

Analysing Pitch Structure in Late-Period Recordings of John Coltrane:
Interstellar Space and Stellar Regions

Volume II (of II)

Appendices

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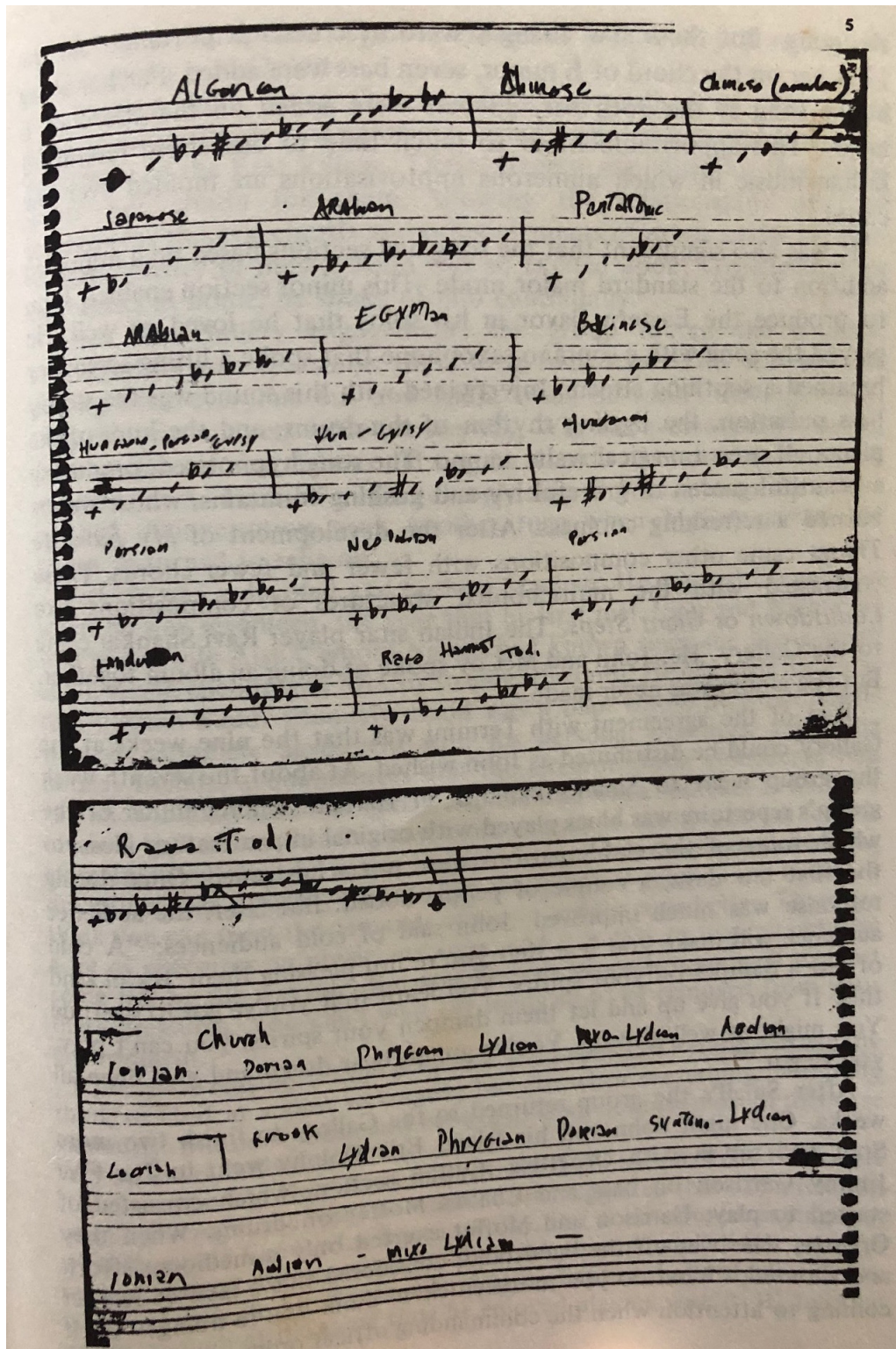
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Appendix A: Examples 2.1–2.8

Example 2.1 Coltrane Notebook: 'exotic' scales¹



¹ This page from Coltrane's notebook appears in Simpkins (1975, p.113).

Example 2.2 Coltrane Notebook: Indian scales²

Handwritten musical notation for Indian scales from Coltrane's notebook, titled "Scales of India cont". The scales are written on six staves, each with a title and a sequence of notes:

- Staff 1:** Night, Power and Majesty. Notes: G, A, B, C, D, E, F, G.
- Staff 2:** Morning, Sad. Notes: G, A, B, C, D, E, F, G, A, B, C, D, E, F, G.
- Staff 3:** Night. Notes: G, A, B, C, D, E, F, G, A, B, C, D, E, F, G.
- Staff 4:** Evening & Night, Praise. Notes: G, A, B, C, D, E, F, G, A, B, C, D, E, F, G.
- Staff 5:** Evening, Gay. Notes: G, A, B, C, D, E, F, G, A, B, C, D, E, F, G.
- Staff 6:** Night, Melancholy. Notes: G, A, B, C, D, E, F, G, A, B, C, D, E, F, G.

Indian scales from Coltrane's notebook, hand copied by and courtesy of Carl Grubbs. (I penned in the penultimate D-flat because it appeared on another of Grubbs's copies.)

² This page copied from Coltrane's notebook appears in Porter (1998, p.210).

Example 2.3 Coltrane's 'Scales of India', reordered as (024579) and (024)

Morning, Sad

(024579)

(024) (024)

Night

(024579)

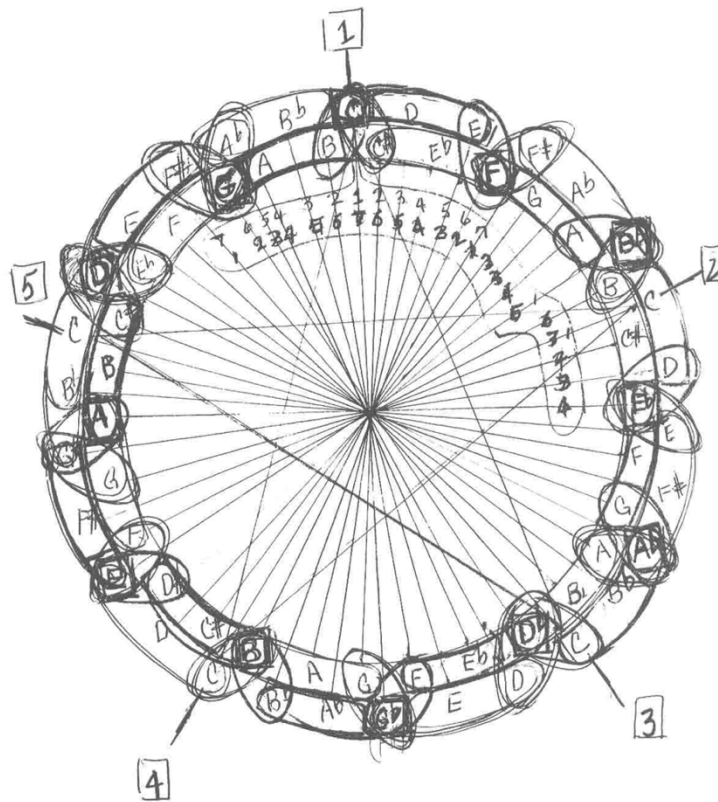
(024) (024)

Evening & Night, Praise

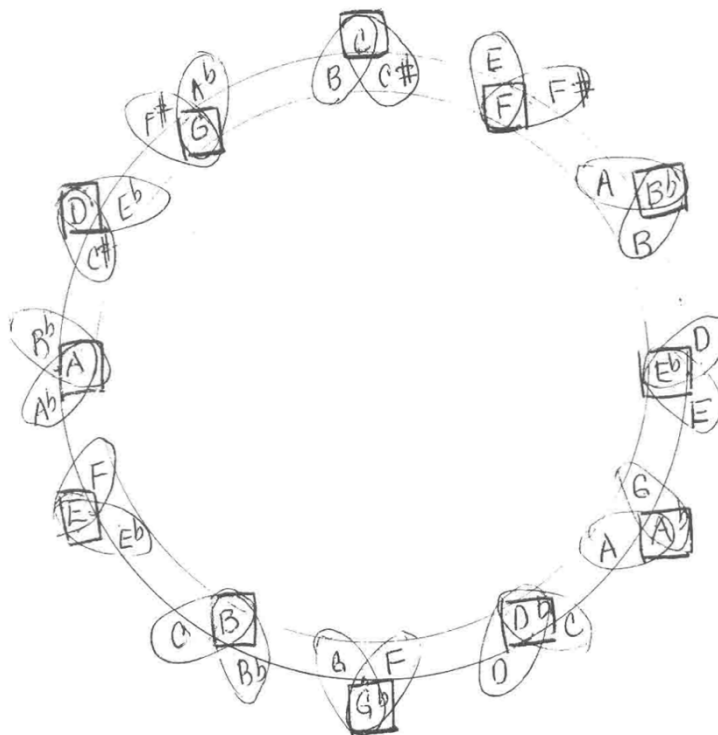
(024579)

(024) (024)

Example 2.4a Coltrane's diagram (*The Repository of Scales and Melodic Patterns*)³



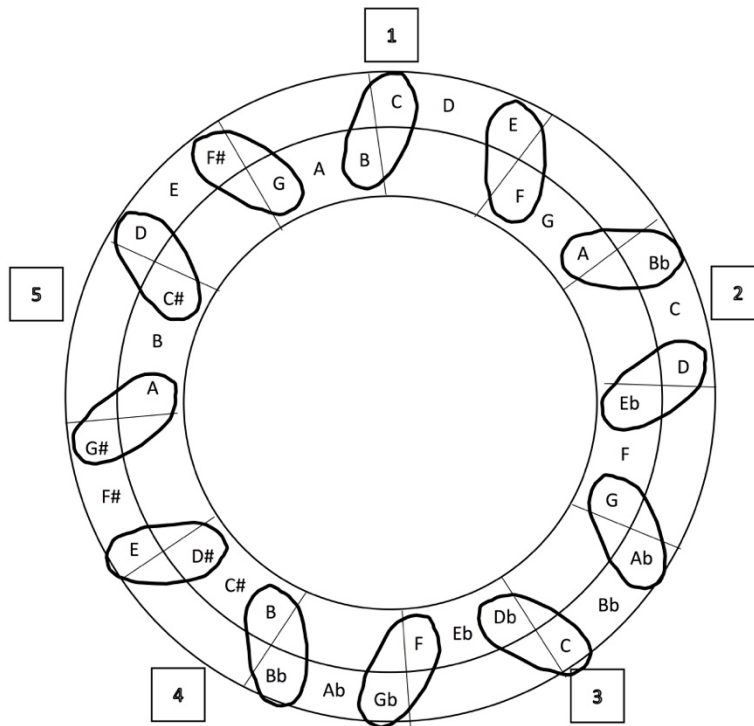
Example 2.4b Coltrane's diagram correction (*The Repository of Scales and Melodic Patterns*)⁴



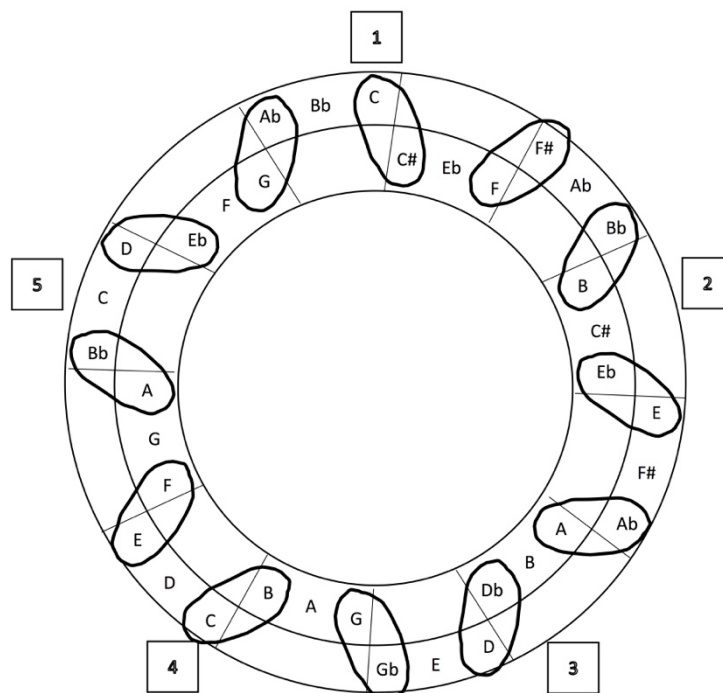
³ Coltrane's Diagram appears in Lateef (1981, p.iii).

⁴ (ibid., p.ii)

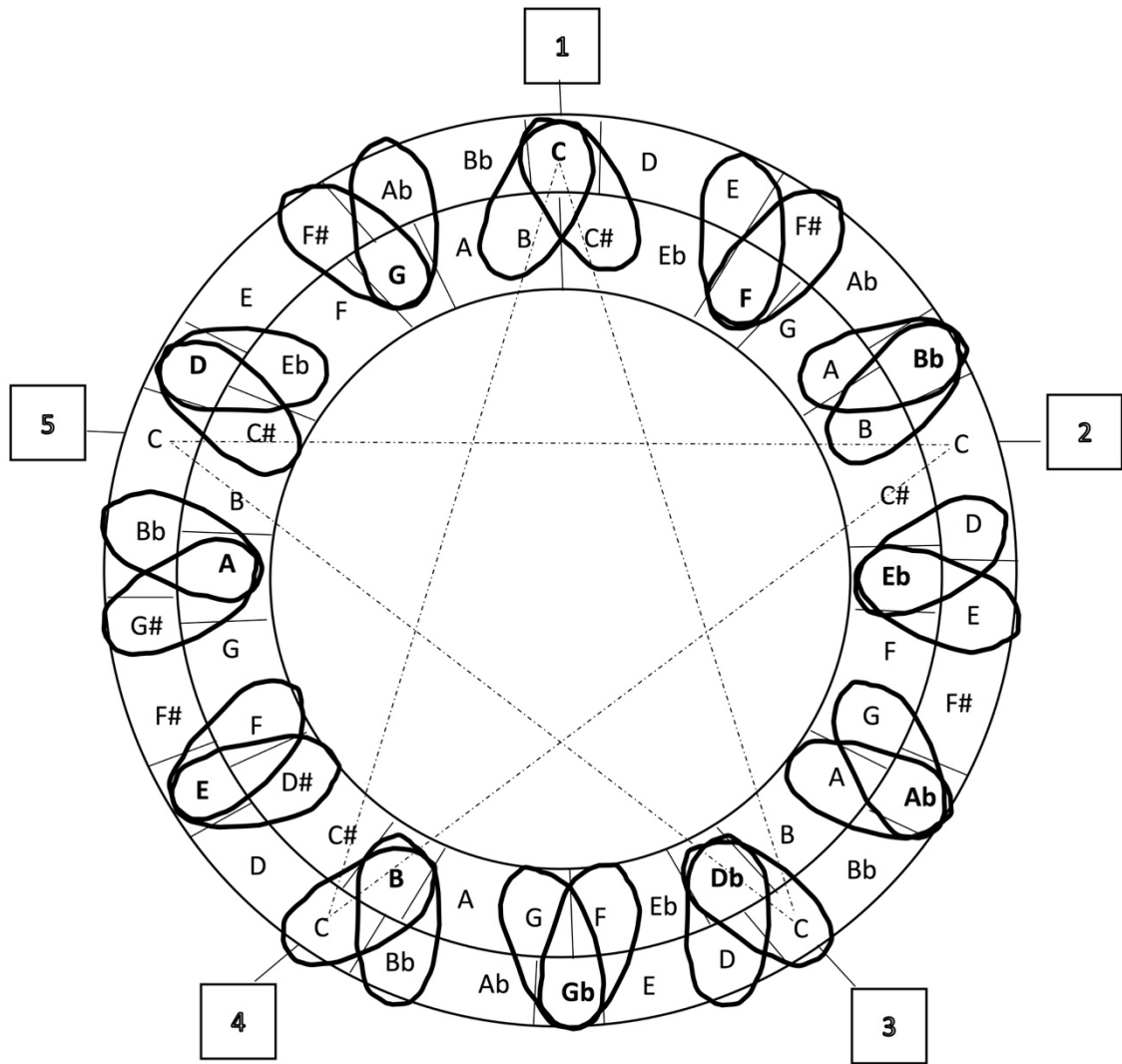
Example 2.5 (024) members within C5 (layer #1)



Example 2.6 (024) members within C5 (layer #2)



Example 2.7 (024) members within C5 in two layers



Example 2.8 Polytonal scales appearing in *Scale Lore*⁵

- Polytonal scales (3 or more keys)

- 1) Extension of scale optional
- 2) May comprise any number of notes
- 3) " " " " " scales

Combine any 3 or more keys
 Make transition to next key on any
 note of previous key scale

Apply development procedure

⁵ This page from Sandole's unpublished work appears in McGill (2013, p.35).

Appendix B: Examples 4.1–4.68

Example 4.1 'Iris' (Stellar Regions): Saxophone, piano, bass score (00:00)

(013)
{G#, A, B}

(013)
{E#, F#, G#}

(013)
{B#, C#, D#}

2 5 2 4

(013)
{G, Ab, Bb}

(013)
{F#, G, A}

(013)
{F, F#, Ab}

(013)
{D#, E, F#}

(013)
{C#, D, E}

(013)
{C, Db, Eb}

1 6 1 6 1 4 1 2

Example 4.1 'Iris': Saxophone, piano, bass score (00:16)

The first system of the musical score consists of three staves: saxophone (top), piano (middle), and bass (bottom). The saxophone staff has two chord annotations: (013) {F, F#, Ab} and (013) {E, F, G}. The piano staff has four chord annotations: (013) {C, Db, Eb}, (013) {A#, B, C#}, (013) {G, Ab, Bb}, and (013) {G#, A, B}. The piano staff also includes a *ped.* (pedal) marking and a *8va* (octave) marking. The bass staff shows a sequence of notes with fingering numbers: 1, 1, 3, 1, 2, 1, 4, 3, 4, 1.

The second system of the musical score continues with three staves: saxophone (top), piano (middle), and bass (bottom). The saxophone staff has three chord annotations: (013) {E, F, G}, (013) {F, Gb, Ab}, and (013) {F#, G, A}. The piano staff has two chord annotations: (013) {G#, A, B} and (013) {F#, G, A}. The piano staff also includes a *ped.* (pedal) marking and a *8va* (octave) marking. The bass staff shows a sequence of notes with fingering numbers: 1, 1, 4, 3, 5, 1, 6, 1, 2.

Example 4.1 'Iris': Saxophone, piano, bass score (00:35)

(013) {F#, G, A}

Chromatic Minor 3rd Sequence

(013) {B, C, D}

(013) {F#, G, A}

(013) {E, F, G}

(013) {D, Eb, F}

(013) {D#, E, F#}

(013) {D, Eb, F}

(013) {C, Db, Eb}

Ped.

1 1

(013) {B, C, D}

(013) {A, Bb, C}

(013) {C, Db, Eb}

(013) {G, Ab, Bb}

(013) {G#, A, B}

Ped.

2 1 1 1

Example 4.1 'Iris': Saxophone, piano, bass score (00:55)

(013)
{A, Bb, C}

(013) {G#, A, B} (013) {F, F#, G#} (013) {F#, G, A} (013) {D, Eb, F} (013) {D#, E, F#}

1 1 1 1

(013)
{A, Bb, C}

(013) {C, Db, Eb} (013) {C#, D, E} (013) {D, Eb, F} (013) {D#, E, F#} (013) {F, Gb, Ab}

1 1 1 1 1 1 2 2

Example 4.1 'Iris': Saxophone, piano, bass score (01:06)

The first system of the score consists of three staves. The top staff is the saxophone part, the middle staff is the piano accompaniment, and the bottom staff is the bass line. Chord annotations are placed above the staves: (013) {A, Bb, C} for the first measure, (013) {C, Db, Eb} for the second measure, (013) {F, Gb, Ab} for the piano part in the first measure, and (013) {D#, E, F#} for the piano part in the second measure. The bass line includes a triplet of eighth notes with a '3' above it and a '4' below it, followed by other notes with '1 1' and '2' below them.

The second system of the score also consists of three staves. Chord annotations are: (024) {Gb, Ab, Bb} for the saxophone in the first measure, (013) {C, Db, Eb} for the saxophone in the second measure, (013) {D#, E, F#} for the piano in the first measure, (013) {C#, D, E} for the piano in the second measure, and (013) {C, Db, Eb} for the piano in the third measure. The piano part has a 'p^{va}' marking. The bass line includes a triplet of eighth notes with a '3' above it and a '2' below it, followed by other notes with '1 1 1', '3', '3 4 5', '3 6 2', and '5' below them.

Example 4.1 'Iris': Saxophone, piano, bass score (01:19)

The musical score consists of two systems, each with three staves: Saxophone (top), Piano (middle), and Bass (bottom).

System 1:

- Saxophone:**
 - Measures 1-4: Chord voicing {C, Db, Eb} (013).
 - Measures 5-6: Chord voicing {B, C, D} (013).
 - Measures 7-8: Chord voicing {A#, B, C#} (013).
 - Measures 9-10: Chord voicing {D, Eb, F} (013).
 - Measures 11-12: Chord voicing {B, C, D} (013).
 - Measures 13-14: Chord voicing {C, Db, Eb} (013).
- Piano:**
 - Measures 1-4: Chord voicing {C, Db, Eb} (013).
 - Measures 5-6: Chord voicing {B, C, D} (013).
 - Measures 7-8: Chord voicing {A#, B, C#} (013).
 - Measures 9-10: Chord voicing {B, C, D} (013).
 - Measures 11-12: Chord voicing {C, Db, Eb} (013).
 - Measures 13-14: Chord voicing {C, Db, Eb} (013).
- Bass:**
 - Measures 1-4: Fingering 3 4 5.
 - Measures 5-6: Fingering 3 6 2 4.
 - Measures 7-8: Fingering 3 1 2.
 - Measures 9-10: Fingering 3 1.
 - Measures 11-12: Fingering 1.
 - Measures 13-14: Fingering 3 1.

System 2:

- Saxophone:**
 - Measures 15-16: Chord voicing {D, Eb, F} (013).
 - Measures 17-18: Chord voicing {Eb, Fb, Gb} (013).
 - Measures 19-20: Chord voicing {Db, D, E} (013).
- Piano:**
 - Measures 15-16: Chord voicing {C, Db, Eb} (013).
 - Measures 17-18: Chord voicing {B, C, D} (013).
 - Measures 19-20: Chord voicing {A#, B, C#} (013).
 - Measures 21-22: Chord voicing {G, Ab, Bb} (013).
 - Measures 23-24: Chord voicing {G#, A, B} (013).
- Bass:**
 - Measures 15-16: Fingering 2.
 - Measures 17-18: Fingering 2.
 - Measures 19-20: Fingering 1 1.
 - Measures 21-22: Fingering 2.
 - Measures 23-24: Fingering 4 3 1 5.

Example 4.1 'Iris': Saxophone, piano, bass score (01:32)

The first system of the musical score consists of three staves. The top staff is the saxophone part, featuring a melodic line with several trills marked with '(013)'. Chordal annotations above the staff include {Db, D, E}, {D, Eb, F}, and {Db, D, E}. The middle staff is the piano accompaniment, starting with a '15vb' dynamic marking and a 'Reo' (pedal) marking. It contains chords for {G#, A, B} and {D, Eb, F}, with a 'qua' (quasi) marking above the piano part. The bottom staff is the bass line, featuring a rhythmic pattern with fingerings: 6, 2, 1, 5, 6, 2, 1, 5, 4, 1, 5, 6.

The second system of the musical score continues the three-staff arrangement. The top staff (saxophone) has a melodic line with trills marked '(013)' and '(045)'. Chordal annotations include {G, Ab, Bb} and {E, Ab, A}. The middle staff (piano) features chords for {G#, A, B}, {F#, G, A}, {G#, A, B}, {F#, G, A}, and {F, Gb, Ab}, with a 'qua' marking above. The bottom staff (bass) continues the rhythmic pattern with fingerings: 2, 1, 5, 1, 3, 1, 5, 1, 2, 3.

Example 4.1 'Iris': Saxophone, piano, bass score (01:42)

(013) {Ab, A, Cb} (045) {E, Ab, A} (013) {Ab, A, Cb} (045) {E, Ab, A} (013) {Ab, A, Cb} (045) {E, Ab, A} (013) {Ab, A, Cb} (045) {E, Ab, A} (013) {Ab, A, Cb}

(013) {F, Gb, Ab} (013) {D#, E, F#} (013) {C#, D, E} (013) {C, Db, Eb} (013) {B, C, D}

3 1 4 # 1 1 1 1 # 1

(013) {Ab, A, Cb} (045) {E, Ab, A} (013) fragment (013) {A, Bb, C} (013) {B, C, D} (013) {C, Db, Eb}

(013) {B, C, D} (013) {G#, A, B} (013) {B, C, D} (013) {A, Bb, C} (013) {G, Ab, Bb}

1 1 2 1 1 1 1 1

Example 4.1 'Iris': Saxophone, piano, bass score (01:53)

(013) {C, Db, Eb} (013) {Eb, Fb, Gb} (013) {C, Db, Eb} fragment
 (013) {G, Ab, Bb} (013) {F, Gb, Ab} (013) {F#, G, A} 5 (013) {G, Ab, Bb} (013) {G#, A, B}

1 1 1 1 1 1 3 1 3 1 3 1

(013) {Eb, Fb, Gb} (013) {Gb, G, A}

(013) {G#, A, B} (013) {F, Gb, Ab} (013) {F#, G, A}

1 1 1 1 1 1 1 1 1 1 1 1 1

Example 4.1 'Iris': Saxophone, piano, bass score (02:05)

(027) {Ab, Bb, Eb} (013) {G, Ab, Bb}
 (013) {F#, G, A} (013) {G, Ab, Bb} (013) {G#, A, B} (013) {A, Bb, C}

Fingering: 1 1 3 1 5 5

(013) {F#, G, A} (013) {F, F#, G#}

(013) {G, Ab, Bb} (013) {F, Gb, Ab} (013) {F#, G, A}

sva
lea

Fingering: 1 1 1 1 2 1 3 3 4 1 # 5 5 3

Example 4.1 'Iris': Saxophone, piano, bass score (02:18)

The musical score for 'Iris' is presented in two systems. Each system consists of three staves: Saxophone (top), Piano (middle), and Bass (bottom).

System 1:

- Saxophone:** Features a melodic line with various articulations and dynamics. Chord voicings are indicated above the staff: (013) {F, F#, G#}, (013) {Eb, E, F#}, (013) {Db, D, E}, (024) {Ab, Bb, C}, (013) {C, Db, Eb}, and (024) {Ab, Bb, C}. Fingering numbers (4, 3, 2, 5, 5, 3, 4, 4, 1, 6, 1, 5, 2, 5, 2, 2, 2) are written below the staff.
- Piano:** Provides harmonic support with chords. Voicings include (013) {F#, G, A}, (013) {E, F, G}, (013) {D#, E, F#}, and (013) {D, Eb, F}. A *leg.* (legato) marking is present.
- Bass:** Features a rhythmic accompaniment with triplets and other rhythmic patterns.

System 2:

- Saxophone:** Continues the melodic line with dynamics like *8^{va}* and *8^{va}-1*. Chord voicings are (013) {B, C, D} and (013) {Bb, Cb, Db}.
- Piano:** Provides harmonic support with chords (013) {C#, D, E}, (013) {C, Db, Eb}, and (013) {B, C, D}. *leg.* markings are present.
- Bass:** Continues the rhythmic accompaniment with triplets and other rhythmic patterns.

Example 4.1 'Iris': Saxophone, piano, bass score (02:33)

(013) {Bb, Cb, Db} (02) {Db, Eb} (03) {B, D} (02) {Db, Eb}

8va

(013) {B, C, D} (013) {A#, B, C#} (013) {B, C, D} (013) {A#, B, C#} (013) {B, C, D} (013) {G, Ab, Bb} (013) {A#, B, C#} (013) {G#, A, B}

3 2 3 2 2 5 2 3 2 2 5 2 3 2 4 5 2 2 1 5 2 2 1 5 2 2 1

(027) {Db, Eb, Ab} (013) {G, Ab, Bb}

(013) {G#, A, B} (013) {F, Gb, Ab} (013) {F#, G, A} (013) {F, Gb, Ab} (013) {F#, G, A}

8va

Leg.

5 2 5 2 2 3 2

Example 4.1 'Iris': Saxophone, piano, bass score (02:46)

The musical score for 'Iris' is presented in two systems. Each system consists of three staves: Saxophone (top), Piano (middle), and Bass (bottom).

System 1:

- Saxophone Staff:** Contains three measures with chord sets: $\{G, Ab, Bb\}$, $\{F\#, G, A\}$, and $\{F, Gb, Ab\}$. Each set is labeled (013).
- Piano Staff:** Contains three measures with chord sets: $\{G, Ab, Bb\}$, $\{G\#, A, B\}$, and $\{C\#, D, E\}$. Each set is labeled (013).
- Bass Staff:** Contains three measures with rhythmic patterns and fingering numbers: 3, 3, 2, 3, 2.

System 2:

- Saxophone Staff:** Contains four measures with chord sets: $\{F, Gb, Ab\}$, $\{E, F, G\}$, $\{Eb, E, F\# \}$, and $\{D, Eb, F\}$. Each set is labeled (013).
- Piano Staff:** Contains four measures with chord sets: $\{C\#, D, E\}$ (labeled 8va), $\{A\#, B, C\# \}$, and $\{A\#, B, C\# \}$. Each set is labeled (013).
- Bass Staff:** Contains four measures with rhythmic patterns and fingering numbers: 3, 5, 3, 4, 4, 4, 4, 3, 3.

