



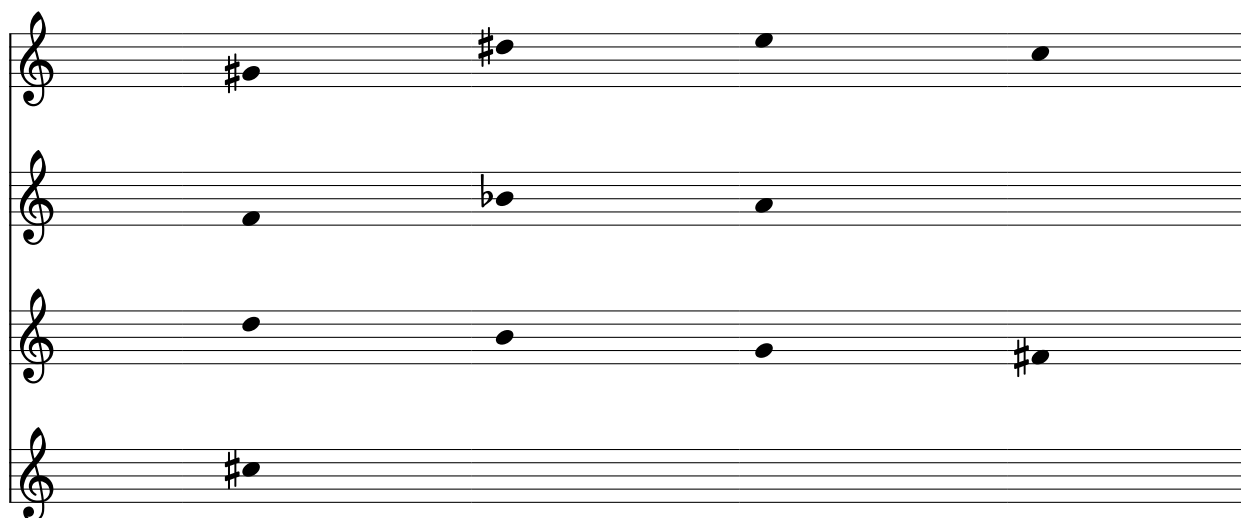
A JOURNAL OF THE SOCIETY FOR MUSIC THEORY

MTO 26.2 Examples: Mailman, Portmantinality and Babbitt's Poetics of *Double Entendre*

(Note: audio, video, and other interactive examples are only available online)

<https://mtosmt.org/issues/mto.20.26.2/mto.20.26.2.mailman.html>

Example 1. Partial ordering of the first aggregate of the piano middle-register four-lyne array of *Whirled Series*. Only within each lyne is the ordering restricted; ordering between pitches in different lynes is free.



Example 2. *Whirled Series*'s first partial ordering realized as a scale (or pseudo-raga)



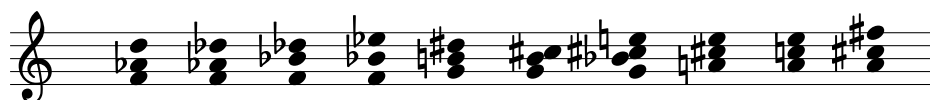
Example 3. *Whirled Series's* first partial ordering realized as arpeggios



Example 4. *Whirled Series's* first partial ordering as arpeggios with recurrence

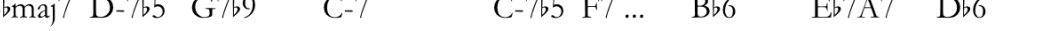


Example 5. *Whirled Series's* first partial ordering as a tertian chord progression.



Example 6. *Whirled Series's* first partial ordering as approximation (fragments) of the 1934 melody “My Old Flame”

Bbmaj7 D-7b5 G7b9 C-7 C-7b5 F7 ... Bb6 Eb7A7 Db6 G7b9



My old flame I can't even think of his name ... funny now and then how my thoughts go flashing back again

Example 7. *Whirled Series's* first partial ordering realized as an approximation (fragments) of the 1932 melody “I’ve Told Ev’ry Little Star”

D $\flat$ 6 B $\flat$ -7 E $\flat$ -7 A $\flat$ 7 ... F-7 B $\flat$ -7 E $\flat$ -7 A $\flat$ 7 D $\flat$ 6 B $\flat$ -7 E $\flat$ 7 A $\flat$ maj7
 I've told ev'ry lit-tle star Why have n't I told you? Friends ask me; am

B $\flat$ -7 E $\flat$ 7 A $\flat$ maj7 A $\flat$ maj7 $\sharp$ 5 A $\flat$ o7 G-7 $\flat$ 5 C7 $\flat$ 9 Fmaj7G-7 $\flat$ 5 C7 $\flat$ 9 Fmaj7
 I in love? I al - ways an - swer "Yes." Might as well con - fess. If I don't they guess.

Example 8. The E $\flat$ and B $\flat$ chords in Babbitt's Quartet No. 6, mm. 24–26

E $\flat$ major B $\flat$ major 7

Example 9. Babbitt's Quartet No. 6, mm. 258–63

(258)

A minor F# minor

C minor G minor

Example 10. Babbitt's Quartet No. 5 (1982), final measures (mm. 462–69)

The image displays a handwritten musical score for the final measures (mm. 462–69) of Babbitt's Quartet No. 5. The score is organized into two systems, each with four staves. The first system is labeled 'C#minor' and 'Bbmajor 7th (incomplete)'. The second system is labeled 'F major', 'C minor', 'F major', and 'B major'. The notation includes various musical symbols such as notes, rests, and dynamic markings like *mp*, *ppp*, and *f*. The score is written in a complex, non-standard notation, characteristic of Babbitt's style.

