a lower value chord) or ascending, or in other words, as employing crescendos and diminuendos. A harmonic crescendo results in a phrase when harmonic tension increases - when dissonance increases; harmonic tension increases as the higher value chords yield to the lower value chords, (e.g. $I\text{-}III_2$).

Hindemith's theory provides for the free use of any chord, in any order or progression. His theory actually aims at a twelve-tone system; yet, it remains within the bounds of tonality. How does one know what the tonal center is for a given passage or section of music? Hindemith states:

> Within a single degree-progression, we always hear as the center of a tonal sphere that tone which occurs repeatedly within a limited space of time, or that one which outranks the others by virtue of its position at the end of a cadence, or finally that one which is supported by the presence of the tones most closely related to it, (the fifth and the fourth).[4]

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[4]loc. cit., p. 149.

This tonal system allows for any tone to be present in any tonality; in this respect, it aims at a twelve-tone system, but it is far from the twelve-tone system of Schoenberg. Hindemith denies the existence of atonality. All tones, he believes, are related in some way and to some degree. Many of his theoretical guidelines need to be discussed in order to better understand his innovative neo-tonal system. This very organized theory of composition, devised between 1937 and 1939, strives to create a union between a twelve-tone idiom and tonality - two seemingly contrary concepts. This is what Hindemith says about the need for a new, all-encompassing system:

> All composers nowadays make use of the extended harmonic and melodic relations that result from the use of the material of the chromatic scale, but for lack of an adequate theoretical foundation they still try to cram every manifestation within the narrow confines of diatonic interpretation. . . The adoption of the chromatic scale as the basis of music does not mean that harmony and melody must consist of an uninterrupted series of whining half-tone slides, or that according to some arbitrarily conceived plan the tones of this scale must be scattered broadcast through our music, reappearing aimlessly in a thousand different forms. Everything that can be expressed in the diatonic system can be equally well expressed with this chromatic material, since the diatonic scales are contained in the chromatic.[5]

In Hindemith's chromatic idiom, the major and minor triads reign supreme; tonality is ever-present even though at times it may be obscure or difficult to pinpoint. The new system of

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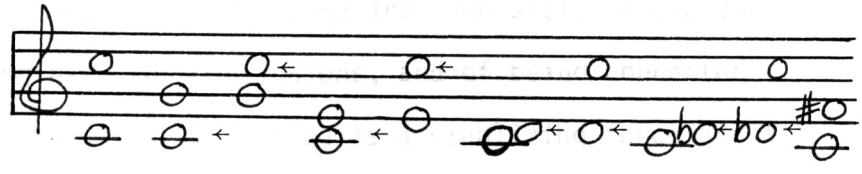
[5]loc. cit., p. 219.

composition is based on nature's building blocks - the intervals. The intervals are given values from strongest to weakest, in accordance with the overtone series. Chords can be judged and put into rank according to their intervallic construction. The chart of chords provided in the introduction will be used to determine cadence chords in the three organ sonatas and in the first movement of the symphony, Mathis der Maler. At times it is difficult to determine the chord root which is needed to help categorize the chord. The 'best' or strongest interval of a chord determines the chord root. The best interval is determined by the intervallic ranking: strongest to weakest: the fifth, fourth, third, sixth, second, seventh, and tritone. The root of the chord's strongest interval is the chord root. Interval roots have been specified in Hindemith's series II: (the arrows indicate the roots; the tritone has no root).

Series II:



The roots of the series II intervals are based on the combination tones produced by each interval. Combination tones are a natural phenomena, as are overtones, which are created when two or more tones sound simultaneously.[6] The interval of a fifth is by nature

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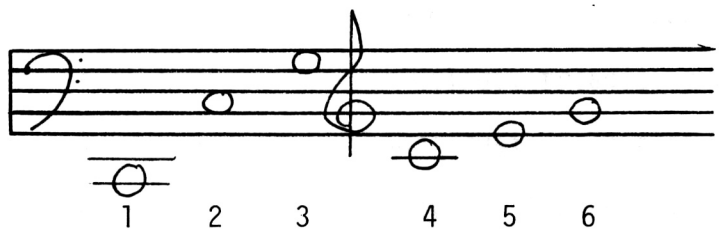
[6]loc. cit., p. 58

the strongest interval because the combination tones it produces coincide at the lower octave with the lowest tone of the fifth. Thus, the major and minor triads are the strongest, most independent of chords. The triad is produced in nature as the fourth, fifth, and sixth overtones:



The triad is nature's construction. "In the world of tones, the triad corresponds to the force of gravity", Hindemith states. "It serves as our constant guiding point, our unit of measure and our goal even in those sections of compositions which avoid it."[7] He goes on to say, referring to the Group A, I_1 chords - the major and minor traids, "These noblest of all chords constitute a section in themselves. They alone are completely independent, capable of being used for conclusions, and of being connected with any other chords."[8] The triad is a stablizing force and a tonal support in Hindemith's music. "In the ebb and flow of the most awkward chord successions, triads will always stick out as

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[7]loc. cit., p. 22

[8]loc. cit., p. 102.

points of rest and will help...support the tonality - except where the composer wishes to leave the listeners in doubt about the tonality for a brief period."[9] It is apparent in analyzing Hindemith's music that it is basically tonal, yet very chromatic and often contrapuntally conceived. His theory does not reconcile or explain the twelve-tone idiom of Schoenberg. He implies that such music, (lacking melody, triadic structures, smooth voice-leading), is not 'good' music. Tonality may be a fact of nature, but since a tonality can include every kind of chord in any intervallic construction one might think it difficult to find the tonal center. In Hindemith's music it is not very difficult to pinpoint the tonality for he gives specific rules or guidelines for determining the tonal center. These principles will be dealt with as cadences are discussed.

In Sonata I the cadence at $\boxed{1A_S}$, $\boxed{1A^1{}_S}$, and $\boxed{1F_S}$ are termed semi-cadences because of their weaker rhythmic effect. At points of harmonic rest, as these from Sonata I and others from Sonatas II and III (Sonata II: $\boxed{2C_S}$, $\boxed{2D_S}$ and $\boxed{2E_S}$; Sonata III: $\boxed{3D_S}$), there is some aural confusion as to the existence of a true caesura, which by definition requires some sort of rhythmic relaxation. Often the ear hears a phrase harmonically resolved before a new idea ensues and a type of harmonic cadence, rather

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[9]loc. cit, p. 150

than rhythmic, results. The harmonic resolutions are so strong that their effect is that of a caesura. It is because Hindemith's music is allied to tonality that tonal or harmonic progressions which resolve a phrase function as a cadence - even without much of a rhythmic break. Such harmonically created cadences, lacking rhythmic relaxation, are termed semi-cadences. (Two cadences in Sonata III, $\boxed{3A_s}$ and $\boxed{3A^1{}_s}$ are semi-cadences because of their weak harmonic effect, although they have some rhythmic pause.) The examples chosen for analysis illustrate some rhythmic release, such as longer note values on the ultimate chord or a rest following the final sonority. Some visible aspects of a caesura are evident at the semi-cadences as well as at the full cadences - those of definite finality. The following discussion of the cadences of the three organ sonatas will be as brief and concise as possible. The chart of cadential techniques used in the sonatas will provide a comprehensive overview of Hindemith's cadential devices.

Organ Sonatas I, II, and III (1937-1940)

In the first sonata, composed in 1937, the first definite cadence is at [1B], with [1A] and [1A1] functioning as semi-cadences within the larger cadence progression. A feeling of rhythmic relaxation and harmonic relaxation occurs at [1A] and [1A1] as a result of fifteen measures of previous rhythmic and harmonic on-goingness. The caesura chords are both III_1 chords - those of high value and having much tonal stability. The eighth rests aid in the semi-cadential effect. Mm.36-43 display a tonally stable and contrapuntally smooth progression. The chromatic resolution of the penultimate chort to the final [1B] chord is smooth because of the half-step progression. This type of chromatic resolution is used often by Hindemith. The major 2nd movement in the bass, F progressing to G, produces some sharpness to alleviate a totally sliding, chromatic resolution. Hindemith says that the use of a major second in the lowest bass movement right before the cadence produces harmonic sharpness. "The use of the minor 2nd in the bass motion just before the tonal center results, owing to its leading tone tendency, is the mildest of all cadences."[10] Example [1B] ends on a G major triad, a chord of the

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[10]loc. cit., p. 142.

highest value chord group, I_1, and one which is intervallically at rest. The major triad is a sonorous construction of nature, as Hindemith says, since it coincides with the 4th, 5th, and 6th overtones. Major and minor triads aid in pinpointing a tonal center. When a I_1 or even a III_1 chord ends a cadence, the root being the lowest note, the tonic is the strongest tone of the chord - it is the root. Concerning the tonal center, Hindemith says, "A chord of group I will always try to act as a tonal center for chords of lower value...a final tone of a group is powerful in securing its position or function as tonic."[11] Example [1C] ends on G octaves and its 5th; thus [1C] uses what Hindemith calls 'superior intervals'. Besides the use of the octave and the fifth, the longer note value (dotted whole note), and the organ point on G strengthen the cadential effect. Although Hindemith claims that the octave and the 5th intervals are superior he uses them as the final cadence sonority only one-fourth as often as he uses a complete major or minor triad. Within the three sonatas there are twenty-eight I_1 cadences studied; six of these use the octave alone or the octave and the 5th for the final cadence sonority. Hindemith does not specifically say that the end cadence sonority on the octave and a 5th is superior to a full triad. The sound of an octave and a 5th is clearer - is a purer sound. Both I_1 cadence endings, [1B] and [1C], are of highest

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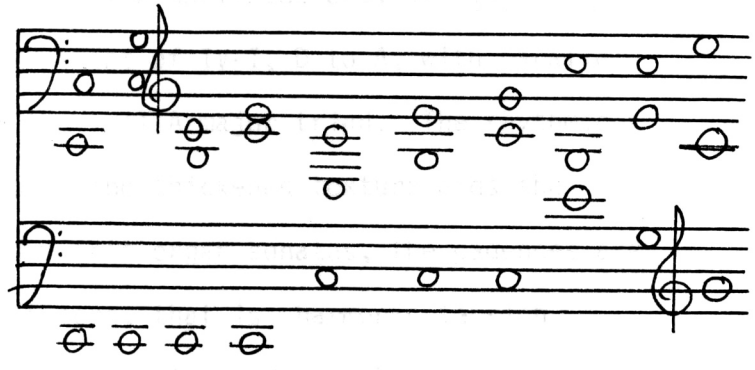
[11]loc. cit., p. 133.

tonal value. The complete triad contains the tones, (root - major 3rd - minor 3rd), originating from the overtone series - overtones 4, 5, and 6. The octave or octave plus the 5th are pure intervals - they are not influenced by combination tones. This statement may help to clarify this point: "Combination tones represent a clouding or a burdening of the interval. The octave and the unison, as the most perfect intervals, are not subject to any such impurity, the 5th has only one combination tone since those of the first and second order coincide; all other intervals carry a double burden of varying weight."[12]

Intervals Directly Produced

Combination Tones



The [1C] cadence carries more weight and finality than does [1B]. [1B] appears to prepare the way for the [1C] cadence and its tonal center of G; [1C] ends a large section of Sonata I and is followed by a pause and new motivic and rhythmic material, beginning with an E^b minor tonality, the tonality of the opening of the sonata. The cadence at [1D] displays the use of a long organ point on B^b

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[12]loc. cit., p. 64.

with triple organ point - triads - above. The material is basically a solo line above sustained harmonies. The B^b organ point is considered as part of the vertical sonority when it is part of a triad or when it is in a very strong metric position. The solo line is disjunct and chromatic and has an 'atonal' quality. The downbeat of each measure has been analyzed to show the progression. The second and third eighth notes of each measure are not weighty enough to cause a separate chord to result. The basic progression follows the organ points (B^b minor-A^bmajor-B^bmajor) because of the dissonant and free melody line which is independent of the harmonies below until the end, at [1D]. [1E] uses a strong tonal root movement of IV-I, D to A, with parallel 6ths moving conjunctly to the full A major triad. The rhythmic weight of the [1E] chord plus the thickened texture aids the cadential effect. In Hindemith's organ sonatas, the cadences are firmly bound to harmonic factors, that is, harmonic tension proceeding to relaxation. Usually the cadences have agogic stress as well, as in [1D] and [1E]. [$1F_S$] is approached by major seconds in the bass, A-G-F and acts as a momentary pause from the previous motion. It is termed a semi-cadence because of the III_1 chord value and the immediate continuation of melodic material following the F_7 chord. [1G] illustrates a static harmonic progression with the F# and B organ points sustaining as voices move basically conjunctly to the B tonality at [1G]. The F# and B organ points gain full domination of the harmonic movement at [1G], where a

caesura is felt with the aid of the following eighth rest. [1H] is harmonically the same as [1B] with slight rhythmic changes. The III_2 harmonies proceeding to the I_1, G major chord give the cadence great harmonic weight and very little rhythmic weight. [1I] is approached smoothly and uses the subdominant and dominant tones in the soprano to support the E major tonality at [1I]. The thickened texture, the complete triad, and the fermata support the cadential effect. [1J], [1J^1], [1J^2] and [1J^3] are all semi-caesuras which fragment the material between [1J] and [1J^3]. The strong perfect 5th interval given agogic emphasis and followed by a rest is evidence of its caesural qualifications. The four 'j' examples are definitely caesuras or rhythmic breaks (breaths) in the music and they are harmonically strengthened by the consonant triadic structures. They certainly are not what one would think of as cadences - the endings of a phrase or section. The one measure preceding [1J^1] and [1J^2] is not a phrase, but a motive. These 'j' caesuras alleviate the tension of this motive and allow the musical fabric to breathe. This may be an appropriate time to explain why this writer thinks a caesura is a bit different from a cadence, although the two terms seem synonymous and are used interchangeably. In the more tonal music of Hindemith (and Poulence), there are places in the music which come to harmonic rest, and which can be called harmonic resolutions. If such a harmonic resolution is coupled with rhythmic factors such as agogic accent, dynamic accent, thickened or thinned texture, or change in range (pitch accent), on

the resolving sonority, or if there is a shift in the following material (a new rhythm and/or melodic motive or great change in texture or articulation), a cadence is felt, even without a rest between the resolution and following phrase. Anything that terminates a melodic or motivic idea can be considered a cadence. [1E], [1F$_s$], [1H], [2C$_s$], [2D$_s$], [2E$_s$] and [2K$_s$] are good examples of a cadence effected mainly by the harmony. The on-goingness of the rhythm is not relinquished; there is an immediate carry-over into the new phrase after these cadences, but the cadences have agogic weight which aids the harmonic influence and the ultimate chords occur in a metrically a strong position - on beat one. These examples are cited to illustrate that a 'cadence' is harmonically dependent (in tonal music), whereas a caesura is basically a rhythmic manifestation. Webster's New World Dictionary (copyright 1964), defines cadence as: "5. in music, the harmonic ending, final trill, etc. of a phrase or movement"[13]. Caesura is defined as: "2. a pause showing rhythmic division of a melody"[14]. The [2J] examples tend to be more of a caesura - rhythmic pause - although the vertical sonorities are harmonically relaxed, being of highest value in Hindemith's chord classification. The [2J]

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[13]Webster's New World Dictionary - Concise Edition. David Guralnik, editor. The World Publishing Company. Cleveland and New York. c. 1964, p. 104.

[14]loc. cit., p. 104.

caesuras do not end a long phrase; rather they are used to fragment Mm.331-341. Example [3A$_s$] illustrates well a caesura effected solely by rhythm and not influenced by the harmony. Returning to the analysis of Sonata I, example [1K] employs the favored long organ point on the dominant tone, B^b, and on the tonic, E^b, simultaneously. Since the E^b bass organ point has sounded for an entire 44-measure section of the sonata, the tonal center of E^b has been secured. Between these pedal points a basically stepwise line advances toward an E^b minor chord which slides into the E^b major triad at [1K]. This cadence, like the last one of Sonata I, is strongly harmonic and rhythmic. The cadential progression of [1L] uses parallel 7ths above the tonic E^b pedal and a whole tone passage, in descending motion. The texture is thinned to two voices and built up to nine voices in the final E^b minor triad. The penultimate G major triad is a 3rd interval from the E triad - not a strong tonal root movement. Hindemith says that a skip of a 3rd makes the cadence soft and amiable.[15] The sonata ends with the same tonal center as at its beginning, but gives tonal importance to distantly related tones within the sonata, (B major at [1G]; E major at [1I]).

The renderings of cadences in the second sonata of 1937 are similar to those in No. 1, except for a few varied cadences.

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[15]Hindemith, Paul. Craft of Musical Composition.

[2A] exhibits Hindemith's typically smooth, chromatic voice-leading to the final cadence chord. The often used parallel motion, sustained tonic E, and bass progression up a 3rd, produces a soft cadence, yet one of rhythmic strength. [2B] is an abrupt ending to the short motivic phrase, but it is a definite caesura as a result of the rest and completely different material and rhythm following. The III_1 construction at [2B] does not give it the restful or tensionless quality of the I_1 cadences. [2C] concludes the harmonically and rhythmically tense section on an open B octave - the 'perfect' interval. The downbeat placement of [2C] and the half-note value and increased dynamic level all contribute to its cadential position. The dissonant harmonies are resolved at [2C], but there is no rhythmic break - only the agogic emphasis on the B octaves. [$2C_s$] merits the term semi-cadence because of its abruptness. This is the case also for [$2D_s$] which is the same cadence progression as [2B], transposed down a minor 2nd. The on-goingness of the material after [$2D_s$] and [$2E_s$], that is, the lack of a true breath after these cadences, places them in the semi-cadence category. [2F] ends a very linear section by sounding a locrian scale on G in octaves. The G organ point in the top line prepares the way tonally for the cadence on G. The low range of the G octaves and the long pause following give [2F] a strong caesural effect. [2H], [$2H^1$] and [$2H^2$] are cadences influenced by: 1) longer note values; 2) percussive

quality; 3) thickened texture; 4) dissonance resolving to consonance; and 5) the quarter rest following. The agitated dissonant phrases of this section find rhythmic and harmonic release at these cadences, which are visible breathing points in the score. These cadences form a sequence, progressing in 2nds from F-G-A. [2I] repeats the [2B] cadence up a perfect 4th. [2K], being an agogically strong sonority on a complete major triad, would appear to be a full-cadence; yet it is termed semi-cadence because of the immediate sounding of the next phrase. There is no rhythmic break or breath. There is rhythmic relaxation at [$2K_s$] as the rhythm is augmented on the A^b chord. This rhythmic augmentation and the harmonic or tonal rest felt here are enough criteria to convince one of [$2K_s$]'s cadential status. This same argument can be made for most of the other semi-cadences in these organ sonatas. [2L] is a clear-cut cadence using octaves and an open 5th on the ultimate chord, ending the section as it began, in an F tonality. It is one of the few cadences which moves from the dominant to the tonic in the bass, (V-I), which is tonally the strongest root progression, says Hindemith. It is surprising that he does not use a V-I intervallic progression more often. [$2M_s$] uses the same material as [2A] and is a very smooth, contrapuntally-conceived cadence. The contrary motion in the outer voices supports the good voice-leading. [2N] repeats [2A] exactly except for the ritard and full measure of the end E major chord. The repeated E's in the top voice aid in signaling the tonic. Repeated notes serve

as a strong indicator for tonal centers. [2O] and [2P] need no explanation. [2P] duplicates the [2O] cadence an octave higher. [$2Q_s$] is effected by longer note values. It is not harmonically or metrically strong. [2R] uses the strong root progression of V-I on an E major chord, and it has metric and agogic support, as do most of the cadences. [$2S_s$] serves as a rhythmic and harmonic pause following the dissonance created by free contrapuntal lines. The rhythm at [$2S_s$] becomes heterogeneous, unlike the rhythms of most of the fugue. [2T] is approached by an octave-sounding of a chromatic and disjunct three measures. The final three heterogeneous chords progress smoothly in 2nds except for the bass movement in 3rds. The A major chord ends the basically E-centered sonata using familiar procedures: 1) agogic emphasis, 2) smooth (ofton chromatic) voice leading in 2nds, and 3) the penultimate chord, a group A chord, progressing to a full major triad - a I_1 chord.

In the last organ sonata composed in 1940, cadence [$3A_s$] is the most unusual of all the cadences studied, ending on a VI chord (the tritone predominating). This is definitely a caesura produced by the rhythmic factors, with no harmonic influence. This is a chromatic and dissonant section which does not terminate on a consonant sonority. A breathing point in the texture is definitely felt following [$3A_s$] with the eighth and quarter rest. Example [3B] is very different, cadencing on the pure consonance of an octave.