Example 4.1 'Iris': Saxophone, piano, bass score (02:58)

(013) {D, Eb, F} (013) {Eb, Fb, Gb} (013) {D, Eb, F} (013) {Db, D, E}

(013) {A#, B, C#} (013) {G#, A, B} (013) {C, Db, Eb} (013) {C#, D, E} (013) {C, Db, Eb} (013) {A#, B, C#}

4 4 3 3 4 4 3 3 4 4 1

(013) (C#, D, E) (013) (G#, A, B) (013) (Db, D, E) (035) (B, D, E) (013) (Db, D, E) (013) (C, Db, Eb)

(013) (A#, B, C#) (013) (G#, A, B) (013) (A#, B, C#) (013) (G#, A, B) (013) (G, Ab, Bb) (013) (G, Ab, Bb)

2 3 4 4 1 3 3 4 5 3 4 5 3 4 5 3

Example 4.1 'Iris': Saxophone, piano, bass score (03:11)

The musical score for 'Iris' is presented in two systems. The first system consists of three staves: saxophone (top), piano (middle), and bass (bottom). The saxophone staff features a melodic line with various chord voicings indicated by brackets and labels such as (013) {C, Db, Eb}, (0357) {F, Ab, Bb, C}, (013) {C, Db, Eb}, (013) {B, C, D}, and (013) {Ab, A, B}. The piano staff includes chords like (013) {G, Ab, Bb}, (013) {F, Gb, Ab}, and three instances of (013) {G, Ab, Bb}, {A, Bb, C}, and {B, C, D}. The bass staff shows a rhythmic accompaniment with fingerings: 4 1 6 3 4 5 3 4 1 6 2 1 4 3.

The second system continues the piano and bass parts. The piano staff has two main chord voicings: (013) {G, Ab, Bb} and (013) {F#, G, A}. Below these are several instances of (013) {B, C, D}, (013) {C, Db, Eb}, (013) {B, C, D}, (013) {C, Db, Eb}, (013) {A#, B, C#}, (013) {C, Db, Eb}, and (013) {C#, D, E}. The bass staff continues with fingerings: 4 4 4 1 3 1 5 4 4 1 3 1 5 4 4 1.

Example 4.1 'Iris': Saxophone, piano, bass score (03:26)

(013) {F, Gb, Ab}

(013) {E, F, G}

(013) {Eb, E, Gb}

(013) {C#, D, E}

(013) {C, Db, Eb}

(013) {B, C, D}

(013) {C, Db, Eb}

(013) {B, C, D}

5 4 4 1 4 1 # 1 1 # 1 1 # 1 1 1

(013) {Eb, E, Gb}

(013) {B, C, D}

(013) {C, Db, Eb}

4 1 1 1 b b 1 1 b

Example 4.1 'Iris': Saxophone, piano, bass score (03:39)

(013)
{Eb, E, Gb}

(013)
{C, Db, Eb}

tr

gr

Ped.

3 1 1 1 2 1 1 3 1 1 1

(013)
{C, Db, Eb}

tr

gr

Ped.

b̄ b̄ b̄

Example 4.2 'Iris': Catalogue of (013) members (saxophone)

Saxophone T_n -type (013) Members	Number of Occurrences
{Ab, A, B}	8
{Db, D, E}	8
{D, Eb, F}	7
{Eb, E, F#}	7
{F#, G, A}	6
{C, Db, Eb}	6
{F, F#, Ab}	5
{G, Ab, Bb}	5
{B, C, D}	4
{E, F, G}	3
{A, Bb, C}	2
{Bb, B, Db}	1

Example 4.3 'Iris': Catalogue of (013) members (piano)

Piano T_n -type (013) Members	Number of Occurrences
{C, Db, Eb}	16
{B, C, D}	12
{G#, A, B}	12
{G, Ab, Bb}	11
{Bb, B, C#}	10
{F, Gb, Ab}	10
{F#, G, A}	9
{C#, D, E}	8
{D#, E, F#}	7
{D, Eb, F}	5
{A, Bb, C}	3
{E, F, G}	2

Example 4.4 'Iris': Saxophone and piano pc-set ratios

Time	Saxophone: Piano	Time	Saxophone: Piano
00:00–00:08	1:2	01:53–01:59	3:5
00:08–00:16	3:3	01:59–02:05	2:3
00:16–00:26	2:4	02:05–02:10	2:4
00:26–00:34	3:2	02:10–02:18	2:3
00:34–00:45	6:6	02:18–02:26	6:4
00:45–00:55	2:3	02:26–02:32	2:3
00:55–01:01	1:5	02:32–02:41	4:8
01:01–01:06	1:5	02:41–02:46	2:5
01:06–01:11	2:2	02:46–02:52	3:3
01:11–01:19	2:3	02:52–02:58	4:2
01:19–01:26	2:5	02:58–03:05	4:6
01:26–01:32	3:5	03:05–03:11	6:5
01:32–01:37	8:1	03:11–03:18	5:5
01:37–01:41	2:5	03:18–03:26	2:7
01:41–01:47	9:5	03:26–03:34	3:5
01:47–01:53	6:5	03:34–03:49	1:2

Example 4.5 'Iris': T_n operations between members of (013) in the piano

Piano Transpositions	Number of Occurrences
T_1/T_{11}	57
T_2/T_{10}	31
T_3/T_9	11
T_4/T_8	2
T_5/T_7	3
T_6	0

Example 4.6. 'Iris': T_n operations between members of (013) in the saxophone

Saxophone Transpositions	Number of Occurrences
T_1/T_{11}	33
T_2/T_{10}	6
T_3/T_9	4
T_4/T_8	0
T_5/T_7	3
T_6	0

Example 4.7 'Iris': Interval-class frequency in the bass

Bass Interval Content	Number of Occurrences
Interval-Class 1:	121
Interval-Class 2:	53
Interval-Class 3:	47
Interval-Class 4:	48
Interval-Class 5:	38
Interval-Class 6:	11

Example 4.8 'Iris': Saxophone set sequence, T_n relations, and common-tone structure

00:00 T_{11} T_{11} T_{11} T_{11} T_1 T_1 Implied T_8 T_{10} T_3 1

B Bb A Ab G Ab A C C C Gb

A G G F F F G D C# C B Bb Db Ab

Ab Ab F# F# E F# F# F E Eb D A Eb Bb

(013) (013) (013) (013) (013) (013) (013) (03) (03) (03) (013) (013) (013) (024)

Fragmentation of (013)

01:13 2

T_2 T_1 T_{10} T_1 T_{11} T_1 T_{11} T_1 T_{11} T_1 T_5

C F F# D D D D D D D Bb E B E

Db D E E F E F E F E F G A A A

Eb Eb Eb C# Eb C# Eb C# Eb C# Eb Ab G# G# G#

(013) (013) (013) (013) (013) (013) (013) (013) (013) (013) (013) (013) (045) (013) (045)

01:43 Implied T_1 T_2 T_1 T_3

Common-Tone Synthesis of Two Trichordal Set Classes

E B E B E B E B E B C C C F#

A A A A A A A A A A B Db E

G# G# G# G# G# G# G# G# G# Bb D Eb Eb

(045) (013) (045) (013) (045) (013) (045) (013) (045) (013) (013) (013) (013) (013) (013) Frag.

01:58 3 4 5

T_9 T_3 T_3 T_{11} T_{11} T_{10} T_{10} T_{11} T_{11} T_1 T_3

F# F# F# Eb G G F E E C C C C Db Db

E Db E G Ab Ab F# F# F# C# Ab Db Ab D Bb Eb

Eb Eb Eb A Bb Bb A G# Eb D Bb Eb Bb B B

(013) (013) (013) (013) (027) (013) (013) (013) (013) (013) (024) (013) (024) (013) (013) (02)

Frag.

02:39 6

T_{11} T_{11} T_{11} T_{11} T_{11} T_1 T_{11} T_{11} T_7 T_5

D Db G G F F Eb Eb Eb Eb C# G# C# B C#

Ab Ab A Ab G F# F F# F E A E E E

B Eb Bb F# F# E E D E D D B D D D

(03) (027) (013) (013) (013) (013) (013) (013) (013) (013) (013) (013) (013) (013) (035) (013)

03:07 7

T_{11} T_{11} T_9 T_{11} T_{11} T_{11} T_{11} T_{11}

C# Db Bb Db B B Bb A G# G F#

E Eb F Eb D G# G# F# F# E E

D C C C C A G G F F Eb

(013) (013) Ab (013) (013) (013) (013) (013) (013) (013) (013)

(0357)

Example 4.9a 'Iris': Set linking by common-tone (00:08)

(0,1,3)
{G, Ab, Bb}

(0,1,3)
{F#, G, A}

(0,1,3)
{F, F#, Ab}

Example 4.9b 'Iris': Set linking by common-tone (01:59)

(0,1,3)
{Eb, E, F#}

(0,1,3)
{F#, G, A}

Example 4.9c 'Iris': Set linking by common-tone (02:46)

(0,1,3)
{G, Ab, Bb}

(0,1,3)
{F#, G, A}

(0,1,3)
{F, Gb, Ab}

Example 4.10 'Iris': Common-tone synthesis of {C#, D, E} and {D, Eb, F} (01:31)

(013)
{C#, D, E}

(013)
{C#, D, E}

(013)
{C#, D, E}

(013)
{C#, D, E}

(013)
{D, Eb, F}

(013)
{D, Eb, F}

(013)
{D, Eb, F}

(013)
{D, Eb, F}

Example 4.11 'Iris': Common-tone synthesis of (013) and (045) (01:40)

Musical notation for Example 4.11, showing common-tone synthesis of (013) and (045) chords. The notation is in treble clef with a key signature of one sharp (F#). The melody consists of eighth and quarter notes. Brackets above the staff group notes into chords: (045) {E, G#, A} and (013) {G#, A, B}. Brackets below the staff group notes into chords: (045) {E, G#, A}, (013) {G#, A, B}, and (045) {E, G#, A}.

Example 4.12 'Iris': (013) divergence #4 (02:23)

Musical notation for Example 4.12, showing (013) divergence #4. The notation is in treble clef with a key signature of one sharp (F#). The melody consists of eighth and quarter notes, with some triplets and quintuplets. Brackets above the staff group notes into chords: (013) {C#, D, E}, (024) {Ab, Bb, C}, (013) {C, Db, Eb}, (024) {Ab, Bb, C}, and (013) {B, C, D}.

Example 4.13 'Iris': (013) divergence #6 (03:04)

Musical notation for Example 4.13, showing (013) divergence #6. The notation is in treble clef with a key signature of one sharp (F#). The melody consists of eighth and quarter notes, with some triplets and quintuplets. Brackets above the staff group notes into chords: (013) {C#, D, E}, (013) {G#, A, B}, (013) {C#, D, E}, (035) {B, D, E}, (013) {C#, D, E}, and (013) {C, Db, Eb}.

Example 4.14 'Iris': 'Scale' (013) emergence (00:56–01:07)

Example 4.14 shows three staves of music. The first staff has a bracket labeled (013) {A, Bb, C} above it. The second staff has a bracket labeled (013) {A, Bb, C} above it. The third staff has two brackets: one labeled (013) {A, Bb, C} and another labeled (013) {C, Db, Eb}.

Example 4.15 'Iris': Dyad anticipation of an RM (00:14)

Example 4.15 shows a single staff of music. There are two brackets above the staff: the first is labeled (02) and the second is labeled R. Arrows point from the (02) bracket to the first two notes and from the R bracket to the last two notes.

Example 4.16 'Iris': Antecedent, consequent phrase and dyad development (02:10)

Example 4.16 shows a single staff of music. The first part is bracketed as 'antecedent' and contains three (02) annotations. The second part is bracketed as 'consequent' and contains three (02) annotations and one N1b annotation. A dashed line with arrows at both ends connects two (013) annotations: {F#, G, A} on the left and {F, F#, G#} on the right. A label 'F# common-tone pivot' is placed between these two (013) annotations.

Example 4.17 'Iris': Dyad extensions of RMs (01:59)

Example 4.17 shows a single staff of music. There are several annotations: N, (01), N, N, N, (02), N, N, (02), N, (02). A dashed line with arrows at both ends connects two (013) annotations: {Eb, E, F#} on the left and {F#, G, A} on the right. A label 'F# common-tone pivot' is placed between these two (013) annotations.

Example 4.18 'Iris': Dyad extension and divergence #2 (01:37)

Musical score for Example 4.18. The score is on a single staff with a treble clef and a key signature of one flat. It features several annotations:
 - A bracket labeled 'R2b' spans the first two measures.
 - A bracket labeled '(02)' spans the first two measures.
 - A bracket labeled '(013) {G, Ab, Bb}' spans the first two measures.
 - A bracket labeled '(02)' spans the third measure.
 - A bracket labeled '(02)' spans the fourth measure.
 - A bracket labeled 'divergence #2' spans the fifth and sixth measures.
 - A bracket labeled 'R1b' spans the fifth measure.
 - A bracket labeled 'R1b' spans the sixth measure.
 - A dashed arrow labeled 'Ab common-tone pivot' points from the fourth measure to the fifth.
 - A bracket labeled '(045) {E, Ab, A}' spans the fifth and sixth measures.
 - An '8va' marking is above the first measure.

Example 4.19 'Iris': (03) RM extension and temporary salience (00:35)

Musical score for Example 4.19. The score is on a single staff with a treble clef and a key signature of one sharp. It features several annotations:
 - A bracket labeled 'R1b' spans the first measure.
 - A bracket labeled '(03)' spans the first measure.
 - A bracket labeled '(03)' spans the second measure.
 - A bracket labeled '(03)' spans the third measure.
 - A bracket labeled '(03)' spans the fourth measure.
 - A bracket labeled '(03)' spans the fifth measure.
 - A bracket labeled '(013) {F#, G, A}' spans the first measure.
 - A bracket labeled '(013) {B, C, D}' spans the fifth measure.
 - A dashed arrow points from the end of the fifth measure to the right.

Example 4.20 'Iris': Motivic development through four pc-sets (03:11)

Musical score for Example 4.20. The score is on a single staff with a treble clef and a key signature of one flat. It features several annotations:
 - A bracket labeled '(03)' spans the first measure.
 - A bracket labeled '(02)' spans the second measure.
 - A bracket labeled '(02)' spans the third measure.
 - A bracket labeled 'N1b' spans the third measure.
 - A bracket labeled '(02)' spans the fourth measure.
 - A bracket labeled '(02)' spans the fifth measure.
 - A bracket labeled '(02)' spans the sixth measure.
 - A bracket labeled 'N1b' spans the seventh measure.
 - A bracket labeled 'N1b' spans the eighth measure.
 - A bracket labeled 'N1' spans the ninth measure.
 - A bracket labeled '(013) {C, Db, Eb}' spans the first measure.
 - A bracket labeled '(013) {B, C, D}' spans the second measure.
 - A bracket labeled '(013) {G#, A, B}' spans the sixth measure.
 - A bracket labeled '(013) {G, G#, Bb}' spans the ninth measure.

Example 4.21 'Iris': Antecedent and consequent phrases using one pc-set (01:25)

Musical score for Example 4.21. The score is on a single staff with a treble clef and a key signature of one flat. It features several annotations:
 - A bracket labeled 'antecedent' spans the first three measures.
 - A bracket labeled '(01)' spans the first measure.
 - A bracket labeled 'N1b' spans the second measure.
 - A bracket labeled '(01)' spans the third measure.
 - A bracket labeled 'consequent' spans the last three measures.
 - A bracket labeled 'N1b' spans the fourth measure.
 - A bracket labeled 'N1' spans the fifth measure.
 - A bracket labeled '(013) {D, Eb, F}' spans the last three measures.
 - A '3' marking is below the last three measures.

Example 4.22 'Iris': Saxophone motivic analysis (00:00–00:56)

The image displays a saxophone motivic analysis of the piece 'Iris' from 00:00 to 00:56. It consists of five numbered measures of music, each with specific annotations:

- Measure 1:** Labeled '1. N1b'. It features a 'scale' (013) bracketed over the first six notes. Interval markings of -11 are shown between the first and second notes, and between the sixth and seventh notes. A (01) interval is marked between the seventh and eighth notes.
- Measure 2:** Labeled '2. N1b'. It includes N1b, N1a, and R annotations. Interval markings of -11 are present. (02) and (03) intervals are marked below the staff. A 'scale' (013) bracket is shown above the staff, with arrows pointing to N1a annotations in measures 1 and 2.
- Measure 3:** Labeled '3.'. It features N1b, N, and N annotations. A 'scale' (013) bracket is shown above the staff. A 'four note motive: combination of N & N1' is indicated with a dashed line. Interval markings of -11 are shown. (03) intervals are marked below the staff.
- Measure 4:** Labeled '4. N R1a'. It includes N and R1a annotations. A 'scale' (013) bracket is shown above the staff. Interval markings of -11 are shown. (03) intervals are marked below the staff.
- Measure 5:** Labeled '5. R2a'. It features R1a, R1b, (03), and R2a annotations. Interval markings of +11 are shown. (03) intervals are marked below the staff.

Arrows indicate connections between annotations across measures, such as the 'scale' (013) bracket spanning measures 1 and 2, and the 'four note motive' spanning measures 2 and 3.

Example 4.23 'Iris': Harmonic properties and pc-set interactions (00:00–00:08)

G# common-tone/Oct₂₃ segment
 {E#, F#, G#} + {G#, A, B}

{B#, C#, D#} + {G#, A, B}

F# - maj7^(9, 11) F# - maj7^(9, 11) A maj7 #11^(#9)
 E

TS
 Piano
 Bass

PED.
 8^{va}
 F# bass common-tone with piano
 two common-tones with saxophone

Example 4.24 'Iris': Harmonic properties and pc-set interaction (00:08–00:18)

{C#, D, E} + {F#, G, A}

{D#, E, F#} + {G, Ab, Bb}

{D#, E, F#} + {F#, G, A}

{C, Db, Eb} + {F, F#, Ab}

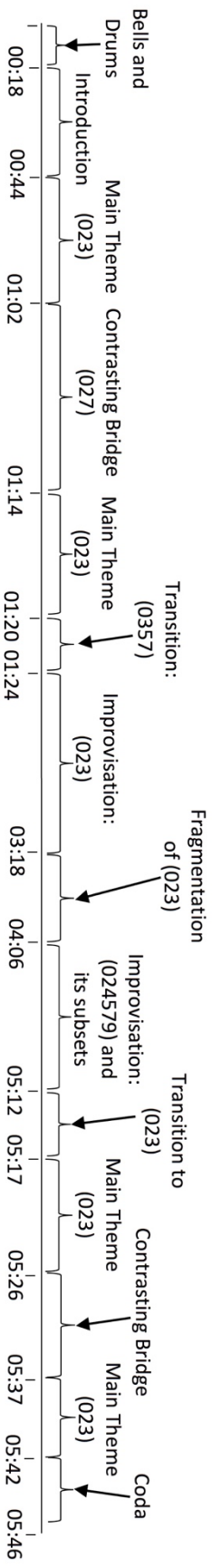
F# common-tone/Oct₀₁ segment

C 7^(#9, #11, b13) B sus^{add3} F#7^(b9, #9, 13) D maj7 C# Db maj7^(9, 11) Bb - 11

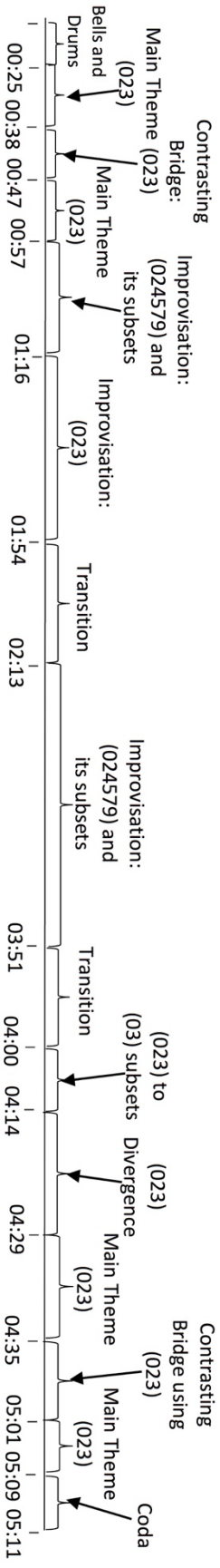
TS
 Piano
 Bass

ic5 ic5 ic0
 PED.
 8^{va}
 common-tones with sax and piano

Example 4.25 'Jupiter Variation': Large-scale structure



Example 4.26 'Jupiter': Large-scale structure



Example 4.27 'Jupiter Variation': Opening theme (00:42)

The image displays four staves of musical notation for the opening theme of 'Jupiter Variation'. Each staff is annotated with set classes and transformations. The first staff shows the initial theme with set classes {Bb, C, Db} (023), {G#, A#, B} (023), and {G#, A#, B} (023). A transformation T₁₁ is indicated between the first and second measures. The second staff continues the theme, showing set classes {F#, G#, A} (023), {G#, A#, B} (023), {C#, D#, E} (023), {F#, G#, A} (023), {G#, A#, B} (023), and {C#, D#, E} (023). A 'set alteration mapping A onto G' is noted for the {F#, G#, A} set. The third staff shows further development with set classes {G#, A#, B} (023), {C#, D#, E} (023), {F#, G#, A} (023), {G#, A#, B} (023), {C#, D#, E} (023), {F#, G#, A} (023), {G#, A#, B} (023), and {C#, D#, E} (023). The fourth staff concludes the theme with set classes {C#, D#, E} (023), {F#, G#, A} (023), {C#, D#, E} (023), {F#, G#, A} (023), {G#, A#, B} (023), {C#, D#, E} (023), {F#, G#, A} (023), and {C#, D#, E} (023). The notation includes treble clefs, a key signature of one sharp (F#), and a 3/4 time signature. Arrows and brackets connect the annotations to the corresponding notes in the score.

Example 4.27 'Jupiter Variation': Opening theme (cont.)

B

(037) {G#, B, D#} (027) {C#, D#, G#} (027) {G#, A#, D#}

synthesis of G# and B from {G#, A#, B} & C# and D# from {C#, D#, E}

B

(027) {G#, A#, D#} (024) {F#, G#, A#} (035) {E#, G#, A#}

B A²

(027) {G#, A#, D#} (035) {E#, G#, A#} (023) {G#, A#, B} (023) {C#, D#, E} (023) {F#, G#, A} (023) {G#, A#, B} (023) {C#, D#, E}

from previous trichord

A² synthesis of G# and B from {G#, A#, B} & C# and D# from {C#, D#, E}

(023) {F#, G#, A} (023) {G#, A#, B} (023) {C#, D#, E} (023) {F#, G#, A} (023) {G#, A#, B} (023) {C#, D#, E} (023) {F#, G#, A} (0357) (G#, B, C#, D#)

synthesis of G# and B from {G#, A#, B} & C# and D# from {C#, D#, E}

Example 4.28 'Jupiter': Opening theme (00:25)

The musical score is annotated with various analytical elements:

- Section A¹:**
 - Starts with a **C5** cycle.
 - Contains set classes: {G#, A#, B}, {C#, D#, E}, {F#, G#, A}, {G#, A#, D#}, {G#, A#, B}, {C#, D#, E}, and a **(023) fragment** {G#, A#, B}.
- Section A¹ (continued):**
 - Contains set classes: {G#, A#, B}, {C#, D#, E}, {G#, A#, B}, {C#, D#, E}, {G#, B, C#}, {G#, A#, B}, {C#, D#, E}, and {C, D, Eb}.
- Section B:**
 - Contains set classes: {B, C#, D}, {A, B, C}, {Bb, C, Db}, {A, B, C}, {Bb, Db}, and {A, C}.
 - Annotation: "Anticipates {A, B, C}" with an arrow pointing to a specific note.
 - Annotation: "contraction from (024) to (023)" with an arrow pointing to a change in intervallic structure.
- Section A²:**
 - Contains a **C4₁-cycle with (034) alteration**.
 - Contains set classes: {F, Ab}, {Eb, Gb}, {A, B, C}, {C#, D#, E}, {F, G#, A}, {A, B, E}, {A, B, C}, {C#, D#, E}, {F, G, Ab}, {G#, A#, B}, and {C#, D#, E}.
- Section A² (continued):**
 - Contains a **C5-cycle**.
 - Contains set classes: {C#, D#, E}, {F#, G#, A}, and {F#, G#, A}.
 - Annotations: "fragment from theme {G#, A#, B}" and "fragment from theme {C#, D#, E}" with arrows pointing to specific notes.
- Section A² (continued):**
 - Contains set classes: {F#, G#, A} and {B, C#, D#, E, F#, G#}.
 - Annotation: "pitch alteration signalling the coming transposition change" with arrows pointing to notes.
 - Contains set classes: {E, F#, G#, B, C#} and a **fragment**.

Example 4.29 'Jupiter Variation'/'Jupiter': 'A' theme construction

Example 4.30 'Jupiter Variation': 'A' theme statement (00:46)

Example 4.31 'Jupiter': 'A' theme statement (00:25)

Example 4.32 'Jupiter': 'A' theme C₄-cycle alteration (00:45)

Musical notation for Example 4.32, 'Jupiter' 'A' theme C₄-cycle alteration. The notation shows a sequence of notes with various intervals and chord structures. Key annotations include:

- C₄-cycle with (034) alteration:** A bracketed section covering the first part of the melody.
- C₄-cycle:** A bracketed section covering the middle part of the melody.
- C₅-cycle:** A bracketed section covering the final part of the melody.
- Intervals and Chords:** Various intervals are labeled with numbers in parentheses (e.g., (03), (01), (023), (034), (027), (023), (023), (023), (023), (023)) and sets of notes in curly braces (e.g., {F, Ab}, {Eb, Gb}, {G#, A}, {A, B, C}, {C#, D#, E}, {F, G#, A}, {A, B, E}, {A, B, C}, {C#, D#, E}, {F, G, Ab}, {G#, A#, B}, {C#, D#, E}, {Gb, G#, A}).

Example 4.33 'Jupiter Variation'/'Jupiter' and 'Giant Steps' (bb. 8–15): Construction

Musical notation for Example 4.33, showing the construction of 'Jupiter Variation'/'Jupiter' and 'Giant Steps' (bb. 8–15). The notation is divided into two parts:

- 'Jupiter Variation'/'Jupiter' theme:** A sequence of notes in G# minor. It is annotated with a C₅-cycle and intervals (023) with chord sets {G#, A#, B}, {C#, D#, E}, and {F#, G#, A}.
- 'Giant Steps' bb.8–15:** A sequence of notes annotated with a C₄-cycle and intervals (025) with chord sets {F, G, Bb}, {A, B, D}, {Db, Eb, Gb}, and {F, G, Bb}. Below the notes, a series of chords are listed: Fmin7, Bb7, EbMaj7, Amin7, D7, GMaj7, C#min7, F#7, BMaj7, Fmin7, Bb7, EbMaj7.

Example 4.34 Slonimsky: Exercise #832 (excerpt)

Musical notation for Example 4.34, Slonimsky's Exercise #832 (excerpt). The notation shows a sequence of notes with intervals (023) and chord sets (C#, D#, E), (F#, G#, A), (B, C#, D), (E, F#, G), (A, B, C), and (D, E, F).

Example 4.35 Slonimsky: Exercise #877 (excerpt)

(023) (A, B, C) (023) (D, E, F) (023) (G, A, B \flat) (023) (C, D, E \flat) (023) (F, G, A \flat) (023) (B \flat , C, D \flat)

Example 4.36 Slonimsky Exercise: #891 with embedded 'Jupiter' theme (excerpt)

(023) (D, E, F) (023) (G, A, B \flat) (023) (C, D, E \flat) (023) (F, G, A \flat) (023) (B \flat , C, D \flat)

Example 4.37 'Jupiter Variation'/'Jupiter': 'A' and 'B' (027) structural connection

'Jupiter Variation'/'Jupiter' theme structure

(023) {G \sharp , A \sharp , B} (023) {C \sharp , D \sharp , E} (023) {F \sharp , G \sharp , A}

(027)
{G \sharp , A \sharp , D \sharp }

'Jupiter Variation' 'B' section (01:04)

Example 4.38 'Jupiter Variation': 'B' section common-tone pattern (01:02)

G#	G#	G#	G#	G#	G#	G#	G#
B	C#	A#	A#	A#	A#	A#	A#
D#	D#	D#	F#	E#	D#	E#	B
(037)	(027)	(027)	(024)	(035)	(027)	(035)	(023)

Example 4.39 'Jupiter': 'B' section (00:36)

Example 4.40 'Jupiter Variation': (023) salience (01:22)

The musical score is divided into five systems, each with annotations for (023) salience and other musical features:

- System 1:** An arrow points to the first measure. Annotations include (0357) {G#, B, C#, D#}, (023) {C, D, Eb}, (023) {F, G, Ab}, and (023) {C, D, Eb}.
- System 2:** Annotations include (023) {C, D, Eb}, (023) {F, G, Ab}, (023) {C, D, Eb}, (023) {F, G, Ab}, and a note marked 'from previous trichord'.
- System 3:** Annotations include (023) {C, D, Eb}, (023) {Bb, C, Db}, (023) {F, G, Ab}, (023) {Bb, C, Db} fragment, (023) {F, G, Ab}, (023) {Bb, C, Db}, and (023) {G#, A#, B} with an arrow pointing right.
- System 4:** Annotations include (023) {G#, A#, B}, (023) {A, B, C}, and (023) {G, A, Bb}. The first measure is labeled 'unstable intonation'.
- System 5:** Annotations include (023) {G, A, Bb}, (023) {Bb, C, Db}, (023) {G, A, Bb}, (023) {Bb, C, Db} fragment, (023) {C, D, Eb}, and (023) {Bb, C, Db}. The final measure is labeled 'unstable intonation' and 'conflation of {G, A, Bb} and {Bb, C, Db}'.