Example 11. Babbitt's four-lyne all-partition array, as used in *Whirled Series*.

Measure numbers refer to the realization of the array in the piano's middle register in *Whirled Series*

m.1	m.4	m.8	m.11	m.14	m.24	m.27	m.36	m.47	m.59
RT₁P 8 3 4 0 7 e	9 2 5 6 t 1		7 3 0	T₃P 8 e 3 4 7 0 t 2 9 5			6	1	RT₆P e 4 3
RT₆P 5 t 9 1 6 2	4 e 8			T₁P 1			t	6 5 2 9 e 7 0 4 3 8	RT₁P 6 1
T₂P 2 e 7 6 3 t	0		8 1 5 4 9	RT₁P 6		e t 2 7 3	5 0 9 8 4 1	t	T₇P 7 t 2
T₇P 1	4 8 9 0 5	3 7	2 t e	6 RT₁P 5		0 1 9 4 8 6	e 2 3 7	t	T₆P 0 9 5
m.1	m.4	m.8	m.11	m.14	m.24	m.27	m.36	m.47	m.72
² 4 3 1	² 5 3 2	6 3 2 1	² 6 3	9 2 1		6 5 1	² 6 4 1	² 10 1	⁴ 3

m.61	m.67	m.69	m.71	m.95	m.101	m.104	m.108	m.110
7 0	0	8 t 5 2 1 9 6	T₆P e		e 8	4 3 0 7 9 5 t 2 1 6		6 RT₆P 4 e 0 8 3 7 5 t 1
2 t 5 9 7	7 0 3 4		8 e T₆P 6 9 1			1 2	5 t 8 0 7 3 4 e	RT₆P 9 9 2
3 6 e	9 1 8 4 5		5 0 RT₆P 3 t	t e 7 2 6 4 4 9 0 1 5	8 T₆P 6			
4 1 8	t 6 e 3 2		2 7 RT₆P 4	9 8 0 5 1 3 3 t 7 6 2	e			
m.73	m.76		m.95	m.98	m.101	m.104		
² 4 3 2	² 5 1	8 4	² 5 4 3	² 6	² 5 2	² 7 2 1	9 3	10 2

m.114	m.117	m.120	m.132	m.137	m.140	m.143	m.145
1	2	6 9	9 T₆P 0	0 3 7 8 e 4 2		6 1	1 9 t 5
6 3 e t 7 2 4 0 5 9 8 1	5 t 6 8 3 0 e 7 4		4 T₃P 5 2	t 9 6 1	3 e	e	4 8 7 0 RT₁P 2
		RT₆P 2 7	7 6 t 3 e 1 8	5	5 4 0 9	T₃P 3	6
T₃P 9		0 4 5 8 1 e 3 t			t 6 7 2 RT₆P 1 8 9 5 0 4 2 7 t		e 3
m.123	m.127	m.128	m.149	m.151	m.152	m.154	m.157
11 1	³ 9 1	² 8 2	7 3 2	7 4 1	6 4 2	² 8 2 1	5 4 2 1

m.160	m.168	m.178	m.198	m.201	m.203	m.206
RT₂P 7 0 e	3 8 4 6 1 t 9 5		2 T₃P 3 0 8 7 4 e	1 9	1 9	2 6 5 t
2		9 t 6 1 5 3 8 e 0 4 7	5 9 t 1	6	4 8	3 e 0 7
t	e 2 7		6 7	3 t 2	0 5	8 9 1 4
3 6 T₄P 4 1 9 8 5 0		5 9 4 0 1 8 RT₁P e	e RT₆P 4	9 8 0 5 3 t 7 6 2 e		
m.160	m.168	m.193	m.208	m.212	m.216	m.221
² 7 3 1	8 3 1	12	² 4 2	² 5 3 1	³ 6 2	³ 4

Example 12. The row on which Babbitt's four-lyne all-partiton array is based.

Its discrete trichords are two [037] types followed by two [015] types, plus an additional [037] trichord in the second half of the row. Even the [015] discrete trichords in the second half of the row can be voiced as incomplete major 7th chords.

(The inversion of the row can also be rendered as "tonal" chords.)

Diagram illustrating the row of Example 12, showing discrete trichords and their chordal interpretations:

- Trichord 1: [037] (C minor)
- Trichord 2: [037] (E major)
- Trichord 3: [015] (D maj7 (inc.))
- Trichord 4: [015] (B♭ maj7 (inc.))
- Trichord 5: [037] (F# minor)

Diagram illustrating the row of Example 12, showing discrete trichords and their chordal interpretations:

- ops 0–2: T₀P (C min)
- ops 3–5: E maj
- ops 6–8: D maj⁷
- ops 9–11: B♭ maj⁷

Diagram illustrating the row of Example 12, showing discrete trichords and their chordal interpretations:

- ops 0–2: T₀IP (F maj)
- ops 3–5: C# min
- ops 6–8: B maj⁷
- ops 9–11: E♭ maj⁷

Example 13. Tonal suggestiveness of Babbitt's four-lyne all-partiton array row: the entire 7-note A major scale, and with continuous segments that assert or suggest V^7 , IV^7 , and I in that key. (In retrograde, this produces a grammatical cadential progression: $I-IV-V$.) And order positions 4 through 9 form the A-major Guidonian hexachord *ut re mi fa sol la*. The inversion of the row enables a $ii-V-I$ progression, the most standard progression in jazz and American popular song.