The linear writing here makes it difficult to analyze vertical sonorities; a horizontal analysis of the intervals reveals good voice leading, with stepwise progression into the second beat, where stronger tonal intervals of the 4th and 5th move toward the open C octaves. The harmonic relaxation at [3B] from the previous dissonance aids the cadential quality. The rhythmic factors are not very strong with the cadence ending on a metrically weak part of the measure - beat four, and with only an eighth rest following. The heterogeneous rhythm at [3B] is an important rhythmic factor after hearing the previous contrapuntal treatment of the material. After [3B], the texture, still linear, becomes thickened from three parts up to as many as seven. There is, so to speak, a textural crescendo and diminuendo along with the dynamic increase and decrease, in the measures between [3B] and [3C]. Also the ascending and then descending line, giving the phrase an arc form, coincides with the crescendos and diminuendos. At [3C] the texture is reduced to three parts again with open E^{b} octaves and a G, an octave above, giving a triadic-structured sound - an harmonically relaxed sonority. The downbeat placement of the I_1 chord, the heterogeneous rhythm, and the following eighth rest support the caesural feeling. The [3C] cadence is abrupt and on a lower value chord than most of the examples. This cadence uses a harmonic retrogression, that is, higher value chords moving to lower value chords: (III_1-I_1-I_2-III_2). The diminuendo and eighth rest after [3C^{I}] gives some support to the

feeling of pause here. The sounding of the chromatic motive following $\boxed{3C^1_s}$ greatly affects the function of the vertical $\boxed{3C^1}$ sonority as being that of terminating the previous melodic/rhythmic idea before a new one appears. $\boxed{3A^1_s}$ repeats the dissonant, rhythmic cadence of $\boxed{3A_s}$, but places the ultimate sonority on beat one of the measure rather than on beat three, so $\boxed{3A^1_s}$ has a bit more metric weight. $\boxed{3D_s}$ is also an abrupt cadence rhythmically. It functions largely due to harmonic means and linear voice-leading. The pedal line descends to B after sounding the 5th and 4th, rises to the 4th degree again (E), to return to the tonal center, B, on the first beat at $\boxed{3D_s}$. The Roman numerals in parentheses indicate the intervallic progression or tonal degree progression supporting the tonal center. The terms dominant, subdominant, and tonic have been used to represent the bass movement of a perfect 4th or 5th toward the tonal center or tonic. Hindemith says that the progression IV-V-I is the strongest, yet he seldom, in these sonatas, precedes the tonic with its dominant; rather he uses the subdominant or a stepwise progression of 2nds or 3rds as the penultimate bass tones. He often uses V-IV-I, with some other tones interspersed for cadencing (Ex. 3g.) The $\boxed{3D_s}$ cadence is of weaker rhythmic inflection because of the continuous quarter notes after $\boxed{3D_s}$, and so is termed a semi-cadence. The factors which qualify $\boxed{3D_s}$ as a caesura are: 1) the triadic, B major construction; 2) the preparation of B as tonic by the $F^{\#}$ and E in the bass and the

stepwise progression down to B; and 3) the downbeat placement of the B triad. Example [3E] has much visible evidence of its cadential status. The seven-part $G^{\#}$ major triad of agogic and dynamic accent is given extra duration with the fermata, and a pause occurs after [3E]; therefore, [3E] has great harmonic and rhythmic significance. The final cadence of the first movement of Sonata III is approached contrapuntally, but with parallel, half-step motion in the lowest three voices to the resolution - the B major chord at [3F]. The descending major triads, descending in 2nds, provide a very smooth cadential progression. It is curious that Hindemith uses an F natural in the bass line, resulting in a tritone with the tonic, B. The bass line does sound a five-note scale of locrian flavor. This [3F] cadence illustrates Hindemith's predilection for resolving the cadential harmonies on the ultimate chord by half step, and often in parallel motion between several chord members. Other cadential influences parallel those of previous cadences and are visibly evident. The second movement is very chromatic and in a very linear style with on-going rhythm which does not relax until the end, at example [3G]. An extended organ point in the tenor sounds the tonic, A, as the bass proceeds in conjunct motion with the rhythmic and chromatic ornamented chorale tune driving to the end A major chord, minus the 5th. The tonic is tonally supported by the appearance of its dominant and subdominant in the bass. The third movement is in the

style of a trio sonata with each part having rather independent material, except where the manuals play parallel patterns. It, too, is chromatic, linear, and tonally supported by the bass A^{b} organ point and the dominant pedal, E^{b}, A chromatic, half-step progression at the allargando produces a sliding effect into the final sonority. The B^{bb} triad is a neapolitan sixth chord, but it does not progress to the dominant before sounding the tonic as traditionally done. The progression is a short series of chromatic chords, all triads or seventh chords, descending in half-steps to the A^{b} major chord - the tonal center of the beginning of the sonata. The parallel, chromatic motion of the upper voices plus the broadening tempo aid the cadential effect, along with the high chord values used here.

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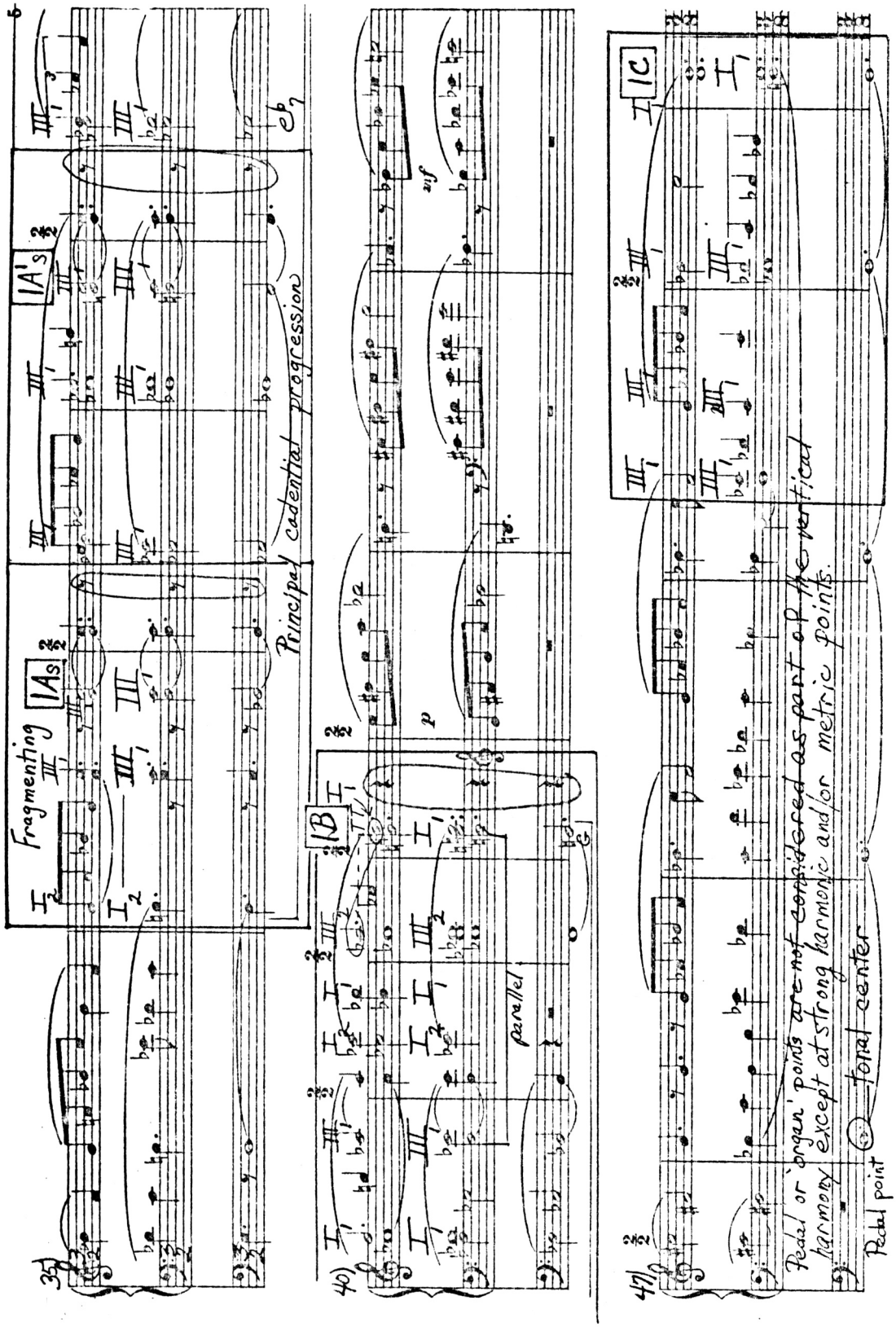
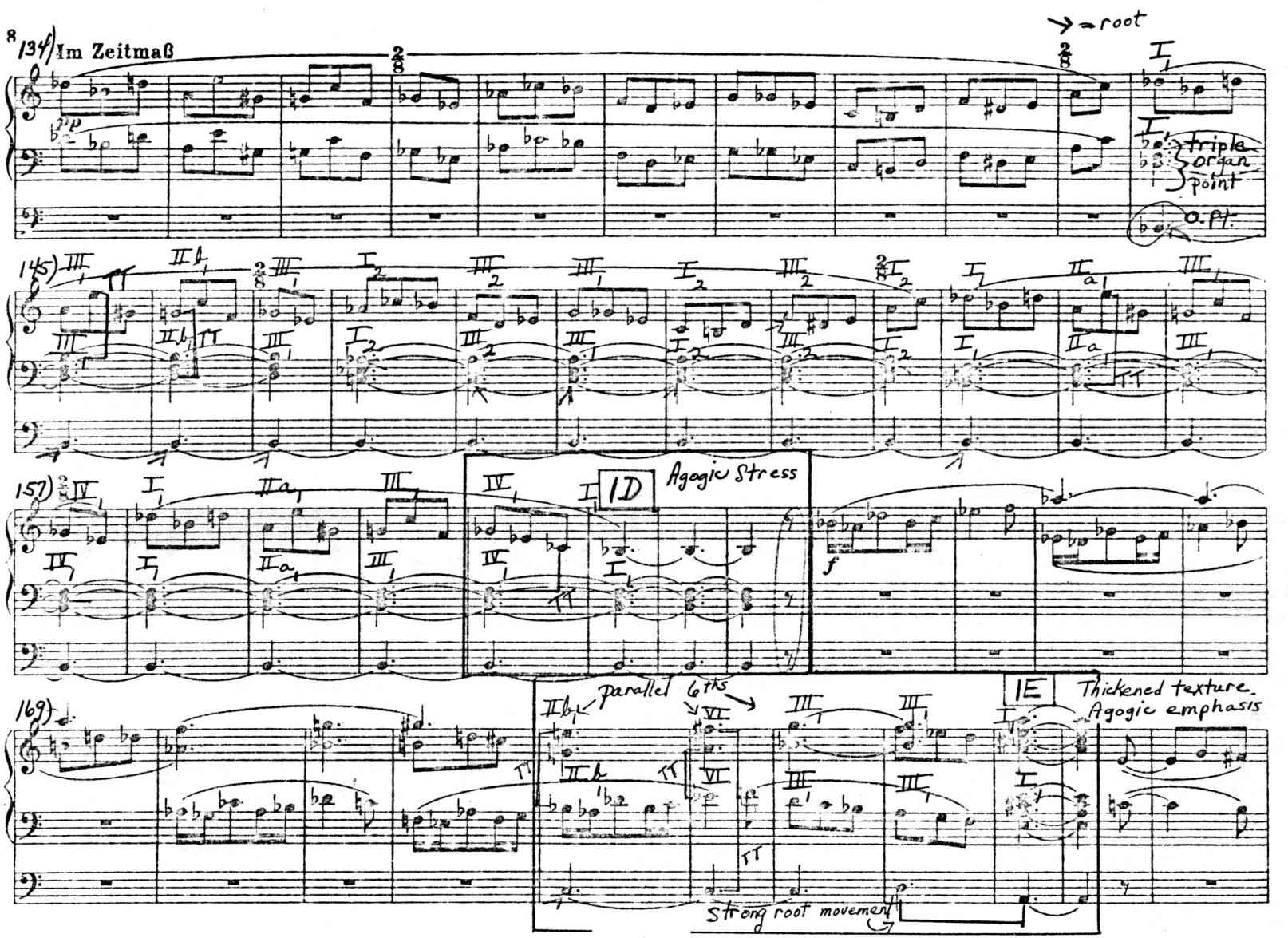
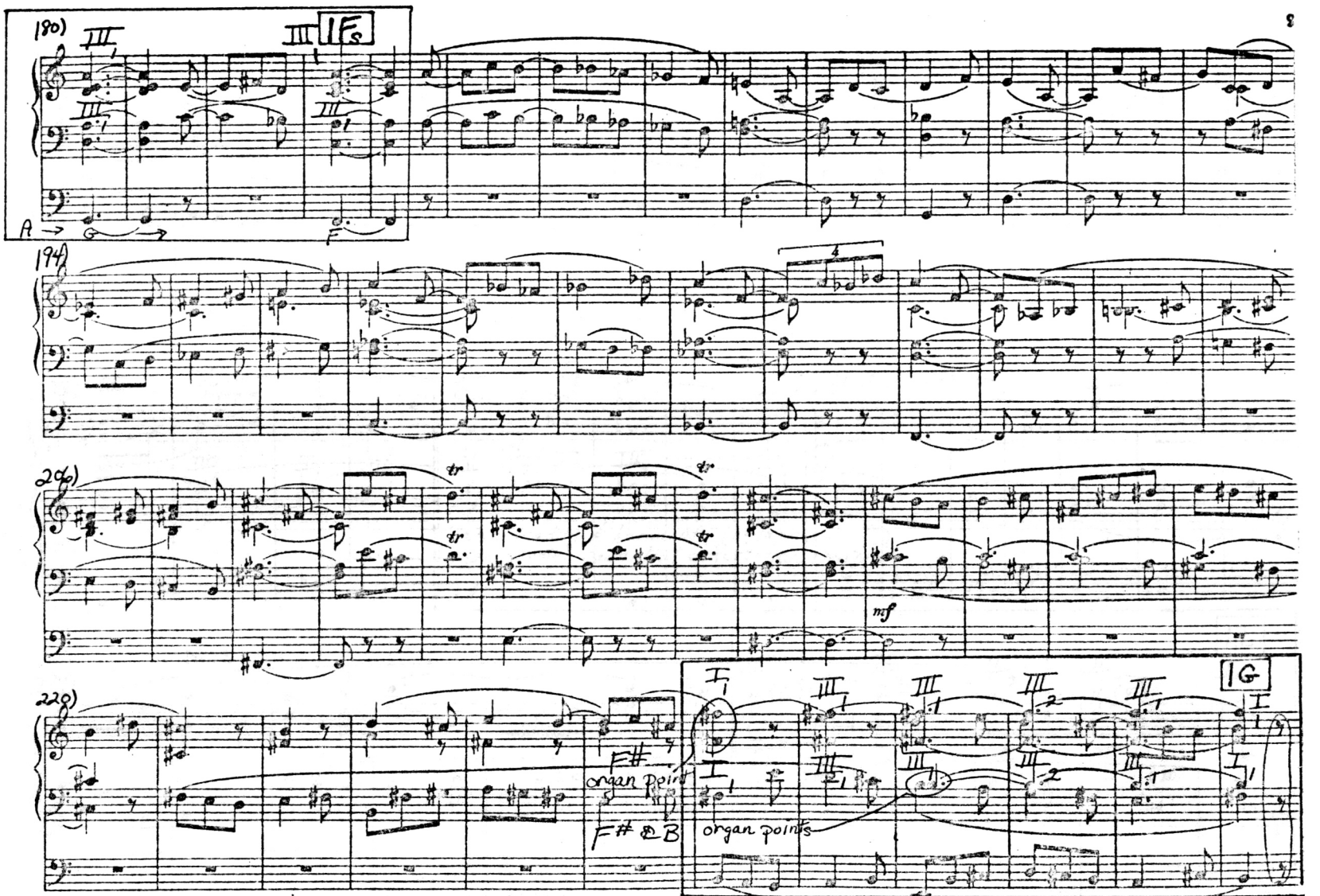
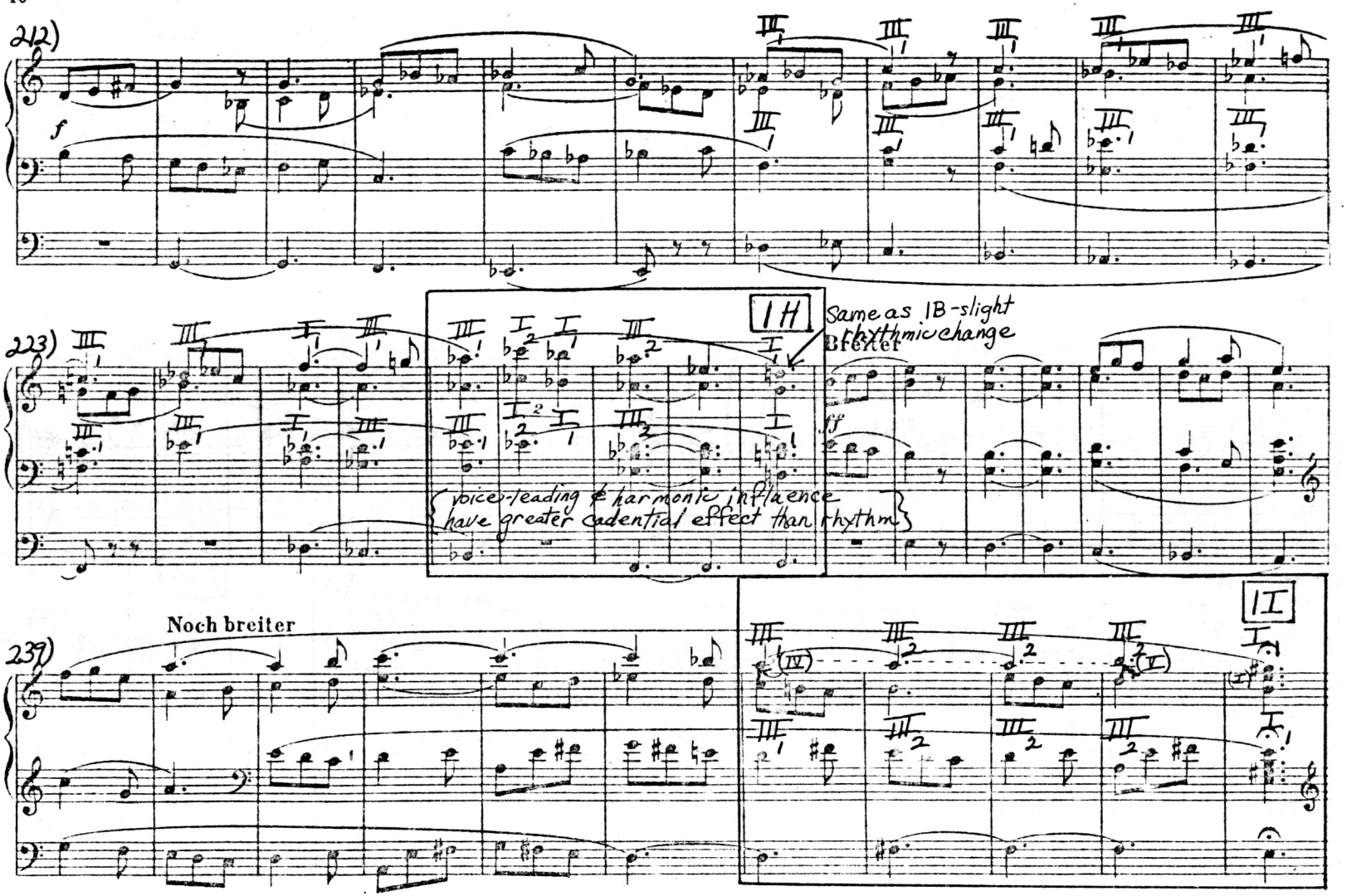
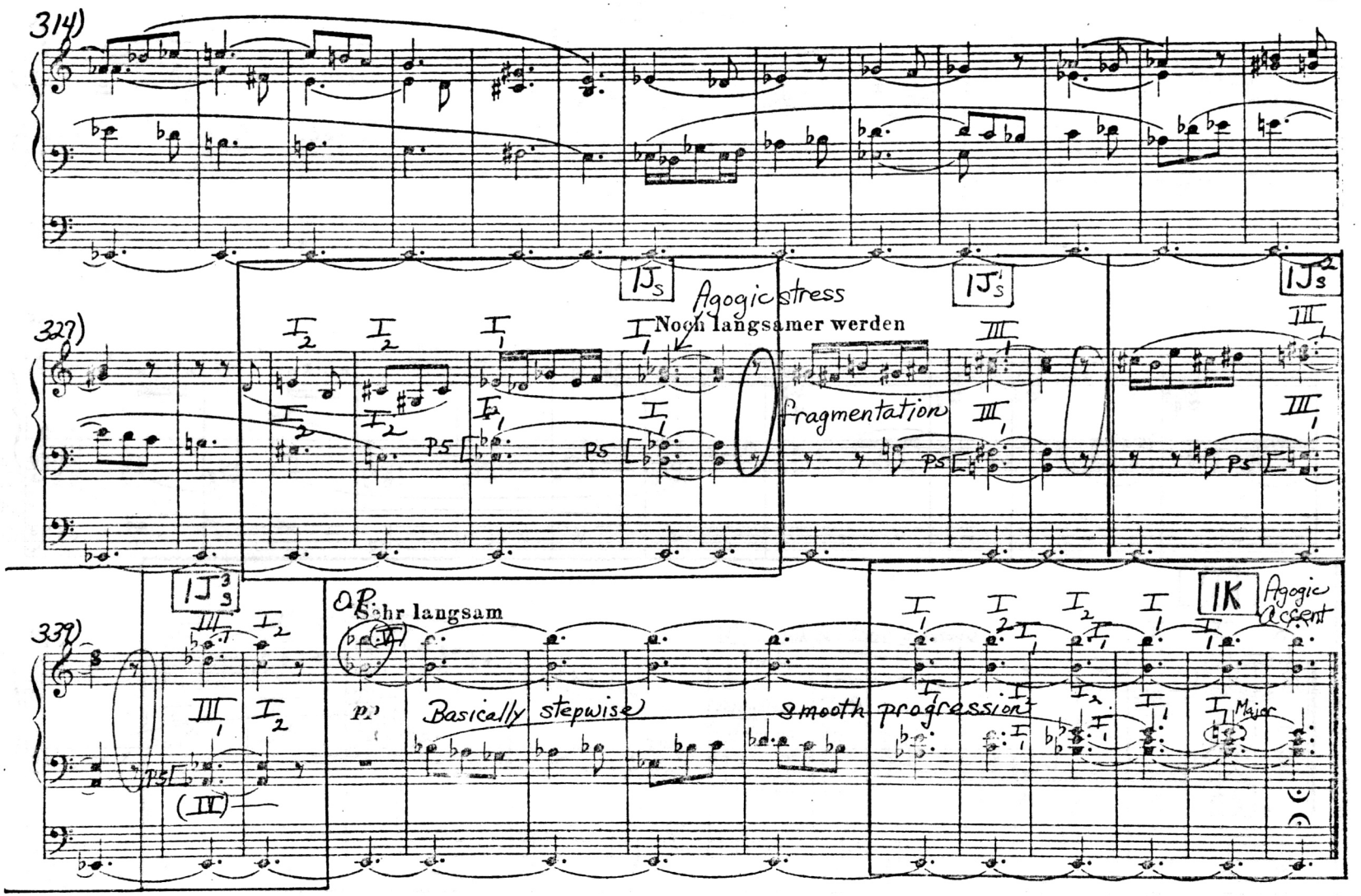
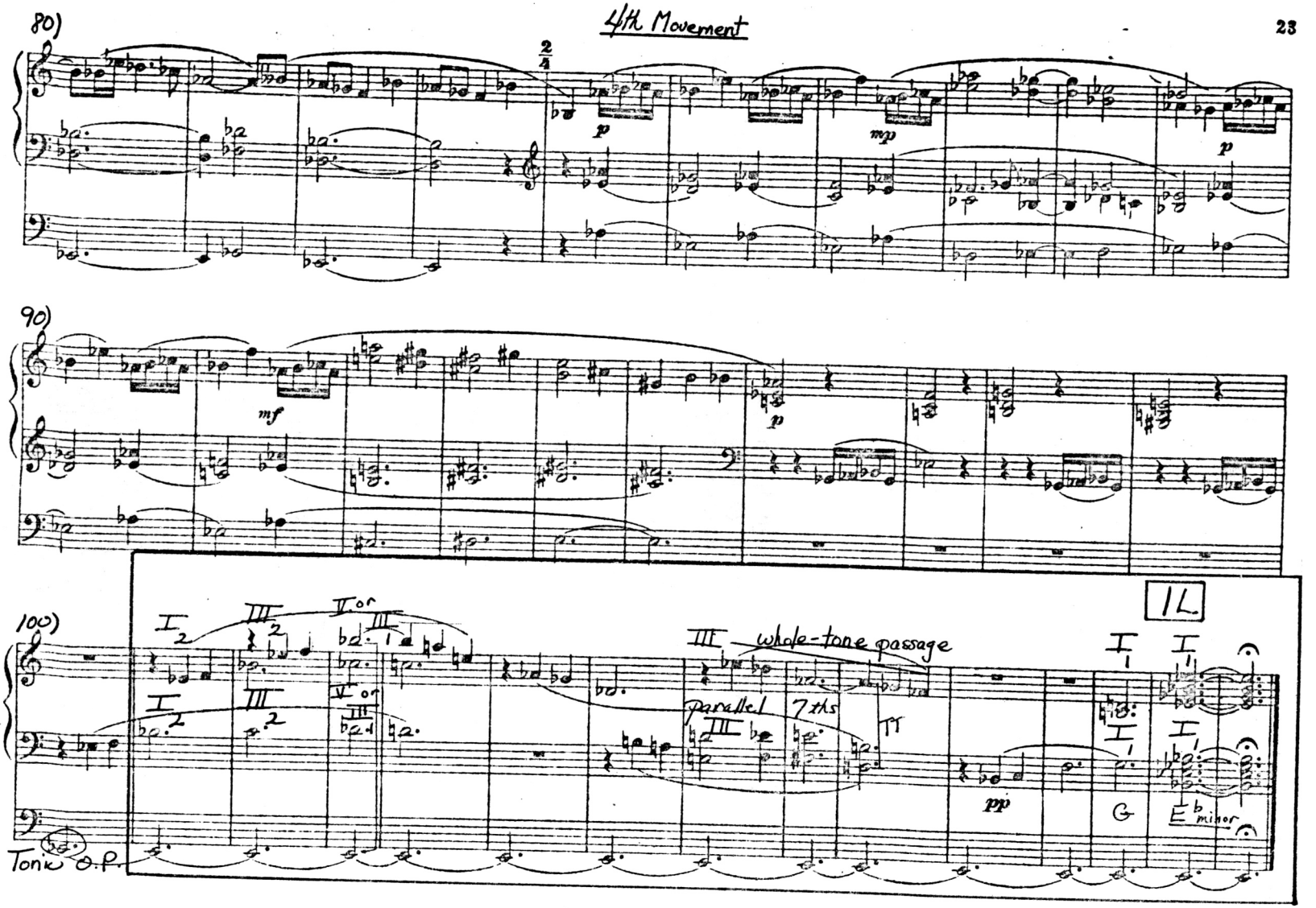