Example 4.40 'Jupiter Variation': (023) salience (01:48)

The musical score is annotated with (023) salience labels and trichord sets. The annotations are as follows:

- Staff 1:**
 - (023) {Bb, C, Db}
 - (023) {A, B, C}
 - (023) {G#, A#, B}
 - (023) {Eb, F, Gb} fragment
 - (023) {G#, A#, B}
 - (023) {Eb, F, Gb}
 - (023) {G#, A#, B}
 - (023) {Eb, F, Gb}
 - anticipation of {Eb, F, Gb}
- Staff 2:**
 - (023) {Eb, F, Gb}
 - (023) {G#, A#, B}
 - (023) {Eb, F, Gb}
 - (023) {G#, A#, B}
 - (023) {D, E, F}
 - (023) {G#, A#, B}
 - (023) {C#, D#, E}
- Staff 3:**
 - (023) {C#, D#, E}
 - (023) {G#, A#, B} fragment
 - (023) {C#, D#, E} fragment
 - (023) {G#, A#, B}
 - (023) {C#, D#, E}
 - (023) {G, A, Bb}
 - (023) {C#, D#, E}
 - (023) {C, D, Eb}
 - (023) {G#, A#, B}
 - (023) {C, D, Eb}
- Staff 4:**
 - (023) {C, D, Eb}
 - (023) {G, A, Bb}
 - (023) {C, D, Eb}
 - (023) {G, A, Bb}
 - pitch from previous trichord
- Staff 5:**
 - (023) {G, A, Bb}
 - (023) {C, D, Eb}
 - (023) {G, A, Bb}
 - (024) {C, D, E}
 - conflation of two sets {A, B, C} and {D, E, F}
 - unstable intonation
- Staff 6:**
 - (024) {C, D, E}
 - (023) {A, B, C}
 - (023) {D, E, F}
 - (023) {E, F#, G}
 - (023) {A, B, C}

Example 4.40 'Jupiter Variation': (023) salience (02:20)

reference to previous trichord {E, F#, G}

(023) {E, F#, G} (023) {A, B, C} (023) {Eb, F, Gb} (023) {A, B, C} (023) {Eb, F, Gb} (023) {D, E, F} (023) {A, B, C} (023) {D, E, F}

(023) {D, E, F} (023) {A, B, C} (023) {D, E, F} (023) {A, B, C}

brief loss of control of *altissimo*

(023) {A, B, C} (023) {C, D, Eb} (023) {C, D, Eb} (023) {D, E, F} Fragment (023) {D, E, F}

G Major blues sonority, resolving back to {G, A, Bb} as blues connection

timbre and overtones used produce elastic pitch quality

(0134) {B, C, D, Eb} (0245) {Bb, C, D, Eb}

(023) {G, A, Bb} (023) {Eb, F, Gb} (023) {Bb, E, Db} (023) {Eb, F, Gb} (023) {G, A, Bb} (023) {C#, D#, E} (023) {C#, D#, E}

conflation of two sets {G, A, Bb} and {Bb, C, Db}

chromatic embellishment

anticipation of {G# A#, B}

(023) {C#, D#, E} (023) {C#, D#, E} (023) {G# A#, B} (023) {C#, D#, E} fragment (023) {F#, G#, A} fragment (023) {B, C#, D}

anticipation of {G# A#, B}

realization

fragmentation of main theme

2:46

Example 4.40 'Jupiter Variation': (023) salience (02:47)

phrase development with intervallic expansion of segment {A#, F} to {Bb, E}.
pitch A# belonging to previous set ({G#, A#, B})

F# anticipates the Gb in the next set

C# anticipates the next trichord set

chromatic embellishment

D projection

retrograde figure with Bb omitted

synthesis of dyads {D, E} and {A, B} which are contained in trichord sets on both sides of this structure. This foreshadows the break down of (023) to major 2nd and minor 3rd dyad structures.

Example 4.41 'Jupiter Variation': (023) set sequences (01:24–03:00)

Time		Time	
01:24	$\parallel: \{C, D, Eb\} - \{F, G, Ab\} \parallel$ $T_{10} \downarrow \quad T_0 \downarrow$	02:31	$T_{10} \downarrow \quad T_0 \downarrow$ $\{C, D, Eb\} - \{A, B, C\}$
01:32	$\parallel: \{Bb, C, Db\} - \{F, G, Ab\} \parallel$ $T_0 \downarrow \quad T_3 \downarrow$	02:32	<p><i>Divergence from (023)</i></p>
01:35	$\{Bb, C, Db\} - \{G\# A\#, B\} - \{A, B, C\} - \{G, A, Bb\}$ <i>Transposition of previous two sets at T^{11}</i>	02:36	
01:43	$\{Bb, C, Db\} - \{G, A, Bb\} - \{Bb, C, Db\} - \{G, A, Bb\} - \{Bb, C, Db\} - \{C, D, Eb\}$ $T_0 \downarrow \quad T_2 \downarrow$	02:38	$\{Bb, C, Db\} - \{Eb, F, Gb\}$ $T_0 \downarrow$
01:48	$\{Bb, C, Db\} - \{A, B, C\}$ $T_{11} \downarrow$	02:39	$\{G, A, Bb\} - \{Bb, C, Db\}$ <i>conflated</i>
01:50	$\parallel: \{G\#, A\#, B\} - \{Eb, F, Gb\} \parallel$ $T_0 \downarrow \quad T_{11} \downarrow$	02:40	$\{C\#, D\#, E\} - \{G\#, A\#, B\}$ $T_0 \downarrow \quad T_{10} \downarrow$
01:57	$\{G\#, A\#, B\} - \{D, E, F\}$ $T_0 \downarrow \quad T_{11} \downarrow$	02:45	$\{C\#, D\#, E\} - \{F\#, G\#, A\}$ $T_{10} \downarrow \quad T_2 \downarrow$
01:58	$\parallel: \{G\#, A\#, B\} - \{C\#, D\#, E\} \parallel$ $T_{11} \downarrow \quad T_0 \downarrow$	02:46	$\{B, C\#, D\} - \{G\#, A\#, B\} - \{F, G, Ab\}$ $T_0 \downarrow \quad T_8 \downarrow$
02:01	$\{G, A, Bb\} - \{C\#, D\#, E\}$ $T_5 \downarrow \quad T_7 \downarrow$	02:48	$\parallel: \{B, C\#, D\} - \{E, F\#, G\} \parallel \{Eb, F, Gb\}$ $T_0 \downarrow \quad T_{11} \downarrow$
02:02	$\{C, D, Eb\} - \{G\#, A\#, B\}$ $T_0 \downarrow \quad T_{11} \downarrow$	02:51	$\{B, C\#, D\} - \{Eb, F, Gb\}$ $T_6 \downarrow \quad T_4 \downarrow$
02:03	$\parallel: \{C, D, Eb\} - \{G, A, Bb\} \parallel$ $T_0 \downarrow \quad T_{11} \downarrow$	02:55	$\{F, G, Ab\} - \{G, A, Bb\}$ $T_8 \downarrow \quad T_0 \downarrow$
02:13	$\{A, B, C\} - \{D, E, F\}$ $T_0 \downarrow$	02:59	$\{C\#, D\#, E\} - \{G, A, Bb\}$ $T_0 \downarrow \quad T_{11} \downarrow \quad T_0 \downarrow$
02:19	$\parallel: \{E, F\#, G\} - \{A, B, C\} \parallel$ $T_{11} \downarrow \quad T_0 \downarrow$	03:00	$\{C\#, D\#, E\} - \{C, D, Eb\} - \{G, A, Bb\}$
02:21	$\{Eb, F, Gb\} - \{A, B, C\} - \{Eb, F, Gb\}$ $T_{11} \downarrow \quad T_0 \downarrow$		
02:23	$\parallel: \{D, E, F\} - \{A, B, C\} \parallel$ $T_0 \downarrow$		

Insertion of $\{G, A, Bb\}$ and $\{C, D, Eb\}$ within the context of trichords $\{G\#, A\#, B\}$ and $\{C\#, D\#, E\}$

$\{C, D, E\}$ (024) expansion

Example 4.42 'Jupiter': (023) salience (01:16)

The musical score is annotated with (023) salience sets and other musical features. The annotations are as follows:

- Staff 1:**
 - (023) {F, G, Ab}
 - (023) {Bb, C, Db}
 - (023) {F, G, Ab}
 - (023) {Bb, C, Db}
 - (023) {F, G, Ab}
 - (023) {Bb, C, Db}
 - (023) {F, G, Ab}
 - (023) {Bb, C, Db}
 - (023) {F, G, Ab}
- Staff 2:**
 - (023) {Bb, C, Db}
 - (023) {C, D, Eb}
 - (023) {D, E, F}
 - (023) {E, F#, G}
- Staff 3:**
 - (023) {Eb, F, Gb}
 - (023) {F#, G#, A}
 - (023) {Eb, F, Gb}
 - (023) {F#, G#, A}
 - (023) {Eb, F, Gb}
 - (023) {F#, G#, A}
 - (023) {Eb, F, Gb}
 - (023) {F#, G#, A}
 - (023) {Eb, F, Gb}
- Staff 4:**
 - (023) {F#, G#, A}
 - (023) {Eb, F, Gb}
 - (023) {F#, G#, A}
 - (023) {G#, A#, B}
 - (02) {G#, A#}
 - dyad emphasis begins
- Staff 5:**
 - (023) {G#, A#, B}
 - (024) {G#, A#, C}
 - (023) {G#, A#, B}
 - (023) {C, D, Eb}
 - (02) {G#, A#}
 - (02) {G#, A#}
 - (02) {A#, C}
 - chromatic embellishment
 - (02) {C, D}
 - reference to previous {G#, A#, B}
- Staff 6:**
 - (023) {C, D, Eb}
 - (023) {Bb, C, Db}
 - (023) {G, A, Bb}
 - (02) {C, D}
 - (02) {C, D}
 - (02) {Bb, C}
 - (02) {Bb, C}
 - (02) {Bb, C}
 - (02) {Bb, C}
 - (02) {G, A}

Example 4.43 'Jupiter': (023) set sequence (01:16–01:50)

01:16 T_5 T_7 T_5 T_7 T_5 T_7 T_5 T_7 T_5 T_7

Ab	C	Ab	C	Ab	C	Ab	C	Ab	C	Ab
G	Bb	G	Bb	G	Bb	G	Bb	G	Bb	G
F	Db	F	Db	F	Db	F	Db	F	Db	F
(023)	(023)	(023)	(023)	(023)	(023)	(023)	(023)	(023)	(023)	(023)

{Bb, C, Db}, {C, D, Eb}, and {F, G, Ab} have a transpositional relationship mirroring the structure of (027) and the C5 cycle used for the trichords of the theme.

01:21

	T_5	T_2	T_2	T_2	T_{11}	T_3	T_9	T_3	T_9	T_3	T_9
Ab	C	C	F	G	F	A	F	A	F	A	F
G	Bb	Eb	E	E	Eb	G#	Eb	G#	Eb	G#	Eb
F	Db	D	D	F#	Gb	F#	Gb	F#	Gb	F#	Gb
(023)	(023)	(023)	(023)	(023)	(023)	(023)	(023)	(023)	(023)	(023)	(023)

segment of the $C2_0$ cycle

01:31

	T_3	T_9	T_3	T_9	T_3	T_9	T_4	T_{10}	T_9		
F	A	F	A	F	A	A#	A#	A#	D	Bb	Bb
Eb	G#	Eb	G#	Eb	G#	G#	G#	G#	C	C	G
Gb	F#	Gb	F#	Gb	F#	B	C	B	Eb	Db	A
(023)	(023)	(023)	(023)	(023)	(023)	(023)	(024)	(023)	(023)	(023)	(023)

expansion of {G#, A#, B}

Example 4.45 Registral partitioning in 'Jupiter Variation' (03:16)

The image displays a musical score with four staves, each annotated with various musical concepts and set-theoretic labels. The annotations include:

- Staff 1:** (023) {C, D, Eb} fragment; (023) {A, B, C}; (023) {G#, A#, B}; (023) {C, D, Eb} fragment; (023) {C, D, Eb} fragment; (023) {G#, A#, B} fragment.
- Staff 2:** (03) {C, Eb}; chromatic approach; (03) {D, F}; (03) {G#, B}; (03) {D, F}; (03) {G#, B}; chromatic approach; (03) {D, F}; (03) {G#, B}; chromatic approach; (02) {G, A} developed in next phrase; (0125) {C, C#, D, F}; (023) {G#, A#, B} fragment.
- Staff 3:** (03) {D, F}; (024) {G, A, B}; (03) {Bb, Db}; (02) {G, A}; (03) {Bb, Db}; (02) {G, A}; (03) {Bb, Db}; (02) {G, A}; (0125) {C, C#, D, F}; intonation unstable; δ^{va} markings.
- Staff 4:** (02) {G, A}; (02) {G, A}; (02) {G, A}; (02) {G, A}; (03) {G#}; (03) {Eb, Gb}; (03) {D, F}; (03) {C#, E}; (02) {G, A}; (02) {G, A}; (02) {G, A}; (023) {Bb, C, Db}; (03) {C, Eb}; from previous {G, A}; δ^{va} markings.

Example 4.46 Registral partitioning in 'Jupiter Variation' (03:49)

The image displays three systems of musical notation for 'Jupiter Variation', annotated with registral partitioning. The annotations consist of pitch class sets in curly braces, often preceded by a number in parentheses. Arrows indicate the flow of these sets across the systems.

- System 1:**
 - Annotation (023) {C, D, Eb} is shown above the first measure.
 - Annotation (0235) {C, D, Eb, F} spans the first two measures.
 - Annotation (03) {Eb, Gb} is shown below the first measure.
 - Annotations (03) {Eb, Gb} and (03) {D, F} are shown below the final two measures.
- System 2:**
 - Annotation (05) {Bb, Eb} is shown above the first measure.
 - Annotation (023) {C, D, Eb} is shown above the second measure.
 - Annotation (023) {A, B, C} is shown above the third measure.
 - Annotation (0235) {B, C#, D, E} is shown above the fourth measure.
 - Annotation (0235) {A, B, C, D} is shown above the fifth measure.
 - Annotation (023) {Eb, F, Gb} is shown above the sixth measure.
 - Annotations (02) {B, C#}, (02) {D, E}, (03) {C#, E}, (02) {B, C#}, and (03) {C, D} are shown below the final two measures.
- System 3:**
 - Annotation (023) {Eb, F, Gb} is shown above the first measure.
 - Annotation (023) {C, D, Eb} is shown above the second measure.
 - Annotation (023) {Eb, F, Gb} is shown above the third measure.
 - Annotation (02) {G#, A#} is shown above the fourth measure.
 - Annotation (023) {C#, D#, E} is shown above the fifth measure.
 - Annotation (024) {C#, D#, E#} is shown above the sixth measure, labeled 'set expansion'.
 - Annotation (023) {C#, D#, E} is shown above the seventh measure.
 - Annotation (024579) {F#, G#, A#, B, C#, D#} is shown above the eighth measure.
 - The section from the first to the fifth measure is labeled 'altered/truncated theme'.
 - The section from the sixth to the eighth measure is labeled '(024) development'.

4.47 'Jupiter Variation': (023) divergence (01:48)

(023) {Bb, C, Db} (023) {A, B, C} (023) {G#, A#, B} (023) {Eb, F, Gb} fragment (023) {G#, A#, B} (023) {Eb, F, Gb} (023) {G#, A#, B} (023) {Eb, F, Gb}

anticipation of {Eb, F, Gb}

4.48 'Jupiter Variation': (023) divergence (03:08)

(023) {G#, A#, B} (023) {D, E, F} conflation of {D, E, F} and {A, B, C} (0257) {A, B, D, E} (023) {A, B, C}

4.49 'Jupiter Variation': (023) divergence (03:16)

(023) {C, D, Eb} (023) {A, B, C} (Eb) (023) {G#, A#, B} (023) {C, D, Eb} fragment (023) {G#, A#, B} fragment

4.50 'Jupiter': (023) divergence (01:50)

from previous set {Bb, C, Db}

(023) {G, A, Bb}

(024) {G, A, B}

expansion of previous {G, A, Bb}

E minor pentatonic

(02) {G, A}

(02) {A, B}

(02) {A, B}

(02) {G, A}

(02) {A, B}

(05) {G, C}

(05) {D, G}

(05) {E, A}

(0257) {D, E, G, A}

two (02) and (05) dyads contained as subsets

(05) dyad projection

8va

4.51 'Jupiter Variation': (023) divergence (03:02)

l_3

(013) {C#, D, E}

(023) {B, C#, D}

l_{11}

(013) {A, Bb, C}

l_{10}

(023) {Bb, C, Db}

added pitch to (023)

alteration of previous {C#, D#, E}

added pitch to (023)

l_{10}

(023) {Bb, C, Db}

l_1

(013) {A, Bb, C}

(023) {C#, D#, E}

(023) {Eb, F, Gb}

added pitch to (023)

3

4.52 'Jupiter Variation': (023) divergence (02:25)

(023) {D, E, F}

(023) {A, B, C}

(023) {D, E, F}

(023) {A, B, C}

8va

brief loss of control of *altissimo*

Example 4.53 'Jupiter': Transition to last theme (03:50)

(024579) subsets with only one pitch disruption (Cb)

The image displays a musical score in treble clef with various annotations. The first system shows a melodic line with a bracketed set (024579) {Ab, Bb, C, Db, Eb, F}. A dashed line above it indicates '(024579) subsets with only one pitch disruption (Cb)'. The second system continues the melody, with annotations for '(047) {Eb, G, Bb}', '(02) {G, A}', '(03) {Bb, Db}', '(02) {G, A}', and '(012) {A, Bb, B}'. A horizontal arrow labeled 'gradual focusing on {G, A, Bb}' spans across these elements. Below the staff, '(03) {Bb, Db}' and '(027) {Eb, F, Bb}' are noted, with an arrow pointing to the text 'played two octaves higher'. Further right, '(027) {Bb, C, F}' is annotated three times. The third system features a triplet of notes with '(012) {A, Bb, B}' and '(023) {G, A, Bb}' above it, and '(027) {Bb, C, F}' below. A horizontal arrow labeled 'gradual focusing on {G, A, Bb}' points to the right. The text 'fragment of' is above the first note, and 'projection of (03) subset' is above the second. The label 'C4₃' is positioned above the final notes. The fourth system shows a sequence of notes with '(03) {Eb, Gb}', '(03) {B, D}', '(03) {Bb, Db}', '(03) {A, C}', '(03) {F#, A}', '(03) {E, G}', '(03) {D, F}', '(03) {C, Eb}', and '(03) {Bb, Db}' above the staff. The label 'C1' is below the first three notes, and 'C2₀' is above the last three. The fifth system is annotated with 'gradual expansion of the set structure' at the top. It shows '(03) {G#, B}' above the first note, '(037) {G#, B, D#}' above the second, and '(0258) {B, C#, E, G}' above the third. A horizontal arrow labeled 'G#- → E-6' spans these. Below the staff, '(027) {C#, D#, G#}' is annotated, with an arrow labeled 'contraction' pointing to '(024) {C#, D#, E#}' and an arrow labeled 'expansion' pointing to '(027) {C#, D#, G#}'. A 'chromatic approach' is indicated between the first and second notes. The final part of the system shows '(0257) {B, C#, E, F#}' above the notes, with '(027) {B, C#, F#}' and '(027) {E, F#, B}' below. The label '{C#, D#, G#} fragment (02) {C#, D#}' is to the right.

Example 4.54 'Jupiter': Segmented pitch development (04:18)

Segment A	Segment A1	Segment A2	Segment B	Segment B1	Segment C	Segment C1
C# → A	A → B	B → A	A → A	A → A	B → B	B → B
B → B	B → A	F# → A	G → G	G → G	F# → A	F# → A
F → F	F → B	C# → F	D# → D#	D# → D#	C# → F	C# → F
Eb → Eb	Eb → F#	B → C#	B → B	B → B	B → C#	B → C#
Bb → A	A → A	F → B	F# → F#	F# → F#	F → B	F → B
		Eb → Eb			Eb → F	Eb → F
						Eb → Eb

Example 4.55 'Jupiter': Final theme 'B' section (04:30)

The musical score is annotated with pitch class sets and structural annotations across several systems:

- System 1:**
 - Annotations: (023) {F#, G#, A}, (023) {C#, D#, E}, (023) {F#, G#, A}, (023) {C#, D#, E}, (024) {F#, G#, A#}, (023) {C#, D#, E}, (023) {F#, G#, A}, (023) {C#, D#, E}, (034) {G, A#, B}, (04) {C#, F}, (023) {G, A, B}.
 - Structural annotations: "expansion" (twice), "development of (04) from set {G, A#, B}", "lower three pitches form (034) {C#, E, F}, echoing previous {G, A#, B} at T⁶".
- System 2:**
 - Annotations: (023) {E, F#, G}, (034) {C, Eb, Fb}, (013) {F#, G, A}, (023) {G, A, Bb}, (023) {C, D, Eb}, (023) {G, A, Bb}, (023) {G, A, Bb}.
 - Structural annotations: "gradual refocusing on (023)", "(04) {Eb, G}", "(04) {C, Fb}", "(04) {G, B}", "chromatic approach", "3", "8^{va}".
- System 3:**
 - Annotations: (023) {G, A, Bb}, (023) {A, B, C}, (023) {G, A, Bb}, (023) {A, B, C}, (023) {B, C#, D}.
 - Structural annotations: "conflation of {G, A, Bb} and {A, B, C}", "unstable intonation", "chromatic approach", "3", "8^{va}".
- System 4:**
 - Annotations: (023) {Eb, F, Gb}, (024) {G, A, B}, (023) {Eb, F, Gb}, (023) {G, A, Bb}, (023) {D, E, F}, (023) {G, A, Bb}, (023) {C#, D#, E}, (023) {G, A, Bb}.
 - Structural annotations: "expansion", "contraction", "8^{va}".
- System 5:**
 - Annotations: (023) {B, C#, D}, (023) {G, A, Bb}, (023) {Bb, C, Db}, (023) {G, A, Bb}, (023) {Bb, C, Db}, (0237) {G, A, Bb, D}, (03) {F#, A}, (02) {Bb, C, C}, (02) {Bb, C, C}, (02) {Bb, C, C}.
 - Structural annotations: "unstable intonation", "3", "8^{va}", "(023) embellished with D", "(02)", "3".
- System 6:**
 - Annotations: (023) {Bb, C, Db}, (023) {G#, A#, B}, (023) {C#, D#, E}, (023) {F#, G#, A}, (023) {G#, A#, B}, (023) {C#, D#, E}, (023) {F#, G#, A}, (023) {G#, A#, B}, (023) {C#, D#, E}.
 - Structural annotations: "theme recapitulation to end".

Example 4.56 'Jupiter Variation': Introduction (00:18)

The musical score is annotated with various harmonic and structural elements:

- System 1:**
 - Transformation: WT^1
 - Interval: I_{10} (inversionally related)
 - Set classes: $(037) \{Bb, Db, F\}$, $(027) \{Eb, F, Bb\}$, $(0248) \{Db, Eb, F, A\}$, $(024) \{Eb, F, G\}$, $(0248) \{G, A, B, Eb\}$, $(027) \{Bb, C, F\}$, $(02) \{A, B\}$
 - Annotations: "first", "chromatic passing tone", "last", "begins the next phrase"
- System 2:**
 - Transformation: WT^1
 - Set classes: $(02) \{A, B\}$, $(0248) \{Db, Eb, F, A\}$, $(0248) \{A, B, Db, F\}$, $(024) \{Db, Eb, F\}$, $(024) \{C, D, E\}$, $(024) \{Db, Eb, F\}$, $(024) \{C, D, E\}$, $(024) \{Db, Eb, F\}$
 - Annotation: "chromatic passing tone"
- System 3:**
 - Transformations: WT^1 , WT^0
 - Set classes: $(024) \{Db, Eb, F\}$, $(024) \{Eb, F, G\}$, $(024) \{F, G, A\}$, $(0268) \{C, D, F\#, Ab\}$, $(046) \{F\#, Bb, C\}$, $(026) \{C, D, F\# \}$, $(026) \{F\#, Ab, C\}$
- System 4:**
 - Transformation: WT^0
 - Set classes: $(0248) \{Ab, Bb, C, E\}$, $(046) \{F\#, Bb, C\}$, $(02) \{Bb, C\}$, $(046) \{E, Ab, Bb\}$, $(024) \{Ab, Bb, C\}$, $(02) \{Bb, C\}$
 - Annotations: "(013) $\{A, Bb, C\}$ ", "(027) $\{Bb, C, F\}$ ", "(013) $\{A, Bb, C\}$ ", "(025) $\{Bb, C, Eb\}$ ", "(023) $\{Bb, C, Db\}$ ", "{Bb, C} is used referentially"

Example 4.57 'Offering': (024579) emergence (excerpt) (03:26)

Example 4.58 (024579): Appearances and durations

Track	Start and End	Duration	Initial (024579) Member	Enters at % of total track length
'Offering'	03:26–05:36	02:10	{F#, G#, A#, B, C#, D#}	41%
'Configuration'	02:56–03:32	00:36	{G, A, B, C, D, E}	72%
'Mars'	03:44–05:47	02:03	{A, B, C#, D, E, F#}	76% of Coltrane's solo
'Leo'	08:24–08:33	00:09	{G, A, B, C, D, E}	77%
'Leo'	09:37–09:41	00:05	{G, A, B, C, D, E}	88%
'Leo'	09:44–10:04	00:20	{Bb, C, D, Eb, F, G}	89%
'Venus'	07:08–07:45	00:37	{G, A, B, C, D, E}	84%
'Jupiter Variation'	04:06–05:13	01:07	{F#, G#, A#, B, C#, D#}	60%
'Jupiter'	00:57–01:16	00:19	{B, C#, D#, E, F#, G#}	17%
'Jupiter'	02:12–03:51	01:39	{B, C#, D#, E, F#, G#}	25%
'Saturn'	10:15–11:00	00:45	{F#, G#, A#, B, C#, D#}	88%

Example 4.59 (024579): Emergence in *Stellar Regions* and *Interstellar Space*

'Offering' (03:26) {F#, G#, A#, B, C#, D#}



Example 4.59 (024579): Emergence in *Stellar Regions* and *Interstellar Space* (cont.)

'Leo' (09:37) {G, A, B, C, D, E}



'Leo' (09:44) {Bb, C, D, Eb, F, G}



'Configuration' (02:56) {G, A, B, C, D, E}



'Jupiter' (02:12) {B, C#, D#, E, F#, G#}



'Jupiter' (00:57) {B, C#, D#, E, F#, G#}



Example 4.60 Parallels between 'Selflessness' and (024579) in 'Jupiter Variation'

'Selflessness' theme

(024579) and its subset (02479) as the structure of 'Selflessness'

{Eb, F, G, Ab, Bb, C} — subset —> {Eb, F, G, Bb, C} Eb major pentatonic

'Selflessness' theme structure within 'Jupiter Variation' (04:20)

{E, F#, G#, A, B, C#} (024579) {Bb, C, D, Eb, F, G} (024579)

'Selflessness' theme (024579) followed by (02479)

Example 4.61 (024): Development as subsets of four supersets in 'Leo' (04:24)

WT₁ WT₀

(024) {G, A, B} (024) {B, C#, D#} (024) {G, A, B} (024) {Eb, F, G} (024) {D, E, F#} (024) {C, D, E} (024) {E, F#, G#}

F echoes previous pc set

(024579) {Eb, F, G, Ab, Bb, C}

(024) {Ab, Bb, C} (024) {Ab, Bb, C} (024) {Ab, Bb, C}

(024) {Eb, F, G} (024) {Eb, F, G}

(024579) {Eb, F, G, Ab, Bb, C} WT₀ (024579) {Ab, Bb, C, Db, Eb, F}

(024) {D, E, F#} (024) {D, E, F#} (024) {D, E, F#} (024) {Db, Eb, F} (024) {Db, Eb, F}

(024) {Ab, Bb, C} (024) {Ab, Bb, C} (024) {Ab, Bb, C} (024) {Ab, Bb, C}

Example 4.62 'Jupiter': (024579) section 1 (00:57)

← (023)
{F#, G#, A}

(024579)
{B, C#, D#, E, F#, G#}

pitch alteration
signalling the coming
transposition change

(024579)
{B, C#, D#, E, F#, G#}

2nd pitch
alteration
subset {D, E, F#} emerges in transposition change

(024579)
{D, E, F#, G, A, B}

(024579)
{B, C#, D#, E, F#, G#}
subset

(024579)
{D, E, F#, G, A, B}

(024579)
{D, E, F#, G, A, B}

(024579)
{D, E, F#, G, A, B}

(024579)
{D, E, F#, G, A, B}

(024579)
{A, B, C#, D, E, F#}

pitch alteration

pitch alteration
signalling transposition
change

(024579)
{Ab, Bb, C, Db, Eb, F}

(024579)
{G, A, B, C, D, E}

set conflation

diatonic collection
(013568T)
{F#, G, A, B, C, D, E}

(024579)
{G, A, B, C, D, E}

(024579)
{F#, G, A, B, C, D, E}

Detailed description: The image shows a musical score for 'Jupiter' section 1, annotated with set theory labels and transposition change indicators. The score is written in treble clef and consists of eight staves of music. The first staff starts with a left-pointing arrow and the label '(023) {F#, G#, A}'. Above the first two measures is the label '(024579) {B, C#, D#, E, F#, G#}'. An arrow points to a note in the second measure with the label 'pitch alteration signalling the coming transposition change'. The second staff has the label '(024579) {B, C#, D#, E, F#, G#}' above it. An arrow points to a note in the second measure with the label '2nd pitch alteration subset {D, E, F#} emerges in transposition change'. The third staff has three labels: '(024579) {D, E, F#, G, A, B}' above the first measure, '(024579) {B, C#, D#, E, F#, G#} subset' above the second measure, and '(024579) {D, E, F#, G, A, B}' above the third measure. The fourth staff has the label '(024579) {D, E, F#, G, A, B}' above it. The fifth staff has the label '(024579) {D, E, F#, G, A, B}' above it. The sixth staff has two labels: '(024579) {D, E, F#, G, A, B}' above the first measure and '(024579) {A, B, C#, D, E, F#}' above the second measure. Arrows point to notes in the first and second measures with the label 'pitch alteration'. An arrow points to a note in the second measure with the label 'pitch alteration signalling transposition change'. The seventh staff has two labels: '(024579) {Ab, Bb, C, Db, Eb, F}' above the first measure and '(024579) {G, A, B, C, D, E}' above the second measure. An arrow points to a note in the second measure with the label 'set conflation'. The eighth staff has two labels: '(024579) {G, A, B, C, D, E}' above the first measure and '(024579) {F#, G, A, B, C, D, E}' above the second measure. The label 'diatonic collection (013568T) {F#, G, A, B, C, D, E}' is placed above the second measure.