7-note diatonic collection of A major

Guidonian hexachord (*ut=A*)

re sol fa la mi ut

(a)

(b)

(c)

Example 14. The tetrachords formed by overlapping order positions
(ops 0–3, 3–6, 6–9, and 8–11) can be voiced convincingly as mildly dissonant
tertian harmonies heard in jazz and American popular song

ops 0–3 3–6 6–9 8–11				ops 0–3 3–6 6–9 8–11			
A$\flat$ maj⁷ E⁷ D maj⁷ B$\flat$ min/maj⁷				F maj⁷ C$\sharp$ min⁷ B maj⁷ E$\flat$ maj^{7#5}			

Example 15. Babbitt's *Canonical Form* (1983), mm. 19–24, cadential gesture in mm. 20–21

A major		D major		F $\sharp$ minor	
i - V - i					
F$\sharp$ maj/min [014]		A minor		B minor^{b13}/ G maj/min [01458]	
				B minor	

Example 17. For the entrances of non-chord tones, both excerpts obey the partial ordering $\langle F, \{D\flat, C\} \rangle$

Monk's *Round Midnight* (main melody, post-introduction)

Babbitt's *Gloss on Round Midnight* (2001) mm. 1-2 (downbeat)

Example 18. Octave doublings in *Whirled Series*, mm. 99–106, forged by aligning pitches of the piano and sax arrays

from Saxophone

RP_e E A G# C F D# Eb | Eb Bb G F# D B

array

99

sax (in C)

piano

102

105

Lyne from
Piano array

RP_e E | A G# C F D# Eb | Eb Bb G F# D B

Example 19. Portions of *Whirled Series*'s saxophone array and piano middle register array that coincide, providing the opportunity to use octave doublings to highlight segment $\langle F, D\flat, E\flat, B\flat, G, F\sharp, D, B \rangle$ of row form RP_e using octave doublings

Saxophone array

2 7	RP_e 4 9	9 8 0	5 1 3	3 t 7 6 2	e	$P1$ 1
5 0	$RI8$ 3	t e 7 2 6 4	4 9 0 1 5	8		
<i>m. 95</i>		<i>m. 98</i>		<i>m. 101</i>		<i>m. 104</i>
5 4 3		² 6		² 5 2		² 7 2 1

Row segment articulated through octave doubling
 

Piano middle registers array

<i>m. 71</i>	<i>m. 95</i>		<i>m. 101</i>	<i>m. 104</i>
<i>le e</i>			e 8	4 3 0 7 9
	8 e $P6$ 6 9 1			1 2
	5 0 $RI8$ 3 t	t e 7 2 6 4	4 9 0 1 5	8 $I6$ 6
	2 7 RP_e 4	9 8 0	5 1 3	3 t 7 6 2 e
	<i>m. 95</i>	<i>m. 98</i>	<i>m. 101</i>	<i>m. 104</i>

Example 20. The piano part of *Whirled Series*, at mm. 4–7, with *recurrence*, *infusion*, and *permeation* analyzed. Only G5, B4, and B♭3 permeate the passage.

Number of recurrences	Infusions												Number of infusions	Permeating
	E3	F3	G#3	A3	B♭3	C4	D#4	F#4	B4	D♭5	D5	G5		
1	G5												1	✓
1	D5												0	
0	D♭5												0	
3	B4												6	✓
0	F#4												0	
0	D#4												0	
0	C4												0	
1	B♭3												5	✓
0	A3												0	
0	G#3												0	
0	F3												0	
0	E3												0	

Example 21. This example compares tonal prolongation and pitch permeation in outer voices.

Both are indicated with dashed slurs (blue for tonal prolongation and green for pitch permeation). (a) Blue noteheads are prolonged by red ones, which in this case are neighbor tones. (b) Green noteheads permeate; they are infused by the orange noteheads, because the orange noteheads are sandwiched between occurrences of the green noteheads.

(a) Tonal prolongation

Example 21(a) is a musical score in 4/4 time, featuring two staves (treble and bass clef) with a key signature of two flats. The score illustrates tonal prolongation using blue and red noteheads. In the first measure, the treble staff has a blue note on G4 and the bass staff has a blue note on G3. In the second measure, the treble staff has a red note on A4 and the bass staff has a red note on A2. In the third measure, the treble staff has a blue note on G4 and the bass staff has a blue note on G3. In the fourth measure, the treble staff has a black note on F#4 and the bass staff has a black note on F#3. In the fifth measure, the treble staff has a blue note on G4 and the bass staff has a blue note on G3. In the sixth measure, the treble staff has a red note on A4 and the bass staff has a red note on A2. In the seventh measure, the treble staff has a blue note on G4 and the bass staff has a blue note on G3. In the eighth measure, the treble staff has a black note on F#4 and the bass staff has a black note on F#3. Dashed blue slurs connect the blue noteheads in the treble staff (measures 1, 3, 5, 7) and the red noteheads in the bass staff (measures 2, 4, 6, 8).