fragmenting
IA'S
Principal cadential progression
IB
parallel
IC
sf
p
sf
Pedal or 'organ' points are not considered as part of the vertical harmony except at strong harmonic and/or metric points.
Pedal point
tonal center


8
134 Im Zeitmaß
= root
triple organ point
O. Pt.
145)
157)
1D
Agogic Stress
f
169)
parallel 6ths
1E
Thickened texture
Agogic emphasis
Strong root movement


180)
IF
A
F
194)
200)
tr
mf
220)
F#
organ point
F# & B
IG
organ points


212)
f
223)
1H
Same as 1B - slight rhythmic change
Breiter
ff
voice-leading & harmonic influence have greater cadential effect than rhythm
Noch breiter
239)
1I
(IV)
(I)


314)
327)
339)
IJs
Agogic stress
Noch langsamer werden
Fragmentation
IJs
IJs
IJ3s
OP
Sehr langsam
Basically stepwise
Smooth progression
IK
Agogic accent
Major


80)
2/4
p
mp
p
90)
mf
p
100)
IL.
whole-tone passage
parallel 7ths
pp
G
E♭ minor
Tonic O.P.

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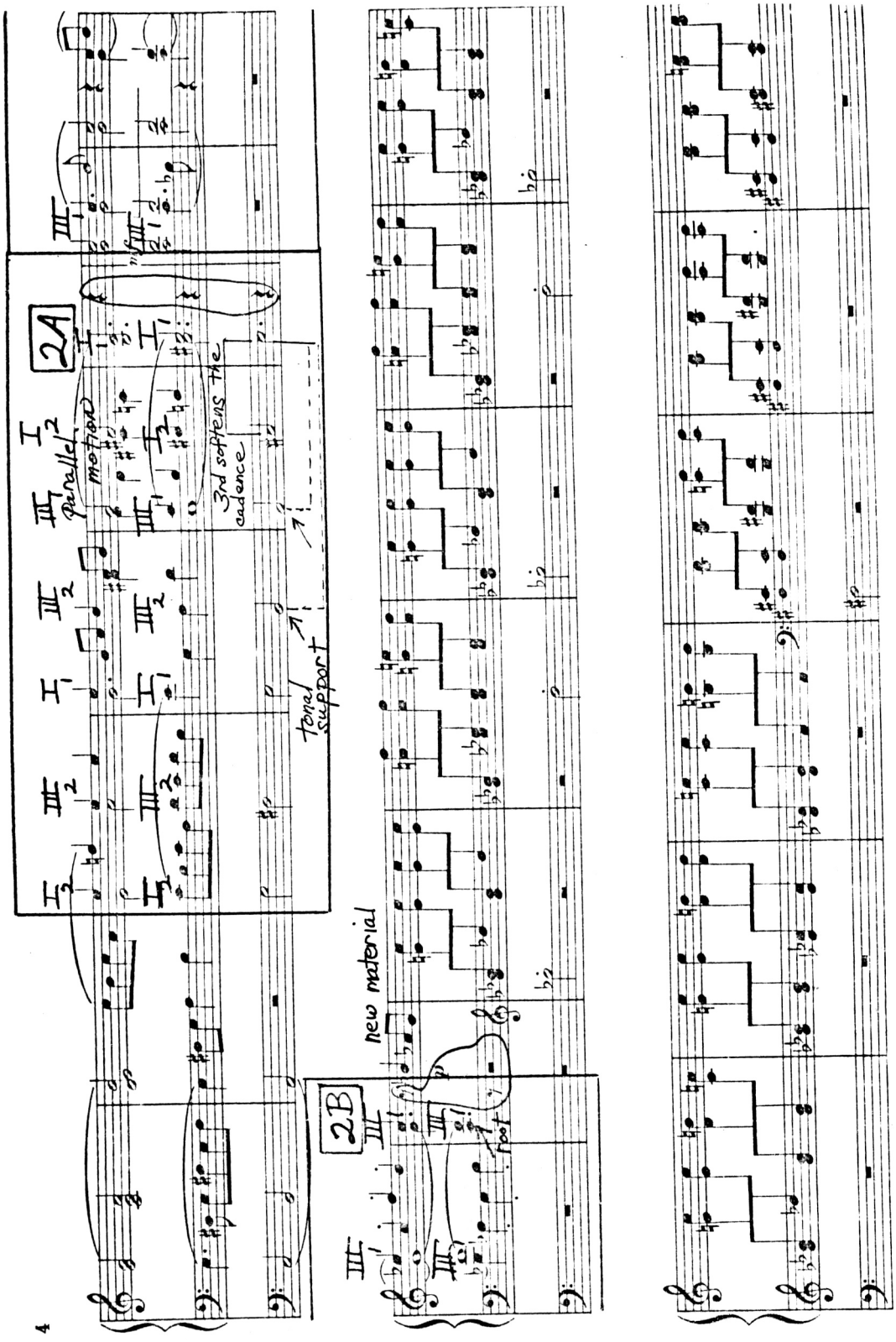
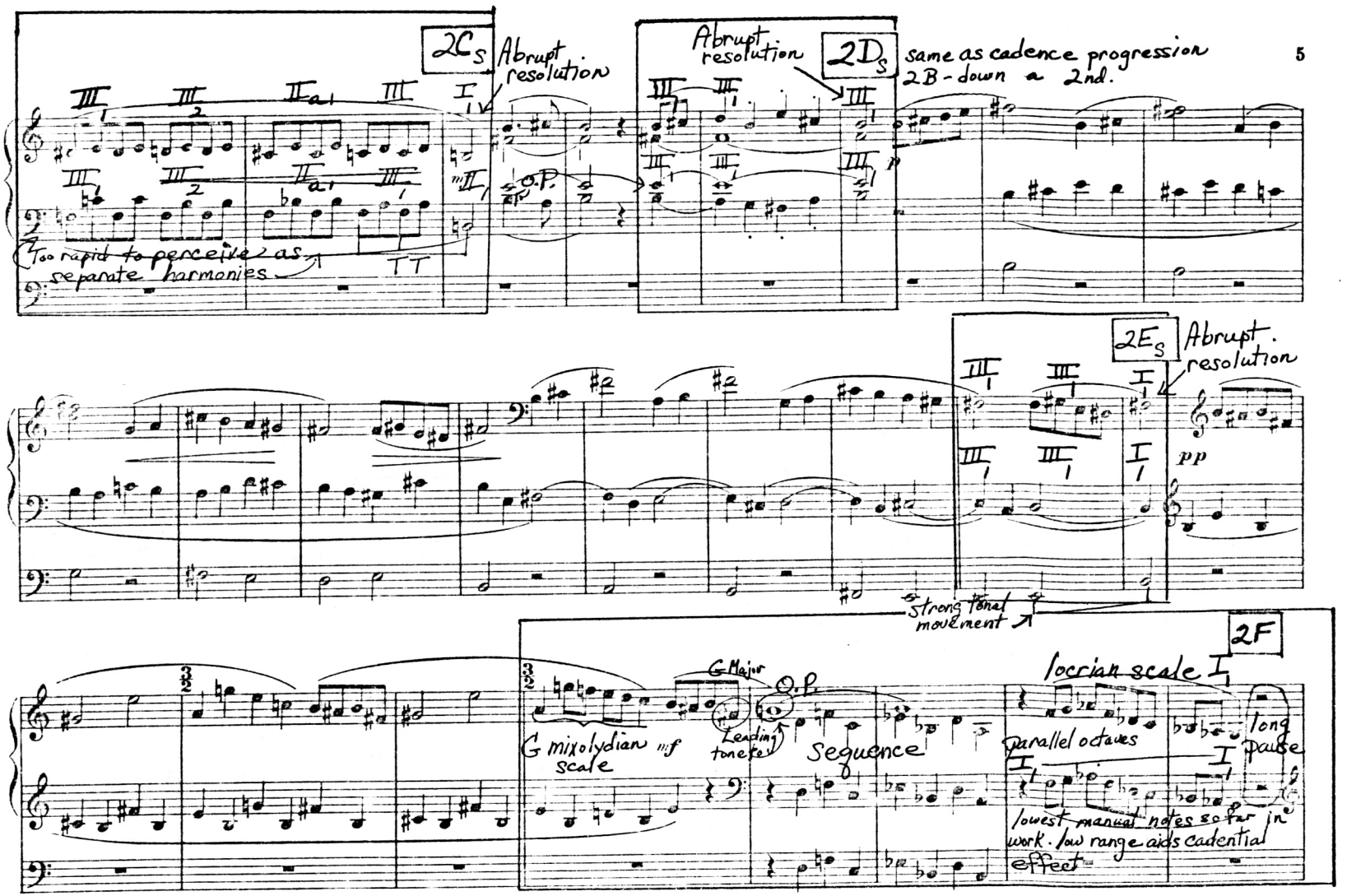
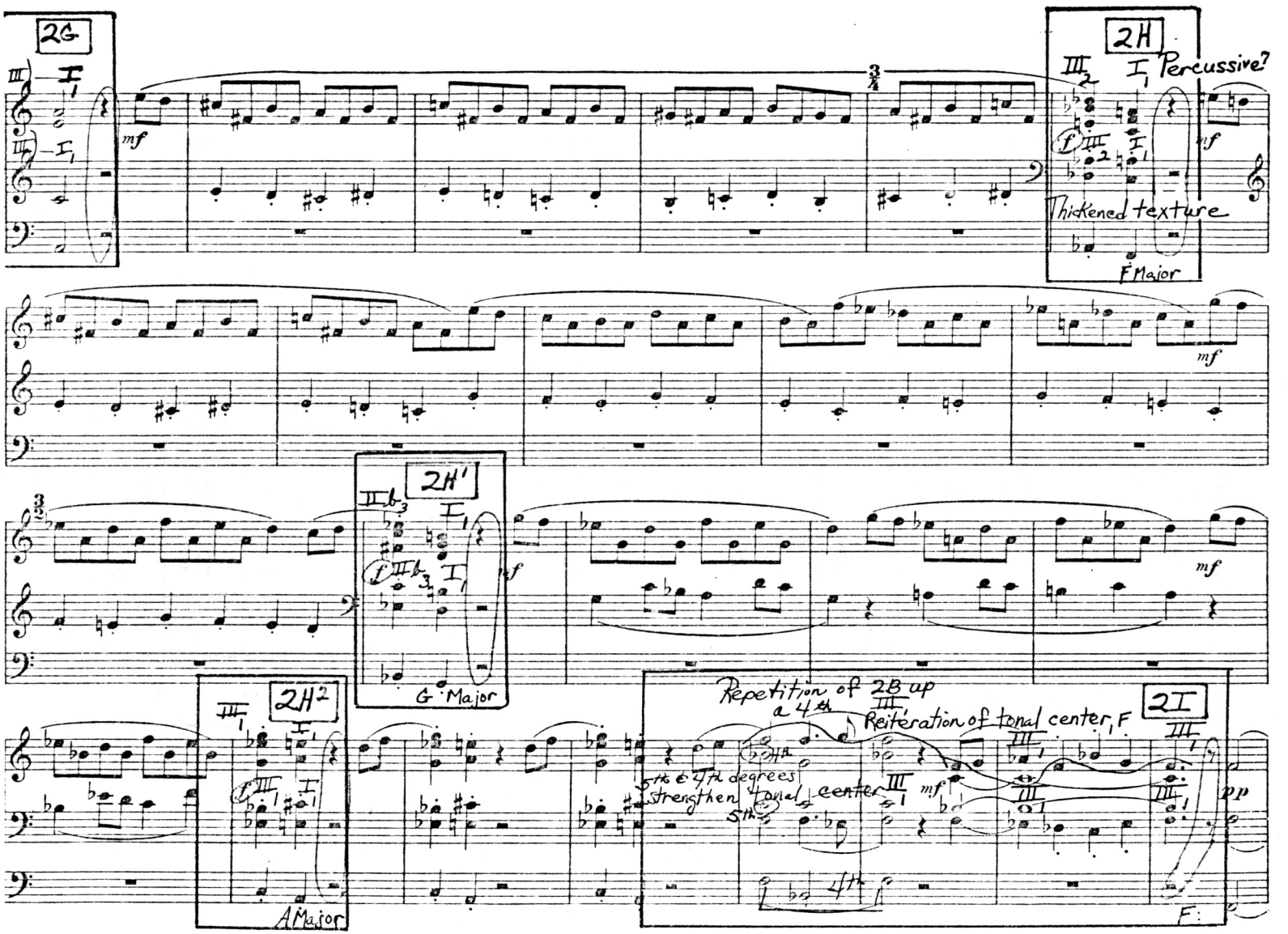
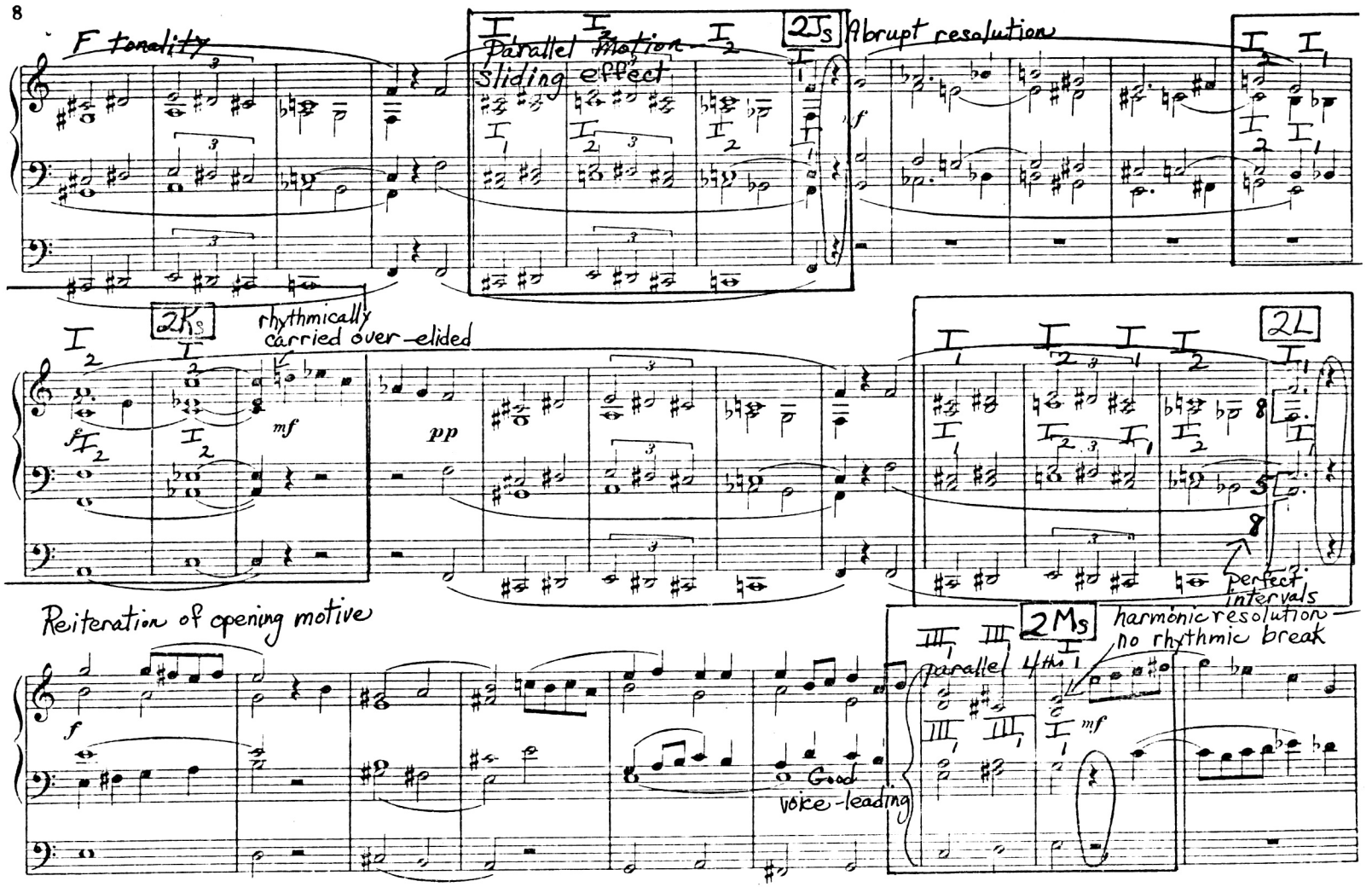
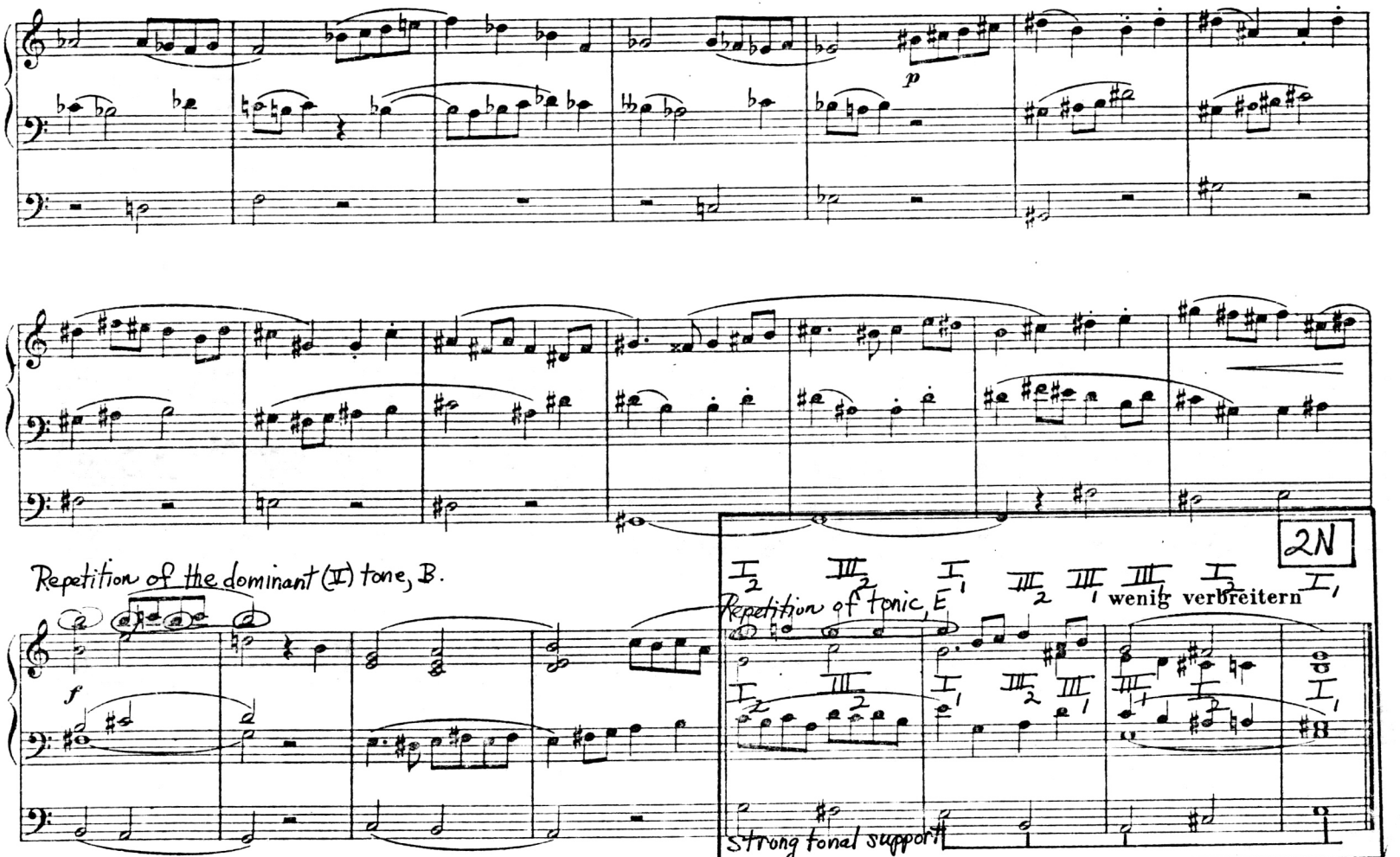