Example 4.63a 'Jupiter': (024579) section 2 (02:09)

The musical score is annotated with set-theoretic labels and structural annotations across six staves:

- Staff 1:**
 - Annotations: (05) {F, Bb}, (05) {F#, B}, (013) {C, C#, D#}, (0357) {G#, B, C#, D#}, (024579) {B, C#, D#, E, F#, G#}
 - Structural annotations: (01) {Bb, B}, (01) {C, C#}, subset of (024579) containing (02) and (03) dyads, chromatic embellishment (with a '3' above a triplet).
- Staff 2:**
 - Annotations: (024579) {B, C#, D#, E, F#, G#}, diatonic collection
- Staff 3:**
 - Annotations: (024579) {Bb, C, D, Eb, F, G}
- Staff 4:**
 - Annotations: (024579) {Bb, C, D, Eb, F, G}, (024579) {G, A, B, C, D, E}, (024579) {Bb, C, D, Eb, F, G}
- Staff 5:**
 - Annotations: (024579) {G, A, B, C, D, E}, pitch alteration (with a 'b' below a note), (024579) {Bb, C, D, Eb, F, G}
- Staff 6:**
 - Annotations: (024579) {G, A, B, C, D, E}, (024579) {Bb, C, D, Eb, F, G}, (024579) {D, E, F#, G, A, B}

Example 4.63b 'Jupiter': (024579) section 2 (02:28)

The musical score consists of five staves of music, each with chord annotations and set theory labels. The annotations are as follows:

- Staff 1:**
 - Measure 1-4: (024579) {Bb, C, D, Eb, F, G}
 - Measure 5-8: (024579) {D, E, F#, G, A, B}
 - Measure 9-12: (024579) {Bb, C, D, Eb, F, G}
 - Measure 13-16: (024579) {D, E, F#, G, A, B}
- Staff 2:**
 - Measure 1-4: (024579) {D, E, F#, G, A, B}
 - Measure 5-8: (024579) {Bb, C, D, Eb, F, G}
 - Measure 9-12: (024579) {D, E, F#, G, A, B}
- Staff 3:**
 - Measure 1-8: (024579) {D, E, F#, G, A, B}
 - Measure 9-12: (024579) {Bb, C, D, Eb, F, G}
- Staff 4:**
 - Measure 1-4: (024579) subset {Bb, C, D, Eb, F, G}
 - Measure 5-8: (024579) diatonic collection {Bb, C, D, Eb, F, G}
 - Measure 9-12: (024579) {Bb, C, D, Eb, F, G}
 - Measure 13-16: (024579) {G, A, B, C, D, E}
- Staff 5:**
 - Measure 1-4: (024579) {Bb, C, D, Eb, F, G}
 - Measure 5-8: (024579) {G, A, B, C, D, E}
 - Measure 9-12: (024579) {Bb, C, D, Eb, F, G}

Example 4.63c 'Jupiter': (024579) section 2 (02:41)

conflation of {G, A, B, C, D, E} and {Gb, Ab, Bb, Cb, Db, Eb}

(024579) {Ab, Bb, C, Db, Eb, F}

(024579) {Ab, Bb, C, Db, Eb, F}

(024579) {Ab, Bb, C, Db, Eb, F} subset

Bb maps onto Cb

(024579) {Gb, Ab, Bb, Cb, Db, Eb}

(024) {Gb, Ab, Bb}

(024579) {Gb, Ab, Bb, Cb, Db, Eb}

(024579) {Bb, C, D, Eb, F, G}

(024579) {G, A, B, C, D, E}

(024579) {Ab, Bb, C, Db, Eb, F}

(024) {Gb, Ab, Bb}

(024579) {Ab, Bb, C, Db, Eb, F} subset

(024579) {G, A, B, C, D, E}

(024579) {Ab, Bb, C, Db, Eb, F} subset

Diatonic Collection

(024579) {G, A, B, C, D, E}

(024579) {Gb, Ab, Bb, B, Db, Eb}

(024579) {G, A, B, C, D, E}

(024579) {Ab, Bb, C, Db, Eb, F}

(024579) {E, F#, G#, A, B, C#} subset

(024579) {E, F#, G#, A, B, C#}

(024579) {D, E, F#, G, A, B}

(024579) {G, A, B, C, D, E}

(024) {C, D, E}

Example 4.63d 'Jupiter': (024579) section 2 (02:55)

The image displays a musical score for 'Jupiter' section 2, annotated with set theory labels and conflation arrows. The score is divided into six systems, each with a treble clef and a key signature of one sharp (F#).

System 1:

- Staff 1: (024579) {D, E, F#, G, A, B} subset; conflation; (024579) {D, E, F#, G, A, B}; subset; (024579) {Ab, Bb, C, Db, Eb, F}; (024579) {D, E, F#, G, A, B} subset; (024579) {D, E, F#, G, A, B}
- Staff 2: (024579) {D, E, F#, G, A, B}; (024579) {G, A, B, C, D, E}; (024579) {D, E, F#, G, A, B}; conflation with next pc set

System 2:

- Staff 1: (024579) {G, A, B, C, D, E} subset; (024579) {F#, G#, A#, B, C#, D#} subset; (024579) {G, A, B, C, D, E}
- Staff 2: (024579) {G, A, B, C, D, E} subset; (024579) {D, E, F#, G, A, B}; passing tone; (024) {C, D, E} →

System 3:

- Staff 1: (024579) {G, A, B, C, D, E} subset; (024579) {D, E, F#, G, A, B}; E minor pentatonic → F minor pentatonic T₁
- Staff 2: (024579) {G, A, B, C, D, E}; (024579) {E, F#, G#, A, B, C#}; (024579) {Bb, C, D, Eb, F, G} →

System 4:

- Staff 1: (024579) {Bb, C, D, Eb, F, G}; (024) {F#, G#, A#}; (024579) {Bb, C, D, Eb, F, G}
- Staff 2: (024579) {E, F#, G#, A, B, C#}

Annotations include arrows pointing to specific notes and groups of notes, such as 'from {Ab, Bb, C, Db, Eb, F}' and 'pitch alteration suggesting segment of {F, G, A, Bb, C, D}'.

Example 4.63e 'Jupiter': (024579) section 2 (03:10)

The musical score consists of four staves of music, each with annotations for hexachord sets and their relationships. The annotations are as follows:

- Staff 1:**
 - Hexachord 1: (024579) {F#, G#, A#, B, C#, D#}
 - Hexachord 2: (024579) {Bb, C, D, Eb, F, G}
 - Hexachord 3: (024579) {E, F#, G#, A, B, C#} subset
 - Hexachord 4: (024579) {Bb, C, D, Eb, F, G}
 - Annotation: (02) conflation with next hexachord {C, D} → (02) {C, D}
- Staff 2:**
 - Hexachord 1: (024579) {G, A, B, C, D, E} subset
 - Hexachord 2: (024579) {E, F#, G#, A, B, C#}
 - Hexachord 3: (024579) {Bb, C, D, Eb, F, G}
 - Hexachord 4: (024579) {G, A, B, C, D, E}
 - Annotation: Db/C# and Eb are members of the next two hexachords
- Staff 3:**
 - Hexachord 1: (024579) {G, A, B, C, D, E}
 - Hexachord 2: (024579) {Bb, C, D, Eb, F, G}
- Staff 4:**
 - Hexachord 1: (024579) {Bb, C, D, Eb, F, G}
 - Hexachord 2: (024579) {D, E, F#, G, A, B}

Example 4.64 'Jupiter Variation': (024579) section (04:02)

The musical score is annotated with pitch class sets and structural relationships:

- System 1:**
 - Measures 1-2: (023) {Eb, F, Gb} → (023) {C, D, Eb}
 - Measures 3-4: (023) {Eb, F, Gb} → (02) {G#, A#}
 - Measures 5-6: (023) {C#, D#, E}
 - Measures 7-8: (024) {C#, D#, E#} → (023) {C#, D#, E} (set expansion)
 - Measures 9-10: (024579) {F#, G#, A#, B, C#, D#}
 - Annotation: (024) development → (024579)
 - Annotation: altered/truncated theme
- System 2:**
 - Measures 1-2: (024579) {F#, G#, A#, B, C#, D#}
 - Measures 3-4: (023) {C#, D#, E}
 - Measures 5-6: (024579) {G, A, B, C, D, E}
 - Measures 7-8: (024579) {G, A, B, C, D, E}
 - Annotation: D# from previous pc set
- System 3:**
 - Measures 1-2: (024579) {G, A, B, C, D, E}
 - Measures 3-4: (024579) {F#, G#, A#, B, C#, D#} (pent. subset)
 - Measures 5-6: (024579) {G, A, B, C, D, E} (conflation)
 - Measures 7-8: (024579) {F#, G#, A#, B, C#, D#} (pent. subset)
 - Measures 9-10: (024579) {G, A, B, C, D, E} (conflation)
- System 4:**
 - Measures 1-2: (024579) {G, A, B, C, D, E} (subset)
 - Measures 3-4: (024579) {F#, G#, A#, B, C#, D#} (pent. subset)
 - Measures 5-6: (024579) {G, A, B, C, D, E}
 - Measures 7-8: (024579) {F#, G#, A#, B, C#, D#} (pent. subset)
 - Measures 9-10: (024579) {F#, G#, A#, B, C#, D#} (pent. subset)
 - Annotation: F interjected from diatonic collection
 - Annotation: conflation

Example 4.64 'Jupiter Variation': (024579) section (04:19)

The musical score is annotated with set theory labels and thematic references. The annotations are as follows:

- Line 1:**
 - Left: (024579) {F#, G#, A#, B, C#, D#} ← pent. subset
 - Right: (024579) {E, F#, G#, A, B, C#}
 - Center: 'Selflessness' theme structure
- Line 2:**
 - Left: (024579) {Bb, C, D, Eb, F, G}
 - Center: conflation
 - Right: (024579) {Bb, C, D, Eb, F, G}
 - Far Right: (024579) {E, F#, G#, A, B, C#} subset
- Line 3:**
 - Left: (024579) {E, F#, G#, A, B, C#} subset
 - Right: (024579) {Bb, C, D, Eb, F, G}
- Line 4:**
 - Left: (024579) {Bb, C, D, Eb, F, G}
 - Center: diatonic collection (024579) {C, D, E, F, G, A}
 - Right: (024579) {Bb, C, D, Eb, F, G}
 - Bottom Center: (024579) {G, A, B, C, D, E}
 - Bottom Right: (024579) {G, A, B, C, D, E}
- Line 5:**
 - Left: (024579) {Bb, C, D, Eb, F, G}
 - Center: (024579) {G, A, B, C, D, E}
 - Right: (024579) {Bb, C, D, Eb, F, G}
 - Far Right: (024579) {Bb, C, D, Eb, F, G} subset
 - Far Far Right: (024579) {G, A, B, C, D, E}

Example 4.64 'Jupiter Variation': (024579) section (04:36)

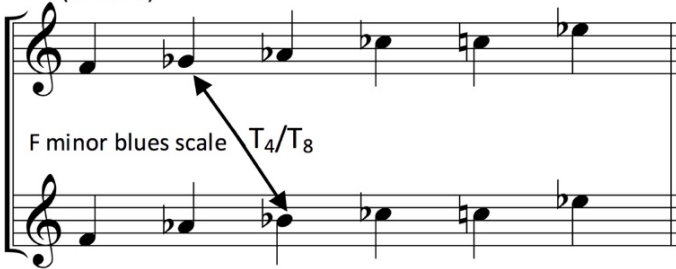
The image displays a musical score for 'Jupiter Variation' with several systems of notation and annotations. The score is written in treble clef and consists of six systems of music.

- System 1:** Features three measures. The first measure is annotated with (024579) {G, A, B, C, D, E}. The second and third measures are annotated with (024579) {Bb, C, D, Eb, F, G}. An arrow points from the end of the third measure to the right.
- System 2:** Features three measures. The first measure is annotated with (024579) {G, A, B, C, D, E}. The second and third measures are annotated with (024579) {Bb, C, D, Eb, F, G}. An arrow points from the end of the third measure to the right.
- System 3:** Features three measures. The first measure is annotated with (024579) {G, A, B, C, D, E}. The second and third measures are annotated with (024579) {Bb, C, D, Eb, F, G}. An arrow points from the end of the third measure to the right.
- System 4:** Features three measures. The first measure is annotated with (024579) {E, F#, G#, A, B, C#}. The second measure is annotated with 'diatonic collection subset'. The third measure is annotated with 'conflation'. The fourth measure is annotated with (024579) {G, A, B, C, D, E}. An arrow points from the end of the fourth measure to the right.
- System 5:** Features three measures. The first measure is annotated with 'divergence echoes previous five notes with Ab alteration'. The second and third measures are annotated with (024579) {G, A, B, C, D, E}. The fourth measure is annotated with (024579) {Bb, C, D, Eb, F, G}. An arrow points from the end of the fourth measure to the right.
- System 6:** Features three measures. The first measure is annotated with (024579) {Bb, C, D, Eb, F, G}. The second and third measures are annotated with (024579) {Bb, C, D, Eb, F, G}. An arrow points from the end of the third measure to the right.

Additional annotations include 'anticipates transposition change' with an arrow pointing to the fourth measure of System 4.

Example 4.65 Blues sonorities contained in {C \flat , C, E \flat , F, G \flat , A \flat }

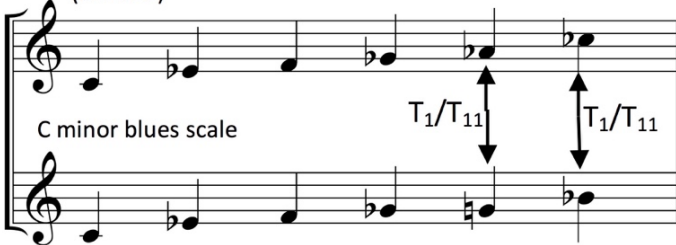
(014679)



F minor blues scale T_4/T_8

The diagram shows two staves of music. The top staff is in treble clef and the bottom staff is in bass clef. Both staves contain the notes of the F minor blues scale: F \flat , G \flat , A \flat , B \flat , C, D \flat , E \flat . An arrow labeled T_4/T_8 points from the G \flat note in the bass staff to the G \flat note in the treble staff, indicating a tritone interval.

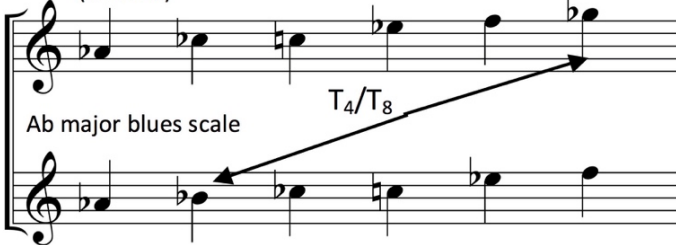
(014679)



C minor blues scale T_1/T_{11} T_1/T_{11}

The diagram shows two staves of music. The top staff is in treble clef and the bottom staff is in bass clef. Both staves contain the notes of the C minor blues scale: C, D \flat , E \flat , F, G \flat , A \flat . Two vertical double-headed arrows labeled T_1/T_{11} indicate tritone intervals between the C notes in the two staves and between the A \flat notes in the two staves.

(014679)



A \flat major blues scale T_4/T_8

The diagram shows two staves of music. The top staff is in treble clef and the bottom staff is in bass clef. Both staves contain the notes of the A \flat major blues scale: A \flat , B \flat , C, D \flat , E \flat , F, G \flat . An arrow labeled T_4/T_8 points from the G \flat note in the bass staff to the G \flat note in the treble staff, indicating a tritone interval.

Example 4.66 'Suite: Prayer and Meditation (Day)': Theme

first and last pitch of theme

{Eb, Gb, Ab, Cb}

{Ab, Cb, Eb}

{Eb, Gb, Ab, Cb}

{Cb, Eb, Gb}

{Cb, Eb, Gb}

{Ab, Cb, Eb}

{Ab, Cb, Eb}

{Gb, Ab, Cb, C, Eb}

{Gb, Ab, Cb, C, Eb}

{Cb, C, Eb, Gb}

{Eb, Gb, Ab, Cb}

{Gb, Ab, Cb}

first and last pitch of theme

Example 4.67a 'Suite: Prayer and Meditation (Day)' (01:08)

recurring motivic sequence

(023) {Eb, F, Gb}

(025) {Gb, Ab, Cb}

(023) {Eb, F, Gb}

(023) {Eb, F, Gb}

(025) {Gb, Ab, Cb}

(023) {Eb, F, Gb}

(035) {C, Eb, F}

(046) {Cb, Eb, F}

(01469) {Cb, C, Eb, F, Ab}

(01469) {Cb, C, Eb, F, Ab} fragment

(01469) {Cb, C, Eb, F, Ab}

(014679) {Cb, C, Eb, F, Gb, Ab}

(014679) {Cb, C, Eb, F, Gb, Ab}

truncated F minor blues scale

(0358) {Eb, Gb, Ab, Cb}

(035) {C, Eb, F}

(014679) {Cb, C, Eb, F, Gb, Ab}

(014679) {Cb, C, Eb, F, Gb, Ab}

(014679) {Cb, C, Eb, F, Gb, Ab}

(014679) {Cb, C, Eb, F, Gb, Ab}

(01479) {Cb, C, Eb, Gb, Ab} missing F from previous motive

(01479) {Cb, C, Eb, Gb, Ab}

(047) {Ab, C, Eb}

(023) {Eb, F, Gb}

(014679) {Cb, C, Eb, F, Gb, Ab}

(023) {Ab, Bb, Cb}

Ab-7

F-7

divergent pitches implying the blues

(0258) {Eb, F, Ab, Cb}

(025) {Gb, Ab, Cb}

Ab-6

Example 4.67b 'Suite: Prayer and Meditation (Day)' (01:46)

The musical score is annotated with various analytical elements:

- Staff 1:** A single melodic line starting with a motive labeled (025) {Gb, Ab, Cb}.
- Staff 2:** Continues the melodic line. A dashed line indicates a "Db divergence". Motives (025) {Gb, Ab, Cb} are repeated. A note (024) {Db, Eb, F} is identified as the "Db and Eb common tone" where "F maps onto Gb". The line ends with a "fragment" (025) {Db, Eb, Gb}.
- Staff 3:** Shows a sequence of motives. (0358) {Eb, Gb, Ab, Cb} is noted above. Motives (025) {Gb, Ab, Cb} and (035) {Eb, Gb, Ab} are present. Arrows indicate "changing pitch at the end of each motive". Common tones between (025) and (035) are noted as "Gb and Eb common tones". Motives (036) {C, Eb, Gb} and (047) {Cb, Eb, Gb} are also shown.
- Staff 4:** Features a series of motives (025) {Gb, Ab, Cb} and (023) {Eb, F, Gb}.
- Staff 5:** Shows motives (025) {Gb, Ab, Cb} and (01467) {Cb, C, Eb, F, Gb}. Common tones (023) {Eb, F, Gb} and (014) {Cb, C, Eb} are identified.
- Staff 6:** Includes motives (037) {Ab, Cb, Eb}, (014679) {Cb, C, Eb, F, Gb, Ab}, and (0459) {Eb, G, Ab, C}. A "divergent pitch" is marked. Intervallic structures are labeled as "expansion" and "contraction".

Example 4.67c 'Suite: Prayer and Meditation (Day)' (02:09)

synthesis of previous trichord subsets
{Ab, Cb} and {C, Eb}

(025) {Gb, Ab, Cb} (035) {C, Eb, F} (025) {Gb, Ab, Cb} (0347) {Ab, Cb, C, Eb} (025) {Gb, Ab, Cb} (035) {C, Eb, F}

(025) {Gb, Ab, Cb} temporal fragmentation (035) {C, Eb, F} (025) {Gb, Ab, Cb} temporal fragmentation (025) developed in next stave → (035) {C, Eb, F} fragment (023) {Eb, F, Gb}

(034) {Ab, Cb, C} (035) {C, Eb, F} (034) {Ab, Cb, C} divergent pitch (025) {Gb, Ab, Cb} (023) {Eb, F, Gb}

(0347) {Ab, Cb, C, Eb} (0347) {Ab, Cb, C, Eb} motive appears previously within Ex. 4.67b

(025) {Gb, Ab, Cb} C added to previous motive (025) {Gb, Ab, Cb} changing pitch at the end of each motive

(023) {Eb, F, Gb} (014679) {Cb, C, Eb, F, Gb, Ab} (014679) {Cb, C, Eb, F, Gb, Ab} (023) {Eb, F, Gb}

(025) {Gb, Ab, Cb} (025) {Gb, Ab, Cb} (025) {Gb, Ab, Cb} (025) {Gb, Ab, Cb}

(023) {Eb, F, Gb} (023) {Eb, F, Gb} (023) {Eb, F, Gb} (023) {Eb, F, Gb}

(0136) {F, Gb, Ab, Cb} Cb maps onto Bb (0135) {F, Gb, Ab, Bb} 8va

(023) {Eb, F, Gb} (025) {Gb, Ab, Cb} (023) {Eb, F, Gb} divergent pitch

Example 4.67d 'Suite: Prayer and Meditation (Day)' (02:38)

(016) {Cb, C, F}

(056) {C, Gb, F}

(047) {Ab, C, Eb}

Cb anchor begins (01) {Cb, C,}

(05) {Gb, Cb}

dyad segmentation of hexachord superset →

(03) {Ab, Cb}

(05) {Gb, Cb}

(06) {F, Cb}

(05) {Gb, Cb}

(03) {Ab, Cb}

(05) {Gb, Cb}

(03) {Ab, Cb}

(05) {Gb, Cb}

(03) {Ab, Cb}

(05) {Gb, Cb}

(05) {Gb, Cb}

(03) {Ab, Cb}

theme recapitulation: pitch F as first note of the theme

improvisational embellishment before next phrase of theme

(0358) {Eb, Gb, Ab, Cb}

(035) {C, Eb, F}

theme continues with variations that contrast with the beginning statement

(035) {C, Eb, F}

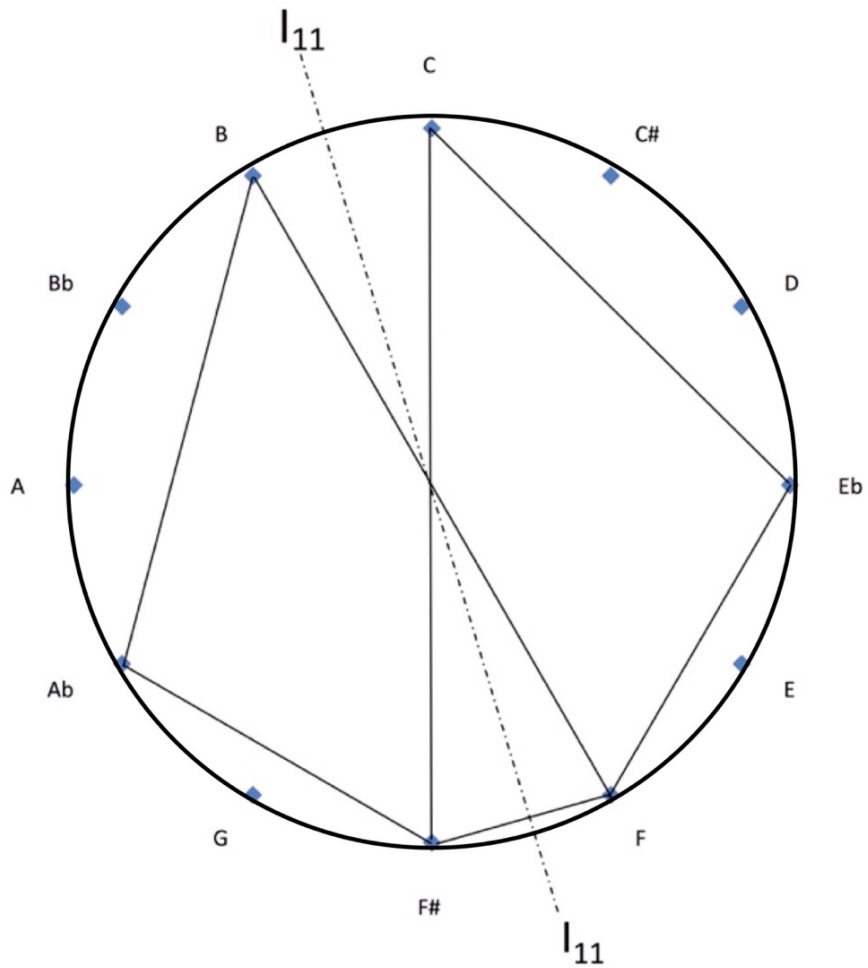
(037) {Ab, Cb, Eb}

chromatic approaches to the members of (014679)

(01479)
{Cb, C, Eb, Gb, Ab}
the pitch structure of the opening theme
without chromatic embellishment

Example 4.68 'Suite: Prayer and Meditation (Day)': Sum-11 symmetric phrase construction (02:05)

The musical notation consists of two staves. The upper staff shows a melodic phrase with intervallic analysis above it: -3 -2 +5 -3 -3 +1 +2 +3. A bracket labeled 'Sum11' spans the last five notes, with an 'Axis+3' label above it. Below the staff, two chord structures are identified: (0136) {F, Gb, Ab, Cb} and (0356) {C, Eb, F, Gb}. The lower staff shows a simplified version of the phrase with a double-headed arrow labeled I_{11} connecting the two chord structures.



Appendix C: Examples 5.1a–5.20

Example 5.1a 'Tranesonic': Analysis (03:04)

The analysis consists of four staves of music, each with various annotations:

- Staff 1:**
 - Annotations: (027) {E, F#, B}, (027) {F#, G#, C#}, (024) {Eb, F, G}, (0357) {D, F, G, A}, (027) {G, A, D}, (024) {F, G, A}, (02) {F#, G#}, (05) {C#, F#}, (05) {Eb, G#}, (02) {F, G}, (02) {Eb, F}, (02) {F, G}, (05) {A, D}.
 - Transformations: T_2 (from {F#, G#} to {Eb, G#}), T_{10} (from {F, G} to {Eb, F}), T_2 (from {F, G} to {A, D}).
- Staff 2:**
 - Annotations: (0257) {E, F#, A, B}, (027) {E, F#, B}, (027) {Ab, Bb, Eb}, (027) {Bb, C, F}, (024) {G, A, B}, (027) {C#, D#, G#}, (02) {E, F#}, (02) {F#, Ab}, (02) {Ab, Bb}, (02) {Bb, C}, (02) {G, A}, (05) {E, A}, (05) {F#, B}, (05) {G#, C#}.
 - Transformations: T_2 (from {E, F#} to {F#, Ab}), T_2 (from {F#, Ab} to {Ab, Bb}), T_2 (from {Ab, Bb} to {Bb, C}), T_9 (from {Bb, C} to {G, A}), T_2 (from {E, A} to {F#, B}), T_2 (from {F#, B} to {G#, C#}).
 - ic2 voice-leading: E, F#, G# Bb in upper register → G, A, B, C#, D#/Eb, F in lower register.
- Staff 3:**
 - Annotations: (027) {Eb, F, Bb}, (02) {C, D}, (027) {B, C#, F#}, (027) {Eb, F, Bb}.
 - ic2 voice-leading.
- Staff 4:**
 - Annotations: (027) {Eb, F, Bb}, (027) {C, D, G}, (02479) {C, D, E, G, A}, (027) {D, E, A}, (027) {Bb, C, F}.
- Staff 5:**
 - Annotations: (027) {Bb, C, F}, (027) {Eb, F, Bb}, (027) {D, E, A}.

Example 5.1b 'Tranesonic': Analysis (03:20)

(02479)
{Db, Eb, F, Ab, Bb}

(027) {D, E, A} (0257) {Ab, Bb, Db, Eb} (027) {Db, Eb, Ab} (027) {Ab, Bb, Eb} (027) {Eb, F, Bb} (027) {B, C#, F#} (027) {C, D, G}

transpositional combination of (027) members {Db, Eb, Ab} and {Ab, Bb, Eb} (0357) {G, Bb, C, D}

(027) {G, A, D} (027) {D, E, A} (027) {Eb, F, Bb} (027) {E, F#, B}

anticipation of {Eb, F, Bb}

(027) {Gb, Ab, Db} (027) {Eb, F, Bb} (027) {D, E, A} (027) {A, B, E} (027) {F, G, C}

(027) {C, D, G} (027) {F, G, C} (027) {F, G, C} (027) {Gb, Ab, Db}

unstable intonation (05) {G, C} (02) {G, A}

(027) {Gb, Ab, Db} (027) {A, B, E} (027) {Bb, C, F} (02) {Db, Eb} (05) {C, F}

(027) {F, G, C} (027) {F, G, C}

altissimo divergence

unstable intonation and sound

range limit for next pitch sequence

(027) {F, G, C}

(02479) {Db, Eb, F, Ab, Bb}

(027) {Db, Eb, Ab} (027) {Eb, F, Bb}

Example 5.1c 'Tranesonic': Analysis (03:43)

The analysis consists of five staves of music, each with pitch class sets and transformations indicated above and below the notes.