(b) Pitch permeation

Example 21(b) is a musical score in 4/4 time, featuring two staves (treble and bass clef) with a key signature of two flats. The score illustrates pitch permeation using green and orange noteheads. In the first measure, the treble staff has a green note on G4 and the bass staff has a green note on G3. In the second measure, the treble staff has an orange note on A4 and the bass staff has an orange note on A2. In the third measure, the treble staff has a green note on G4 and the bass staff has a green note on G3. In the fourth measure, the treble staff has a black note on F#4 and the bass staff has a black note on F#3. In the fifth measure, the treble staff has a green note on G4 and the bass staff has a green note on G3. In the sixth measure, the treble staff has an orange note on A4 and the bass staff has an orange note on A2. In the seventh measure, the treble staff has a green note on G4 and the bass staff has a green note on G3. In the eighth measure, the treble staff has a black note on F#4 and the bass staff has a black note on F#3. Dashed green slurs connect the green noteheads in the treble staff (measures 1, 3, 5, 7) and the orange noteheads in the bass staff (measures 2, 4, 6, 8).

Example 22. (a) *Whirled Series* mm. 1–7 score; (b) all the pitch events in these measures with *permeating* pitches connected by dotted slurs. (Pitches from different lynes are notated on separate staves.)

Sax in C

Piano

(a)

ARRAYS
relative ordering realizations

SAX

PIANO upper mid

PIANO lower mid

The most permeating pitches

(b)

Example 24. (a) All the pitch events of mm. 1–14 (pitches from different lynes are notated on separate staves) and
 (b) a reduction based on *pitch permeation* as filtering rule. That is, it includes all and only permeating pitches (pitches connected by dotted slurs in the example above). Non-permeating pitches included in the reduction are indicated in grey noteheads.

ARRAYS
relative ordering realizations

SAX

PIANO
upper mid

PIANO
lower mid

15

The most permeating pitches

SC [01458]
and literally the first pentachord of row forms I₁ and RI_e

Piano

Example 25. *Whirled Series*, mm. 1–14. Reduction based on pitch permeation as filtering rule, with tertian chordal analysis

Chord symbols for measures 1–14:

Measure	Chord Symbol
1	F# M7 ^{b13} / Bb maj/m ^{b6}
2	C#mM7 Amaj/m Amaj
3	C#mM7 Amaj/m Amaj
4	C#mM7 Amaj/m Amaj
5	Aug BbmM7 / Amaj ^{b9} DAdd6 Gmaj/m Dm Cmaj/m
6	Aug BbmM7 / Amaj ^{b9} DAdd6 Gmaj/m Dm Cmaj/m
7	Aug BbmM7 / Amaj ^{b9} DAdd6 Gmaj/m Dm Cmaj/m
8	Cmaj
9	Cmaj
10	Fm Bbm ^{b13} /GbmM7 DbmM7 Bm Ebm
11	Fm Bbm ^{b13} /GbmM7 DbmM7 Bm Ebm
12	DbmM7
13	Fm ⁷ AmM7 F# maj
14	Fm ⁷ AmM7 F# maj

Section 1: A major/Lydian (Measures 1–7)

Section 2: G→C minor (major) (Measures 8–11)

Section 3: G^b/F[#] Lydian (Measures 12–14)

Example 26. *Whirled Series*, mm. 11–14, permeating pitches F $\sharp$, B $\flat$, D $\flat$, G $\sharp$, and C suggest an F $\sharp$ /G $\flat$ Lydian harmony amplified in m. 14 by an F $\sharp$ /G $\flat$ major triad created through a registral exchange of the three triadic permeating pitches.

The musical score is divided into five systems, each with a label on the left:

- Sax in C**: Measures 11-14. Measure 11 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp*. Measure 12 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *pp*. Measure 13 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp*. Measure 14 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *mf*.
- Piano**: Measures 11-14. Measure 11 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp pp*. Measure 12 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *p*. Measure 13 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp*. Measure 14 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *mf*.
- SAX**: Measures 11-14. Measure 11 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp*. Measure 12 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *pp*. Measure 13 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp*. Measure 14 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *mf*.
- PIANO upper mid**: Measures 11-14. Measure 11 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp*. Measure 12 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *pp*. Measure 13 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp*. Measure 14 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *mf*.
- PIANO lower mid**: Measures 11-14. Measure 11 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp*. Measure 12 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *pp*. Measure 13 has a triplet of eighth notes (F $\sharp$, B $\flat$, D $\flat$) marked *mp*. Measure 14 has a triplet of eighth notes (G $\sharp$, C, B $\flat$) marked *mf*.

A large purple bracket highlights a specific melodic line across the SAX and PIANO upper mid staves, with a dashed line indicating a registral exchange in measure 15.