2A
parallel motion
3rd softens the cadence
tonal support
2B
new material
root


2C S
Abrupt resolution
Too rapid to perceive as separate harmonies
Abrupt resolution
2D S
same as cadence progression 2B - down a 2nd.
2E S
Abrupt. resolution
pp
Strong tonal movement
2F
Locrian scale
G mixolydian scale
mf
G Major
Leading tone
Sequence
parallel octaves
long pause
lowest manual notes so far in work. low range aids cadential effect


2G
2H
Percussive?
Thickened texture
F Major
2H'
G Major
2H²
A Major
Repetition of 2B up a 4th
Reiteration of tonal center, F
5th & 7th degrees strengthen tonal center
2I
F:

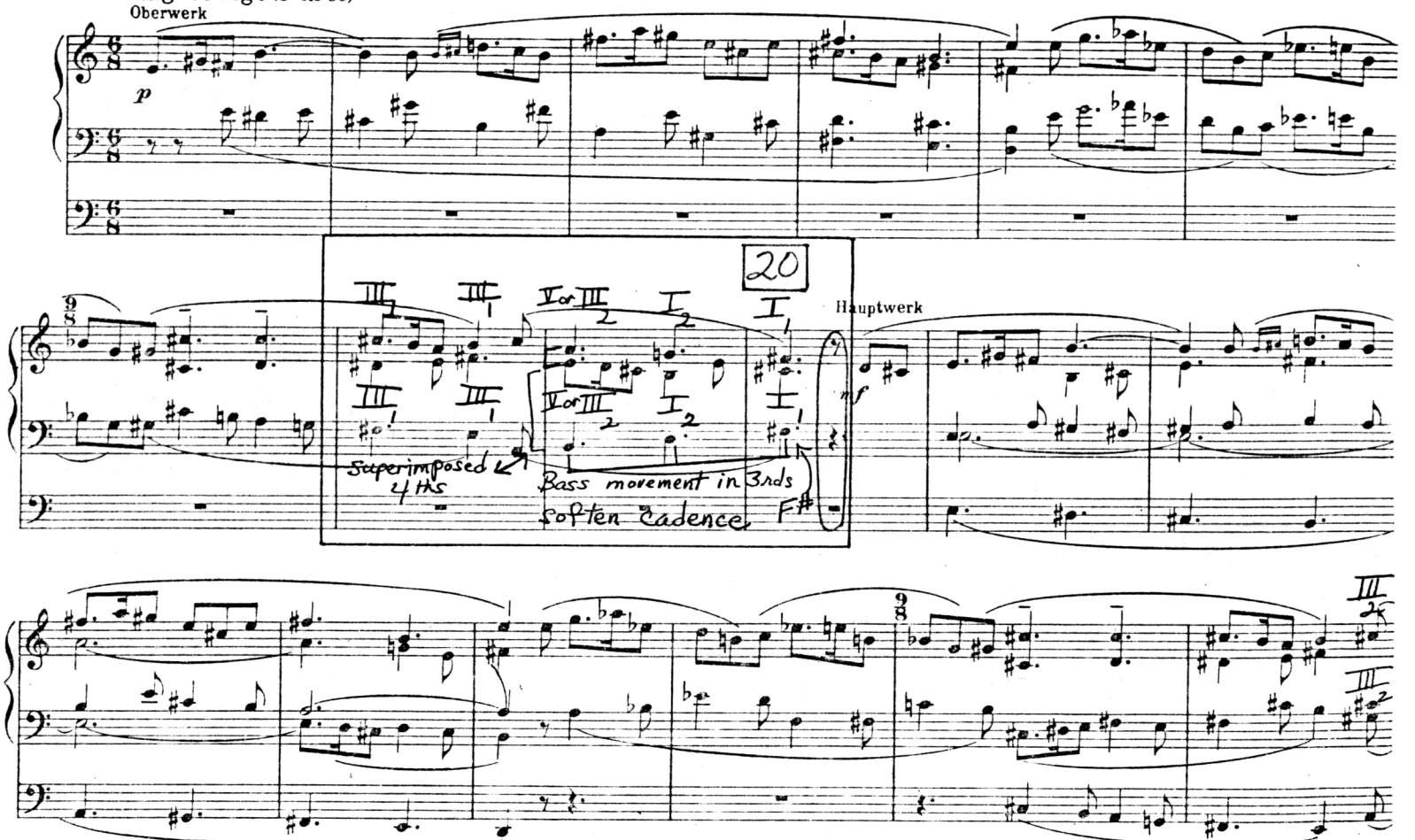

F tonality
2Js
Parallel Motion
sliding effect
Abrupt resolution
2Ks
rhythmically carried over-elided
2L
Perfect intervals
Reiteration of opening motive
2Ms
harmonic resolution
no rhythmic break
parallel 4ths
Good voice-leading

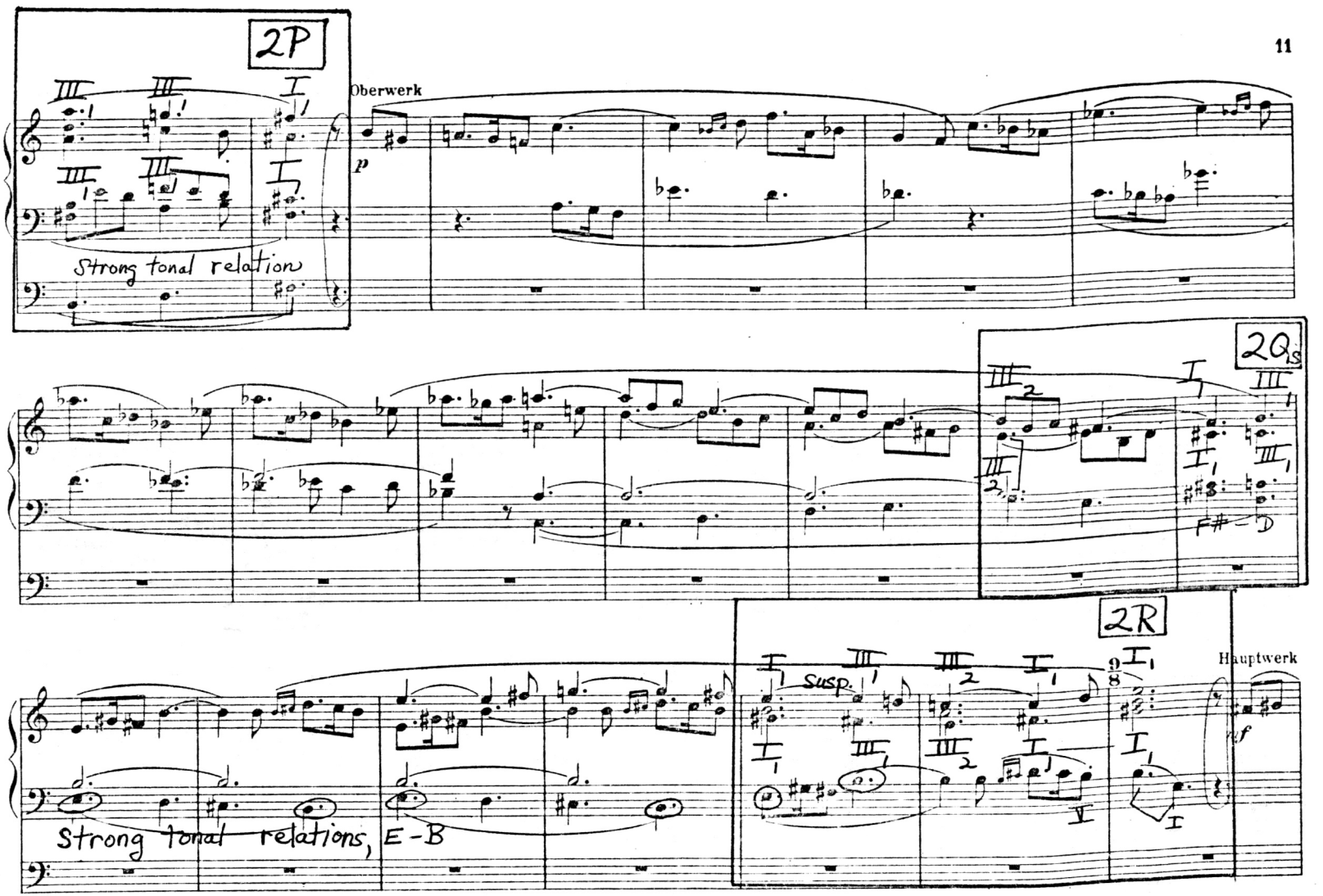

p
Repetition of the dominant (V) tone, B.
f
2N
Repetition of tonic, E
wenig verbreitern
strong tonal support

II

Ruhig bewegt (♩. bis 50)

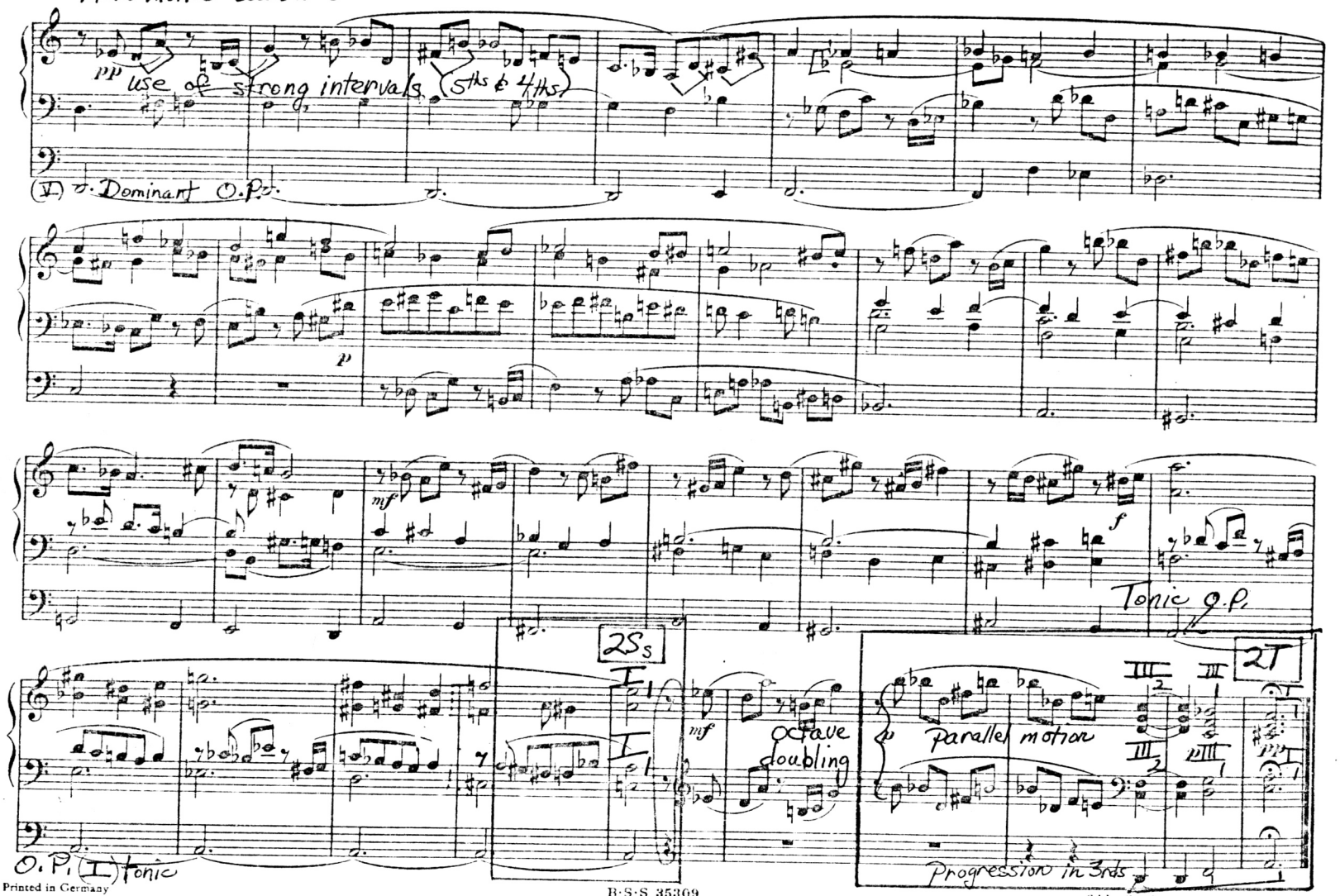
Oberwerk




2P
Oberwerk
p
Strong tonal relation
2Q
F# – D
2R
susp.
Hauptwerk
f
Strong tonal relations, E-B