- Staff 1:**
 - Starts with (027) {Eb, F, Bb}.
 - Moves to (0247) {Eb, F, G, Bb} via T_8 .
 - Further to (0247) {B, C#, D#, F#} via T_8 .
 - Includes (0247) {B, C#, D#, F#}, (05) {G#, C#}, (027) {Eb, F, Bb}, (027) {B, C#, F#}, (027) {F#, G#, C#}, and (02479) {Eb, F, G, Bb, C}.
- Staff 2:**
 - Includes (027) {Eb, F, Bb}, (027) {F, G, C}, (035) {E, G, A}, (027) {E, F#, B}, (0257) {E, F#, A, B}, (0257) {C#, D#, F#, G#}, (02) {C#, D#}, (027) {D, E, A}, (02479) {Eb, F, G, Bb, C}, (02) {G, A}, (05) {E, A}, (027) {F#, G#, C#}, (02) {F#, G#}, (05) {A, D}, and (05) {E, A}.
- Staff 3:**
 - Includes (02479) {Eb, F, G, Bb, C}, (02) {E, F#}, (027) {Eb, F, Bb}, (035) {G, A, C}, (027) {D, E, A}, (02479) {C, D, E, G, A}, (02479) {Gb, Ab, Bb, Db, Eb}, and (027) {Gb, Ab, Db}.
- Staff 4:**
 - Includes (02479) {Gb, Ab, Bb, Db, Eb}, (027) {Ab, Bb, Eb}, (027) {F, G, C}, (035) {E, G, A}, (027) {E, F#, B}, (027) {F#, G#, C#}, (02457) {E, F#, G#, B, C#}, (027) {F#, G#, C#}, (027) {C#, D#, F#, G#}, (02479) {Eb, F, G, Bb, C}, (02) {G, A}, (05) {E, A}, (02) {F#, G#}, and (02) {F#, G#}.
- Staff 5:**
 - Includes (027) {D, E, A}, (035) {D#, F#, G#}, (05) {D#, G#}, (027) {G#, A#, D#}, (02) {F#, G#}, and (02) {F#, G#}.
 - Ends with "To Theme".

Example 5.2a 'Seraphic Light': Analysis (00:30)

The analysis consists of six staves of music with various annotations:

- Staff 1:** Features a melodic line with three phrases. The first phrase is marked with a brace and chord set (0257) {Eb, F, Ab, Bb}. The second phrase is marked with a brace and chord set (035) {F, Ab, Bb}. The third phrase is marked with a brace and chord set (027) {Ab, Bb, Eb}. Repeats are indicated by '4x' and '2x' above the notes.
- Staff 2:** Shows a melodic line with a brace and chord set (035) {F, Ab, Bb} under the first phrase and another brace and chord set (035) {F, Ab, Bb} under the second phrase. A brace and chord set (027) {Bb, C, F} is placed above the first phrase, and another brace and chord set (027) {Bb, C, F} is placed above the second phrase. Rhythmic markings '6', '3', and '3' are present below the notes.
- Staff 3:** Labeled 'F minor pentatonic' and 'Bb minor pentatonic'. It includes a section of notes marked 'notes do not speak' with an arrow pointing to a group of notes marked with 'x'. Chord sets (035) {F, Ab, Bb} and (035) {F, Ab, Bb} are indicated below the staff.
- Staff 4:** Labeled 'Bb minor pentatonic' and 'F minor pentatonic'. It includes a section of notes marked '8va'. Chord sets (025) {Ab, Bb, Db}, (0357) {F, Ab, Bb, C}, (035) {Bb, Db, Eb}, (0257) {Ab, Bb, Db, Eb}, (0357) {F, Ab, Bb, C}, (027) {Db, Eb, Ab}, (027) {Ab, Bb, Eb}, and (027) {Db, Eb, Ab} are indicated below the staff.
- Staff 5:** Labeled 'Bb minor pentatonic'. It includes a section of notes marked '8va'. Chord sets (0257) {Ab, Bb, Db, Eb}, (027) {Db, Eb, Ab}, (035) {Bb, Db, Eb}, (0359) {Bb, Db, Eb, G}, and (0257) {Ab, Bb, Db, Eb} are indicated below the staff. A note is marked with an arrow and the text 'transformation of {Ab, Bb, Db, Eb} with Ab mapping to G'.
- Staff 6:** Labeled 'Bb minor pentatonic' and 'Bb Aolian'. It includes a section of notes marked '8va'. Chord sets (0257) {Ab, Bb, Db, Eb}, (0357) {Bb, Db, Eb, F}, and (013) {F, Gb, Ab} are indicated below the staff. Rhythmic markings '3', '3', and '3' are present below the notes.

Example 5.2b 'Seraphic Light': Analysis (02:45)

The analysis is presented in seven systems of musical notation, each with detailed annotations:

- System 1:** Labeled "Bb Aeolian" and "Bb minor pentatonic". It shows a melodic line with triplets and chords (035) {C, Eb, F} and (0357) {Bb, Db, Eb, F}.
- System 2:** Continues the melodic line with triplets and chords (0357) {Bb, Db, Eb, F}, (02) {Ab, Bb}, (0357) {Bb, Db, Eb, F}, and (025) {Bb, C, Eb}. A note is marked "unstable intonation and sound".
- System 3:** Features triplets and chords (025) {Bb, C, Eb}, (0357) {Bb, Db, Eb, F}, (05) {Bb, Eb}, (0357) {Bb, Db, Eb, F}, and (02) {Ab, Bb}. A note is marked "foreshadows (023) in next system".
- System 4:** Shows triplets and chords (0257) {Ab, Bb, Db, Eb}, (023) {Ab, Bb, Cb}, (0257) {Ab, Bb, Db, Eb}, and (0357) {Bb, Db, Eb, F}. A note is marked "chromatic approach".
- System 5:** Includes triplets and chords (025) {Ab, Bb, Db}, (023) {E, F#, G}, (023) {Bb, C, Db}, (023) {Eb, F, Gb}, (023) {D, E, F}, and (023) {Db, Eb, Fb}. An arrow indicates "Bb and Db common tones" between the first two chords.
- System 6:** Contains triplets and chords (023) {Db, Eb, Fb}, (023) {C, D, Eb}, (023) {B, C#, D}, and (037) {Bb, Db, F}. A note is marked "expansion of {Bb, C, Db} to {Bb, Db, F}".
- System 7:** Shows triplets and chords (02) {Db, Eb}, (027) {Eb, F, Bb}, (027) {F, G, C}, and (027) {Eb, F, Bb}. Arrows labeled T₂ and T₁₀ indicate transformations between the second and third chords. A final chord (0357) {Bb, Db, Eb, F} is shown at the bottom.

Example 5.2c 'Seraphic Light': Analysis (03:20)

(027) {Gb, Ab, Db} $\xrightarrow{T_2}$ (027) {Ab, Bb, Eb} (027) {E, F#, B}

1. (027) {E, F#, B} $\xrightarrow{T_{10}}$ (027) {D, E, A} (027) {Eb, F, Bb} $\xrightarrow{T_2}$ (027) {F, G, C}

2. (027) {F, G, C} (027) {E, F#, B} (027) {G, A, D} $\xrightarrow{T_2}$ (027) {A, B, E} (027) {Gb, Ab, Db}

3. (027) {Gb, Ab, Db} $\xrightarrow{T_2}$ (027) {A, B, E} $\xrightarrow{T_2}$ (027) {B, C#, F#} $\xrightarrow{T_2}$ (027) {Db, Eb, Ab} (027) {C, D, G} (025) {D, E, G}

5. set contraction retaining D and G

4. E minor pentatonic emerges as a background structure

(05) {B, E} (027) {G, A, D} (027) {Eb, F, Bb} (05) {Eb, Ab} (027) {D, E, A} (025) {A, B, D}

E minor pentatonic

(0257) {Eb, F, Ab, Bb} $\xrightarrow{T_6}$ (0257) {A, B, D, E}

(025) {A, B, D}

(0257) {A, B, D, E}

Piano Solo

(0257) emerges after piano solo

5:48 $\xrightarrow{T_6}$ (0257) {Eb, F, Ab, Bb} generation of (03) subset into new motive

trichords of the theme synthesized into one tetrachord

(03) {F, Ab} (03) {E, G}

C1

Example 5.2d 'Seraphic Light': Analysis (05:55)

The analysis consists of five staves of musical notation with various annotations:

- Staff 1:** Labeled C_1 . It features three triplets of eighth notes with dyads $\{E, G\}$, $\{Eb, Gb\}$, and $\{D, F\}$. A later triplet has dyad $\{G\#, B\}$ with the note G marked as a "chromatic approach to G". The final triplet has dyad $\{E, G\}$.
- Staff 2:** Labeled C_{2_0} . It contains two $Hex_{3,4}$ structures. The first has dyads $\{C, Eb\}$, $\{Bb, Db\}$, and $\{G\#, B\}$. The second has dyads $\{G, Bb\}$, $\{C, Eb\}$, $\{E, G\}$, and $\{G\#, B\}$.
- Staff 3:** Labeled $Hex_{3,4}$ and $Hex_{2,3}$. It features dyads $\{C, Eb\}$, $\{B, D\}$, $\{G, Bb\}$, $\{Eb, Gb\}$, $\{B, D\}$, $\{G, Bb\}$, and $\{Eb, Gb\}$.
- Staff 4:** Labeled "Bb minor pentatonic superset". It includes a "chromatic embellishment" and a "segment projected" (027) $\{Db, Eb, Ab\}$. Other dyads include $\{Eb, Gb\}$, $\{G\#, B\}$, $\{F, Ab\}$, $\{F, Ab, Bb\}$ (subset of 035), $\{Bb, Db, Eb\}$, and $\{F, Ab, Bb\}$ (035).
- Staff 5:** Labeled "Bb minor pentatonic superset". It features dyads $\{Db, Eb, Ab\}$ (027), $\{F, Ab, Bb\}$ (035), $\{Bb, Db, Eb\}$ (035), $\{G, Bb, C\}$ (035), $\{E, G, A\}$ (035), and $\{F\#, A, B\}$ (035).
- Staff 6:** Labeled "to theme". It features a $\{F, Ab, Bb\}$ (035) dyad.

Example 5.3a 'Sun Star' (alt tk): Analysis (04:41)

The analysis consists of seven staves of musical notation with various annotations:

- Staff 1:** Features a melodic line with annotations (023) {E, F#, G}, (023) {E, F#, G}, and (023) {G, A, Bb}. A note is labeled "anticipates {G, A, Bb}". A C3₁ chord structure is indicated above the staff.
- Staff 2:** Features a melodic line with annotations (023) {Bb, C, Db}, (023) {C, D, Eb}, and (023) {D, E, F}. A note is labeled "anticipates {G, A, Bb}". A C2₁ chord structure is indicated above the staff.
- Staff 3:** Features a melodic line with annotations (023) {G, A, Bb}, (023) {D, E, F}, (023) {G, A, Bb}, (023) {D, E, F}, (023) {G, A, Bb}, (023) {D, E, F}, (023) {G, A, Bb}, (023) {C#, D#, E}, and (023) {Bb, C, Db}. A T₉ transformation is indicated between the last two chords.
- Staff 4:** Features a melodic line with annotations (023) {Eb, F, Gb}, (023) {C, D, Eb}, (023) {Eb, F, Gb}, (023) {C, D, Eb}, (023) {Eb, F, Gb}, (023) {C, D, Eb}, and (023) {C, D, Eb}. A T₉ transformation is indicated between the first two chords. Annotations include "fragment of {Eb, F, Gb}" and "fragment of {C, D, Eb}" with arrows pointing to specific notes.
- Staff 5:** Features a melodic line with annotations (02) {Eb, F} and (03) {C, Eb}. A "dyads projecting the interval content of (023)" label is below the staff. An "altissimo divergence" label is above the staff.
- Staff 6:** Features a melodic line with annotations (023) {C, D, Eb}, (023) {Bb, C, Db}, and (023) {A, B, C}. A C1 chord structure is indicated above the staff. Annotations include "divergence" above the first two chords, "D major" and "Gb major" above the first two chords, "Bb major" above the third chord, and "contraction from (027) to (023) {Bb, C, F}" with an arrow pointing to the third chord. A note is labeled "(02) {A, B} reappear as members of {A, B, C}" with an arrow pointing to the first chord.

Example 5.3b 'Sun Star' (alt tk): Analysis (05:17)

The analysis consists of seven staves of musical notation with various annotations:

- Staff 1:** Labeled "C1" at the top. It shows a sequence of four (023) pitch class sets: {A, B, C}, {Ab, Bb, Cb}, {G, A, Bb}, and {F#, G#, A}. A trill is marked with a "3" and an arrow pointing to it, with the note "G appears as a mistake in the (023) transposition sequence".
- Staff 2:** Labeled "C1" at the top. It shows a sequence of (023) sets: {F, G, Ab}, {E, F#, G}, and {Eb, F, Gb}. This is followed by a descending chromatic line with (01) and (02) dyad subsets of (023): {E, F}, {Eb, F}, and {D, Eb}. Annotations include "ic1 pitch class voice leading continuing C1 cycle" and "Descending chromatic line projecting (01) and (02) dyad subsets of (023)".
- Staff 3:** Shows a "projection of (01)" with sets {D, Eb} and {C#, D}. It then moves to (023) sets {Bb, C, Db} and {A, B, C}.
- Staff 4:** Shows a (02) dyad subset of (023) {A, B, C} leading to (02) {G, A}. It then shows (023) sets {A, B, C} and {E, F#, G}.
- Staff 5:** Shows (023) sets {E, F#, G} and {C, D, Eb}. It includes annotations for "expansion retaining Bb and C" leading to (027) {Bb, C, F}, and "contraction returning to (023)". A (05) set {F, Bb} is also indicated.
- Staff 6:** Shows a "synthesis of ({Bb, C, Db} and {Bb, C, F})" leading to (0237) {Bb, C, Db, F}. It includes a "Bb minor pentatonic" scale and a "sequence of (05) dyads" with (05) {F, Bb}. Other (023) sets shown are {B, C#, D} and {B, C#, D} fragment.

Example 5.3c 'Sun Star' (alt tk): Analysis (05:51)

The analysis consists of four staves of music with various annotations:

- Staff 1:**
 - Annotations: (03) {D, F} truncated; (023) {Eb, F, Gb}; synthesis of {Eb, F, Gb} and {Ab, Bb, Cb} (0357) {Eb, Gb, Ab, Bb}; (023) {Ab, Bb, Cb}; (023) {Eb, F, Gb} fragment; (023) {G, A, Bb} (triple); (023) {F, G, Ab} (triple).
- Staff 2:**
 - Annotations: C₂₀ (037) interrupts the C₂₀ cycle; (023) {F, G, Ab}; (023) {E, F#, G}; (023) {D, E, F} segment; (023) {C, D, Eb}; set expansion; (037) {Bb, Db, F}; set contraction retaining Bb, Db; (023) {Bb, C, Db}; chromatic embellishment; C₃₁.
- Staff 3:**
 - Annotations: C₃₁; (023) {C#, D#, E}; (023) {E, F#, G}; (023) {F#, G#, A}; C₂₀.
- Staff 4:**
 - Annotations: C₂₀; (023) {Ab, Bb, Cb}; (023) {Bb, C, Db}; (023) {C, D, Eb}; 8^{va}-1.

Example 5.4a 'Sun Star': Analysis (02:11)

The analysis consists of six staves of music, each with specific annotations:

- Staff 1:** Annotations include (023) {E, F#, G}, (023) {C, D, Eb}, (023) {E, F#, G}, and (023) {C, D, Eb}.
- Staff 2:** Annotations include (023) {C, D, Eb}, (023) {E, F#, G}, *altissimo* exploration referencing (023), and unstable intonation (marked with 3).
- Staff 3:** Annotations include F7 #11, Bb-, (023) {Bb, C, Db}, (0235) embellishment of {Bb, C, Db, Eb} trichord structure, and authentic cadence.
- Staff 4:** Annotations include (0235) {Bb, C, Db, Eb}, (0235) {Bb, C, Db, Eb}, (023) {C, D, Eb}, (023) {Bb, C, Db}, (023) {Eb, F, Gb}, and unstable intonation (marked with 3).
- Staff 5:** Annotations include (023) {Bb, C, Db}, (023) {D, E, F}, and (023) {A, B, C}.
- Staff 6:** Annotations include (024) {G, A, B}, (0237) {E, F#, G, B} embellishment of trichord structure, (023) {E, F#, G}, and (023) {B, C#, D}.

Example 5.4b 'Sun Star': Analysis (02:43)

The analysis is presented in five systems of musical notation, each with annotations above and below the staff:

- System 1:**
 - Annotations above: "foreshadows appearance as first set of Oct_{1,2}" (pointing to {C#, D, E}), "embellishment of trichord structure" (pointing to {B, C#, D, F#}), and "Oct_{1,2}" (spanning {C#, D, E} and {D, E, F}).
 - Chord structures: (0237) {B, C#, D, F#}, (013) {C#, D, E}, (023) {B, C#, D}, (0237) {B, C#, D, F#}, (013) {C#, D, E}, (023) {D, E, F}.
 - Annotation below: "chromatic passing tone" (pointing to the chromatic line between D and E).
- System 2:**
 - Annotations above: "embellishment of trichord structure" (pointing to {Ab, Bb, Cb, Eb}) and "Oct_{1,2}" (spanning {E, F, G} and {Ab, Bb, Cb}).
 - Chord structures: (013) {E, F, G}, (023) {F, G, Ab}, (023) {Ab, Bb, Cb}, (0237) {Ab, Bb, Cb, Eb}, (023) {Ab, Bb, Cb}.
- System 3:**
 - Annotations above: (023) {Ab, Bb, Cb} and (023) {Bb, C, Db}.
 - Chord structures: (023) {Ab, Bb, Cb}, (023) {Bb, C, Db}.
- System 4:**
 - Annotations above: (023) {Ab, Bb, Cb}, (023) {Ab, Bb, Cb}, (0235) {Gb, Ab, Bb, Cb}, and (023) {Ab, Bb, Cb}.
 - Chord structures: (023) {A, B, C}, (023) {Ab, Bb, Cb}, (0235) {Gb, Ab, Bb, Cb}, (023) {Ab, Bb, Cb}.
 - Tempo marking: *8^{va}*.
- System 5:**
 - Annotations above: (023) {Ab, Bb, Cb}, (01) {A, Bb}, (023) {Ab, Bb, Cb}, and "start of *altissimo* exploration developing ic₁ and ic₂ elements of (023)".
 - Chord structures: (023) {Ab, Bb, Cb}, (01) {A, Bb}, (023) {Ab, Bb, Cb}, (013) {F, Gb, Ab}, (024) {Ab, Bb, C}.
 - Tempo marking: *8^{va}*.

Example 5.4c 'Sun Star': Analysis (03:12)

unstable intonation
altissimo exploration developing ic1 and ic2 elements of (023)

improvisation developing texture/timbre/*altissimo* 03:19–03:42

03:42

embellishment of trichord structure (0237) {C#, D#, E, G#}

embellishment of trichord structure (0237) {C#, D#, E, G#}

interjection of Bb, anticipating {Ab, Bb, Cb}

Example 5.4d 'Sun Star': Analysis (04:02)

The analysis is presented in five systems of musical notation, each with annotations for pitch-class sets and transformations:

- System 1:** Shows a melodic line with pitch-class sets: (023) {Bb, C, Db}, (023) {Eb, F, Gb}, (023) {Bb, C, Db} fragment, (023) {Eb, F, Gb} fragment, (037) {Eb, Gb, Bb}, (037) {Eb, Gb, Bb}, (027) {Ab, Bb, Eb}, (027) {Ab, Bb, Eb}, and (0357) {Eb, Gb, Ab, Bb} synthesis of pitch-classes from three previous (023) sets. A transformation T_5 is indicated.
- System 2:** Labeled "B mixolydian subset", it shows a melodic line with sets: (037) {G#, B, D#}, (027) {B, C#, F#}, (047) {B, D#, F#}, (026) {A, B, D#}, and (026) {A, B, D#}. A contraction to (023) with common tone pivots A and B is noted. A transformation T_5 and interval I_2 are shown.
- System 3:** Shows a melodic line with sets: (023) {A, B, C}, (023) {Ab, Bb, Cb}, and (023) {G, A, Bb}. A transformation T_5 is indicated.
- System 4:** Shows a melodic line with sets: (03) {F#, A}, (03) {F, Ab}, (03) {E, G}, (03) {Eb, Gb}, (03) {C, Eb}, and (03) {Bb, Db}. A transformation T_5 is indicated.
- System 5:** Shows a melodic line with sets: (03) {G, Bb}, (03) {E, G}, (03) {Eb, Gb}, (03) {D, F}, (03) {C, Eb}, and (026) {A, B, D#}. A V^7 chord Eb/D# is identified as the common tone of the E minor theme (026). A transformation T_5 is indicated.

Additional annotations include "common tones A and B", "setting up the return of the theme", and "first return to theme". A sequence of transformations $C \rightarrow B \rightarrow A$ is shown, resulting in the set (023) {A, B, C} produced by lower voice leading.

Example 5.4e 'Sun Star': Analysis (04:49)

first return to theme

WT₁

ic2 upper voice-leading B, A, G, F, Eb, C#, B

(024) upper voice-leading {F#, E, D}

(04) (04)

(024) {G, A, B}

(024) {Db, Eb, F}

lower voice-leading (02) dyads {D, C} and {B, A}

(04) {D, F#} (04) {G, B} (04) {Eb, G} (04) {Db, F}

WT₁

(024) {B, C#, D#}

(024) {A, B, C#}

(024) {Ab, Bb, C}

(024) {G, A, B}

to theme out

Detailed description: The image shows a musical score for 'Sun Star' with three staves. The top staff is a single melodic line labeled 'first return to theme'. The middle staff is a more complex melodic line with annotations: '(024) upper voice-leading {F#, E, D}' with two '(04)' dyads; '(024) {G, A, B}' and '(024) {Db, Eb, F}' above the line; and 'lower voice-leading (02) dyads {D, C} and {B, A}' with four '(04)' dyads below the line. The bottom staff is another melodic line with annotations: '(024) {B, C#, D#}', '(024) {A, B, C#}', '(024) {Ab, Bb, C}', and '(024) {G, A, B}' above the line, and 'to theme out' at the end. Various musical notations like triplets, quintuplets, and accidentals are present throughout the score.

Example 5.5b 'Configuration': Analysis (02:18)

(046) {Ab, C, D}

8va

anticipates {Cb, Db, Eb}

(02) {G, A}

(024) {Cb, Db, Eb}

(046) {A, Db, Eb}

(024) {Cb, Db, Eb}

(046) {Gb, Bb, C}

(046) {A, Db, Eb}

(046) {A, Db, Eb}

(026) {C, D, Gb}

(026) {A, B, Eb}

I₀ sharing two common tones

(046) {A, Db, Eb}

(046) {Eb, G, A}

8va

Ab becomes member of (024) {Gb, Ab, Bb}

unstable intonation

(02) {G, A}

(024) {G, A, B}

Ab becomes member of (024) {Gb, Ab, Bb}

(024) {G, A, B}

(024) {Gb, Ab, Bb}

Example 5.5c 'Configuration': Analysis (02:42)

(024)
{Gb, Ab, Bb}

(024)
{G, A, B}

(024)
{G, A, B}

contraction

(023)
{G, A, Bb}

(0356)
{E, G, A, Bb}

(024)
{G, A, B}

E embellishment
of {G, A, Bb}

(024)
{G, A, B}

(024)
{F, G, A}

(024)
{G, A, B}

(024)
{G, A, B}

(024)
{G, A, B}

(024579)
{G, A, B, C, D, E}

harmonics produced through the
manipulation air/embouchure

Example 5.6a 'Leo': (046) analysis (01:36)

(027) {A, B, E} (027) {Ab, Bb, Eb} (01256) {Eb, E, F, Ab, A} (026) {Eb, F, A} (027) {Ab, Bb, Eb} (0247) {Ab, Bb, C, Eb} (05) {Eb, Ab}

A passing tone and member of previous trichord

E and Ab emerge as members of {E, Ab, Bb} in next staff system

(02) dyads {Ab, Bb} and {Bb, C} become anchors for {E, Ab, Bb} and {F#, Bb, C}

WT₀

(046) {E, Ab, Bb} (046) {F#, Bb, C} (046) {E, Ab, Bb} (046) {F#, Bb, C}

WT₀

(046) {E, Ab, Bb} (046) {F#, Bb, C} (046) {E, Ab, Bb} (046) {F#, Bb, C} (046) {Ab, C, D} (046) {E, Ab, Bb} (046) {F#, Bb, C} (046) {A, Db, Eb} (046) {E, Ab, Bb}

contraction of previous pc set {A, Db, Eb}

(046) {F#, Bb, C} (024) {B, C#, D#} (046) {E, Ab, Bb} (046) {F#, Bb, C} (046) {B, Eb, F} (024) {Ab, Bb, C}

contraction of previous pc set {F#, Bb, C}

(046) {B, Eb, F} (046) {F#, Bb, C} (046) {B, Eb, F} (046) {F#, Bb, C} (046) {B, Eb, F} (027) {Eb, F, Bb} (046) {B, Eb, F} (046) {F#, Bb, C} (046) {B, Eb, F}

expansion of previous pc set {B, Eb, F}

conflation of neighbouring sets {F#, Bb, C} and {B, Eb, F}

(046) {F#, Bb, C} (046) {B, Eb, F} (046) {F#, Bb, C} (046) {B, Eb, F} (046) {F#, Bb, C} (046) {B, Eb, F}

unstable intonation

Example 5.6b 'Leo': (046) analysis (02:03)

conflation of neighbouring sets
{F#, Bb, C} and {B Eb, F}

WT₀

(046) {B, Eb, F} (046) {F#, Bb, C} (046) {B, Eb, F} (046) {F#, Bb, C} (046) {B, Eb, F} (046) {F#, Bb, C} (046) {B, Eb, F} (046) {F#, Bb, C} (0468) {Ab, C, D, E} emerges

WT₀

(046) {E, Ab, Bb}

WT₀

(046) {Ab, C, D} (046) {E, Ab, Bb} (046) {A, C#, D#}

WT₀

(046) {A, C#, D#} (046) {D, F#, G#} (046) {G, B, C#} chromatic approach

WT₁

(046) {G, B, C#} (026) {C, D, F#} (046) {G, B, C#} (046) {Ab, C, D} (026) {Db, Eb, G} (046) {B, Eb, F} (026) {Db, Eb, G} (046) {B, Eb, F} (026) {Db, Eb, G} (046) {G, B, C#} (046) {B, Eb, F}

WT₁

(046) {G, B, C#} (046) {B, Eb, F} (046) {C#, F, G} (046) {G, B, C#} (046) {C#, F, G} (046) {G, B, C#} (046) {C#, F, G} (046) {G, B, C#} (046) {C#, F, G} fragment

harmonics sound louder than fundamental

WT₁

(046) {G, B, C#} (046) {C#, F, G} (026) {C#, D#, G} (046) {C#, F, G} (026) {C#, D#, G} (046) {C#, F, G}

harmonics sound louder

WT₁

(046) {C#, F, G} (04) {Ab, C} (025) {Ab, Bb, Db} (03) {A, C}

2:35

Example 5.6c 'Leo': (046) analysis (02:40)

The analysis is presented in several systems:

- System 1:** Shows a melodic line with set classes (03) {A, C}, (027) {E, F#, B}, (046) {G, B, C#}, (046) {B, Eb, F}, (046) {Eb, G, A}, and (046) {A, C# Eb}. Annotations include "B common tone" and "WT₁". A transformation T₁ is shown mapping {A, C#} to {Bb, D}.
- System 2:** Shows a lower register line with set classes (04) {Bb, D}, (026) {A, B, Eb}, (046) {Eb, G, A}, and (046) {B, Eb, F}. Annotations include "T₁ relationship to {B, Eb} subset" and "harmonics sound louder than fundamental".
- System 3:** Shows a melodic line with set class (046) {B, Eb, F} and a bracketed section labeled "sonic exploration of the altissimo register".
- System 4:** Shows a melodic line with a bracketed section labeled "sonic exploration of the altissimo register".
- System 5:** Shows a melodic line with set classes (04) {G, B}, (046) {F, A, B}, (046) {B, Eb, F}, (0236) {B, C#, D, F}, (0268) {Eb, F, A, B}, (0248) {A, B, Db, F}, (0126) {A, Bb, B, Eb}, (0467) {F, A, B, C}, and (035) {F#, A, B}. Annotations include "Eb mapping onto Db" and "embellishment of (026) {B, C#, F}", "embellishment of (026) {Eb, F, A}", "embellishment of (026) {B, Db, F}", "embellishment of (026) {A, B, Eb}", and "compression of {F, A, B} with F mapping onto F#".
- System 6:** Shows a melodic line with set classes (024) {Ab, Bb, C}, (04) {Ab, C}, (04) {E, Ab}, (037) {Bb, Db, F}, (047) {Eb, G, Bb}, (047) {Db, F, Ab}, (037) {F, Ab, C}, (05) {F, Bb}, (037) {F, Ab, C}, and (036) {D, F, Ab}. Annotations include "Ab major", "C major", "Ab major", and "chromatic passing tone".