Example 27a. Recomposition ("Churl(ed) Seeger") of *Whirled Series* mm. 1–14, using the original array, rhythms, and dynamics, with different pitch alignments and recurrences

The musical score for Example 27a is presented in three systems, each in 3/4 time. The first system (measures 1-4) features a Sax in C staff and a Piano staff. The Sax in C part begins with a triplet of eighth notes (G4, A4, B4) marked *pp*, followed by a half note (C5) marked *pp*. The Piano part starts with a half note (G3) marked *pp*, followed by a half note (A3) marked *pp*. The second system (measures 5-8) features a Sax staff and a Piano staff. The Sax part begins with a half note (G4) marked *p*, followed by a half note (A4) marked *p*. The Piano part starts with a half note (G3) marked *pp*, followed by a half note (A3) marked *pp*. The third system (measures 9-14) features a Sax staff and a Piano staff. The Sax part begins with a half note (G4) marked *pp*, followed by a half note (A4) marked *pp*. The Piano part starts with a half note (G3) marked *pp*, followed by a half note (A3) marked *pp*. The score includes various dynamic markings such as *pp*, *p*, *mp*, *mf*, and *ppp*, and rhythmic patterns including triplets and sextuplets.

Example 27b. Recomposition ("Churl(ed) Seeger") of Whirled Series mm. 1–14 and the original mm. 1–14 of Whirled Series

Recomposed

Sax in C

Piano

Original

Sax in C

Piano

Example 28. Tonally suggestive voice exchanges created through inversionally invariant dyads in mm. 178–90 of *Whirled Series*

piano

saxophone (in C)

voice exchanges

chords

A $\flat$ M7 #9

C $\sharp$ 9 w/ neighbor tones

G $\flat$ #9

Example 29. Dissonant tonal voice leading (m7th resolution and parallel m7ths) in Monk's tunes (a–b and d–f) alluded to by Babbitt (c). (The Monk transcriptions are adapted from Schuaerte 2007, Kay 2013, and Stern 2015.)

Monk's
"Round
Midnight"
mm. 3–4
(and sequential
continuation)

(a)

Babbitt's
Gloss
mm. 33–34

(b)

Monk's
"Round
Midnight"
mm. 5–8

(c)

Monk's
"Ask
Me
Now"

(d)

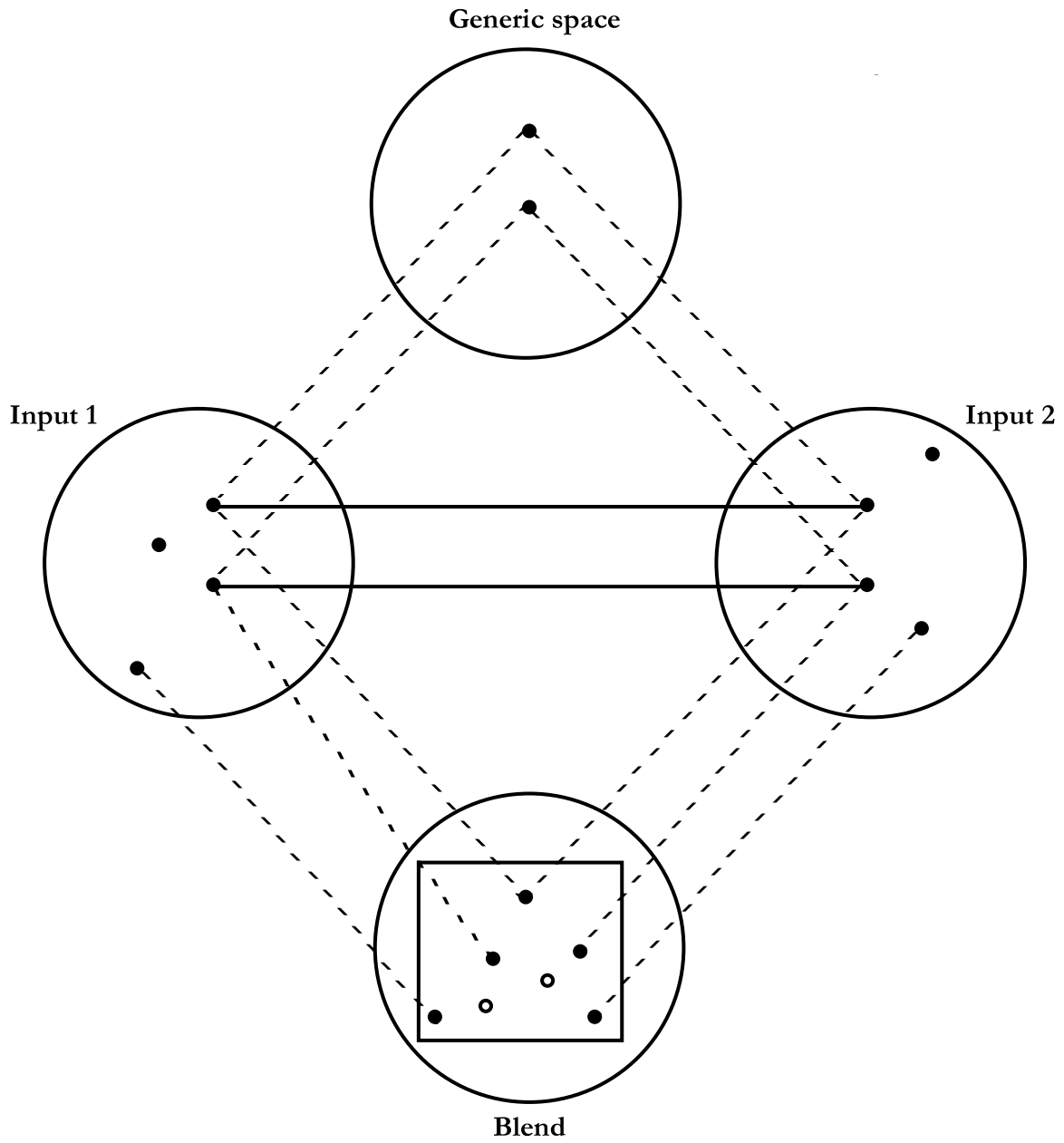
Monk's
"Skippy"
(excerpt)