main motive - down a 5th

III Fuge



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B·S·S 35309
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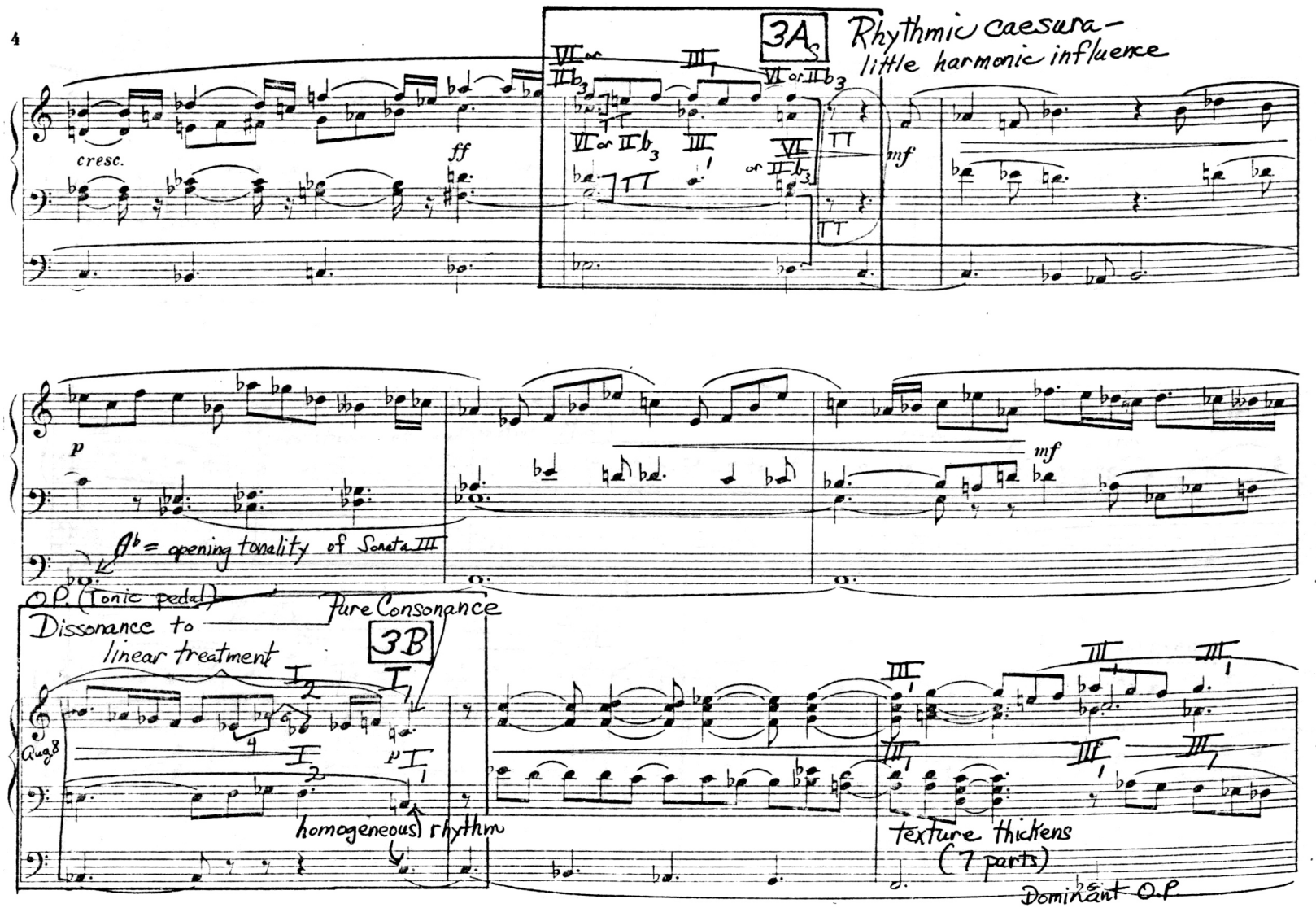
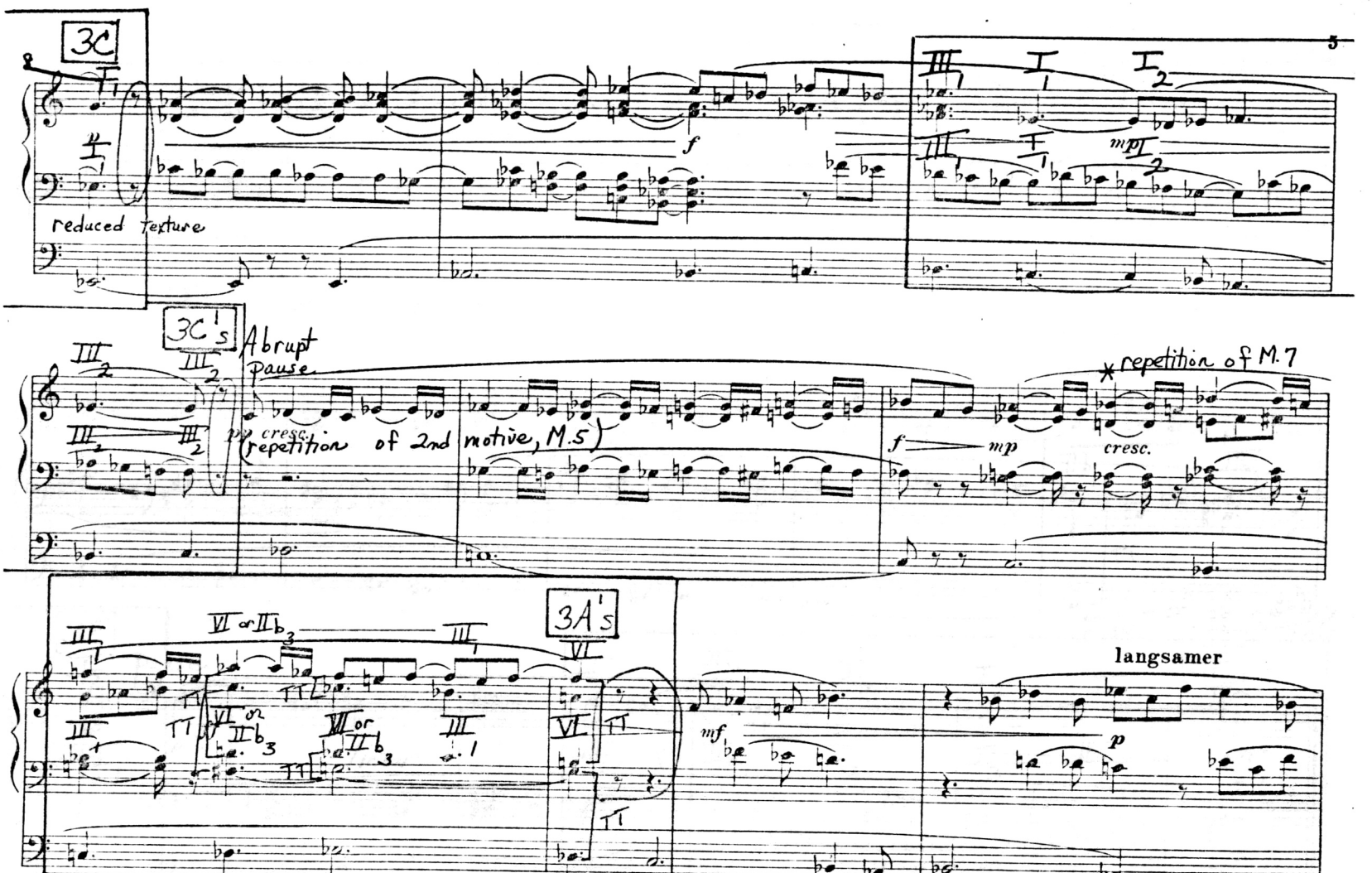
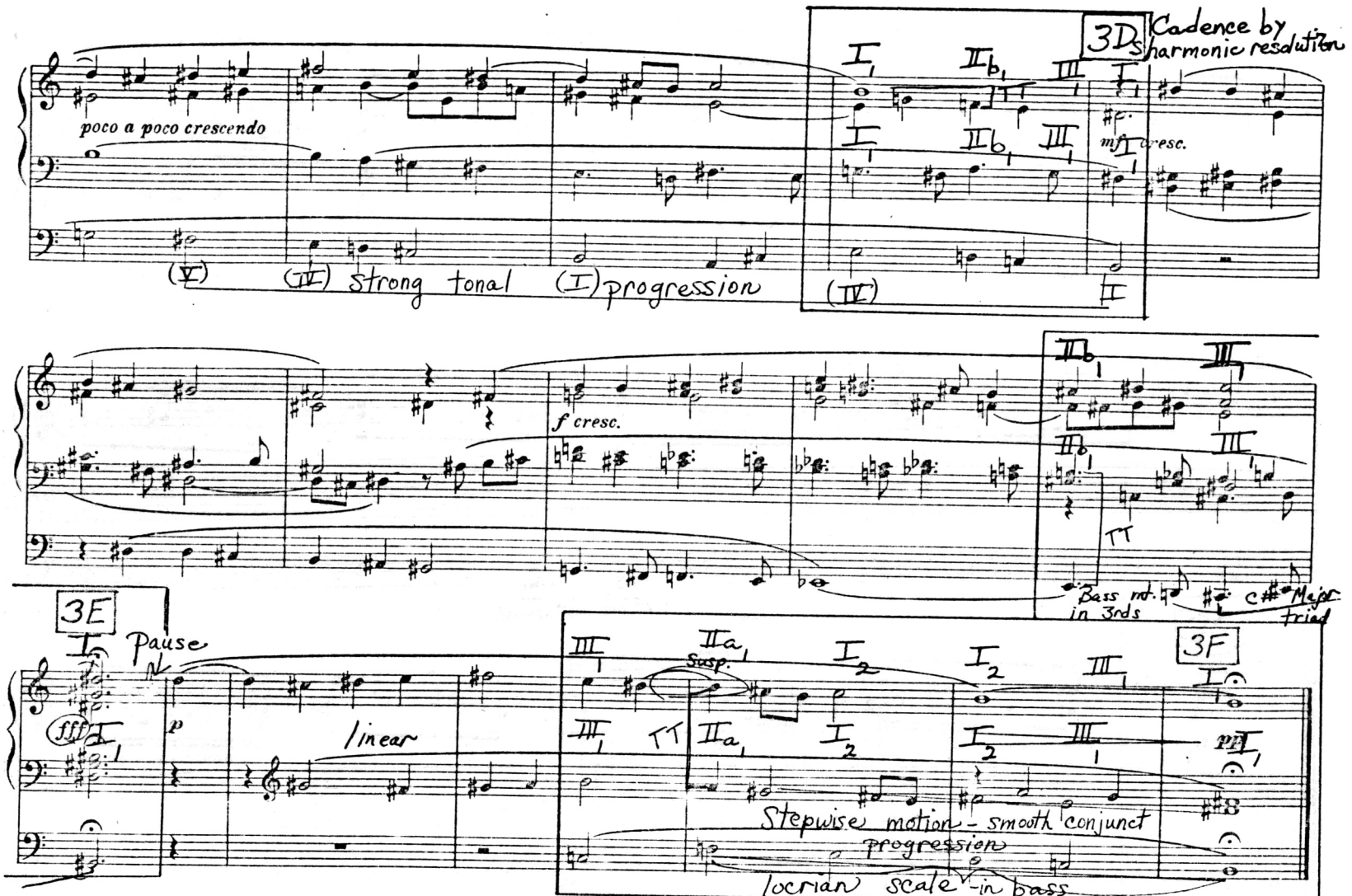
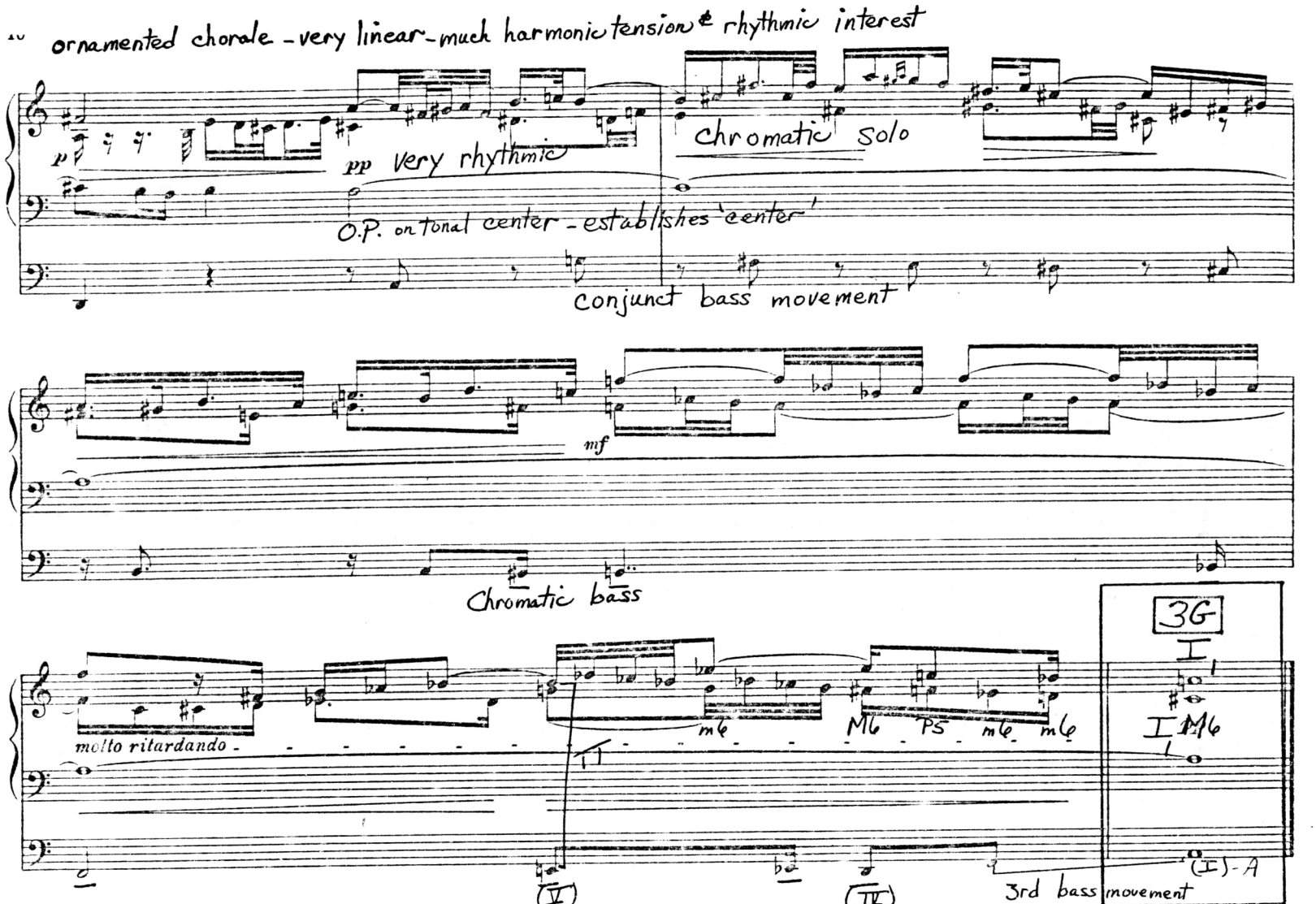
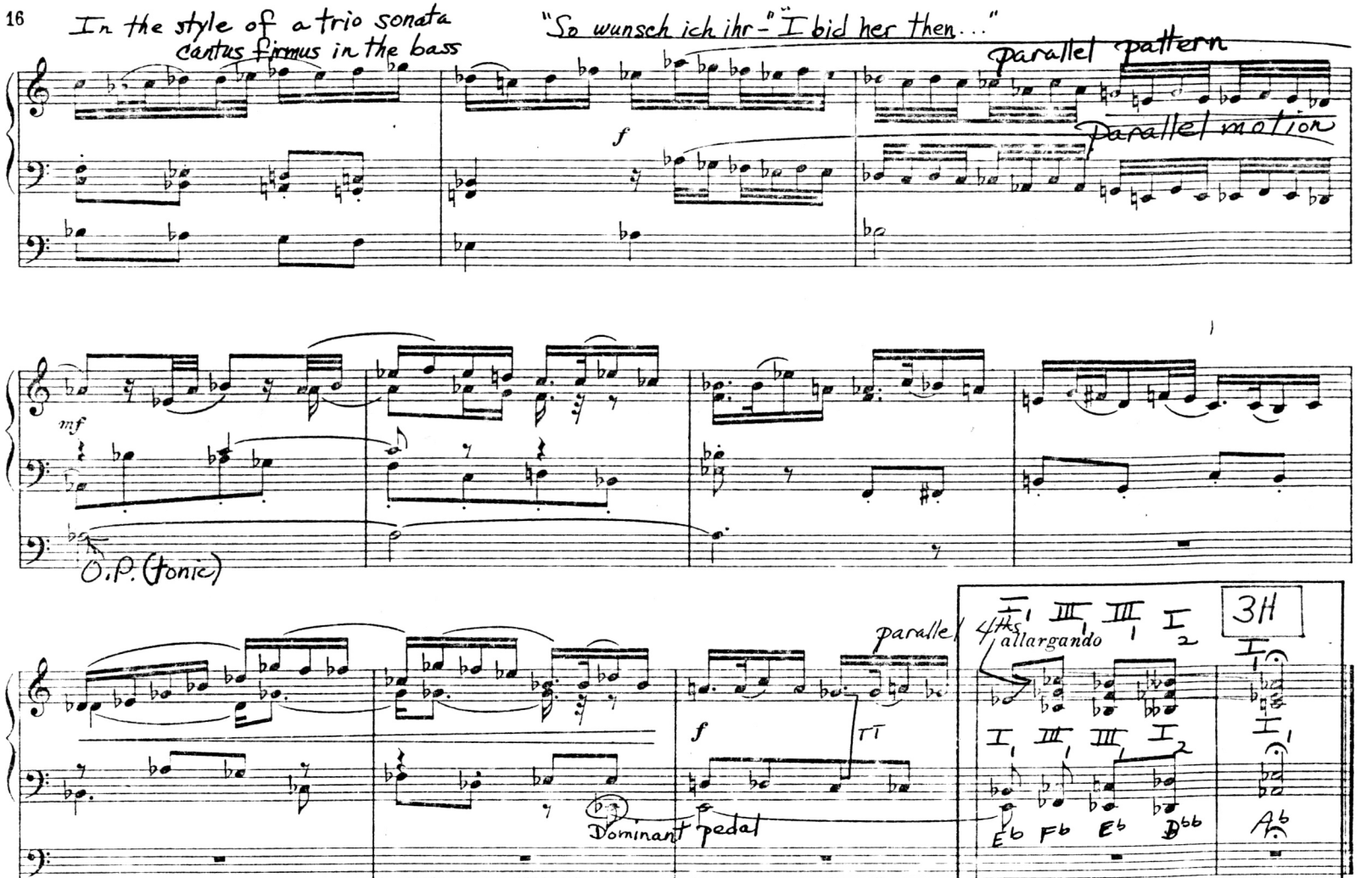

3A
Rhythmic caesura—
little harmonic influence
cresc.
ff
mf
p
mf
A♭ = opening tonality of Sonata III
O.P. (tonic pedal)
Pure Consonance
Dissonance to
linear treatment
3B
Aug 8
homogeneous rhythm
texture thickens
(7 parts)
Dominant O.P


3C
reduced texture
3C's
Abrupt Pause
repetition of 2nd motive, M.5)
repetition of M.7
cresc.
3A's
langsamer


3D
Cadence by harmonic resolution
poco a poco crescendo
(V) (IV) strong tonal (I) progression
(IV)
mf cresc.
f cresc.
Bass mt. in 3rds
c# Major triad
3E
Pause
fff
p
linear
3F
Susp.
pp
Stepwise motion - smooth conjunct progression
locrian scale - in bass


ornamented chorale - very linear - much harmonic tension & rhythmic interest
p
pp very rhythmic
chromatic solo
O.P. on tonal center - establishes 'center'
conjunct bass movement
mf
Chromatic bass
molto ritardando
m6
M6
PS
m6
m6
3G
I
I M6
(V)
(IV)
3rd bass movement
(I) - A


16
In the style of a trio sonata
cantus firmus in the bass
"So wunsch ich ihr-" "I bid her then..."
parallel pattern
parallel motion
f
mf
O.P. (tonic)
parallel
f
tr
Dominant pedal
4ths
allargando
3H
Eb Fb Eb Db
Ab

Summary of Sonatas I, II and III

The following chart of cadential techniques should reveal the most favored cadential procedures of Hindemith. The importance of cadencing on a complete major or minor triad is apparent. The triad is used almost twice as often as an open octave and/or a fifth or third as the final sonority. A very stepwise, often chromatic, progression into the ultimate chord is characteristic of his style. Also characteristic is the strong metric placement of final cadence chords. Only about one fifth of the ultimate sonorities are on beats other than beat one. Agogic accent is an important factor for 75% of the cadences studied. Eleven cadences received no agogic stress; [1H] received very little making twelve without agogic influence and thirty-six with agogic weight. Rests, or a pause, following the progression are influential in over 50% of the cadences. In Hindemith's Organ Sonatas harmony and rhythm usually function dependently upon each other. Their simultaneous influence upon cadential progressions and endings is evident, since 31 out of 48 cadences rely upon both rhythmic and harmonic aspects. Texture, dynamics, and range play an insignificant role in these sonatas. These Organ Sonatas like the other keyboard works of this period (late thirties, early forties), are aurally pleasing and often harmonically and rhythmically enchanting. This new chromatic idiom, founded on tonality, provides

many points of harmonic and rhythmic rest from the dissonance and activity that does occur. Phrases do gravitate toward the consonant traids and it is the triadic structures which set tonal centers and give stability to the music. The theory behind this music is very complex; the aural perception is straightforward, comprehensible, and satisfying in all respects.

Cadential Techniques used in Hindemith's
Organ Sonatas I, II and III (1937-1940)

Use of complete major/minor triad: (42%) 1b, 1d, 1e, 1h, 1i, 1l, 2a, 2g, 2h, $2h^1$, $2h^2$, 2k, 2m, 2n, 2r, 2s, 3d, 3e, 3f, 3h (41.6%)

Open octave &/or fifth for ultimate sonority: (25%) 1c, 1g, 2c, 2e, 2f, 2j, 2l, 2o, 2p, 3h, 3c (maj. 3rd) 3g (maj 3rd) (25.0%)

Basically stepwise bass progression (2nds): (29%) 1a, $1a^1$, 1b, 1f, 1g, 1h, 1i, 2b, 2f, 2m, 3a, 3c, 3d, 3f (29.1%)

Bass progression in 3rds: (25%) 2a, 2h, $2h^1$, $2h^2$, 2k, 2n, 2o, 2p, 2t, 3b, 3e, 3g (25%)

Strong tonal progressions: IV-V-I; IV-I; V-I; V-IV-I (15%) 1i (IV-V-I top voice, 2j, 2l, 2r = V-I, 1 e, 2e, 3g, 3h = V-IV-I (14.5%)

Cadence not using I_1 ultimate chord: (23%) 1a, $1a^1$, 1f, $1j^1$, $1j^2$, $1j^3$, 2b, 2d, 2i, 2q, 3a (VI), 3c all III chords except 3a and 3c (III_2) (22.9%)

Cadence not using Group A penultimate chord: (4%) 1d, 2s (4.16%)

Ultimate chord not on downbeat: (21%) 1a, $1a^1$, 2f, 2h, $2h^1$, $2h^2$, 2q, 3a, 3b, $3c^1$ (20.8%)

Use of parallel motion in progression: (23%) 1b, 1l, 2a, 2f, 2j, 2l, 2m, 2n, 2t, 3f, 3h (22.9%)

Rest after final chord: (52%) 1a, $1a^1$, 1b, 1d, 1g, 1j, $1j^{1-3}$ 2a, 2b, 2f, 2g, 2h, $2h^2$, 2i, 2j, 2l, 2o, 2r, 2s, 3a, 3b, 3c, $3c^1$ (52%)

Use of organ point-tonal support: (17%) 1c, 1d, 1j, 1k, 1l, 2s, 3b, 3h (16.6%)

Harmony supplies most important cadential criteria: (8%) 2c, 2d, 2e, 3d (8.3%)

Cadential Techniques used in Hindemith's
Organ Sonatas I, II and III (1937-1940) (Cont.)

Rhythm supplies most important cadential criteria: (17%)	1a, 1a[1], 1j[1], 1j[2], 1j[3], 2q, 3a, 3a[1] (16.6%)
Rhythm and harmony both significant cadential factors: (65%)	1b, 1c, 1d, 1e, 1f, 1h, 1i, 1j, 1k, 2a, 2b, 2f, 2g, 2h, 2i, 2j, 2k, 2l, 2m, 2n, 2o, 2p, 2r, 2s, 2t, 3b, 3c, 3e, 3f, 3g, 3h, (64.5%)

A total of 48 cadences were analyzed: sixteen were semi-cadences - 1/3 of the total.

Mathis Der Maler

The first movement of the symphonic version of the opera Mathis Der Maler (1934), uses cadence procedures like those used in the organ sonatas. Hindemith's chromatic idiom is evident, yet smooth, conjunct motion and contrapuntal voice leading prevail. The Symphony begins with open G octaves and sounds full G major triads several times, thus setting the tonality. The first definite cadence progression of [4A] is approached and dominated by the solo line in the trumpet. This solemn tune is characterized by 2nds and 3rds - two very strong melodic intervals. The progression uses all group A chords - mostly with roots in the bass. The trumpet solo employs an augmented rhythm beginning two measures before [4A], which helps signal the phrase end. The ten part D^{b} major triad at [4A] is approached by a descending minor 3rd in the trumpet as the other instruments rest. The reduction of instruments up to the penultimate sonority of E minor contributes to the dramatic effect of the sudden ten part D^{b} major chord at [4A]. Hindemith's predilection for approaching the ultimate chord by a 3rd shows up here. The spelling of pitches shows an E minor harmony going to a D^{b} sonority - this is an augmented second which sounds the same as a minor 3rd. The use of sharps and/or flats seems haphazard often times. The [4A] progression, seemingly in sharp key tonalities, shifts to flat key centers at [4A] and [4B]. The voice leading does

not always dictate the use of a sharp or flat as one might expect. Hindemith's chromatic vocabulary is quite free in this regard. The cadential factors of example [4A] are: 1) augmented rhythmic approach by the trumpet solo; 2) the reduction in texture and sudden increased texture at 4a = textural accent; 3) agogic stress; 4) the consonant D^b triadic structure of 4a preceded by all group A chords; and 5) the rests (long pause) following the chord as the strings proceed into the next phrase. The six measures after [4A] function like an extension. [4A] could conclude the first section, but the opening motive in octaves is sounded again to conclude this section on a III_1 chord. [4B]'s progression uses all III_1 chords, which turn out to be a juxtaposing of two triads, a 2nd apart: E^b/D^b-D^b+E^b octaves - e^b/D^b-$E^b/D^b/B^b$ - c/B^b. The bass movement from the penultimate to the final chord is again down a minor 3rd (D^b-B^b). The organ points in the three lowest string groups sound as part of the harmony on each beat because the tempo is slow enough to perceive each beat as a separate harmony. The second violins play a sustained E^b octave which sounds like an unresolved suspension on beat two (two measures before 4b), thus adding dissonance to the clear D^b triad in the woodwinds, horns, violas and cellos. D^b is the tonal focus up to the [4B] chord which is rooted on B^b. The sustained E^b's cloud the D^b-centered structures. The ten part chord in the strings on beat 2, one measure before [4B], combines three tonalities, E^b, D^b and B^b. The dissonance is mild and aurally pleasing, as is

the final chord at [4B], probably because of its intervallic construction of superimposed 4ths and 5ths (thus creating some 2nds and 7ths also). When there are several strong intervals within a vertical structure, such as 5ths, 4ths, or octaves, how does one decide which tone is the chord root? This is what *Hindemith says about chord roots: "In groups of tones of* different pitch sounding simultaneously, the deeper tones, with the slower vibration rates, have greater weight than the higher ones (a fact based on the weight of the vibrating material - the air masses)."[16] The [4B] caesura does not cadence on a tonic or tonally-centered chord. The ultimate sonority of C minor vertically juxtaposed with B^{b} is harmonically active, containing tensions needing resolving. The tension is not resolved, but is released with the pause following [4B]. The quarter rests strengthen the caesural effect as do the accents of texture, duration, and range - four-octaves. Example [4C] is a percussive cadential ending, having no agogic influence, although the rapid eighth-note activity ceases at [4C]. The full 19-part E^{b} major triad is the most significant factor, although the descending line to [4C] and the rests following contribute a lot to the cadential feeling. One is not sure of the tonality, although it seems E-oriented. A chromatic resolution to E^{b} results at [4C]. The bass progression is in 2nds: e-$F^{\#}_{7}$ - d-E_{7} -d-E_{7} - E^{b}. [4C] is a stable sonority - a root position triad, I_{1} chord, approached by the next highest valued chords, I_{2} and III_{1}.

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[16]loc. cit., p. 67.