Example 5.7a 'Leo': (024) analysis (04:05)

Bb Major

D Major

F#/Gb Major

Bb Major

F#/Gb Major

Bb Major

D Major

(024) {A, B, C#}

F#/Gb Major (also a segment of WT₁)

G added to {C, D}

(027) {C, D, G}

Bb added to {C, D}

(024) {Bb, C, D}

(024) {C, D, E}

T₉

(024) {F, G, A}

(024) {G, A, B}

WT₁

projection of (02) anchor

WT₁

(024) {A, B, C#}

(024) {B, C#, D#}

(024) {G, A, B}

(024) {B, C#, D#}

(024) {G, A, B}

added pitch classes

WT₁

WT₀

(024) {G, A, B}

(024) {B, C#, D#}

(024) {G, A, B}

(024) {Eb, F, G}

(024) {D, E, F#}

(024) {C, D, E}

(024) {E, F#, G#}

member of {Eb, F, G}

(024579) {Eb, F, G, Ab, Bb, C}

WT₀

(024) {Eb, F, G}

(024) {Ab, Bb, C}

(024) {Eb, F, G}

(024) {Ab, Bb, C}

Example 5.7c 'Leo': (024) analysis (05:03)

conflation of pc members of {Db, Eb, F} and {Bb, C, D}

(024) {Db, Eb, F}

(024) {Bb, C, D}

(024) {Db, Eb, F} fragment

(024) {Bb, C, D}

(024) {Db, Eb, F} fragment

(024) {Bb, C, D}

(024) {Db, Eb, F} fragment

(024) {Bb, C, D}

member of {Db, Eb, F}

member of {C, D, E}

(024) {C, D, E}

(024) {Db, Eb, F}

(024) {C, D, E}

(024) {Db, Eb, F}

(0247) {C, D, E, G}

(024) {Ab, Bb, C}

F member of {Db, Eb, F}

Ab member of {Ab, Bb, C}

(024) {C, D, E}

(024) {Db, Eb, F}

(023) {Ab, Bb, Cb}

(0247) {C, D, E, G}

(024) {Db, Eb, F}

(024) {Ab, Bb, C}

embellishment of (024)

alteration of {Ab, Bb, C}

Bb member of {Ab, Bb, C}

(024579) {Ab, Bb, C, Db, Eb, F}

(024) {Bb, C, D}

(024) {Db, Eb, F}

(024) {Ab, Bb, C}

(024) {Db, Eb, F}

(024) {Ab, Bb, C}

(024) {Db, Eb, F}

(024) {Ab, Bb, C}

(024) {Db, Eb, F}

(024) {Ab, Bb, C}

(024) {Db, Eb, F}

(024579) {Ab, Bb, C, Db, Eb, F}

(024) {Ab, Bb, C}

(024) {Db, Eb, F}

(024) {Ab, Bb, C}

(024) {Db, Eb, F}

(0247) {C, D, E, G}

embellishment of (024)

C1

(024) {E, F#, G#, A}

(024) {C, D, E}

(024) {Gb, Ab, Bb}

(024) {Gb, Ab, Bb}

embellishment of (024)

member of {F, G, A} which enters next

Example 5.7d 'Leo': (024) analysis (05:31)

→

C1

(024) {F, G, A}

(024) {E, F#, G#}

(024) {Eb, F, G}

(024) {D, E, F#}

(024) {Db, Eb, F}

C1

(024) {Db, Eb, F}

(024) {C, D, E}

(024) {B, C#, D#}

(024) {Bb, C, D}

C1

(024) {A, B, C#}

(024) {Ab, Bb, C}

(024) {G, A, B}

(024) {Gb, Ab, Bb}

embellishment to trichord structure creating (0247)

C1

(024) {Gb, Ab, Bb}

(024) {F, G, A}

(024) {D, E, F#}

(024) {C, D, E}

(02) {D, E} T₁

C2₀

T₁ (02) {Eb, F}

(024) {Bb, C, D}

(024) {Ab, Bb, C}

(05) {F, Bb}

(05) {C, F}

(05) {F, Bb}

(02) {F, G}

interruption to C2₀

Db as chromatic embellishment

(027) {Bb, C, F}

(027) {F, G, C}

(027) {C, D, G}

(027) {D, E, A}

(02) {B, C#}

(02) {Bb, C}

addition of G to previous (05) dyad [C, F]

addition of G to previous (05) dyad [F, Bb]

conflation of {Cb, Db, Eb} and {Db, Eb, F}

(02) {Bb, C}

(024) {Cb, Db, Eb}

(024) {Db, Eb, F}

Example 5.7e 'Leo': (024) analysis (06:08)

The analysis is presented in six staves, each separated by a dashed line labeled WT_1 .

- Staff 1:** Shows a sequence of (024) chord sets: $\{Db, Eb, F\}$, $\{Cb, Db, Eb\}$, $\{Db, Eb, F\}$, $\{Cb, Db, Eb\}$, $\{Db, Eb, F\}$, $\{Cb, Db, Eb\}$, $\{Db, Eb, F\}$, $\{Cb, Db, Eb\}$. A bracket below the last three notes indicates a (024) chord set $\{Cb, Db, Eb\}$.
- Staff 2:** Shows (024) chord sets $\{Db, Eb, F\}$ and $\{Cb, Db, Eb\}$. A larger bracket covers a section labeled "synthesis of $\{Db, Eb, F\}$ and $\{Cb, Db, Eb\}$ ". This is followed by a (024) chord set $\{A, B, C\#$.
- Staff 3:** Shows a (024) chord set $\{A, B, C\#$ with a note marked "unstable intonation".
- Staff 4:** Shows a "member of $\{Ab, Bb, C\}$ " and a (024) chord set $\{A, B, C\#$. A note is marked "unstable intonation". A "conflation of $\{A, B, C\#$ and $\{Ab, Bb, C\}$ " is also indicated.
- Staff 5:** Shows a (024) chord set $\{A, B, C\#$ and a "member of $\{A, B, C\#$ ". A note is marked "unstable intonation". Other annotations include (02) $\{Ab, Bb\}$, (02) $\{G, A\}$, (02) $\{Bb, C\}$, and (02) $\{Ab, Bb, C\}$.
- Staff 6:** Shows a (024) chord set $\{A, B, C\#$ and a "member of $\{A, B, C\#$ ". A note is marked "unstable intonation". A "(02) projection" is indicated above a section. Below, a (035) chord set $\{G, Bb, C\}$ is noted as a "blues reference and expansion of $\{Ab, Bb, C\}$ ".

Example 5.8 'Leo': (024) transpositional sequence

04:30	$\begin{array}{c} 10x \\ \{Ab, Bb, C\} - \{Eb, F, G\} \end{array} \begin{array}{c} \downarrow T_{11} \\ \downarrow T_0 \end{array}$	05:19	$\begin{array}{c} T_0 \downarrow \quad \downarrow T_0 \quad 5x \\ \{Ab, Bb, C\} - \{Db, Eb, F\} \end{array} \begin{array}{c} \downarrow T_{11} \end{array}$
04:37	$\begin{array}{c} 3x \\ \{D, E, F\# \} - \{Ab, Bb, C\} \end{array}$	05:25	$\begin{array}{c} \{C, D, E, G\} - \{E, F\#, G\#, A\} - \{C, D, E\} \\ (0247) \quad (0245) \end{array}$
04:39	$\begin{array}{c} T_{11} \downarrow \quad \downarrow T_0 \quad 5x \\ \{Db, Eb, F\} - \{Ab, Bb, C\} \end{array}$	05:28	<p style="text-align: center;"><i>transpositional operations using C1</i></p> $\begin{array}{c} \{Gb, Ab, Bb\} - \{F, G, A\} - \{E, F\#, G\# \} - \{Eb, F, G\} - \{D, E, F\# \} \\ \{Db, Eb, F\} - \{C, D, E\} - \{B, C\#, D\# \} - \{Bb, C, D\} - \{A, B, C\# \} \\ \{Ab, Bb, C\} - \{G, A, B\} - \{Gb, Ab, Bb\} - \{F, G, A\} \end{array}$
04:43	$\begin{array}{c} T_{11} \downarrow \quad \downarrow T_0 \\ \{C, D, E\} - \{Bb, B, C\} - \{Ab, Bb, C\} \\ (012) \end{array}$	05:50	<p style="text-align: center;"><i>transpositional operations using C2₀ segment</i></p> $\begin{array}{c} \{D, E, F\# \} - \{C, D, E\} - \{Eb, F\} - \{Bb, C, D\} - \{Ab, Bb, C\} \\ (02) \end{array}$
04:45	$\begin{array}{c} T_{11} \downarrow \quad \downarrow T_1 \quad 3x \\ \{A, B, C\# \} - \{B, C\#, D\# \} \end{array}$	05:55	<p style="text-align: center;"><i>Brief divergence from (024) with the emergence of (027) and its (05), and (02) subsets</i></p>
04:50	$\begin{array}{c} T_0 \downarrow \quad \downarrow T_{11} \quad 3x \\ \{A, B, C\# \} - \{Bb, C, D\} \end{array}$	06:06	$\begin{array}{c} \{Cb, Db, Eb\} - \{Cb, Eb, F\} \\ T_2 \downarrow \quad \downarrow T_0 \quad (046) \end{array}$
04:56	$\begin{array}{c} T_0 \downarrow \quad \downarrow T_{11} \quad 3x \\ \{A, B, C\# \} - \{Ab, Bb, C\} \end{array}$	06:08	$\begin{array}{c} \{Db, Eb, F\} - \{Cb, Db, Eb\} \\ \downarrow T_{10} \end{array}$
05:01	<p style="text-align: center;"><i>common tones</i></p> $\begin{array}{c} \{A, C, C\# \} - \{Bb, C, D\} \\ (034) \end{array}$	06:15	$\begin{array}{c} \{Cb, Db, Eb, F\} - \{A, B, C\# \} \\ (0246) \end{array}$
05:02	$\begin{array}{c} T_0 \downarrow \quad \downarrow T_2 \quad 4x \\ \{Db, Eb, F\} - \{Bb, C, D\} \end{array}$ <p style="text-align: right;"><i>beginning to fragment {Db, Eb, F}</i></p>	06:23	<p style="text-align: center;"><i>Registral partitioning, fragmentation, and conflation of {A, B, C#} - {Ab, Bb, C} followed by a divergence from (024)</i></p>
05:08	$\begin{array}{c} T_0 \downarrow \quad \downarrow T_2 \\ \{Db, Eb, F\} - \{C, D, E\} \end{array}$ <p style="text-align: center;"><i>Registral partitioning and fragmentation</i></p>	06:46	$\begin{array}{c} \{Bb, C, D\} - \{Eb, F, G\} - \{Eb, F, G, A\} \\ (0246) \end{array}$
05:12	$\begin{array}{c} \{C, D, E, G\} - \{Ab, Bb, C\} \\ (0247) \end{array}$ <p style="text-align: center;"><i>contraction</i></p>	06:49	$\begin{array}{c} \{Eb, F, G\} - \{F, G, A, B, D\} \text{ embellishment of } (0246) \text{ with } D \\ (02469) \end{array}$
05:14	$\begin{array}{c} \{C, D, E\} - \{Db, Eb, F\} - \{Ab, Bb, Cb\} \\ (023) \end{array}$ <p style="text-align: center;"><i>expansion</i></p>	06:53	$\begin{array}{c} \{Eb, F, G\} - \{F, G, A\} - \{Eb, G, A\} \\ (046) \end{array}$
05:16	$\begin{array}{c} \{C, D, E, G\} - \{Db, Eb, F\} - \{Ab, Bb, C\} \\ (0247) \end{array}$	06:57	$\begin{array}{c} \{Eb, F, G, A\} - \{Eb, G, A\} - \{Db, Eb, F\} \\ (0246) \quad (046) \end{array}$
05:18	$\begin{array}{c} \{Bb, C, D\} - \{Db, Eb, F\} \\ \downarrow T_0 \\ \downarrow T_0 \end{array}$		

Example 5.9a 'Mars': (027) analysis (02:31)

02:33

The analysis is presented in several systems:

- System 1:** Shows two (05) dyads $\{Bb, Eb\}$ and $\{Eb, Ab\}$ merging to form the (027) set $\{Ab, Bb, Eb\}$, which is identified as Ab major. A subsequent (045) set $\{Eb, G, Ab\}$ is noted as being "enveloped in next phrase within overlapping (027) sets".
- System 2:** Analyzes a sequence of chords: Ab major, E major, Ab major, E major. It identifies (027) sets $\{F, G, C\}$, $\{E, F\#, B\}$, $\{Ab, Bb, Eb\}$, $\{B, C\#, F\#\}$, and $\{B, C\#, F\#\}$. A larger (0247) set $\{E, F\#, Ab, B\}$ is also indicated.
- System 3:** Divides the music into a "C5 segment" and a "C1 segment". The C5 segment features (05) dyads $\{F\#, B\}$, $\{A, D\}$, $\{Bb, Eb\}$, $\{Eb, Ab\}$, $\{G\#, C\#\}$, and $\{F\#, B\}$. The C1 segment features (05) dyads $\{F, Bb\}$, $\{E, A\}$, and $\{Eb, Ab\}$. Annotations include "projection of (05) as a subset of (027)" and "F#/Gb inserted within $\{F, Bb\}$ ".
- System 4:** Shows C1 and C2₀ segments. C1 contains (05) dyads $\{Eb, Ab\}$, $\{D, G\}$, and $\{C, F\}$. C2₀ contains (05) dyads $\{Bb, Eb\}$, $\{G\#, C\#\}$, $\{F\#, B\}$, and $\{E, A\}$. An annotation states: " $\{A, B, E\}$ developed from pitch class members of sequential (05) dyads".
- System 5:** Shows (05) dyads $\{E, A\}$, $\{A, B, E\}$, $\{F, G, C\}$, and $\{A, B, E\}$. An annotation notes: "F anticipates $\{F, G, C\}$ ".
- System 6:** Shows (027) sets $\{A, B, E\}$, $\{Gb, Ab, Db\}$, $\{Db, Eb, Ab\}$, $\{E, F\#, B\}$, $\{F, G, C\}$, $\{C, D, G\}$, $\{G, A, D\}$, and $\{A, B, E\}$. It identifies a "D minor pentatonic" set $\{Ab, Bb, Eb\}$ and an "E minor pentatonic" set.

Example 5.9b 'Mars': (027) analysis (03:07)

F minor pentatonic

(027) {Ab, Bb, Eb} (027) {Bb, C, F} (027) {G, A, D} (027) {A, B, E} (027) {F#, G#, C#} (027) {E, F#, B}

D minor pentatonic

(027) {B, C#, F#} (027) {Ab, Bb, Eb} (027) {G, A, D} (047) {G, B, D} (027) {Bb, C, F}

set transformation with {D, G} retained between sets

return to (027)

C# minor pentatonic

(027) {Bb, C, F} (046) {F#, Bb, C} (046) {C, E, F#} (046) {F#, Bb, C}

set transformation with {Bb, C} retained between sets

projection of (02) as subset of (046)

(046) {F#, Bb, C} (046) {C, E, F#} (02) {G, A} (046) {F#, Bb, C} (046) {C, E, F#}

(046) {F#, Bb, C} (024579) section begins

(046) {F#, Bb, C} (024579) section begins

Example 5.10a 'Mars': (013) analysis (05:48)

common tones Bb and C retained between four T_n-types

(027) {Bb, C, F} (024) {Ab, Bb, C} (046) {Gb, Bb, C} (013) {A, Bb, C}

(013) {A, Bb, C} (013) {G#, A, B}

(013) {G, Ab, Bb} fragment (02) {A, B} (013) {F#, G, A} (02) {G, A} C1 (013) {G, Ab, Bb}

(02) {Ab, Bb} C1 (013) {G, Ab, Bb} (013) {F#, G, A} (013) {F, Gb, Ab} (013) {E, F, G}

C1 (013) {D#, E, F#} (013) {D, Eb, F} (013) {C#, D, E} (013) {C, Db, Eb} (013) {B, C, D} (013) {A, Bb, C}

{A} common tone pivot between T_n-Types (03) {F#, A} (045) {E, G#, A}

G#/Ab common tone pivot to next (013) pc set

Example 5.10b 'Mars': (013) analysis (06:17)

fragmentation of (013) into its subset components

(013) {G, Ab, Bb}

(013) {A, Bb, C}

(02) {G, A}

(013) {B, C, D}

(03) {A, C}

(03) {A, C}

C common tone pivot to {B, C, D}

(02) {A, B}

(013) {C, Db, Eb}

(02) {Db, Eb}

(02) {C, D} T_1

(013) {C, Db, Eb}

(013) {B, C, D}

(013) {F, Gb, Ab}

(013) {F, Gb, Ab}

(013) {E, F, G}

(013) {E, F, G}

(013) {F, Gb, Ab}

G harmonics and Bb form
(03) subset of (013)

(013) {F, Gb, Ab}

6:41

(013) {Eb, E, F#}

(01) {D, Eb}

(02) {E, F#}

Example 5.10c 'Mars': (013) analysis (06:45)

The analysis is presented across five staves of musical notation, each with various annotations:

- Staff 1:**
 - Annotations: (013) {Eb, E, F#}, set expansion sharing E and F# common-tones, (026) {E, F#, Bb}, contour repeats {Eb, E, F#} from previous phrase, (01) {D, Eb}, (02) {E, F#}, (02) {E, F#}.
 - Intervallic markers: δ^{va} (twice).
- Staff 2:**
 - Annotation: divergence.
 - Intervallic markers: δ^{va} (twice).
 - Annotation: (02) {E, F#}.
- Staff 3:**
 - Annotations: (02479) {B, C#, D#, F#, G#}, (02) {F, G}, (013) {B, C, D}, (012) {G, Ab, A}, (02) {C#, D#}, (03) {G#, B}, (03) {D#, F#}, (02) {B, C#}, (013) {D, Eb, F}.
- Staff 4:**
 - Annotations: (012) {G, Ab, A}, (035) {G, Bb, C}, (027) {A, B, E}, (013) {A, Bb, C}, (013) {G#, A, B}, (02) {A, B}.
- Staff 5:**
 - Annotations: (013) {G#, A, B}, (013) {B, C, D}, (013) {C, Db, Eb}.
- Staff 6:**
 - Annotations: (013) {C, Db, Eb}, (013) {C#, D, E}, (04) {C, E}, (013) {E, F, G}.
 - Annotation: Intervallic diminution of previous motive.

Example 5.10d 'Mars': (013) analysis (07:16)

(013) {E, F, G} (013) {D, Eb, F} (023) {F, G, Ab} (013) {E, F, G} (013) {Eb, F, F#}

(013) {E, F, G} (013) {Eb, E, F#} (013) {E, F, G} (013) {Eb, E, F#} (013) {D, Eb, F}

(013) {D, Eb, F} (013) {C, Db, Eb} (013) {D, Eb, F} (013) {C, Db, Eb} (013) {D, Eb, F} (01) {Db, D} (013) {B, C, D}

(013) {B, C, D} (013) {A, Bb, C} (013) {B, C, D} C and D common tones

pc set expansion (035) {A, C, D} (02) {Db, Eb} (013) {D, Eb, F} (02) {E, F#} (013) {F, Gb, Ab} chromatic passing tone

(02) {C, D} T₁

(03) {E, G} (03) {Eb, Gb} (04) {Db, F} (03) {C#, E} (03) {C, Eb} C1 disruption substituting {Db, F} for {D, F}

(03) {B, D} (03) {Bb, C#} (013) {A, Bb, C} (013) {B, C, D} (013) {A, Bb, C}

(013) {Bb, B, C#}

(024) alteration of {A#, B, C#} (0457) {F#, A#, B, C#} (013) {B, C, D} (013) {A#, B, C#} (023) {Ab, Bb, B} (02) {C, D} embellishment of (013) fragment of {B, C, D}

Example 5.10e 'Mars': (013) analysis (08:01)

(013) {B, C, D}

(02) {C, D}

(01346) {B, C, D, Eb, F}

(013) emerges

(013) {D, Eb, F}

divergence from (013) and its subsets

(013) {G, Ab, Bb}

transpositional combination of {B, C, D} and {D, Eb, F}

(02) {Eb, F}

(02) {F, G}

(02) {Ab, Bb}

(013) {G, Ab, Bb}

(02) {F, G}

(02) {Ab, Bb}

(02) {F, G}

(02) {F, G}

Example 5.11 'Stellar Regions' (alt tk): Theme (024579) structure

chromatic embellishment

accel... ..rit.

C₄₀ begins → Ab major

Example 5.12 'Stellar Regions': Theme (024579) structure

The musical score consists of ten staves of music, primarily in treble clef. The first staff features a continuous eighth-note pattern with two triplets at the end. The second staff begins with a whole rest, followed by a quarter rest and then a continuous eighth-note pattern. The third staff starts with a triplet eighth-note pattern, followed by a quarter note, a quarter rest, and another eighth-note pattern. The fourth staff continues the eighth-note pattern with a triplet at the end. The fifth staff shows a melodic line with eighth notes, a triplet, and a quarter note, with an *8va* marking and a dashed line above. The sixth staff features a melodic line with a wavy line, a triplet, and a quarter note, with an *8va* marking and a dashed line above, and an arrow pointing to a note labeled 'chromatic embellishment'. The seventh staff continues the eighth-note pattern with a quarter note, a triplet, and another triplet. The eighth staff shows a melodic line with a wavy line, a triplet, and a quarter note, with an arrow pointing to a note labeled 'chromatic embellishment'. The ninth staff continues the eighth-note pattern with a quarter note and a triplet. The tenth staff concludes with a quarter note and a quarter rest.

Example 5.13 'Stellar Regions': Ending theme (024579) structure

The musical score consists of ten staves of music, primarily in treble clef. The first staff begins with a melodic line featuring eighth and sixteenth notes, ending with a triplet of eighth notes. The second staff contains a dense, continuous sixteenth-note texture. The third staff features a melodic line with a triplet of eighth notes and a chromatic embellishment (a grace note) indicated by an arrow. The fourth staff continues the sixteenth-note texture. The fifth staff shows a melodic line with a triplet of eighth notes. The sixth staff features a melodic line with a chromatic embellishment (a grace note) indicated by an arrow. The seventh staff contains a melodic line with a chromatic embellishment (a grace note) indicated by an arrow. The eighth staff features a melodic line with a chromatic embellishment (a grace note) indicated by an arrow. The ninth staff contains a melodic line with a chromatic embellishment (a grace note) indicated by an arrow. The tenth staff concludes the piece with a melodic line and a final cadence.

Example 5.14a 'Stellar Regions': Analysis (01:03)

The image displays a musical score analysis for 'Stellar Regions' (01:03), consisting of seven staves of music. The analysis includes harmonic structures and scalar segments.

- Staff 1:** Shows two main sections. The first section is labeled 'C major' and contains two triplet markings (3). The second section is labeled 'Ab major' and contains a 'V' marking.
- Staff 2:** Shows three sections: 'Ab major' (with 'I' and 'V' markings), 'E major' (with 'V' and 'I' markings), and 'C major' (with 'I' marking and 'scalar segments' label).
- Staff 3:** Shows four sections: 'C major' (with 'I' marking), 'Ab major' (with 'I' marking), 'E major' (with 'I' marking), and 'C major' (with 'I' marking and 'scalar segments' label).
- Staff 4:** Shows four sections: 'Ab major' (with 'V' and 'I' markings), 'E major' (with 'I' marking), 'C major' (with 'I' marking), and 'Ab major' (with 'V' and 'I' markings).
- Staff 5:** Shows three sections: 'E major' (with 'I' marking), 'C major' (with 'I' marking), and 'Ab major' (with 'I' marking and 'scalar segments' label).
- Staff 6:** Shows four sections: 'E major' (with 'I' marking), 'Ab major' (with 'V' and 'I' markings), 'E major' (with 'I' marking), and 'Ab major' (with 'I' marking and 'scalar segments' label).

The analysis uses various markings to denote harmonic structure, including 'V' (likely a cadence or breath mark), 'I' (likely a measure rest or breath mark), and 'I' (likely a measure rest or breath mark). Scalar segments are indicated by brackets and arrows pointing to specific groups of notes.

Example 5.14b 'Stellar Regions': Analysis (01:41)

The image displays a musical score analysis for 'Stellar Regions' (01:41), consisting of four staves of music in treble clef. The analysis includes chord annotations and structural insights.

Staff 1: Annotations include Ab major, E major, Ab major, and E major. There are two triplet markings (3) under the notes.

Staff 2: Annotations include E major, C major, and Ab major. A specific annotation reads: "B major and G major triads as upper structures of the respective tonic chords E major and C major". Another annotation reads: "Ab major triad".

Staff 3: Annotations include Ab major, E major, C major, and Ab major. There is a triplet marking (3) at the end of the staff.

Staff 4: Annotations include Ab major, E major, and C major. There are two triplet markings (3) under the notes. An arrow points to the right with the text "to theme".

Example 5.15a 'Stellar Regions' (alt tk): Analysis (00:53)

The image displays a musical score in treble clef with a key signature of one flat (Bb). The score is divided into eight systems, each with a key signature label above it. Brackets indicate the key signature for different segments of the music. Arrows point to specific notes, and text annotations describe voice-leading techniques and segment origins.

System 1: Key signature: C major. Annotations: "chromatic voice-leading using major third transpositions of the diatonic collection".

System 2: Key signature: Ab major. Annotations: "conflated segment from E major".

System 3: Key signature: E major. Annotations: "conflated segment from Ab major".

System 4: Key signature: C major. Annotations: "conflated segment from E major".

System 5: Key signature: Ab major. Annotations: "conflated segment from E major".

System 6: Key signature: E major. Annotations: "segment from E major using Eb/D# as common tone pivot".

System 7: Key signature: Ab major. Annotations: "segment from previous phrase in Ab major".

Example 5.15b 'Stellar Regions' (alt tk): Analysis (01:37)

C major

Ab major

Ab major

E major

segment from Ab major using Eb/D# as common tone pivot

E major

C major

Ab major

E major

Ab major

chromatic embellishment

segment from C major using B as common tone pivot

C major

E major

C major

segment from Ab major using G as common tone pivot

E major

Ab major

8va

Ab major

E major

C major

segment from E major sharing Eb/D# common tone

Example 5.15c 'Stellar Regions' (alt tk): Analysis (02:06)

The image displays a musical score analysis for 'Stellar Regions' (alt tk) from 02:06. The score is presented in six systems, each with a treble clef and a key signature of one flat (Bb major). Brackets above the notes indicate the harmonic structure, with labels for C major, Ab major, and E major. Arrows point to specific notes or measures, and various annotations provide harmonic context.

System 1: C major, Ab major, C major, E major, C major, Ab major.

System 2: Ab major, C major, E major.

System 3: E major.

System 4: C major, E major. *8va* (octave) annotation. *brief exploration of harmonics 2:24 – 2:41* (indicated by a dashed arrow).

System 5: 2:41. C major, Ab major. *8va* (octave) annotation.

System 6: Ab major, E major, C major. *segment from C major using A and B as common tone pivots* (indicated by a dashed arrow). *repetition of segment* (indicated by a solid arrow).

Example 5.15d 'Stellar Regions' (alt tk): Analysis (02:52)

C major Ab major E major C major
 Ab major E major C major Ab major C major
 Ab major E major Ab major
 Ab major E major C major Ab major
 Ab major C major to theme

transpositional error

Example 5.16a 'Mars': Major-third cycles (00:32)

Eb minor (Aeolian) – Gb relative major related at T₄ to Bb major in next stave

passing tone

(024) {Db, Eb, F}

E7 Eb -

(024) {E, F#, G#}

Eb minor pentatonic

Bb minor pentatonic

Bbmajor Ebmajor Gmajor Ebmajor

Ebmajor Bmajor Gmajor Ebmajor

Cmajor Abmajor Emajor Cmajor

C dim (b9, #9, 13)

Abmajor Fmajor Dbmajor Amajor Fmajor

timbre manipulation and harmonics

Fmajor Bbmajor Gbmajor Dmajor Bbmajor

#9, b13

timbre manipulation and harmonics

Bbmajor Gbmajor Gmajor Ebmajor

Example 5.16b 'Mars': Major-third cycles (01:02)

The musical score is divided into eight systems, each featuring a treble clef staff with a complex melodic line and a bass staff with a rhythmic accompaniment. The notes in the treble staff are grouped into chords, with labels above them indicating the chord quality: Bmajor, Gmajor, Emajor, Cmajor, Abmajor, Abmajor, Dbmajor, Amajor, Fmajor, Gbmajor, Dmajor, Bbmajor, Bbmajor, Cmajor, Bmajor, Gmajor, Emajor, Emajor, Cmajor, Ebmajor, Emajor, Emajor, Cmajor, Abmajor, and Emajor. Annotations include 'timbre manipulation and harmonics' in dashed boxes, 'b7 alteration' with an arrow pointing to a specific note, 'chromatic approach to C' with an arrow pointing to a note in the Fmajor section, and 'V' and 'I' markings below the bass staff. Trill ornaments are present on some notes, and a '3' with a slur indicates a triplet. The score concludes with a final chord labeled '8va'.

Example 5.16c 'Mars': Major-third cycles (01:27)

The musical score is divided into seven systems, each featuring a treble clef staff with a complex melodic line and a bass staff with a rhythmic accompaniment. The score is annotated with major-third cycle chords and performance instructions.

- System 1:** Chords: Abmajor, Emajor, Fmajor. Includes first (I) and fifth (V) degree markings.
- System 2:** Chords: Fmajor, Abmajor, Dmajor, Ebmajor. Includes first (I) and fifth (V) degree markings. Annotations: "timbre manipulation and harmonics" (dashed line) above Fmajor and Abmajor; "timbre manipulation and harmonics" (dashed line) above Dmajor and Ebmajor.
- System 3:** Chords: Ebmajor, Bmajor, Dmajor. Includes first (I) and fifth (V) degree markings. Annotation: "timbre manipulation and harmonics" (dashed line) above Ebmajor and Bmajor.
- System 4:** Chords: Dmajor, Bbmajor, Bmajor. Includes first (I) and fifth (V) degree markings. Annotation: "timbre manipulation and harmonics" (dashed line) above Bbmajor and Bmajor.
- System 5:** Chords: Bmajor, Cmajor, Bbmajor, Gmajor, Ebmajor. Includes first (I) and fifth (V) degree markings.
- System 6:** Chords: Ebmajor, Gmajor, Bbmajor. Includes first (I) and fifth (V) degree markings. Annotations: "timbre manipulation and harmonics" (dashed line) above Gmajor and Bbmajor; "01:49" above Bbmajor; "blues" below Bbmajor.

Additional annotations include "b9 to 9" at the bottom center of the page.

Example 5.16d 'Mars': Major-third cycles (01:50)

The musical score is divided into several systems, each with specific annotations and chord labels:

- System 1:** Features chords Bb^- , $Bb7$, $F7$, $Bb\text{major}$, and $Bb7\#11$. Annotations include 8^{va} and a 1:53 ratio.
- System 2:** Features chords $Bb7$, $E\text{major}$, and $Ab\text{major}$. Includes the annotation "timbre manipulation and harmonics".
- System 3:** Features chords $Ab\text{major}$, $G7$, and $Ab7$. Includes the annotation "timbre manipulation and harmonics".
- System 4:** Features chords $G7$, $Gb\text{major}$, $D\text{major}$, and $B\text{major}$. Includes the annotation "timbre manipulation and harmonics".
- System 5:** Features chords $B\text{major}$, $G\text{major}$, $Eb\text{major}$, $B\text{major}$, and $F\text{major}$. Includes the annotation "timbre manipulation and harmonics".
- System 6:** Features chords $A\text{major}$, $F\text{major}$, and $A\text{major}$. Includes the annotation "timbre manipulation and harmonics".

Time markers "01:57" and "02:05" are placed between the second and third systems, and the third and fourth systems respectively.