(e)

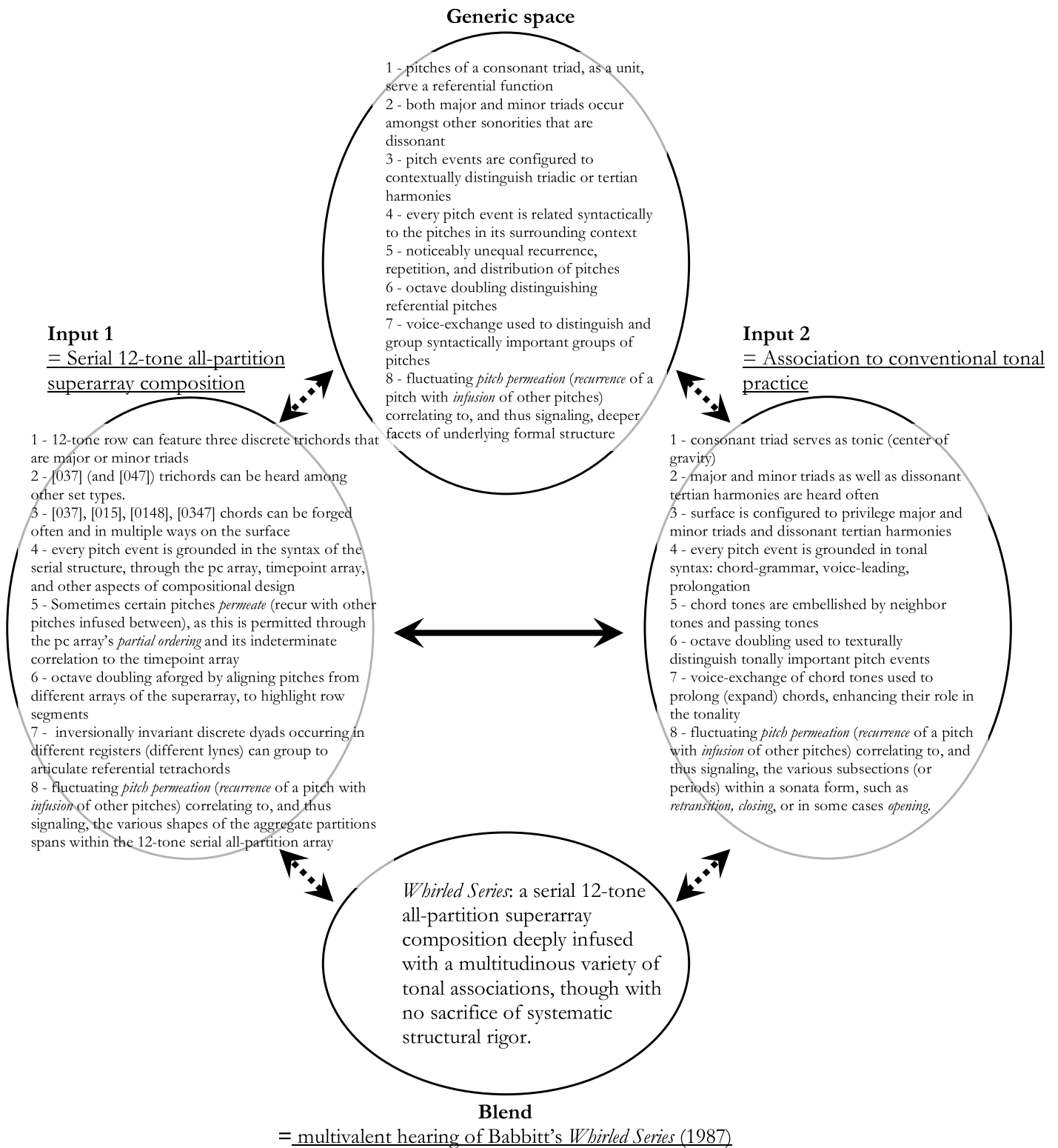
Monk's
"Skippy"
(excerpt)

(f)

Example 30. Template diagram for Fauconnier and Turner's
Conceptual Integration Network (CIN)



Example 31. *Conceptual Integration Network (CIN) for Babbitt's Whirled Series*, based on eight features, each understood generically and in terms of serial and tonal input spaces



Example 32. Development section of Mozart, Piano Sonata in C Major, K. 279, first movement

39 D.S. 1

42 fin.