The dominant chord in the woodwinds precedes the downbeat E^{b} chord and tonally supports the cadence end, (V-I). [4Ds] is a bit less definite and termed a semi-cadence because of the on-going eighth notes in the clarinets and the addition of the $C^{\#}$ octaves and the $D^{\#}$ octaves to the penultimate E major chords. Tonality is ambiguous in the measures preceding [4D]. At [4D], an E tonality is assumed. This caesura is felt as a result of: 1) agogic emphasis; 2) the homogeous rhythm of the chord; 3) the thick texture; 4) the basically E major triad; and 5) the rests following [4D]. [4E] is felt as a cadence harmonically and rhythmically. The octave sounding of the motive in the flute, clarinet, and bassoon moves in 2nds to the final chord with a pause injected before the [4E], E minor chord (I_1). The harmony does not sound at complete rest at [4E], possible because the E triad is in inversion. The organ point on G becomes part of the terminating E minor chord - not the tonal center. It is more of a rhythmic relaxation which signals a cadence. The rhythmic activity at [4E] slows and the music breaths momentarily. Example [4F] employs the rest between the last two chords, as [4B] and [4E] do. Agogically stressed I_1 chords, E^{b} and B^{b} major triads, terminate the solo melody in the violins which has been augmented at the ratio of 2:1 (note values have been doubled). The $F^{\#}$-centered section, with $F^{\#}$ bass pedal point, shifts to B^{b} at [4F]. The E^{b} and B^{b} major chords enharmonically would be $D^{\#}$ and $A^{\#}$, but Hindemith shifts back and forth between using sharp and flat

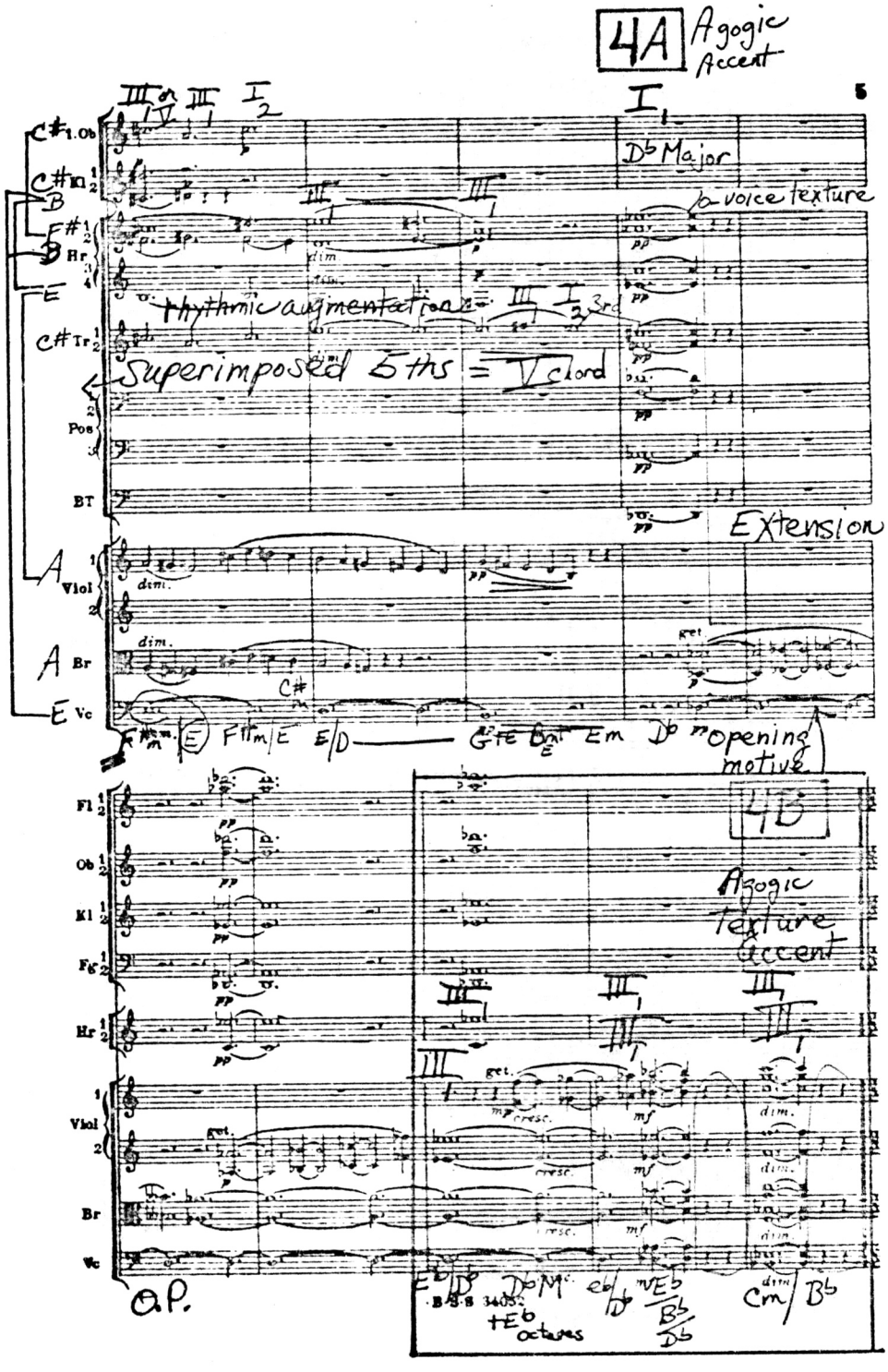
spellings and proves his point that any tonality can contain any chord. The cadential factors are visually apparent in the score for [4G]. 1) The rapid eighth-note motion is terminated; 2) the B major triad at [4G] is emphasized throughout: a. agogic accent, b. texture accent, c. range - 5 octaves, and d. repetition. The ultimate chord is again approached by 2nds - in diatonic, scale-like fashion. [4H] is definitely a semi-cadence of weaker effect, basically because of the ensuing pick-up of the chorale tune by the trombones and the following rhythmic activity in the strings. [4H] is rhythmically very abrupt, although there is one beat of rest for all instruments, and it is harmonically active, tense, and dissonant being a VI chord with the tritone predominating. The chart of condensed cadential chords shows the order of pitches and resulting intervals. The chart does not show duplicated pitches, therefore the texture may be heavier than illustrated in notes (the number of parts is listed). The cadential qualifications for [4H] are: 1) the accent by a. dynamics, b. texture - 19 parts, and c. range - almost 5 octaves; 2) the descending line accompanied by the crescendo in the flutes and violins; and 3) the homogeneous rhythm of all the instruments on the downbeat. The section between [4G] and [4H] is fugal and therefore is contrapuntal in nature. When the entire orchestra finally merges on the [4H] sonority it sounds like an arrival. The following solo material, the chorale tune in the trombones, begins a new section

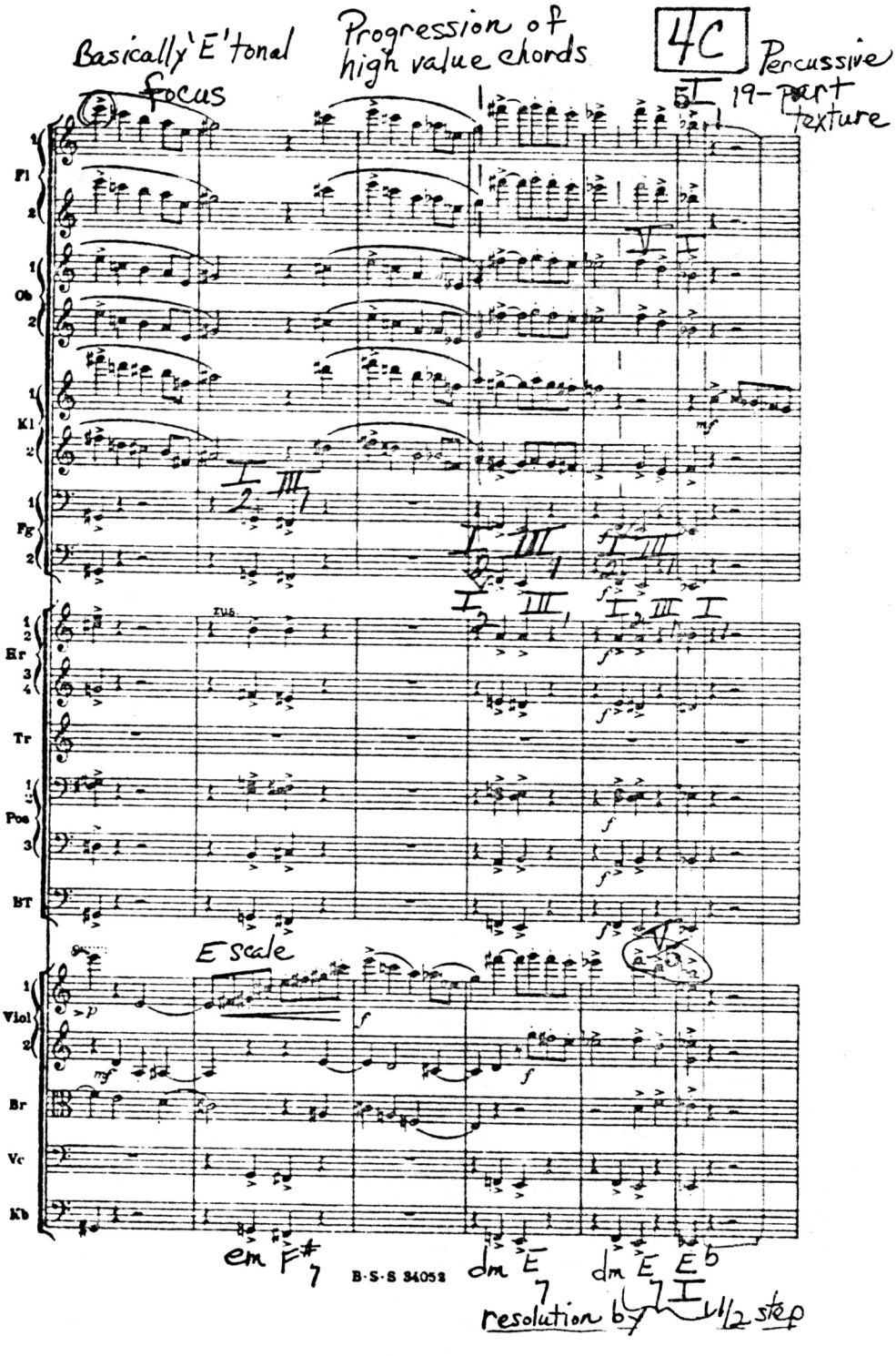
and sounds different from the preceding material. Example [4I] cadences sounding the main motive of this section in the flute as the violins and viola play sustained pitches. The written pitches, from lowest to highest: E-D-D-F on the final sonority sound very consonant, as though the violist chose to play a D instead of an E. The harmony sounds like a clear triad on D. The wide spacing helps subdue the dissonance along with the softening dynamic level and slowing tempo. Besides these cadential factors, a caesura is definitely felt with the use of texture reduction, agogic emphasis, and the pause before the following section which reiterates previous material. [4J] uses the same melodic/rhythmic motive of [4I], but after the 3-measure figure, the symphony concludes with descending diatonic triads moving to G major - the original tonality. At the asterisk (*), the four upper woodwinds and four upper strings sound a pedal point on the dominant tone, D. The 3-octave range of the D organ point expands to a 5-octave range on the stepwise progression: B^{b}-a-G chords. [4J] is very typical of many of Hindemith's cadences. [4J] is 1) agogically, texturally (24 parts), range (5 octaves), and dynamically accented; 2) strengthened by the dominant organ point which prepares the way for the G major chord; 3) approached by a diatonic bass movement in 2nds; and 4) approached by all I_1 chords - those of highest value - the triads in root position.

It is hoped that the chart of the cadential chords used in the

first movement of Mathis Der Maler will be helpful in surveying the harmonies, ranges, and textures used at principle caesuras. The chart of the most influential cadential devices supplies the reader with a condensed version of the analysis.

Mathis der Maler - Paul Hindemith. Copyright B. Schott's Soehne, Mainz, 1937. Copyright renewed 1965. Used by permission of European American Music Distributors Corporation.


4A Agogic Accent
5
Db Major
2a voice texture
Rhythmic augmentation
Superimposed 5ths = V chord
Extension
opening motive
4B
Agogic Texture Accent
ap.


Basically 'E' tonal focus
Progression of high value chords
4C
Percussive 19-part texture
E scale
resolution by 1/2 step
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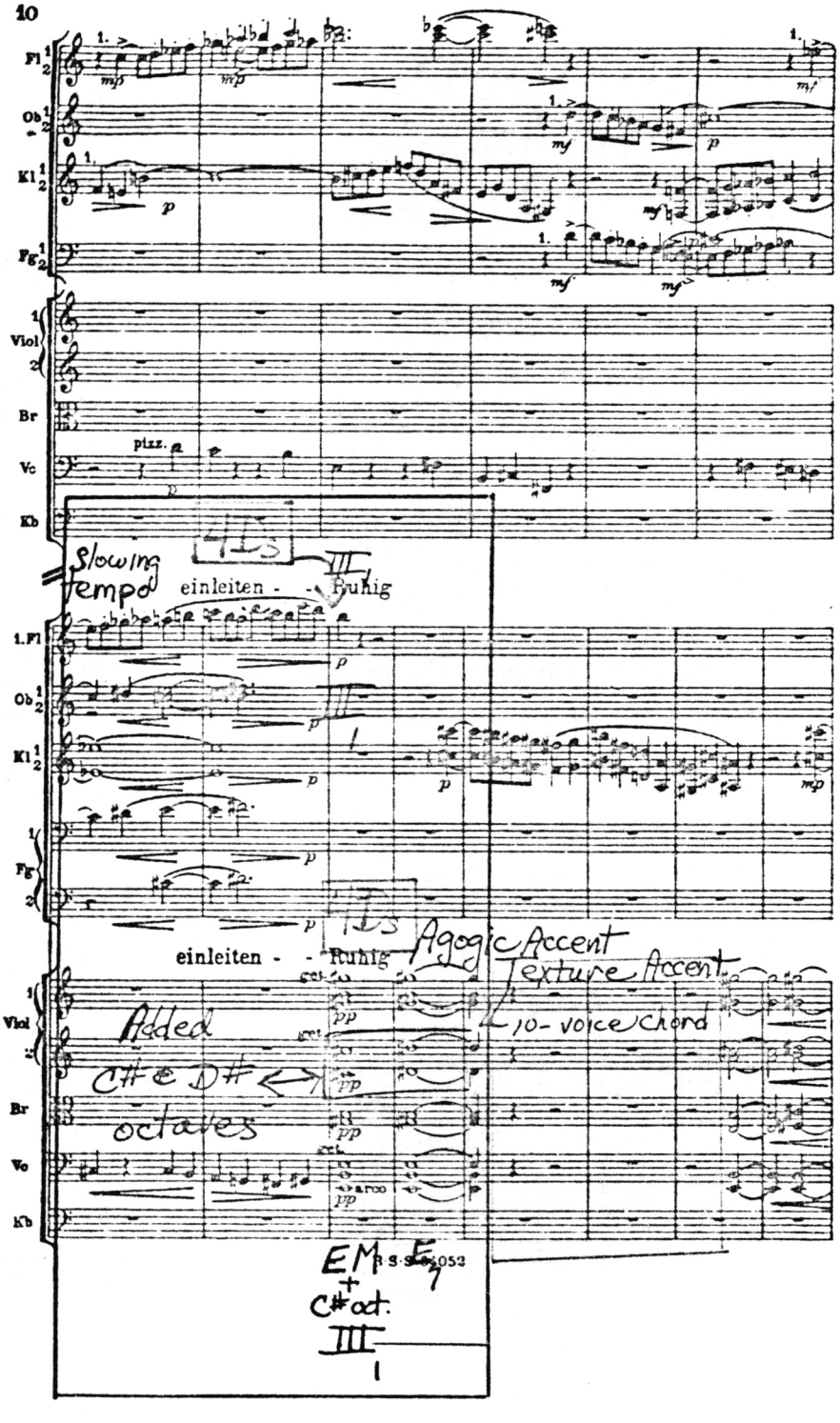
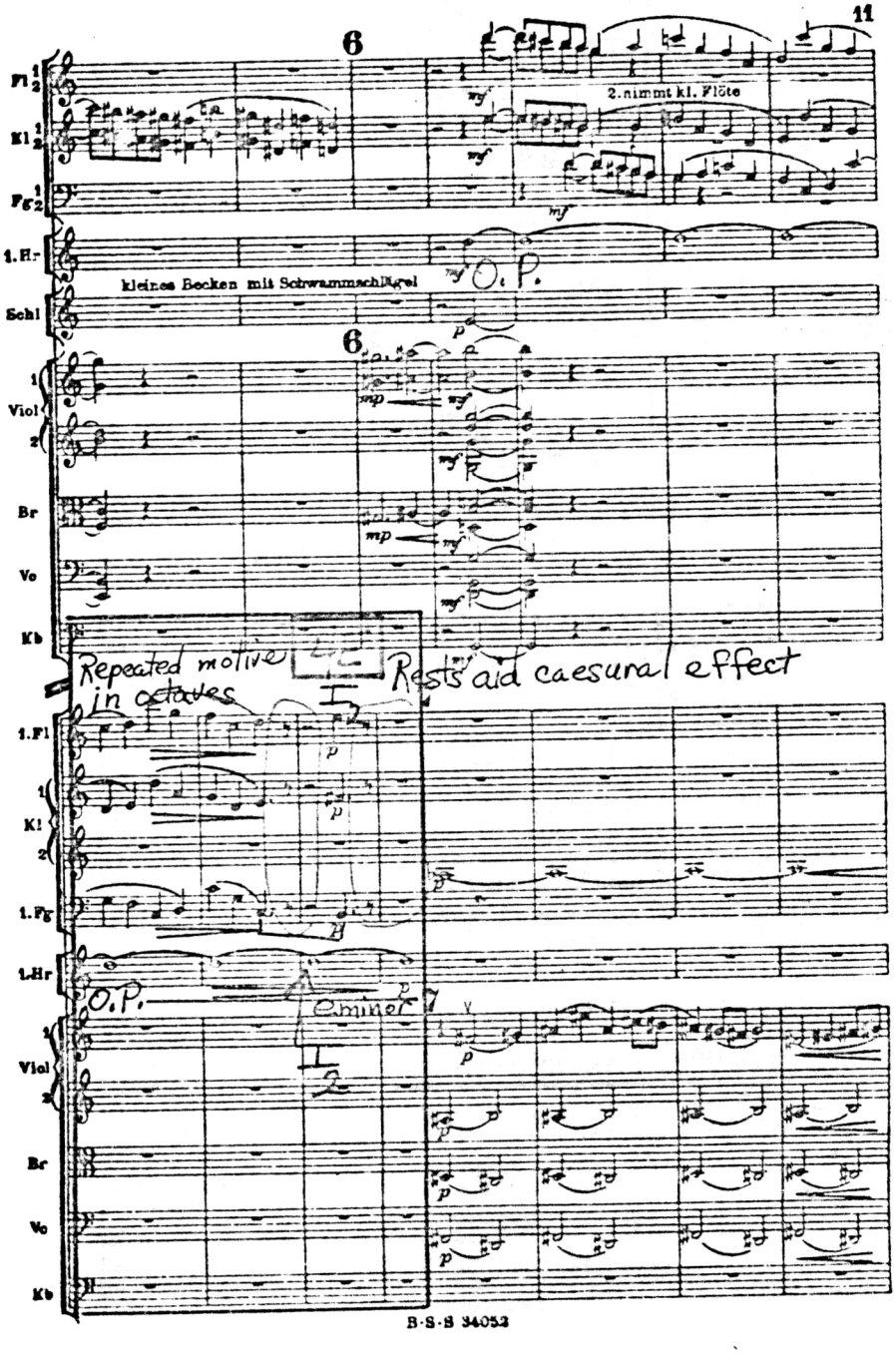

10
Fl
Ob
Kl
Fg
Viol
Br
Vc
Kb
pizz.
Slowing tempo
einleiten - - Ruhig
1.Fl
einleiten - - Ruhig
Agogic Accent
Texture Accent
10-voice chord
Added
C# e D#
octaves
arco
EM
+
C# ost.