Example 5.16e 'Mars': Major-third cycles (02:13)

The musical score is divided into several systems, each with annotations for timbre manipulation and harmonics. The first system (02:13) features a sequence of Amajor and Fmajor chords, with a chromatic passing tone Gb indicated. The second system (02:18) shows a progression of Cmajor, Ebmajor, Fmajor, Dbmajor, Amajor, and Fmajor. The third system includes Fmajor, Dbmajor, Amajor, Fmajor, Bbmajor, and Gbmajor, with a chromatic embellishment noted. The fourth system consists of Gbmajor, Dmajor, Bbmajor, and Gbmajor. The fifth system features Ebmajor, Gmajor, Ebmajor, Abmajor, Emajor, and Cmajor, with a chromatic approach and a note Bb as #9 on G7, C passing tone. The final system (2:33) shows Cmajor and Abmajor, with #9, #11 extensions noted.

Example 5.17a 'Leo': Major-third relations (03:07)

The musical score consists of seven staves of music in treble clef, illustrating major-third relations and chromatic embellishments. The notes are grouped by brackets, and specific intervals are labeled with chord symbols or accidentals.

- Staff 1:** Shows major-third relations between A^b and C , and A^b and B^b . A chromatic embellishment is indicated by an upward arrow pointing to a note.
- Staff 2:** Shows major-third relations between B^b and $F^\#$, and $F^\#$ and D . A chromatic embellishment is indicated by an upward arrow pointing to a note.
- Staff 3:** Shows major-third relations between D and $F7$, and B^b and $D7$. A chromatic embellishment is indicated by an upward arrow pointing to a note.
- Staff 4:** Shows major-third relations between G and B^b7 , $B7$ and E , and $E7$ and G^b . A chromatic embellishment is indicated by an upward arrow pointing to a note.
- Staff 5:** Shows major-third relations between E and C , and E and F . A chromatic embellishment is indicated by an upward arrow pointing to a note.
- Staff 6:** Shows major-third relations between F and G , E^b and G , and E^b and G . A chromatic embellishment is indicated by an upward arrow pointing to a note.
- Staff 7:** Shows major-third relations between D and G^b , and G^b and D . A chromatic embellishment is indicated by an upward arrow pointing to a note.

Example 5.17b 'Leo': Major-third relations (03:35)

The musical score consists of seven staves of music in treble clef, illustrating major-third relations and chromatic embellishments. The notes are grouped by brackets and labeled with chords: Bb, Bb7, Eb, E, C, Ab, and D. Arrows point to specific notes labeled as 'chromatic embellishment'. The score includes various musical notations such as triplets, slurs, and dynamic markings like δ^{vza} . The final staff ends with a right-pointing arrow.

Staff 1: Chords Bb, Bb7, Eb. Chromatic embellishments are indicated by arrows pointing to notes in the first and second measures.

Staff 2: Chords E, C, E, Ab, E. A chromatic embellishment is indicated by an arrow pointing to a note in the third measure.

Staff 3: Chords E, C, Ab, E. A chromatic embellishment is indicated by an arrow pointing to a note in the third measure.

Staff 4: Chords E, Ab, E, C, E. Dynamic markings δ^{vza} are present above the first and fourth measures.

Staff 5: Chords Bb, F#, D, Bb, F#, D. Dynamic markings δ^{vza} are present above the first, second, third, and fifth measures.

Staff 6: Chords D, E, C, Ab. Dynamic markings δ^{vza} are present above the first and fourth measures.

Example 5.17c 'Leo': Major-third relations (04:05)

The image displays three staves of musical notation for 'Leo', illustrating major-third relations. The first staff shows a sequence of notes with brackets above indicating chords: B \flat , F \sharp , and D. The second staff continues the sequence with brackets for B \flat , G \flat , D, and G \flat . A bracket below the final notes of the second staff identifies the (024) chord {D \flat , E \flat , F}. The third staff begins with a G \flat chord, followed by a B \flat chord. Below the B \flat chord, a bracket indicates the (024) chord {B \flat , C, D}. This is followed by four more (024) chords, each with a bracket below: {C, D, E}, {F, G, A}, and {G, A, B}. A dashed line at the bottom of the third staff is labeled 'emergence of (024) from diatonic collection and C $_4$ ₂'. An arrow points from the (024) chord {D \flat , E \flat , F} in the second staff to the (024) chord {B \flat , C, D} in the third staff.

Example 5.18a 'Acknowledgement': Analysis (01:05)⁶

The analysis consists of six staves of music in treble clef, with various pentatonic subsets and common-tone pivots labeled above and below the notes. Brackets indicate the scope of these subsets, and arrows point to common-tone pivots between adjacent phrases.

- Staff 1:** Labeled "Phrase 1:". It features a sequence of notes with brackets above identifying "C- pent subset", "F- pent subset", "C- pent subset", "F- pent subset", "C- pent subset", and "F- pent". Below the notes, brackets identify sets: (027) {F, G, C}, (027) {Bb, C, F}, (027) {F, G, C}, (027) {Bb, C, F}, and (027) {F, G, C}. A larger bracket above the first five notes identifies (0257) {F, G, Bb, C}.
- Staff 2:** Labeled "Phrase 2:". It starts with "F- pent" and "C- pent subset" above the notes. Below, (035) {C, Eb, F} and (035) {F, Ab, Bb} are identified. A common-tone pivot arrow points from the end of the first phrase to the start of this phrase, with (027) {F, G, C} below it.
- Staff 3:** Features "F- pent subset", "C- pent subset", "F- pent subset", "C- pent subset", and "F- pent" above the notes. Below, (027) {F, G, C} and (0357) {C, Eb, F, G} are identified. Common-tone pivot arrows point from the end of the second phrase to the start of this phrase, and from the end of this phrase to the start of the next.
- Staff 4:** Features "F- pent", "C- pent", "F- pent", "C- pent", and "F- pent" above the notes. Below, (02479) {Eb, F, G, Bb, C} is identified. Common-tone pivot arrows point from the end of the third phrase to the start of this phrase, and from the end of this phrase to the start of the next.
- Staff 5:** Labeled "F- pent" above the notes.
- Staff 6:** Features "F- pent", "Bb- pent", "F- pent", and "C- pent" above the notes. Below, common-tone pivot arrows point from the end of the fourth phrase to the start of this phrase, and from the end of this phrase to the start of the next.

⁶ Common-tone pivots are marked with arrows.

Example 5.18b 'Acknowledgement': Analysis (01:55)⁷

The analysis consists of seven staves of music with the following annotations:

- Staff 1:** Pentatonic scales: C-pent, F-pent, Bb-pent, F-pent. Common-tone pivots marked with arrows. Chordal structures: {C, Eb, F}, {F, Ab, Bb}.
- Staff 2:** Pentatonic scale: F-pent. Chordal structures: {C, Eb, F}, {F, Ab, Bb}, (035), (035), (035), (035), (035).
- Staff 3:** Pentatonic scales: F-pent, Bb-pent, F-pent, Eb-pent. Chordal structures: (035), (035), (035), (035), (035), (035), (035), (035).
- Staff 4:** Pentatonic scales: Eb-pent, F-pent, G-pent. Chordal structures: (035), (035), (035), (035), (035), (035), (035).
- Staff 5:** Pentatonic scales: G-pent, F-pent, Bb-pent, G-pent, F-pent, Eb-pent. An arrow points to the Bb-pent scale with the note: "1st instance where pentatonic modulation doesn't use common tones". Chordal structures: (035), (035), (035), (035), (035), (035), (035), (035), (035).
- Staff 6:** Pentatonic scales: Eb-pent, G-pent subset, F-pent, Eb-pent subset, C-pent. Annotations: "2nd instance", "3rd instance". Chordal structures: (035), (035), (035), (035).
- Staff 7:** Pentatonic scales: C-pent, F-pent. Common-tone pivot marked with an arrow.

⁷ Common-tone pivots are marked with arrows.

Example 5.18c 'Acknowledgement': Analysis (02:40)⁸

The image displays a musical score analysis for 'Acknowledgement' (02:40), showing eight staves of music. Each staff contains a sequence of notes, with brackets above indicating pentatonic scales (pent) and arrows below marking common-tone pivots. The scales are labeled as follows:

- Staff 1: F- pent
- Staff 2: F- pent, Eb- pent, Db- pent
- Staff 3: Db- pent, Gb- pent, E-/Fb- pent, Cb- pent, A- pent
- Staff 4: E- pent, A- pent, D- pent
- Staff 5: G- pent, C- pent, F- pent, Bb- pent
- Staff 6: Bb- pent
- Staff 7: Bb- pent, F- pent

Arrows indicate common-tone pivots between adjacent pentatonic scales. The notation includes treble clefs, a key signature of two flats (Bb and Eb), and various note values (quarter, eighth, and sixteenth notes). The (035) marking is present under several notes, likely indicating a specific fingering or articulation.

⁸ Common-tone pivots are marked with arrows.

Example 5.18d 'Acknowledgement': Analysis (03:21)⁹

The image displays a musical score analysis for 'Acknowledgement' (03:21), showing seven staves of music with various pentatonic scales and their subsets. The scales are labeled as follows:

- Staff 1: C- pent, F- pent
- Staff 2: F- pent, Bb- pent
- Staff 3: Bb- pent, F- pent, Bb- pent
- Staff 4: Bb- pent, F- pent or C- pent, G- pent, C- pent
- Staff 5: C- pent, F- pent subset
- Staff 6: C- pent subset, F- pent subset, C- pent, Ab- pent subset, Bb- pent
- Staff 7: Bb- pent, Eb- pent

Arrows indicate common-tone pivots. Some instances are marked with (035) or 4th instance and 5th instance. A double bar line with a right-pointing arrow is present at the end of the fifth staff.

⁹ Common-tone pivots are marked with arrows.

Example 5.18e 'Acknowledgement': Analysis (04:11)

The image displays a musical score analysis for 'Acknowledgement' (04:11), consisting of seven staves of music in treble clef. The analysis identifies various pentatonic scales and chord sets:

- Staff 1:** Labeled 'F- pent' and 'C1'. It features a sequence of notes with chord sets: $\{C, Eb, F\}$, $\{D, F, G\}$, $\{Eb, Gb, Ab\}$, and $\{E, G, A\}$.
- Staff 2:** Labeled 'C1'. It features a sequence of notes with chord sets: $\{F, Ab, Bb\}$, $\{F\#, A, B\}$, $\{G, Bb, C\}$, $\{Ab, Cb, Db\}$, $\{A, C, D\}$, $\{Bb, Db, Eb\}$, $\{B, D, E\}$, and $\{C, Eb, F\}$.
- Staff 3:** Labeled '(035) {C, Eb, F}' and 'F- pent'. It shows a sequence of notes starting with the chord set $\{C, Eb, F\}$.
- Staff 4:** Labeled 'F- pent'. It shows a sequence of notes.
- Staff 5:** Labeled 'F- pent' and 'G- pent subset'. It shows a sequence of notes, with a bracket indicating a '6th instance'.
- Staff 6:** Labeled 'F- pent'. It shows a sequence of notes.
- Staff 7:** Labeled 'F- pent'. It shows a sequence of notes.

Example 5.19 'Acknowledgement': Pentatonic transposition graph (cont.)

Time	B- pent	E- pent	A- pent	D- pent	G- pent	C- pent	F- pent	Bb- pent	Eb- pent	Ab- pent	Db- pent	Gb- pent
							(037)					
							(0357)					
							(025)					
04:14							(035)					
					(035)							
			(035)							(035)		
								(035)				
	(035)											
						(035)						
											(035)	
				(035)								
		(035)							(035)			
							(035)					
04:23												
					(0247)							
04:45												

Example 5.20 John Coltrane's score for A Love Supreme¹⁰

COMPOSITION A Love Supreme A

5

PREMIUM NUMBER 9 18 LINE BLANK SCORE

<p>Horn #1 #2 #3 #4</p>	<p>Horn #1 #2 #3 #4</p>	<p>Horn #1 #2 #3 #4</p>	<p>Horn #1 #2 #3 #4</p>	<p>Horn #1 #2 #3 #4</p>	<p>Horn #1 #2 #3 #4</p>	<p>Horn #1 #2 #3 #4</p>
<p>Drums #1 #2 #3 #4</p>	<p>Drums #1 #2 #3 #4</p>	<p>Drums #1 #2 #3 #4</p>	<p>Drums #1 #2 #3 #4</p>	<p>Drums #1 #2 #3 #4</p>	<p>Drums #1 #2 #3 #4</p>	<p>Drums #1 #2 #3 #4</p>
<p>Piano #1 #2 #3 #4</p>	<p>Piano #1 #2 #3 #4</p>	<p>Piano #1 #2 #3 #4</p>	<p>Piano #1 #2 #3 #4</p>	<p>Piano #1 #2 #3 #4</p>	<p>Piano #1 #2 #3 #4</p>	<p>Piano #1 #2 #3 #4</p>
<p>Bass #1 #2 #3 #4</p>	<p>Bass #1 #2 #3 #4</p>	<p>Bass #1 #2 #3 #4</p>	<p>Bass #1 #2 #3 #4</p>	<p>Bass #1 #2 #3 #4</p>	<p>Bass #1 #2 #3 #4</p>	<p>Bass #1 #2 #3 #4</p>

Rhythm Section
 Horns
 Piano
 Bass
 Drums
 Melody
 Solo
 Ensemble
 Horn Solo
 Bass Solo
 Musical Realization of Prayer
 To End the
 Transcendent Level with
 of Change

All parts lead to God.
 Last used to soul like final end of Ascension -
 * provide attitude
 "A Love Supreme"
 rising of blissful stability of soul.
 harmonies to A level
 like in U.S.A

PAGE I

¹⁰ John Coltrane's Handwritten Outline for A Love Supreme (1964). Courtesy of The Smithsonian National Museum of American History.

Appendix D: Examples 6.1a–6.13f

Example 6.1a 'Saturn': Theme (02:27)

(0257)
{F#, G#, B, C#}

(035) ← upper contour of melody outlines (035) → (035)
{G#, B, C#} {G#, B, C#}

(027) {B, C#, F#} (025) {F#, G#, B} (025) {F#, G#, B} (027) {F#, G#, C#}

(0257) {F#, G#, B, C#} (025) → {G#, A#, C#}

(027) {B, C#, F#} (025) {F#, G#, B} (025) {F#, G#, B} (027) {F#, G#, C#}

→ (025) {G#, A#, C#} (0257) {F#, G#, B, C#}

(027) {B, C#, F#} (025) {F#, G#, B} (025) {F#, G#, B} (027) {F#, G#, C#}

(0257) {F#, G#, B, C#}

(027) {B, C#, F#} (025) {F#, G#, B} (025) {F#, G#, B} (035) {G#, B, C#}

(0257) {B, C#, E, F#}

retrograde of the first two notes of the 'A' theme

(0257) {B, C#, E, F#} (035) {C#, E, F#}

3

Example 6.1b 'Saturn': Theme (02:54)

(0257) {F#, G#, B, C#}

(025) {G#, A#, C#}

(027) {B, C#, F#}

(025) {F#, G#, B}

(025) {F#, G#, B}

(027) {F#, G#, C#}

(0257) {F#, G#, B, C#}

(027) {B, C#, F#}

(025) {F#, G#, B}

(025) {F#, G#, B}

(027) {F#, G#, C#}

(0257) {F#, G#, B, C#}

(027) as a subset of (0257)

(027) {F#, G#, C#}

(027) {F#, G#, C#}

E embellishment to {F#, G#, C#}

(0357) {C#, E, F#, G#}

(0257) {F#, G#, B, C#}

C#-pent

(0257) {F#, G#, B, C#}

(0357) {C#, E, F#, G#}

G#-pent

(027) {C#, D#, G#}

E maps onto D# in the modulation from C#-pent to G#-pent

(027) {C#, D#, G#}

(025) {C#, D#, F#}

(0257) {F#, G#, B, C#}

D#-pent

Example 6.2 'Saturn': (024) transposition patterns

03:20	$\begin{array}{c} \text{2.5x} \quad (024579) \\ \{F\#, G\#, A\# \} - \{B, C\#, D\# \} : \parallel \{F\#, G\#, A\#, B, C\#, D\# \} \\ \downarrow T_0 \quad \quad \downarrow T_0 \end{array}$	04:38	$\begin{array}{c} \{G, A, B \} - \{Eb, F, G \} \\ \downarrow T_0 \quad \downarrow T_2 \quad \downarrow T_0 \end{array}$
03:37	$\{F\#, G\#, A\# \} - \{B, C\#, D\# \} : \parallel$ $\downarrow T_0 \quad \quad \downarrow T_1$	04:39	$\{G, A, B \} - \{F, G, A \} - \{Eb, F, G \}$ $\downarrow T_7 \quad \quad \downarrow T_{10} \quad \downarrow T_0$
03:40	<p>(024) subsets of Messiaen mode 6</p> $\{F\#, G\#, A\# \} - \{C, D, E \} : \parallel$ <p>6x</p>	04:40	$\{D, E, F\# \} - \{Eb, F, G \}$ $\downarrow T_{11} \quad \quad \downarrow T_0$
03:51	<p>Brief divergence from (024) framed by the emergence of (0248) and (046)</p>	04:43	$\{Db, Eb, F \}$ $\downarrow T_0 \quad \quad \downarrow T_0$ <p>(0246) {Db, Eb, F, G}</p>
04:01	<p>(024) subsets of Messiaen mode 6</p> $\{F\#, G\#, A\# \} - \{C, D, E \}$ $\downarrow T_0 \quad \quad \downarrow T_3$	04:44	$\{Db, Eb, F \} - \{Eb, F, G \} : \parallel$ $\downarrow T_{11} \quad \quad \downarrow T_0$ <p>3x (0246) {Db, Eb, F, G}</p>
04:02	$\{F\#, G\#, A\# \} - \{Eb, F, G \} : \parallel$ $\downarrow T_0 \quad \quad \downarrow T_1$ <p>4x</p>	04:48	$\{C, D, E \} - \{Eb, F, G \}$ $\downarrow T_{11} \quad \quad \downarrow T_{11}$
04:10	$\{F\#, G\#, A\# \} - \{E, F\#, G\# \}$ $\downarrow T_0 \quad \quad \downarrow T_1$	04:49	$\{B, C\#, D\# \} - \{D, E, F\# \} : \parallel$ <p>7x</p>
04:12	$\{F\#, G\#, A\# \} - \{F, G, A \} : \parallel$ $\downarrow T_2 \quad \quad \downarrow T_0$ <p>4x</p>	05:00	<p>The emergence of (013)</p>
04:22	$\{Ab, Bb, C \} - \{F, G, A \}$ $\downarrow T_{10} \quad \quad \downarrow T_0$		
04:23	$\{F\#, G\#, A\# \} - \{F, G, A \} : \parallel$ $\downarrow T_0 \quad \quad \downarrow T_5$		
04:26	$\{F\#, G\#, A\# \} - \{Bb, C, D \} - \{F, G, A \}$ $\downarrow T_0 \quad \quad \downarrow T_0$		
04:29	$\{F\#, G\#, A\# \} - \{Bb, C, D \}$ $\downarrow T_{11}$		
04:29	$\{A, B, C\# \} - \{Eb, F, G \} : \parallel \{A, B, C\# \} - \{Eb, F, A \}$ $\downarrow T_{11} \quad \quad \downarrow T_0$ <p>4x (026)</p>		
04:37	<p>fragment fragment</p> $\{Ab, Bb, C \} - \{Eb, F, G \} - \{A, B, C\# \} - \{Eb, F, G \}$		

Example 6.3a 'Saturn': (024) salience (03:20)

The image displays five staves of musical notation in treble clef, illustrating the salience of the (024) trichord in the piece 'Saturn'. Brackets above the notes indicate the presence of the (024) trichord {F#, G#, A#} in various positions. Annotations include:

- Staff 1: (024) {F#, G#, A#}
- Staff 2: (024) {F#, G#, A#}; B anticipates {B, C#, D#}
- Staff 3: (024) {F#, G#, A#}; (024) {B, C#, D#}; F# from previous trichord
- Staff 4: (024) {B, C#, D#}; (024) {F#, G#, A#}; (024) {B, C#, D#}
- Staff 5: (024) {B, C#, D#}; (024) {F#, G#, A#}; (024579) {F#, G#, A#, B, C#, D#}; (024) {F#, G#, A#}; synthesis of the two trichord transpositions

Example 6.3b 'Saturn': (024) salience (03:38)

(024) {B, C#, D#} (024) {F#, G#, A#} (024) {B, C#, D#} (024) {F#, G#, A#}

embellishment of (024)

Messiaen Mode 6/Slonimsky Scale No.21

(024) {F#, G#, A#} (024) {C, D, E} (024) {F#, G#, A#} (024) {C, D, E}

added pitches suggesting Messiaen mode 6

Messiaen Mode 6/Slonimsky Scale No.21

(024) {C, D, E} (024) {F#, G#, A#} (024) {C, D, E} (024) {F#, G#, A#}

added pitch suggesting Messiaen mode 6

Messiaen Mode 6/Slonimsky Scale No.21

(024) {C, D, E} (024) {F#, G#, A#} (024) {C, D, E}

added pitch suggesting Messiaen mode 6

Example 6.3c 'Saturn': (024) salience (03:49)

Messiaen Mode 6/Slonimsky Scale No.21

alteration of Messiaen mode pitch F# to G within {F#, G#, A#}

contrasting motive using extreme registers

thinning of phrase

contrasting motive using extreme registers

Messiaen Mode 6/Slonimsky Scale No.21

added pitch Suggesting Messiaen mode 6

Example 6.3d 'Saturn': (024) salience (04:03)

The image displays four staves of musical notation for the piece 'Saturn'. Each staff is annotated with (024) salience information, including chord sets and structural labels.

Staff 1: Annotations include (024) {F#, G#, A#}, (024) {Eb, F, G}, (024) {F#, G#, A#}, (024) {Eb, F, G} fragment, (024) {F#, G#, A#}, and (024) {Eb, F, G}. A *Qua-* marking is present above the fragment.

Staff 2: Annotations include (024) {F#, G#, A#}, (024) {Eb, F, G}, (024) {F#, G#, A#}, and (024) {E, F#, G#}.

Staff 3: Annotations include (024) {F#, G#, A#}, (024) {F, G, A}, (024) {F#, G#, A#}, (024) {F, G, A}, and (024) {F#, G#, A#}.

Staff 4: Annotations include (024) {F, G, A}, (024) {F#, G#, A#}, (024) {F, G, A}, (024) {Ab, Bb, C}, and (024) {F, G, A}. Two arrows point to a chromatic embellishment of a trichord.

chromatic embellishment of trichord

Example 6.3e 'Saturn': (024) salience (04:23)

(024) {F, G, A} (024) {F#, G#, A#} (024) {F, G, A} (024) {F#, G#, A#} (024) {F, G, A} (024) {F#, G#, A#} (024) {Bb, C, D} (024) {F, G, A}

fragment of previous trichord {Ab, Bb, C}

(024) {F, G, A} (024) {F#, G#, A#} (024) {Bb, C, D} (024) {A, B, C#}

emergence of WT₁ →

(024) {A, B, C#} (024) {Eb, F, G} (024) {A, B, C#} (024) {Eb, F, G} (024) {A, B, C#}

expansion of {Eb, F, G} using pc - A as common tone from previous set

(024) {Eb, F, G} (024) {A, B, C#} (024) {Eb, F, G} (024) {A, B, C#} (026) {Eb, F, A}

(024) {Ab, Bb, C} (024) {Eb, F, G} fragment (024) {A, B, C#} (024) {Eb, F, G} fragment (024) {G, A, B} (024) {Eb, F, G} (024) {G, A, B}

Example 6.3f 'Saturn': (024) salience (04:39)

(024) {G, A, B} (024) {F, G, A} (024) {Eb, F, G} (024) {D, E, F#} (024) {Eb, F, G} (024) {Db, Eb, F} (0246) {Db, Eb, F, G} (024) {Db, Eb, F}

(024) {Db, Eb, F} (024) {Eb, F, G} (024) {Db, Eb, F} (024) {Eb, F, G} (024) {Db, Eb, F} (0246) {Db, Eb, F, G} (024) {C, D, E}

(024) {C, D, E} (024) {Eb, F, G} (024) {B, C#, D#}

F# anticipates {D, E, F#}

(024) {B, C#, D#} (024) {D, E, F#} (024) {B, C#, D#} (024) {D, E, F#}

added pitches Bb & A suggestive of Messiaen Mode 6

(024) {D, E, F#} (024) {B, C#, D#} fragment (024) {D, E, F#} (024) {B, C#, D#} (024) {D, E, F#}

Example 6.3g 'Saturn': (024) salience (04:57)

The image displays two staves of musical notation from 'Saturn', illustrating (024) salience and transitions to (013).

Staff 1: Shows six measures of music. Brackets above the notes identify (024) sets: {D, E, F#}, {B, C#, D#}, {D, E, F#}, {B, C#, D#}, {D, E, F#}, and {B, C#, D#}.

Staff 2: Shows four measures of music. Brackets above the notes identify (024) sets: {B, C#, D#}, {D, E, F#}, and {D, E, F#}. A transition arrow labeled "transition to (013)" spans from the end of the first measure to the end of the second measure. Below the staff, an arrow labeled "pc set compression" points from the {D, E, F#} set in the second measure to the {D, E, F} set in the third measure. A double-headed arrow labeled I_4 connects the {D, E, F} set in the third measure to the {B, C, D} set in the fourth measure. An annotation "F# anticipates {D, E, F#}" with an arrow points to the F# note in the first measure of the second staff.

Example 6.4 'Saturn': (013) pc-set sequence and common-tone pivots

05:00

I_4 T_{11} I_9 I_8 T_{11} T_{11} T_{11} T_{11}
 F C C# Ab **A A** **G G** F F Db
 E **B B B** C B Bb **F# Gb Gb Gb Gb**
D D **Bb Bb Bb** **G# Ab** A Ab Bb Ab Bb
 (023) (013) (013) (023) (013) (013) (013) (013) (013) (04) (013) (047)

I_9 I_7 T_7 T_2 T_{11} T_2 T_{11}
F F F **A A A** B Bb Eb Ab F# **Ab Ab**
E E Eb C E **F# F# Gb** F Bb **A A** Bb
 G **D D** Bb **G# G#** G Ab **G G G** B G
 (013) (023) (013) (013) (045) (023) (015) (024) (024) (013) (013) (013) (013)

T_4 I_1 I_1 T_1 T_1 T_1
 Ab **B B B** **Db C#** Eb A **C C** **F F F**
 Bb C C# **C C** **D D** Bb D Bb Gb **Eb Eb**
 G **D D D** Eb E F Eb **Ab Ab** Bb D
 (013) (013) (023) (013) (013) (013) (013) (01) (023) (024) (013) (027) (013)

T_{11} T_{11} T_{11} I_4
 F E Eb **D D D D**
D D **C C** F F# F
 Eb **C# Db** B **E E E**
 (013) (013) (013) (013) (023) (024) (023)

Example 6.5a 'Saturn': (013) salience (05:01)

The image displays a musical score for 'Saturn' with annotations for (013) salience. The score is divided into several systems, each with specific annotations:

- System 1:** Shows a melodic line with annotations for (023) {D, E, F}, (013) {B, C, D}, and (013) {Bb, B, Db}. An interval I_4 is indicated between the first and second (013) sets.
- System 2:** Shows a melodic line with annotations for (013) {Bb, B, Db}, (023) {Ab, Bb, B}, (013) {A, Bb, C}, and (013) {G#, A, B}. Intervals I_9 and I_8 are indicated between the first and second (013) sets, and between the second and third (013) sets respectively.
- System 3:** Shows a melodic line with annotations for (013) {G, Ab, Bb}, (013) {F#, G, A}, (013) {F, Gb, Ab}, and (013) {F, Gb, Ab}. Annotations include 'upper contour forms {G, Ab, Bb}', 'neighboring tone embellishment', and '(04) {Gb, Bb} become members of (047) {Gb, Bb, Db}'.
- System 4:** Shows a melodic line with annotations for (047) {Gb, Bb, Db}, (013) {E, F, G}, (023) {D, E, F}, and (013) {D, Eb, F}. An interval I_9 is indicated between the first and second (013) sets, and I_7 between the second and third (013) sets. An annotation 'anticipates {A, Bb, C}' points to the final note.
- System 5:** Shows a melodic line with annotations for (013) {D, Eb, F} and (013) {A, Bb, C}. A triplet of 3 notes and a quintuplet of 5 notes are marked.
- System 6:** Shows a melodic line with an annotation for (013) {A, Bb, C}.

Example 6.5b 'Saturn': (013) salience (05:37)

The musical score is annotated with chordal structures and transformations across five systems:

- System 1:** A single chord (013) with notes {A, Bb, C} is shown above a melodic line.
- System 2:** Shows a sequence of chords: (013) {A, Bb, C} followed by (045) {E, G#, A}, which is noted as a contraction to (023) {F#, G#, A} using common-tones G# and A.
- System 3:** Illustrates transformations between (023) {F#, G#, A} and (015) {F#, G, B} via an F# common-tone. (015) further transforms to (024) {Gb, Ab, Bb} via an F#/Gb common-tone. (01) {G#, A} is shown as voice-leading in contrary motion to (04) {G, B}, which then voice-leads in contrary motion to (02) {Ab, Bb}.
- System 4:** Shows (024) {Eb, F, G} transforming to (013) {G, Ab, Bb} via a G common-tone. This (013) then transforms to another (013) {F#, G, A}.
- System 5:** Shows a final (013) chord {Ab, A, B} and another (013) chord {B, C, D} separated by an interval I_1 .