45 forzando a)

47 pp b)

50 p f

52 p

55 f

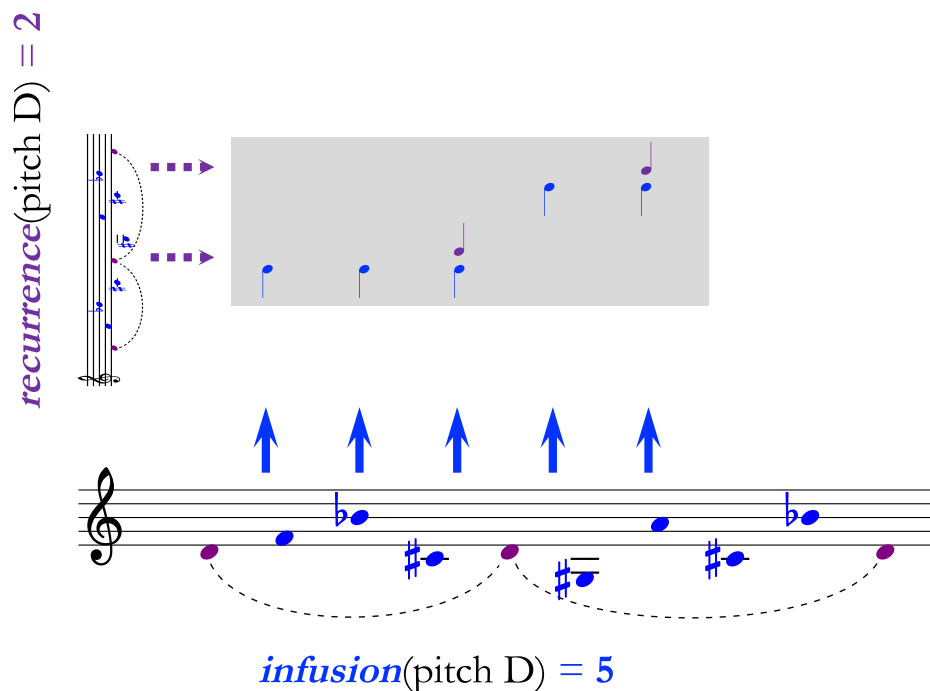
57 P.T. H.S.

60 f

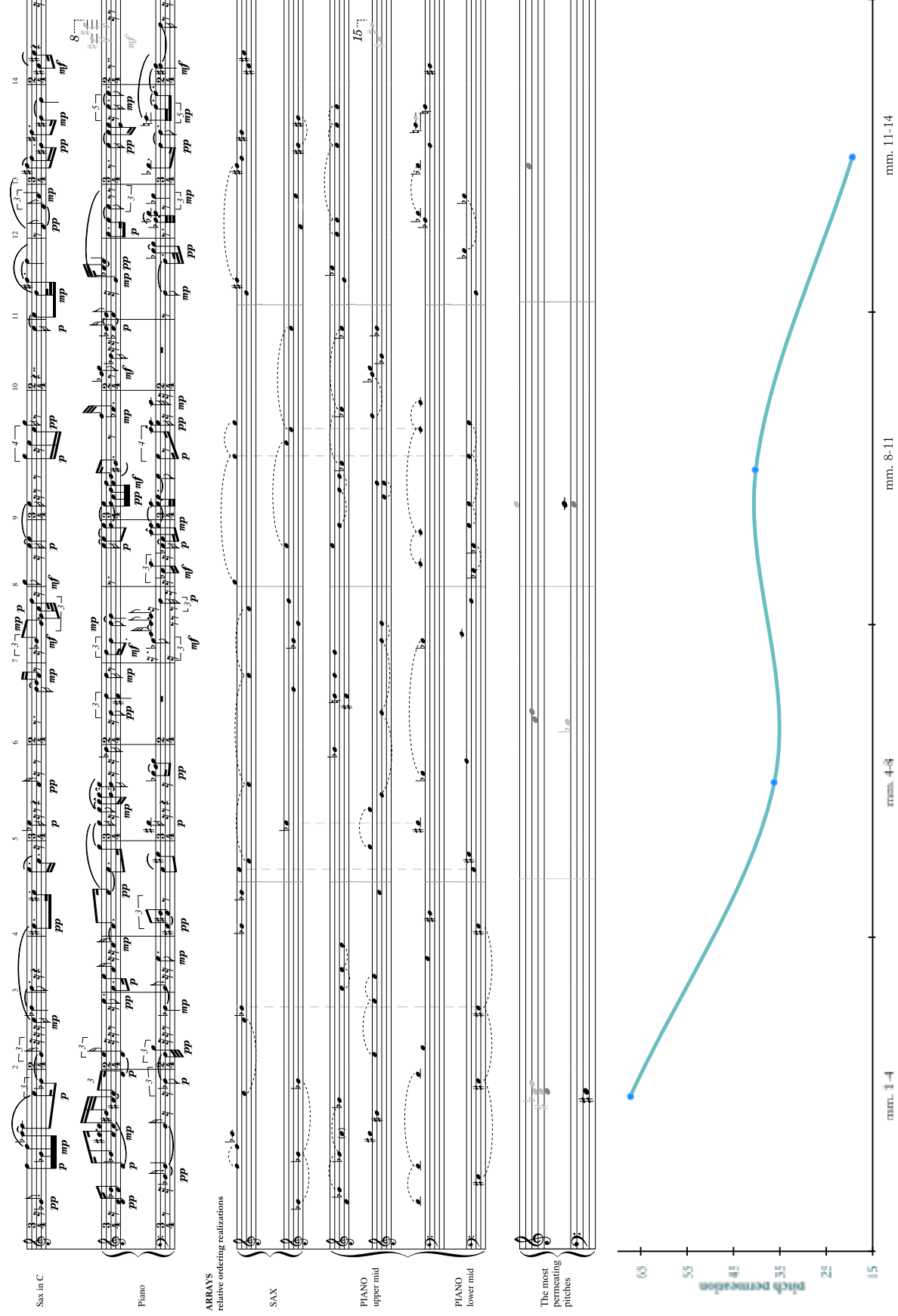
Example 33. End of the exposition of Mozart, Piano Sonata in G Major, K. 283, first movement