11
6
Fl 1 2
Kl 1 2
Fg 1 2
1.Hr
Schl
2. nimmt kl. Flöte
kleines Becken mit Schwammschlägel
O. P.
6
1
Viol
2
Br
Vc
Kb
Repeated motive in octaves
Rests aid caesural effect
1.Fl
1
Kl
2
1.Fg
1.Hr
O.P.
A minor
7
1
Viol
2
Br
Vc
Kb
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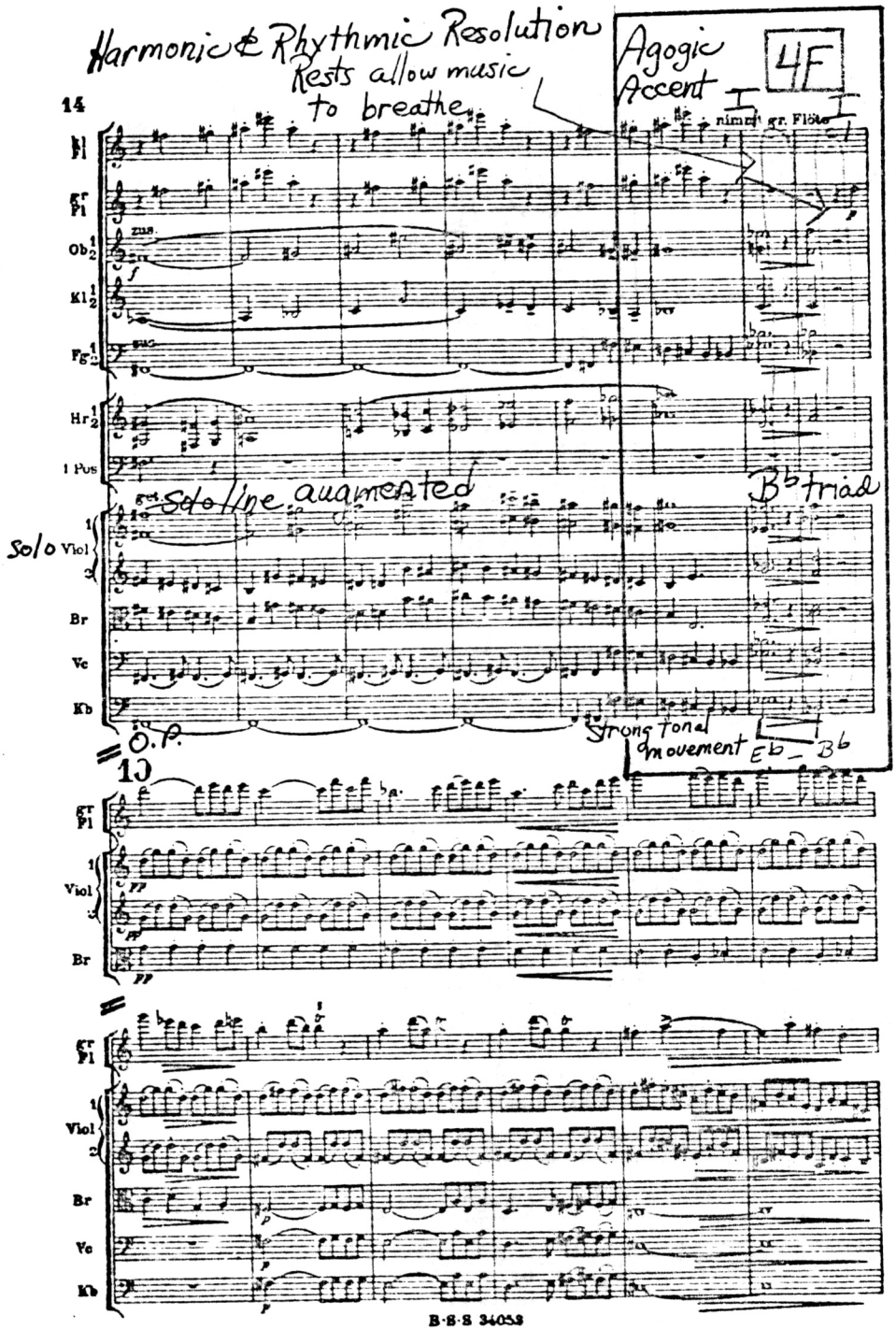
Harmonic & Rhythmic Resolution
Rests allow music to breathe
Agogic Accent
4F
14
nimm gr. Flöte
Solo Viol
Solo line augmented
Bb triad
O.P.
10
Strong tonal movement Eb – Bb
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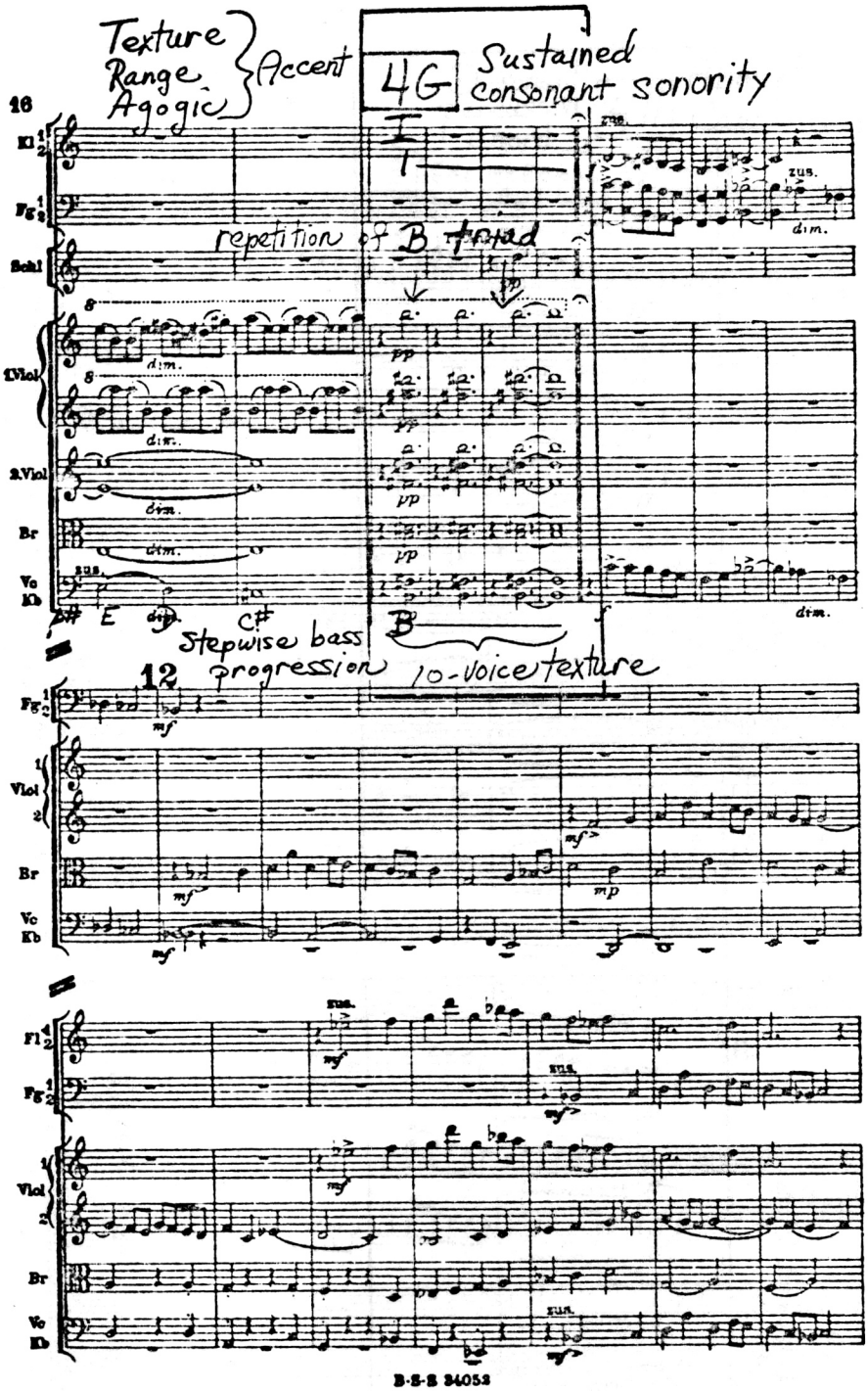
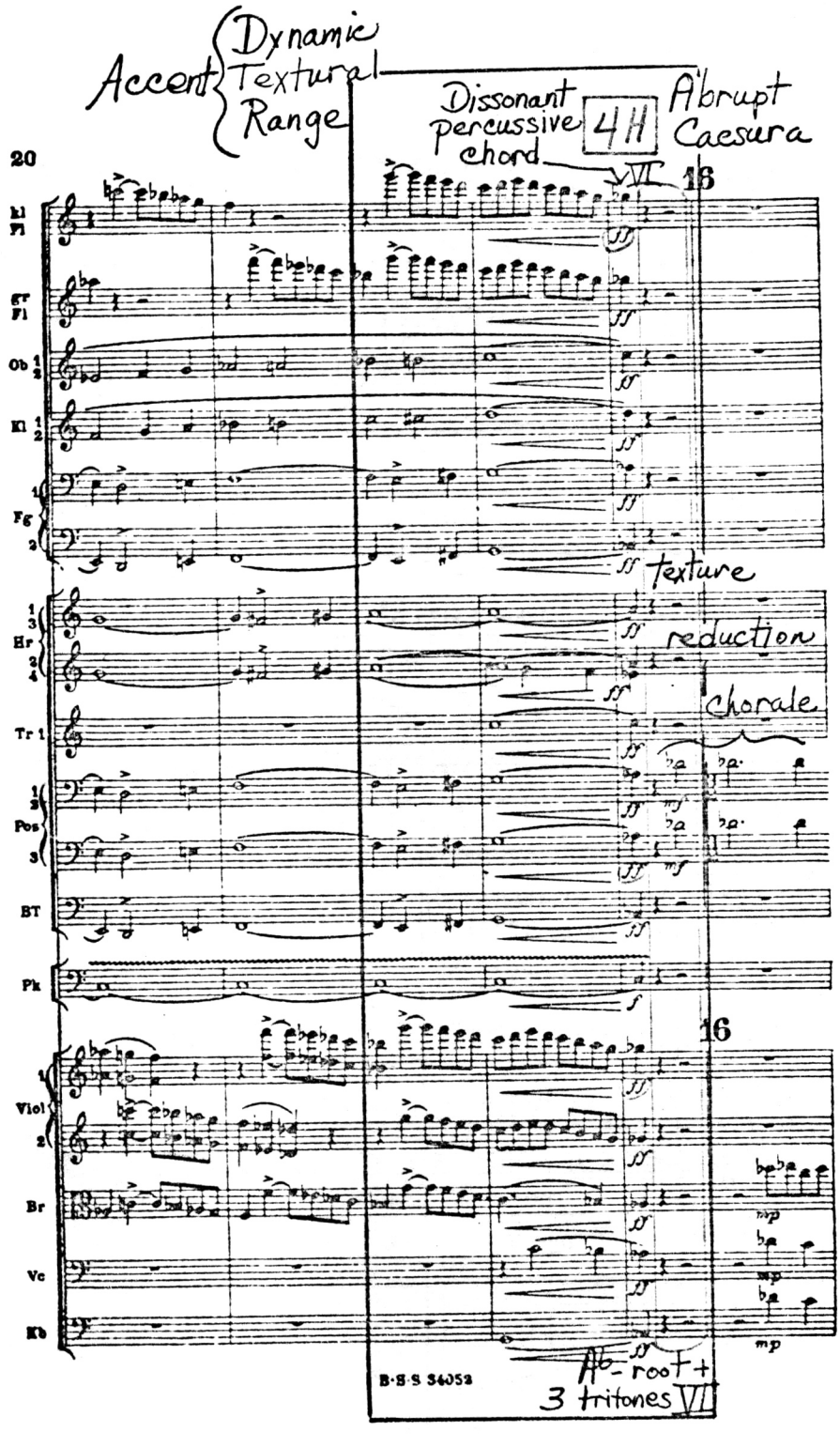
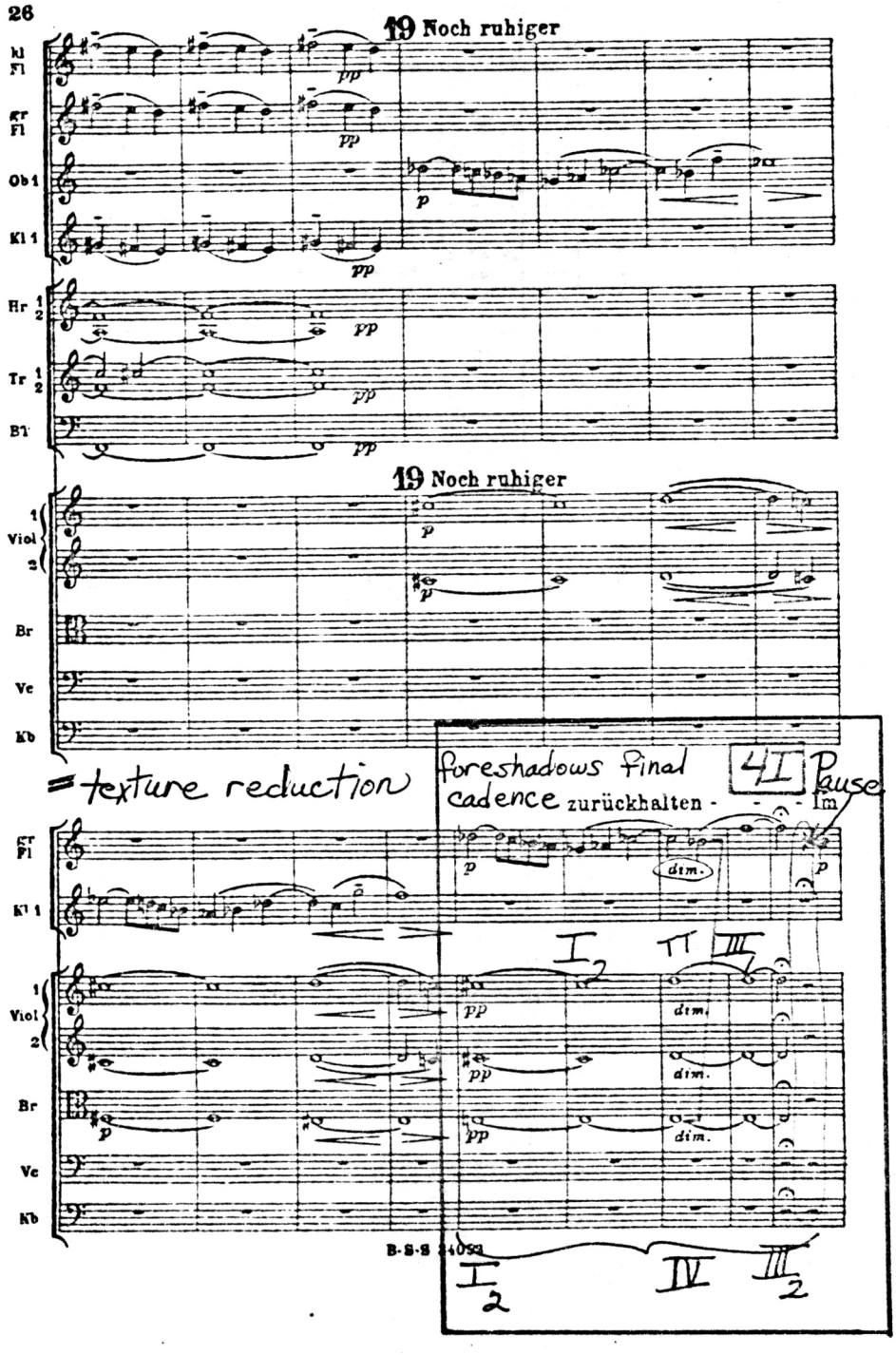

Texture
Range
Agogic
Accent
4G
Sustained
consonant sonority
repetition of B triad
Stepwise bass
progression
10-voice texture
16
12
Kl
Fg
Schl
1.Viol
2.Viol
Br
Vc
Kb
Fl
Vlol
dim.
zus.
mf
mp
pp
B-S-B 34053


Accent
Dynamic
Textural
Range
Dissonant percussive chord
4H
Abrupt Caesura
20
16
texture
reduction
chorale
16
Ab- root +
3 tritones
VII
B·B·S 34052


26
19 Noch ruhiger
kl Fl
gr Fl
Ob 1
Kl 1
Hr 1 2
Tr 1 2
Bt
19 Noch ruhiger
1 Viol 2
Br
Vc
Kb
= texture reduction
foreshadows final cadence zurückhalten
41 Pause
gr Fl
Kl 1
1 Viol 2
Br
Vc
Kb
I 2
II
III
I 2
IV
III 2

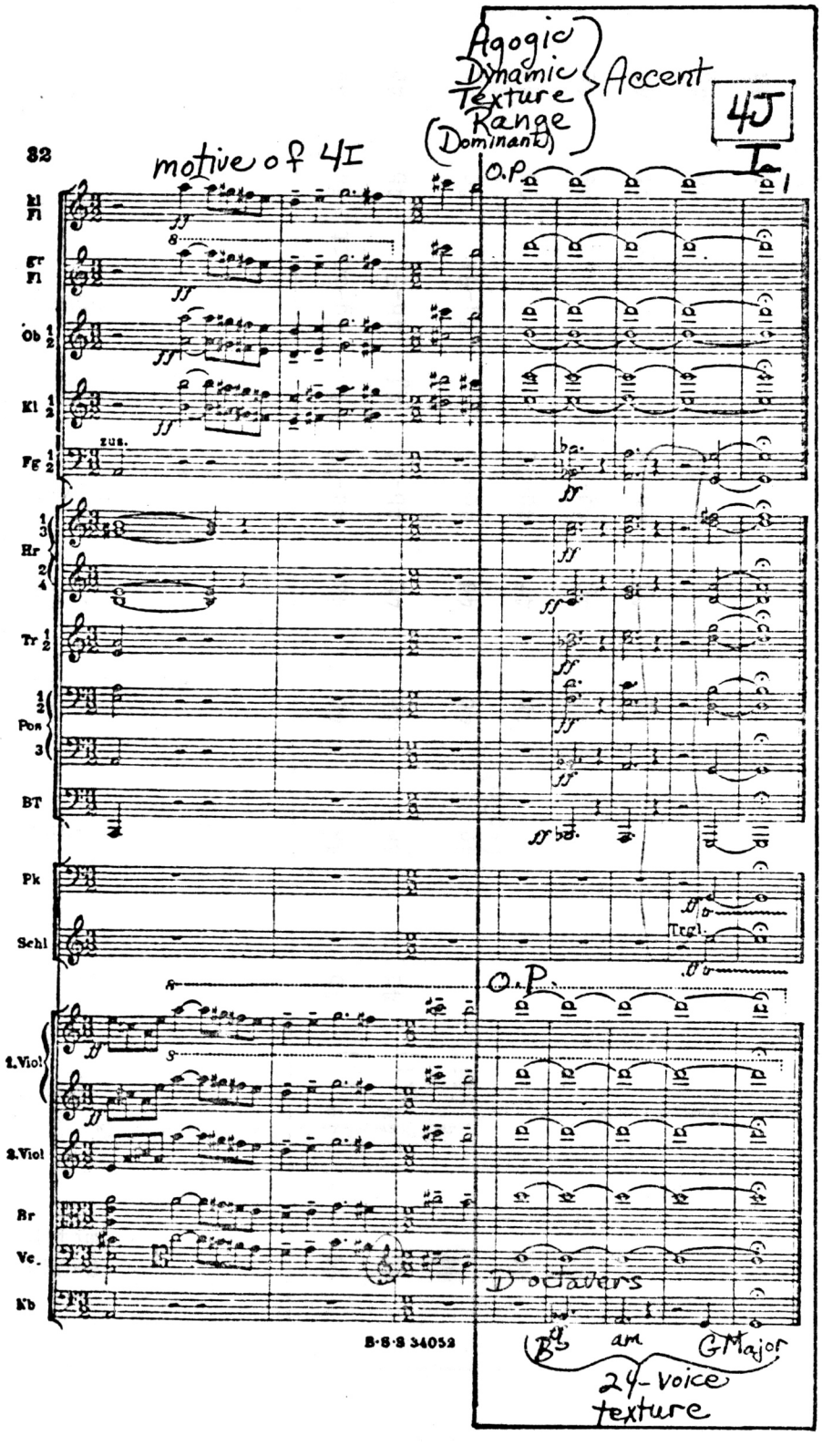
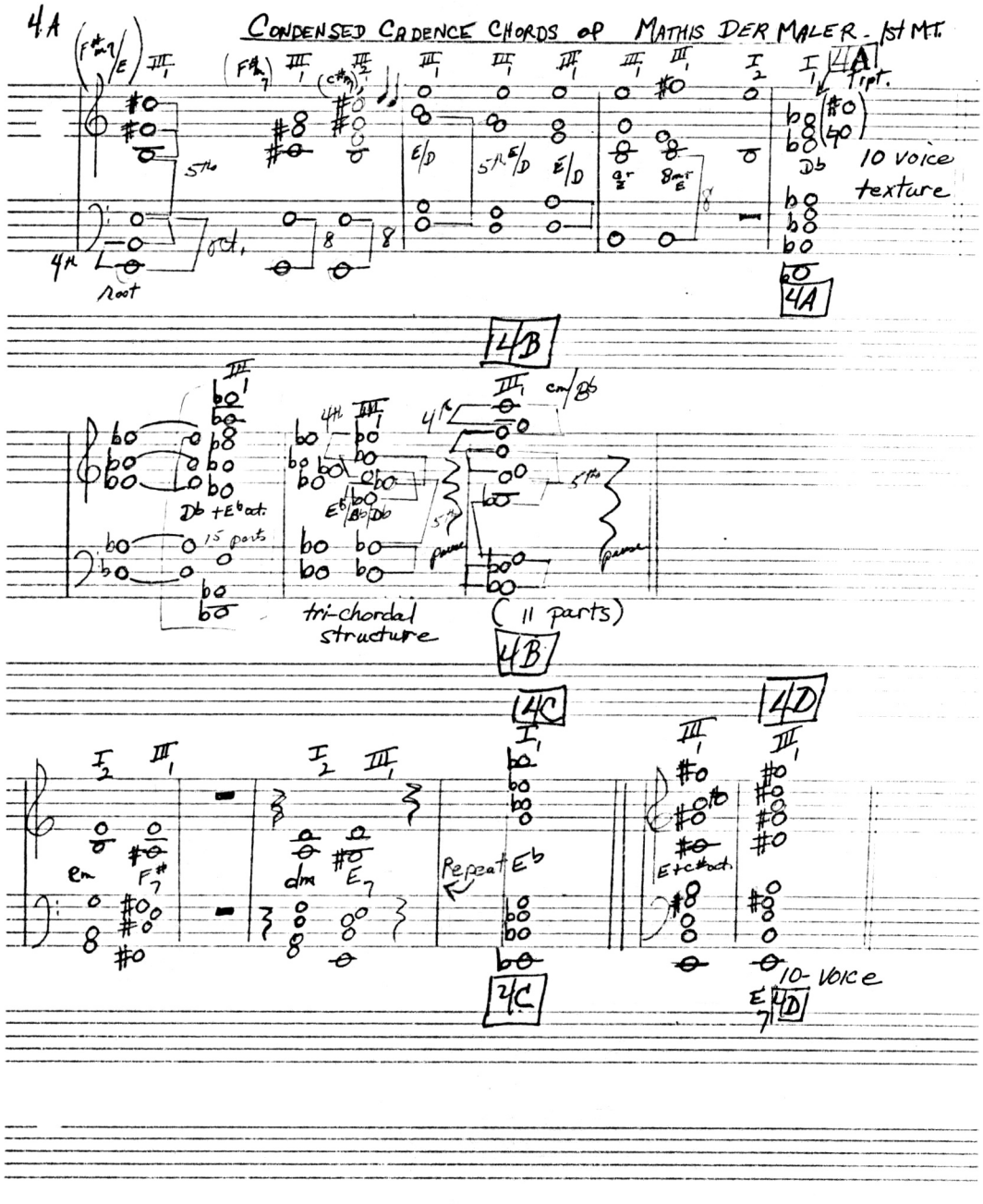
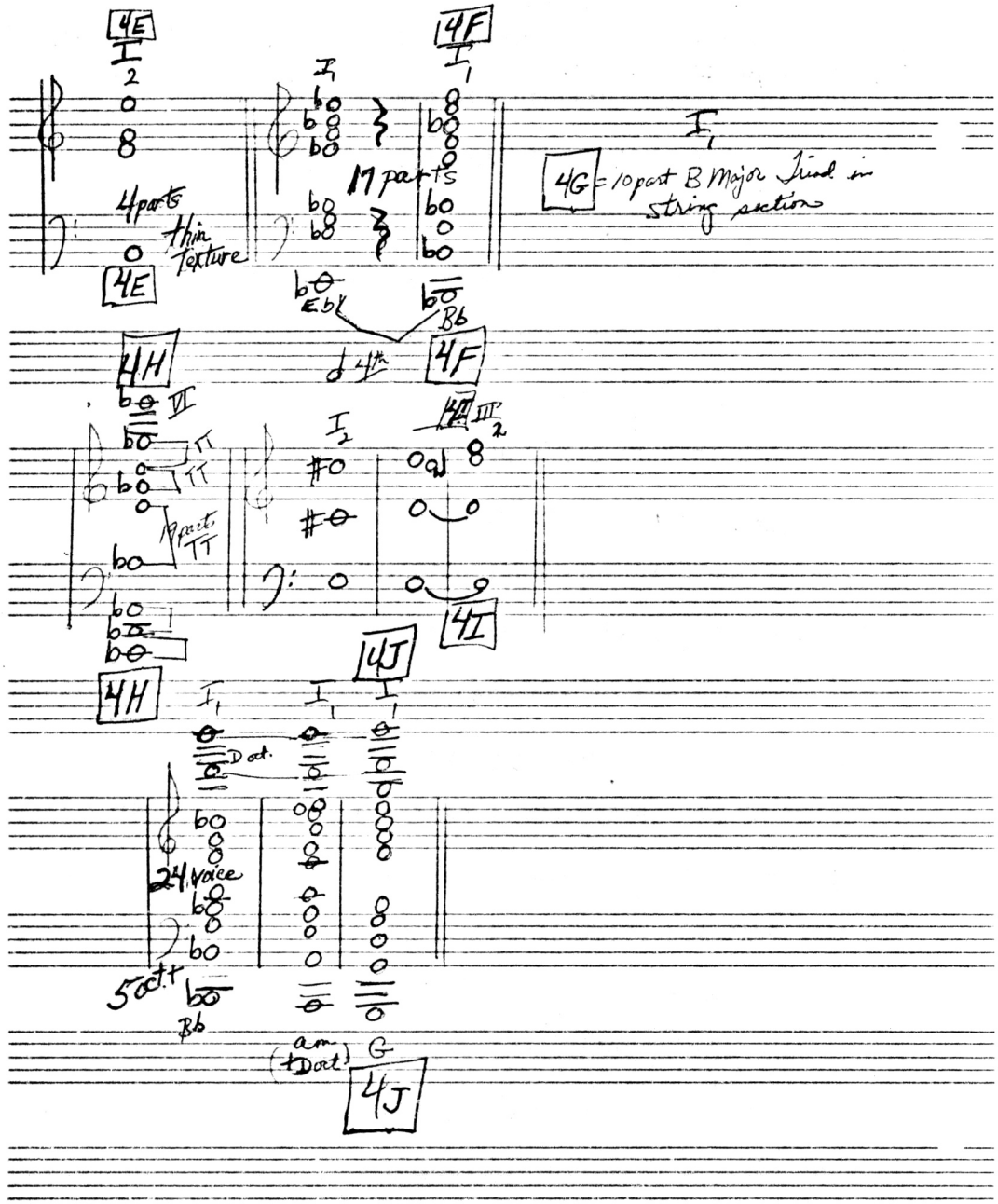