Example 6.5c 'Saturn': (013) salience (06:06)

06:09

The musical score is annotated with salience labels and set notation across five systems:

- System 1:** Interval l_1 spans from the start to the first (023) salience label {B, C#, D}. A second l_1 spans from the first (013) salience label {B, C, D} to the second (013) salience label {C, Db, Eb}. Annotations include δ^{va} and δ^{va-1} .
- System 2:** (013) salience labels {C, Db, Eb} and {C#, D, E}. Annotations include δ^{va} and δ^{va-1} .
- System 3:** (013) salience labels {C#, D, E}, {D, Eb, F}, and {A, Bb}. Annotations include δ^{va} .
- System 4:** (024) salience label {Ab, Bb, C}, (013) salience label {F, Gb, Ab}, (027) salience label {Eb, F, Bb}, (013) salience label {D, Eb, F}, (013) salience label {C#, D, E}, and (013) salience label {C, Db, Eb}. Annotations include δ^{va} , (02) labels {Eb, F} and {Db, Eb}, and a '2' label.
- System 5:** (013) salience label {C, Db, Eb}, (013) salience label {B, C, D}, (023) salience label {D, E, F}, (024) salience label {D, E, F#}, (023) salience label {D, E, F}, and (025) salience label 'emerges'. Annotations include l_4 , 'expansion', 'contraction', and (02) labels {C, D}, {D, E}, and {D, E}.

Example 6.6a 'Saturn': (025) salience (06:43)

The image displays a musical score for 'Saturn' with annotations for (025) salience and pentatonic scales. The score is divided into four systems, each with specific annotations:

- System 1:** Annotated with 'A minor pentatonic' and 'D minor pentatonic'. It features (025) structures: {D, E, G}, {G, A, C}, {D, E, G}, {G, A, C}, {D, E, G}, {G, A, C}, and {C, D, F}.
- System 2:** Annotated with 'D minor pentatonic'. It features (025) structures: {G, A, C}, {C, D, F} fragment, {Ab, Bb, Db}, {G, A, C}, {C, D, F}, {Bb, C, Eb}, and {C, D, F}.
- System 3:** Annotated with 'Eb minor pentatonic', 'Ab minor pentatonic', and 'B minor pentatonic'. It features (025) structures: {Bb, C, Eb}, {Ab, Bb, Db}, {Db, Eb, Gb}, {Gb, Ab, Cb}, {Bb, C, Eb}, {E, F#, A}, {A, B, D}, {G, A, C}, and {F, G, Bb}.
- System 4:** Annotated with 'ornamentation of (025) structure' and 'chromatic expansion of (025) structure. pitch-class F# replacing G'. It features (025) structures: {F, G, Bb}, {Eb, F, Ab}, {Db, Eb, Gb}, {B, C#, E}, {A, B, D}, (036) {F#, A, C}, and {F, G, Bb}.
- System 5:** Annotated with 'upper chromatic approach' and 'lower chromatic approach'. It features (025) structures: {F, G, Bb}, {Eb, F, Ab}, {Db, Eb, Gb}, and {B, C#, E}.

Example 6.6b 'Saturn': (025) salience (07:08)

The image displays a musical score for 'Saturn' with various annotations. The score is written on a single staff in a treble clef with a key signature of one flat (Bb). The melody consists of eighth and sixteenth notes, with several triplet markings (indicated by a '3' below the notes). Annotations include chord sets in curly braces and their corresponding salience values in parentheses. A dashed box labeled 'B minor pentatonic' encompasses the notes from the fifth measure onwards. An arrow labeled T_8 points from the (027) chord to the (027) chord. A bracket labeled 'prolonged embellishment of (025) {E, F#, A}' spans the final two measures of the score.

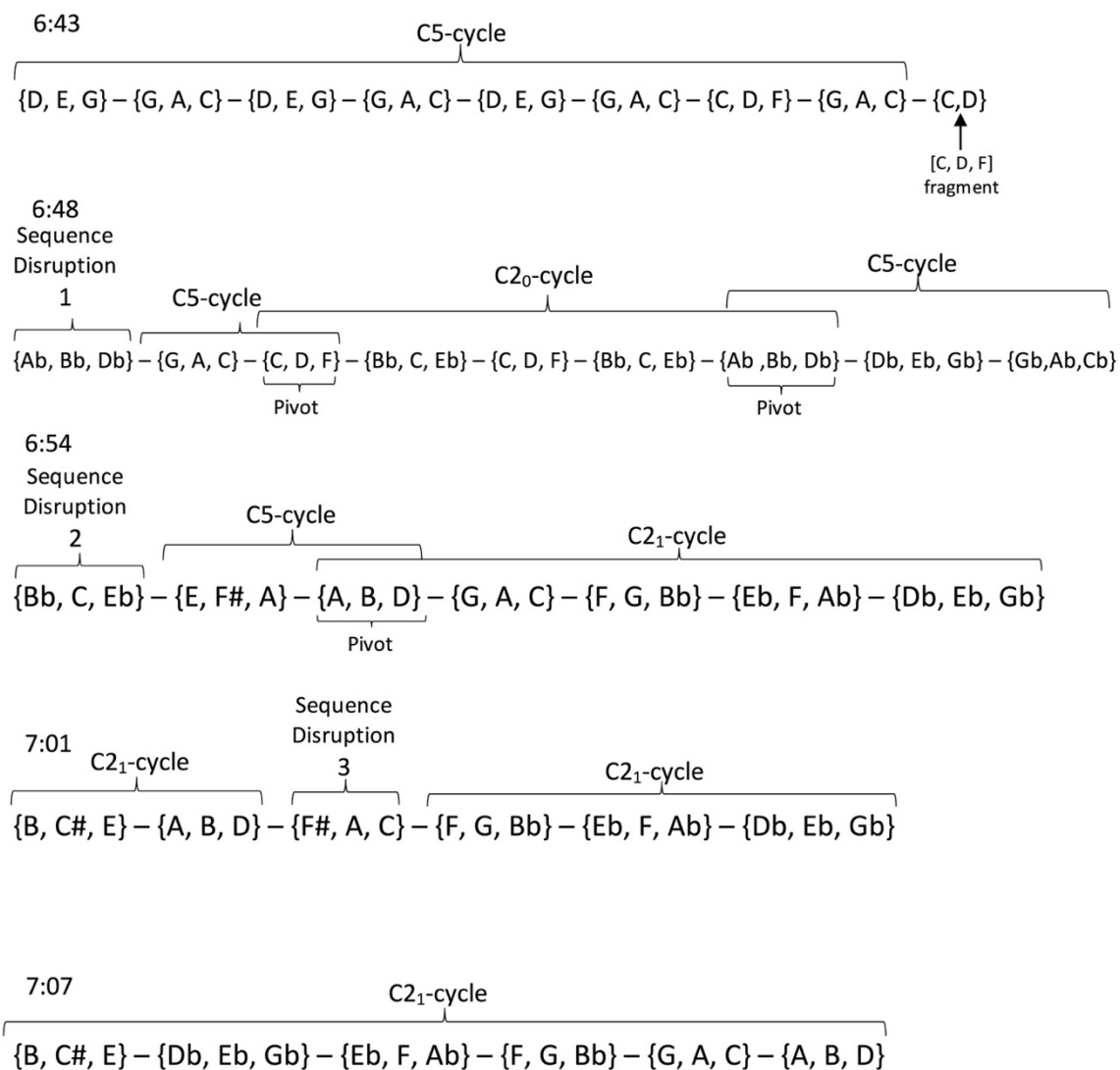
Annotations above the staff:

- (025) {Db, Eb, Gb}
- (025) {Eb, F, Ab}
- (025) {F, G, Bb}
- (025) {G, A, C}
- (025) {A, B, D}
- (027) {E, F#, B}
- (027) {C, D, G}

Annotations below the staff:

- prolonged embellishment of (025) {E, F#, A}

Example 6.7 'Saturn': (025) transpositional sequence (6:43–7:14)



Example 6.8 'Saturn': Ending transition from (025) to (027) (07:08–07:14)

The image displays a musical score analysis for the ending transition from (025) to (027) in 'Saturn'. The score is organized into six horizontal staves, each with specific annotations:

- Staff 1:** Shows the original melodic line with five (025) trichords: {Db, Eb, Gb}, {Eb, F, Ab}, {F, G, Bb}, {G, A, C}, and {A, B, D}. Rhythmic markings include a 2 and three 3s.
- Staff 2:** Labeled 'Tonal Cadence Reference', it shows a V chord (E7) resolving to an I chord (Amin).
- Staff 3:** Labeled 'Expansion of (025) to (027)', it shows the (025) trichord {A, B, D} transitioning to the (027) trichord {E, F#, B}, which then leads to another (027) trichord {C, D, G}. An arrow indicates the start of '(027) exploration'.
- Staff 4:** Labeled 'Prolongation of (025) trichord with B and G# voice-leading to A', it shows a (025) trichord {E, F#, A} with a note held over to facilitate voice-leading.
- Staff 5:** Labeled 'Harmonic shift similar to Slonimsky #827', it shows a B minor pentatonic scale (with trichord {F#, G#, B}) transitioning to an A minor pentatonic scale (with trichord {G, A, C, D}).
- Staff 6:** Labeled 'Slonimsky Exercise #827 segment', it shows a segment of the pentatonic scales with trichords {A, B, D, E} and {G, A, C, D} indicated.

Example 6.9a 'Saturn': (027) salience (07:14)

The musical score is divided into several systems, each illustrating a different pentatonic scale and its relationship to the (027) motif:

- System 1:** Shows the A minor pentatonic scale (motif {C, D, G} at (027) and {E, G, A} at (035)) and the Bb minor pentatonic scale (motif {Eb, F, Bb} at (027)). A 'motive transformed into (027)' is indicated by an arrow, and 'mirror pitch formation' is noted between the two scales.
- System 2:** Shows the Bb minor pentatonic scale (motif {Eb, F, Bb} at (027)) transforming via T_{10} to {Db, Eb, Ab} at (027), and the D minor pentatonic scale (motif {E, F#, B} at (027)) transforming via T_2 to {G, A, D} at (027). Further transformations lead to {F, G, C} and {C, D, G} at (027). A 'referencing previous {E, F#, B} trichord' is noted.
- System 3:** Shows the D minor pentatonic scale (motif {F, G, C} at (027)) and the F minor pentatonic scale (motif {Ab, Bb, Eb} at (027)). A 'fragment' of {C, D, G} is shown. Transformations T_2 lead to {Bb, C, F} at (027). Triplet markings (3) are present.
- System 4:** Shows the G minor pentatonic scale (motif {Bb, C, F} at (027)) transforming via T_2 to {C, D, G} at (027), and the C minor pentatonic scale (motif {Eb, F, Bb} at (027)) transforming via T_2 to {F, G, C} at (027). A motif {Db, Eb, Ab} at (027) is also shown.
- System 5:** Shows the F# minor pentatonic scale (motif {A, B, E} at (027)) transforming via T_2 to {B, C# F#} at (027). A motif {Ab, Bb, Eb} at (027) is also shown. Triplet markings (3) are present.

Example 6.9b 'Saturn': (027) salience (07:40)

Staff 1: E minor pentatonic

- Initial set: (027) {Ab, Bb, Eb}
- Transformation T_2 to (027) {A, B, E}
- Transformation T_2 to (027) {F, G, C}
- Triads: {G, A, D} and {A, B, E} (referencing previous {A, B, E})
- Triads: {F, G, C} and {A, B, E}

Staff 2: G minor pentatonic

- Initial set: (027) {F, G, C}
- Transformation T_2 to (047) {C, E, G}
- Transformation T_2 to (0257) {C, D, F, G}
- Process: contraction of {F, G, C} followed by chromatic embellishment
- Label: destabilizing of (027) structural unity

Staff 3: G minor pentatonic

- Initial set: (027) {Bb, C, F}
- Transformation T_2 to (0257) {F, G, Bb, C}
- Transformation T_2 to (024) {D, E, F#}
- Transformation T_2 to (0257) {F, G, Bb, C}
- Transformation T_3 to (027) {Ab, Bb, Eb}
- Expansion: (027) {F, G, C} to (0357) {Ab, B, Db, Eb}
- Resonance: of ic4 from previous (024) set {D, E, F#}
- Resonance: of ic4 from previous (047) set {C, E, G}
- Triads: (05) {G, C} and (05) {G#, C#}
- Final set: (0257) {Ab, Bb, Db, Eb}

Example 6.10a 'Saturn': Ic4 saturation (07:58)

The image displays a musical score for 'Saturn' with extensive harmonic analysis. The score is written on a single staff in treble clef. The analysis includes the following elements:

- Staff 1:** Shows the initial melodic line with annotations for sets: (0247) {G, A, B, D}, (024) {Ab, Bb, C}, (047) {G, B, D}, (024) {A, B, C#}, (024) {B, C#, D#}, (04) {G, B}, (024) {D, E, F#}, (04) {Db, F}, and (04) {Eb, G}. A bracket labeled 'Oct₁₂ subset' spans the first two sets. A 'WT₁ subset' {A, B, C#, D#} is indicated below the third set. A 'harmonic C# embellishment to the (024) structure' is noted above the fourth set. Another 'WT₁ subset' {B, Db, Eb, F, G} is shown below the fifth and sixth sets.
- Staff 2:** Continues the analysis with a 'WT₀ subset' {Ab, Bb, C, D} above the first set. 'Ab centrality' is noted above the second and third sets. A 'chromatic embellishment of (024)' is indicated below the fourth set. A '(012) {G, Ab, A}' is noted below the fifth set.
- Staff 3:** Shows further analysis with 'Ab centrality' above the first, third, and fourth sets. A note states: 'The temporal displacement of {E, Ab} and {G, B} is brought together in stave four with {E, G#} and {G, B}'. Below the staff, a '(037) {E, G, B}' is noted above the first set, and a '(023) {Ab, Bb, B} contraction of (024) in 1. retaining common tones Ab and Bb' is noted above the second set. A '(024) {Gb, Ab, Bb}' is noted above the third set.
- Staff 4:** The final staff of analysis, showing 'Ab centrality' above the first set. A 'chromatic approach' is noted below the first set, with '(034) {Ab, B, C}' and '(047) {E, G#, B}' indicated. Below the staff, a '(047) {G, B, D}' is noted. The entire staff is bracketed as 'Hex₃₄ (with harmonics)'.

Example 6.11a 'Saturn': Trichordal integration and interval projection (08:05)

The musical score is annotated with trichord sets and transformations:

- System 1:**
 - Trichord sets: $(04) \{E, G\# \}$, $(04) \{G, B \}$, $(047) \{Ab, C, Eb \}$, $(047) \{E, G\# \}$, $(04) \{G, B \}$, $(047) \{D, F\#, A \}$, $(047) \{F, A, C \}$, $(04) \{Eb, G \}$, $(04) \{F, A \}$.
 - Intervals: T_3 , T_3 .
 - Label: "chromatic approach".
- System 2:**
 - Trichord sets: $(047) \{F, A, C \}$, $(05) \{C, F \}$, $(025) \{C, D, F \}$, $(025) \{B, Db, E \}$, $(035) \{Bb, Db, Eb \}$, $(024) \{B, Db, Eb \}$, $(04) \{F, A \}$, $(05) \{G, C \}$, $(05) \{C, F \}$, $(05) \{B, E \}$, $(02) \{Db, Eb \}$, $(05) \{Bb, Eb \}$, $(02) \{Db, Eb \}$, $(02) \{Db, Eb \}$.
 - Intervals: T_{11} , I_2 , T_5 , T_{11} , T_{11} .
 - Label: "embellishment of {C, F} with D".
- System 3:**
 - Trichord sets: $(024) \{B, Db, Eb \}$, $(013) \{C, Db, Eb \}$, $(035) \{Bb, Db, Eb \}$, $(035) \{G, Bb, C \}$, $(035) \{Bb, Db, Eb \}$, $(035) \{G, Bb, C \}$.
 - Intervals: Oct_{01} , $(02) \{Db, Eb \}$, $(02) \{Db, Eb \}$.
- System 4:**
 - Trichord sets: $(035) \{Bb, Db, Eb \}$, $(035) \{G, Bb, C \}$, $(035) \{Bb, Db, Eb \}$, $(035) \{G, Bb, C \}$, $(035) \{E, G, A \}$, $(035) \{Bb, Db, Eb \}$, $(035) \{E, G, A \}$.
 - Intervals: Oct_{01} .

Example 6.11b 'Saturn': Trichordal integration and interval projection (08:19)

The image displays a musical score for 'Saturn' with detailed annotations for trichordal integration and interval projection. The score is divided into five systems, each with a treble clef and a key signature of one flat (Bb).

- System 1:** Shows a sequence of trichords: (035) {E, G, A} → (025) {F, G, Bb} → (035) {Eb, Gb, Ab}. Further right, (035) {C, Eb, F} and (035) {Bb, Db, Eb} are shown. A dashed line above indicates the 'C minor pentatonic' scale.
- System 2:** Continues with (035) {G, Bb, C}, (035) {C, Eb, F}, (035) {G, Bb, C}, and (035) {C, Eb, F}. A note with an 'x' is marked as the 'projection of (02) as subset of (035)'. A transition is labeled 'contraction from (035) to (013) retaining common-tones Bb and C', leading to (013) {A, Bb, C}. Below, (05) {C, F} and (05) {G, C} are shown with arrows indicating projection.
- System 3:** Features (024) {G, A, B}, (024) {D, E, F#}, (024) {Db, Eb, F}, and (02) {Ab, Bb} fragment. A note is marked 'anticipates {D, E, F#}'. Below, (04) {G, B} is noted as a 'contraction from (05) to (04)'. Further down, (024) {Ab, Bb, C} fragment is shown.
- System 4:** Shows (024) {Ab, Bb, C}, (024) {E, F#, G#}, (047) {C, E, G}, (024) {E, F#, G#} fragment, and (047) {Bb, D, F}. Triads are marked with '3'. Transpositions are indicated: (04) {E, G#} → (04) {C, E} (T₈) → (04) {E, G#} (T₄) → (04) {Bb, D} (T₁₀) → (04) {Bb, D} (T₇).
- System 5:** Includes (047) {Bb, D, F}, (047) {F, A, C}, (05) {D, G}, (04) {D, F#}, (04) {C, E}, (04) {A, C#}, (04) {F#, A#}, (04) {Eb, G}, and (04) {C, E}. A dashed line above indicates 'C3₀'. Below, (04) {F, A} (T₇) and (03) {E, G} are shown. A bracket indicates 'projection of three subsets of (047)'. A large arrow at the bottom is labeled 'emergence of (04)'.

Example 6.11c 'Saturn': Trichordal integration and interval projection (08:47)

The image displays a musical score for 'Saturn' with four staves of music, each annotated with trichordal integration and interval projection. The annotations include set classes, cardinalities, and transformations.

Staff 1: Shows a sequence of trichords: $(04) \{C, E\}$, $(04) \{A, C\# \}$, $(04) \{G\flat, B\flat \}$, $(04) \{E\flat, G \}$, $(04) \{D, F\# \}$, $(04) \{D\flat, F \}$, and $(04) \{B, D\# \}$. A dashed line labeled $C3_0$ spans the first three trichords, and another labeled $C1$ spans the last two. An arrow points to the $(04) \{D\flat, F \}$ trichord with the text "omission of {C, E} from pattern".

Staff 2: Shows a sequence of trichords: $(04) \{B\flat, D \}$, $(04) \{A, C\# \}$, $(04) \{C, E \}$, $(04) \{E\flat, G \}$, $(04) \{G, B \}$, $(04) \{B\flat, D \}$, and $(04) \{A, C\# \}$. A dashed line labeled $C1$ spans the first two, and another labeled $C3_0$ spans the next three. A transformation T_{11} is indicated between the $(04) \{B\flat, D \}$ and $(04) \{A, C\# \}$ trichords. A bracket below the $(04) \{C, E \}$ trichord is labeled $(03) \{C\#, E \}$, and a larger bracket below the $(04) \{E\flat, G \}$ and $(04) \{G, B \}$ trichords is labeled "subset of Hex_{23} ".

Staff 3: Shows a sequence of trichords: $(04) \{A, C\# \}$, $(04) \{G, B \}$, $(04) \{F, A \}$, and $(035) \{F\#, A, B \}$. A dashed line labeled $C2_1$ spans the first three. A bracket below the $(04) \{A, C\# \}$ and $(04) \{G, B \}$ trichords is labeled "B and A integrated as members of $\{F\#, A, B \}$ ".

Staff 4: Shows a sequence of trichords: $(03) \{F\#, A \}$, $(03) \{F, A\flat \}$, $(03) \{E, G \}$, $(035) \{C\#, E, F\# \}$, $(05) \{C\#, F\# \}$, and $(05) \{G, C \}$. A transformation T_6 is indicated between the $(05) \{C\#, F\# \}$ and $(05) \{G, C \}$ trichords. A bracket below the $(03) \{F\#, A \}$ and $(03) \{F, A\flat \}$ trichords is labeled "projection of (03) subset of $\{F\#, A, B \}$ ". A larger bracket below the $(03) \{E, G \}$ and $(035) \{C\#, E, F\# \}$ trichords is labeled "E and (03) as components of $\{C\#, E, F\# \}$ ".

Example 6.12a 'Saturn': (0257) supersets and ic2 voice-leading (09:09)

9:09

(0257) {B, C#, E, F#} (0257) {G, A, C, D}

(035) {C#, E, F#} (027) {C, D, G} (0257) {B, C#, E, F#} (035) {A, C, D}

(02) dyad structures

WT₁ voice-leading

WT₀ voice-leading

(0257) {B, C#, E, F#} (0257) {G, A, C, D} (0257) {G, A, C, D} (0257) {F, G, Bb, C} emerges in next system

(035) {C#, E, F#} fragment (035) {G, Bb, C} (035) {G, Bb, C}

(02) dyad structures

WT₁ voice-leading

WT₀ voice-leading

Example 6.12b 'Saturn': (0257) supersets and ic2 voice-leading (09:17)

(0257) {G, A, C, D}

(0257) {F, G, Bb, C}

(0257) {Eb, F, Ab, Bb}

(024) emerges as a projection of ic2

(035) {G, Bb, C}

(027) {Eb, F, Bb}

(035) {F, Ab, Bb}

(024) {Gb, Ab, Bb}

chromatic approach

anticipates {F, G, Bb, C}

8va

(02) dyad structures

(01) dyad structures emerge

WT₁ voice-leading

WT₀ voice-leading

dyad {Ab, Bb} used as common-tone pivot between pc sets

(035) {F, Ab, Bb}

(024) {Gb, Ab, Bb}

(035) {F, Ab, Bb}

(024) {Gb, Ab, Bb}

(035) {F, Ab, Bb}

(024) {Gb, Ab, Bb}

(035) {F, Ab, Bb}

(024) {Gb, Ab, Bb}

(035) {F, Ab, Bb}

(035) {F, Ab, Bb}

(02) & (01) dyad structures in two registers

WT₁ voice-leading

WT₀ voice-leading

Example 6.12c 'Saturn': (0257) supersets and ic2 voice-leading (09:28)

(0257) {Bb, C, Eb, F}

(027) {Eb, F, Bb}

(035) {C, Eb, F}

(0257) {Ab, Bb, Db, Eb}

(035) {Bb, Db, Eb}

(025) {Ab, Bb, Db}

(0257) {Bb, C, Eb, F}

(027) {Eb, F, Bb}

(035) {C, Eb, F}

{Eb, F, Bb} synthesised in next section

(02) dyad structures

WT₁ voice-leading

WT₀ voice-leading

Example 6.13a 'Saturn': Pentatonic emergence and pc-set heterogeneity (09:32)

The musical score is annotated with the following elements:

- System 1:**
 - Annotations: (01) {F#, G}, (02479) {Db, Eb, F, Ab, Bb}, (01) {F#, G}
 - Intervallic labels: δ^{va} , 3
 - Text: "preceding sets {Bb, Db, Eb}, {Ab, Bb, Db}, and {Eb, F, Bb} are synthesized into one pentatonic superset"
 - Annotations below staff: (035) {Bb, Db, Eb}, (027) {Eb, F, Bb}, (025) {Ab, Bb, Db}
- System 2:**
 - Annotations: (01) {F#, G}, (02479) {Gb, Ab, Bb, Db, Eb}, (01) {F#, G}, (02479) {Gb, Ab, Bb, Db, Eb}
 - Intervallic labels: δ^{va} , T_4
 - Text: "incomplete {Db, Eb, F, Ab, Bb}"
 - Annotations below staff: (02479) {Gb, Ab, Bb, Db, Eb}, (01) {F#, G}, (02479) {Gb, Ab, Bb, Db, Eb}, (0357) {Bb, Db, Eb, F}, (02479) {G, A, B, D, E}, (01) {Bb, B}
 - Text: "suggestive of a blues sonority", "(035) emerges in next phrase", "{Bb, B} anchor emerges"
 - Text: "lower contour voice-leading"
- System 3:**
 - Annotations: (035) {B, D, E}, (027) {E, F#, B}, (026) {E, F#, Bb}, (027) {E, F#, B}, (035) {B, D, E}, (046) {Bb, D, E}, (035) {B, D, E}
 - Intervallic labels: (026) {E, F#, Bb}
 - Text: "{Bb, B} anchor", "(02) dyads", "{Bb, B} anchor"
 - Text: "ic2 lower voice-leading"

Example 6.13b 'Saturn': (027) and pentatonic supersets (09:42)

from previous system → (056) {E, A, Bb} → (035) {B, D, E} T_{11} → (035) {Bb, Db, Eb} → (027) {Ab, Bb, Eb} → (027) {Bb, C, F} → (027) {G, A, D} → (027) {A, B, E} → (027) {B, C#, F#}

(02479) {Ab, Bb, C, Eb, F} (02479) {G, A, B, D, E}

Bb anticipates harmonic shift → (02479) {Db, Eb, F, Ab, Bb} (02479) {A, B, C#, E, F#}

P4/P5 Sequence

1. 2. 3.

synthesis of {Bb, B} anchor

WT₀ voice-leading

WT₁ voice-leading

A Anchor Db/C# Anchor

Sequence 1: G D A E B F# Db Ab Eb Bb F C

Sequence 2: G D A E B F# Db Ab Eb Bb F C

Sequence 3: G D A E B F# C# Ab Eb Bb F C

Example 6.13c 'Saturn': (027) and pentatonic supersets (09:47)

(02479) {Db, Eb, F, Ab, Bb}

(02479) {E, F#, G#, B, C#}

(027) {Ab, Bb, Eb}

(027) {Db, Eb, Ab}

(027) {Eb, F, Bb}

(027) {Db, Eb, Ab}

(027) {Eb, F, Bb}

(027) {Db, Eb, Ab}

(027) {E, F#, B}

(027) {F#, G#, C#}

pattern anomaly alluding to the 6th scale degree of Bb Dorian minor

P4/P5 Sequence

4. 5. 6. 7. 8.

(02) projection

{Bb, B}

ic2 voice-leading

{Db, Ab} Anchor

Sequence 4: E B F# Db Ab Eb Bb F

Sequence 5: E B F# Db Ab Eb Bb F

Sequence 6: E B F# Db Ab Eb Bb F

Sequence 7: E B F# Db Ab Eb Bb F

Sequence 8: E B F# C# G# Eb Bb F

Example 6.13d 'Saturn': Heterogeneous pc-sets, (02) projection, and voice-leading (09:52)

The image displays a musical score for 'Saturn' with detailed annotations for pitch-class sets and voice-leading. The score is organized into several horizontal sections:

- Top Section:** A complex network of pc-sets and transformations.
 - Top row: (02479) {Gb, Ab, Bb, Db, Eb} → (0346) {Ab, B, C, D} → (0246) → (0247) → (027) → (027) → (027) → (027) → (027) → (027)
 - Second row: (047) {Gb, Bb, Db} → (027) {Db, Eb, Ab} → (013) {B, C, D} → {Ab, Bb, C, D} → {C, D, E, G} → {E, F#, B} → {Eb, F, Bb}
 - Third row: (026) {B, Db, F} (compression of {B, C#, F#}) → (02) {Db, Eb} → (02) {C, D} → (02) {Ab, Bb} → (02) {C, D} → (02) {E, F#} → (02) {Eb, F}
 - Transformations: T₁₁, T₈, T₄, T₄, T₁₁
 - Operations: B maps to Bb, expansion, subset generation, WT₀
- Second Section:** Labeled "upper-register chromatic voice-leading/lower-register (02) anchors". It shows a melodic line with chromatic movement in the upper register and anchored notes in the lower register.
- Third Section:** Labeled "(02) projection". It shows a melodic line with a specific projection of the (02) set.
- Fourth Section:** Labeled "prolonged voice-leading". It shows a melodic line with long intervals and sustained notes.
- Fifth Section:** A detailed view of voice-leading between pc-sets.
 - Top row: (027) {Eb, F, Bb} → (035) {A, C, D} → (046) {A, C#, D#}
 - Bottom row: (02) {C, D} → (02) {C#, D#}
 - Transformation: T₁
- Sixth Section:** Labeled "prolonged voice-leading". It shows a melodic line with long intervals and sustained notes, corresponding to the voice-leading in the fifth section.

Example 6.13e 'Saturn': Heterogeneous pc-sets, (02) projection, and voice-leading (10:01)

compression sharing ic2
and ic4 between T_n -types

(046) (035) (027) (024) (046) (024)

{A, C#, D#} {C, Eb, F} {E, F#, B} {E, F#, G#} {E, G#, A#} {Db, Eb, F}

(02) projection

prolonged voice-leading

(024579)

{Ab, Bb, C, Db, Eb, F}

(024) (024) (013) (025) (024) (02479) (024)

{Db, Eb, F} {Bb, C, D} {B, C, D} {C, D, F} {Ab, Bb, C} {Db, Eb, F, Ab, Bb} {Db, Eb, F}

(02) projection

prolonged voice-leading

Example 6.13f 'Saturn': (024579) emergence (10:12)

(024579) $\{Ab, Bb, C, Db, Eb, F\}$ $\xrightarrow{T_{10}}$ (024579) $\{Gb, Ab, Bb, Cb, Db, Eb\}$

(02479) $\{Db, Eb, F, Ab, Bb\}$

(024) $\{Db, Eb, F\}$ (027) $\{Ab, Bb, Eb\}$ (027) $\{Db, Eb, Ab\}$ (024) $\{Cb, Db, Eb\}$ (024) $\{Gb, Ab, Bb\}$ (024) $\{Cb, Db, Eb\}$ (024) $\{Gb, Ab, Bb\}$ fragment (024) $\{Cb, Db, Eb\}$ fragment (024) $\{Gb, Ab, Bb\}$ fragment

(02) projection