Agogic
Dynamic
Texture
Range
(Dominant)
Accent
45
82
motive of 41
O.P
Kl Fl
Gr Fl
Ob 1 2
Kl 1 2
Fg 1 2
zus.
Hr 1 3 2 4
Tr 1 2
Pos 1 2 3
BT
Pk
Schl
Trgl.
O.P
1.Viol
2.Viol
Br
Vc.
Kb
Octavers
B-S-S 34052
B♭ am GMajor
24-voice
texture

Chart of Cadential Devices in Mathis Der Maler

Accents:

Ultimate Chord I_1	Other Ultimate Chord	Ultimate Chord III_1	Bass Movement in 3rds	Bass Movement in 2nds	Agogic	Textural # voices	Dynamic	Range	Rests	Homogeneous Rhythm
4a	4e$_{(I_2)}$	4b	4a	4c	4a	4a-10	4h	4g-5oct.	4a	4a
4c	4h$_{(VI)}$	4d	4b	4e	4b	4b-11	4j	4h-5	4b	4b
4f	4i$_{(III_2)}$		4d (solo)	4g	4d	4c-19		4j-5+	4c	4c
4g				4h	4f	4d-10			4d	4d
4j				4i	4g	4g-10			4e	4e
				4j	4j	4h-19			4f	4f
						4j-24			4h	4g
									4i (pause)	4h
										4i
										4j
50%	30%	20%	30%	60%	60%	70%	20%	30%	80%	100%


4A
CONDENSED CADENCE CHORDS OF MATHIS DER MALER - 1ST MT.
5th
oct.
root
4A
trpt.
Db
10 voice texture
4A
4B
Db + Eb oct.
15 parts
tri-chordal structure
(11 parts)
4B
4C
Repeat Eb
4C
E + C# oct.
10-voice
4D


4E
4parts
thin texture
4E
17 parts
4G = 10 part B Major Triad in string section
4F
Eb
Bb
4F
4H
4H
4I
4J
Dot.
24 voice
50 ct.
Bb
am
(+Dot.)
G
4J

Summary of Hindemith's Cadential Procedures

Hindemith's intriguing theory of composition if founded on acoustical principles - on laws of nature. It aims to free the composer from the rigid tonal boundaries of traditional, diatonic Western music. Chromaticism may dominate the music, yet traditional precepts on melody and tonal root movements are preserved. The strongest melodic movement is in seconds, the fourth and fifth or subdominate and dominant tones used within the phrase or in a cadential root progression give tonal support to the final chord. Hindemith's style is conjunct and smooth, producing mostly mild, consonant sonorities with definite tonal centers. Hindemith stresses the importance of using major or minor triads or octaves and fifths (I_1 chords), for the ultimate cadence chord. Approximately 67% of the forty-eight cadences in the Organ Sonatas and 50% of the ten cadences in the Symphony use such endings (I_1 chords). The ones which use these I sonorities can be assumed to be the most important, or significant cadences because of their strong tonal weight. For advocating tonal support with the use of the fourth and fifth degrees, Hindemith does not frequently practice employing the dominant and subdominant in cadence progressions.

1) Root movement (and often entire chord movement) in seconds is a compositional trait of his. Progressions in thirds is also favored. Strong tonal bass movements in the cadences studied were apparent

only in 15% of the examples. 2) Most of Hindemith's cadences have metric weight, being placed on the downbeat. 3) Ultimate cadence chords are of a homogeneous rhythm, often being approached by a basically linear texture. 4) Most of the ultimate sonorities are given agogic strength, and often 5) rests affect the caesural effect.

Any style of music can be analyzed by Hindemith's method. By taking the main structural points of a phrase and determining the chord group of the chords, or the interval values of the intervals if the music is contrapuntal, a progression of chord values will result. Hindemith calls this a degree progression. The music of say, Ives, would undoubtedly contain a large number if not a majority of group B chords, thus classifying his music as very dissonant and full of tensions. The music studied of Ives lacks tonal relations, triadic structures, and smooth and clear cadences - that is, it lacks tonally and rhythmically influenced cadences, and defies the basic principles of Hindemith's theory. Poulenc, in this writer's opinion, is one composer who composes in accordance with Hindemith's criteria for tasteful music. Debussy could also receive Hindemith's approval. The music of Schoenberg, Ives, and Bartók that was studied, breaks all or most of Hindemith's theoretical formulations and, of course, Schoenberg, Ives, and Bartók were compelled to compose as they did; they each had their own theories and philosophies on composition - as did Paul Hindemith.

CONCLUSION

Cadence, caesura, cessation, respiration, repose, relaxation, and termination are terms which have been integrally bound and often used synonymously. In twentieth-century music the word 'cadence' has many ramifications. Traditional concepts of the respiration of music - the cadential function of allowing the music to breathe - of tension-relaxation and of harmonic and rhythmic repose have drastically changed and have found new meaning in this century's music. Cadences have traditionally been the points of repose - the points of respiration in music. The term cadence, with its rhythmic and harmonic connotations is not always a suitable term for twentieth-century works. However, it has been consistently used in this paper assuming that the reader understands its use in a general way. Many explanations of the different cadential terms, including the word 'cadence', are included within the chapters where explanation is needed. Innovations in twentieth-century harmony and rhythm help make this century's music what it is; it cannot be discussed with strictly traditional terminology, although traditional terms have been used where applicable. Respiration of music, of which Stravinsky speaks in his Poetics of Music, deals with the occurrence of tension and relaxation. The point of repose is what has traditionally been called the 'cadence' - the caesura - but as has been illustrated

a feeling of repose or relaxation is not present in many cadences in twentieth-century repertoire. The element of expectation or the feeling of arriving is often the main criterion for establishing a point as the cadence. On the other hand, the element of expectation need not be present at all preceding a cadence. The element of surprise replaces that of expectation in the cutting technique and in the abrupt and percussive cessation technique. The cutting technique is the most innovative cadential procedure of this century. It defies traditional thinking and traditional terminology. The concept of resolution of tension has no bearing on the cut phrase or one abruptly broken-off. Cutting replaces resolution - surprise replaces expectation - these are functional concepts prevailing throughout twentieth-century cadential practice. Harmonic and rhythmic spontaneity and vitality are infused into this century's cadential events. Throughout the writing of this paper a categorizing of specific cadence types has evolved. If a phrase end is effected by the use of one principal element (other elements being subordinate or having much less control over cadential happenings) that principal element names the cadence, such as: 1) harmonic cadence; 2) rhythmic caesura; 3) melodic-linear cadence; 4) cutting; 5) elision; and 6) abrupt, percussive ending. All of these types are thoroughly discussed in the chapters as they are found in analysis.

In retrospect, it is important to remember that all of the composers studied, except Schoenberg, write basically tonal music - music with a strong sense of 'center'. A feeling of center is retained through the use of melodic reiteration, pedal point, and ostinato patterns which emphasize (through frequent appearance) the tonal center. Beginning with Debussy there is a breakdown of traditional harmonic progressions. A melodic tonality often replaces harmonic tonality and color is used as a formal principal and often replaces tonal motion, especially in Debussy: Chords are frequently treated as color entities. Parallelism is profusely used for color effect and this technique frees rhythm and tonality from traditional hierarchical expectations. Beginning with Debussy and continuing through twentieth-century repertoire, modulations occur in the form of spontaneous shifting to new tonal spheres. In Debussy's music the cadential technique of elision becomes the norm. His music, more than any of the other composers, uses elision extensively. Elision is a technique which practically defies cadential analysis. The unceasing rhythmic flow involved with elision contradicts the connotations of cadences and caesura. This rhythmic drive - this perpetual on-goingness of rhythm is characteristic of all seven representative composers studied. Sections of unceasing rhythmic drive can be found in all of the works analyzed. It should be apparent that Debussy initiated most of the techniques used by

subsequent composers. In a much different way Schoenberg had as great an impact upon twentieth-century composition as did Debussy. Both broke away from functional tonality and from traditional voice-leading and chord progressions in their own distinctive way. Debussy's music aims at creating a sensuously sonorous atmosphere - it does so within the boundaries of tonality while freeing music from the tonal hierarchies of the past. Schoenberg's music aims at providing variety through unity by replacing the worn-out system of tonality with a twelve-tone system giving all tones equal status. His idea is to free music from the tonal bonds of the past. Schoenberg is the only composer of the seven to disassociate himself completely from tonality - from a feeling of center. As Austin so lucidly puts it in his book, Music In the 20th Century, "He (Schoenberg) conceived the twelve-tone, equal-tempered scale as a representative of the infinity of tonal relations. By continually using all twelve tones and avoiding the definition of any habitual limited set, he could suggest the continuity of the infinite range of possible relations. He would trust his intuition to make his harmony cohere."[1] Austin adds that Hindemith also "set out to develop personal habits of harmony that would suggest the tonality of infinite possibilities by twelve notes like Schoenberg."[2]

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[1]William Austin, Music In The 20th Century, N. Y.: W. W. Norton and Company, Inc., c. 1966, p. 37.

[2]loc. cit., p. 40.

This basic striving to expand harmony and tonality through expanding intervallic usage, has been the aim of almost every composer in this study. All use chromatic and diatonic vocabularies (the diatonic being inherently a part of the chromatic) while remaining within the framework of tonality. Of course, Schoenberg's desire was not to expand harmony and tonality, but to make the twelve semi-tones equal in importance. His music avoids and destroys any gravitational effect and annihilates any sense of center. Schoenberg's introduction of serialism into the musical realm has had a profound impact upon this century's compositions. Many have tried to emulate Schoenberg and his followers or at least have infused the technique of serialism into their writing. The other six composers chosen for study have followed the path of the new expanded tonality initiated by Debussy and further enlarged by themselves. The school of 'serialism' and the school of neo-tonality, standing at seemingly opposite ends of the musical spectrum, interestingly enough share similar cadential techniques. Elision, rhythmic pause (caesura), and abrupt, percussive ending are procedures used by all the composers. Besides Debussy and Schoenberg, another composer stands out as a true, uninhibited innovator - the New England Transcendentalist, Charles Ives. His use of every musical element in 'poly' form greatly influenced succeeding composers. His expansion of every parameter of music has been

employed by many if not most of this century's composers. Ives' music is probably the most difficult to analyze because of the simultaneous use of many complex and diverse elements (polytonality, polymeter, polyrhythm - all creating many layers of sound in on-going rhythms). His frequent use of heterophony (cacophony) produces cadential ambiguity, but even this music employs a large percentage of the techniques of elision and rhythmic caesura. Poulenc's music, although less complex and innovative than the music of Debussy, Ives, Schoenberg, Bartók, Stravinsky, and Hindemith, offers a refreshing return to a quasi-traditional harmonic language. The aural simplicity of Poulenc's music, especially his Suite Francaise, is deceiving. Harmonic analysis of the work proves it to be more complex harmonically than first perceived. Poulenc infuses much color into his scores. The twentieth-century predilection for adding non-harmonic tones to ultimate cadence sonorities is prevalent in his music. Sudden shifts to a contrasting tonal center occur often. His music is melodically governed, largely, but it does exhibit a good degree of spontaneous harmonic freedom typical of this century's music. Bartók and Stravinsky have enriched their basically triadic harmonic structure with modal inflections, sharp harmonic dissonances, parallel harmonic motion, the use of ninth and eleventh chords, and rhythmic vitality - all reflective of Debussyian influence. Bartók's axis theory provides a logical basis

for expanding the harmonic vocabulary. His pole-counterpole principle is imbued with intrinsic lydian color. The interval of the tritone is elevated in harmonic/melodic importance. The pole's counterpole is always found at the distance of a tritone; thus the raised fourth degree (lydian) is made the closest relative of a tone. Tritones are found frequently in twentieth-century music, but they are especially used extensively by Bartók and Stravinsky. Stravinsky's famous Petroushka chord (the superimposing of C major and $F^{\#}$ major traids) is based on the interval of a tritone. It is interesting that Bartók's axis theory is in opposition to the neo-tonal theory of Paul Hindemith who places the tritone and chord containing tritones in a category of weaker or less stable harmonic structures. In Hindemith's neo-tonal system, all chords have their prescribed values and harmonic intensity levels according to their intervallic construction, and therefore, degrees of consonance and dissonance can be established. The rise and fall of harmonic tension in a progression of chords can be shown. This rise and fall or shifting of harmonic intensity levels is termed 'harmonic fluctuation'. Hindemith's concept of harmonic crescendos and diminuendos is interesting and unique. His theory provides for the free use of any chord, in any order - it actually aims at a twelve-tone system; yet it remains within the bounds of tonality. Hindemith sets down several guidelines to follow which are

necessary for the creation of tasteful music. The traditionally strong harmonic root movements remain important in his theory. A root progression of a fifth or fourth is the strongest, tonally. Despite his advocating tonally strong root progressions, Hindemith does not use them frequently. Root progressions by step (sometimes chromatic) or by thirds to the cadences are predominant. All of Hindemith's ultimate cadence sonorities of the principal cadences employ a pure triad or open octaves and/or a fifth. All seven composers studied often use triadic structures at cadences as tonal reference points to add stability and to relieve much of the intraphrase dissonance. While Hindemith uses the purest triadic structures (Poulenc's Suite Francaise also uses pure triads at principal cadences), the others incorporate added tones (non-harmonic tones) to provide new color, characteristic of the twentieth-century harmonic vocabulary. The following list of compositional elements contains the ingredients that are found profusely in the twentieth-century repertoire. The comprehensive chart of cadential techniques provided at the end of the paper should serve as a condensed overview of cadential findings. The common devices used by the seven composers are: 1) the expanded use of augmented and diminished intervals = the exploitation of the tritone. The importance of the tritone is evidenced in Bartók's axis theory which views the tritone relationship as the most fundamental tonal principle - the

pole-counterpole concept; 2) the use of seventh, ninth, eleventh, and thirteenth chords (often providing a bitonal texture, but more often used coloristically). These expanded triadic structures are often treated in the procedure of 3) parallelism (begun extensively by Debussy and used by many others to obscure tonality, create a static effect, and provide a rich harmonic background); 4) the use of many bi-chordal structures; 5) the use of diatonic, folk-like melodies with 6) a very repetitious use of motivic material; 7) frequent change of meter (producing an asymmetrical feeling); 8) indifference to resolution (often supplying a colorisitc effect or heightening tension where needed); 9) the use of pedal points (organ points) and ostinato patterns to help establish the underlying tonality in tonally ambiguous sections; 10) a prevailing quality of rhythmic on-goingness; 11) the application of 'tonality by assertion'[3], a phrase coined by Salzman for Stravinsky's practice of revealing the tonality by merely cadencing suddenly on a chord, giving it tonal importance (this procedure is exhibited in many twentieth-century composers). Tonality by assertion is at opposite ends from Stravinsky's concept of "polarity" which is a pulling or gravitating toward a tonal center - a technique used by all the composers except Schoenberg, whose music strictly avoids polarization or tonicization; and 12) modal usage (except in Schoenberg). This paper has uncovered a basic harmonic

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[3]Eric Salzman. Twentieth-Century Music: An Introduction, p. 45.

predilection among the twentieth-century composers studied - that of favoring lydian and mixolydian patterns. The raised fourth and lowered seventh occur frequently. Dallin, in his book, Techniques of 20th Century Composition, corrolates this renewed interest in the modes, especially lydian and mixolydian with the principles of the overtone series. Acoustics is again looked at as the source of harmonic/melodic usage. Dallin says, "The development of harmonic resources has followed a course of exploiting ever higher reaches of the overtone series...the process started with magadizing the organum and led to triads, seventh, ninth, eleventh, thirteenth chords and beyond".[4] Dallin looks to the overtone series as the source of and logical basis for using the raised fourth and lowered seventh degrees in twentieth century music. The sixth overtone, B^{b}, represents the lowered seventh (mixolydian) and the tenth overtone, $F^{\#}$, represents the raised fourth (lydian), both so common in the intervallic, that is, harmonic/melodic vocabulary of the music studied herein. The cadential techniques of the twentieth-century music studied and discussed in this paper are: 1) rhythmic caesura (little or no harmonic influence); 2) harmonic progression (harmonic resolution/rhythm may or may not be a criterion; 3) melodic-linear resolution/rhythm may or may not be a criterion;

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[4]Leon Dallin, Techniques of 20th Century Composition, p. 54.

4) abrupt breaking-off - effect of sudden cessation, a) may contain rests (rhythmic break), b) may proceed directly to new material - no rests, c) the ultimate sonority may be consonant (having harmonic meaning) or it may d) be percussive (if so, it is usually a thickly-voiced vertical sonority - more dissonant than consonant); 5) elision and 6) cutting - a) vertical - like elision, but with immediate contrast of material following and b) horizontal - abrupt termination of material and immediate shift to new contrasting material. The significance and influence of the various types of accent upon cadential points has been illustrated and discussed. It is interesting that the more tonal (with traditional chord progressions) the music, the less influential are the types of accent: agogic, dynamic, textural, range, pitch and syncopation. When tonality and traditional harmonic progressions break down there is a greater reliance upon types of accent, tempo changes, and shifts in texture and color to help delineate phrase ends or ends of sections.

The music of this century contains a large cadential repertoire. The cadential techniques are many and varied. There are no definite 'rules' of cadential procedure. Although, cadences can be and have been categorized, it should be realized that each cadence is unique and must be dealt with individually. This individuality through variety is what makes twentieth-century cadential practices so intriguing.

Comprehensive Chart of Twentieth-Century Cadential Techniques
of Debussy, Ives, Schoenberg, Poulenc, Bartók, Stravinsky, and Hindemith

Composer	Abrupt Percussive Cessation	Cutting	Elision	Harmonically influenced Cadence	Linear or Melodically-influenced Cadence	Rhythmic Caesura
Debussy	20%	-	67%	33%	7%	13%
Ives	9%	-	33%	23%	16%	23%
Schoenberg	26%	-	13%	-	13%	56%
Poulenc	16%	-	2%	42%	8%	35%
Bartók	16%	25%	-	41%	34%	25%
Stravinsky	48%	33%	-	-	-	57%
Hindemith	-	-	-	75%	-	60%

These percentages are approximate estimates of the cadences studied and may not reflect the percentage of cadential use in each composer's total repertoire. Some of the categories left blank (-) may have some effect upon the cadences, but they are not the principal cadential element.

Comprehensive Chart of Twentieth-Century Cadential Techniques
of Debussy, Ives, Schoenberg, Poulenc, Bartók, Stravinsky, and Hindemith

Composer	Agogic Accent	Dynamic Accent	Textural Accent	Modal Usage	Sharp texture/color change	Homogeneous Rhythm to Cadence	Ultimate Sonority Triadic Structure
Debussy	13%	47%	40%	22%	16%	-	72%
Ives	51%	-	12%	7%	9%	9%	-
Schoenberg	23%	-	13%	-	-	-	-
Poulenc	53%	-	-	19%	-	-	53%
Bartók	20%	-	-	18%	-	-	57%
Stravinsky	10%	-	-	10%	52%	38%	29%
Hindemith	25%	20%	70%	-	-	100%	70-100%

These percentages are approximate estimates of the cadences studied and may not reflect the percentage of cadential use in each composer's total repertoire. Some of the categories left blank (-) may have some effect upon the cadences, but they are not the principal cadential element.

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