Example 34. Visualization of computing *pitch permeation* (for pitch D). After its initial occurrence, pitch D recurs two more times (*recurrence* = 2), and it is *infused* with five other pitches (F, B $\flat$, C $\sharp$, G $\sharp$, and A); thus its permeation is $2 \times 5 = 10$, which corresponds to the area of the rectangle. (In the rectangle, upward stem notes correspond to recurrences and downward stem notes correspond to infused pitches.

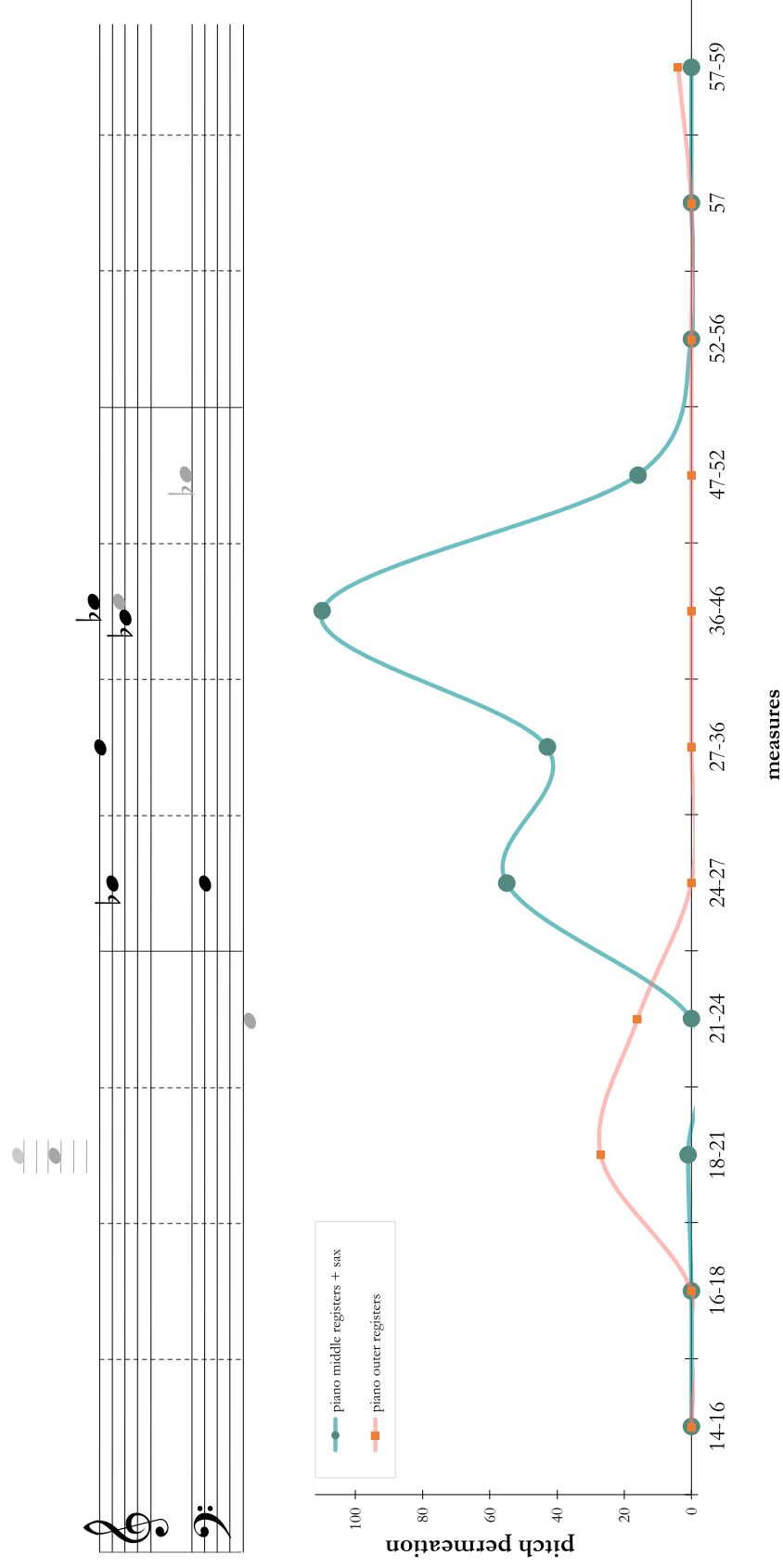


Example 35. *Whirled Series*, mm. 1–14: score, arrays' relative ordering realization, most permeating pitches, and graph of fluctuating *pitch permeation*.



Example 36. *Whirled Series*, mm. 14–59, the most permeating pitches and a graph of pitch permeation.

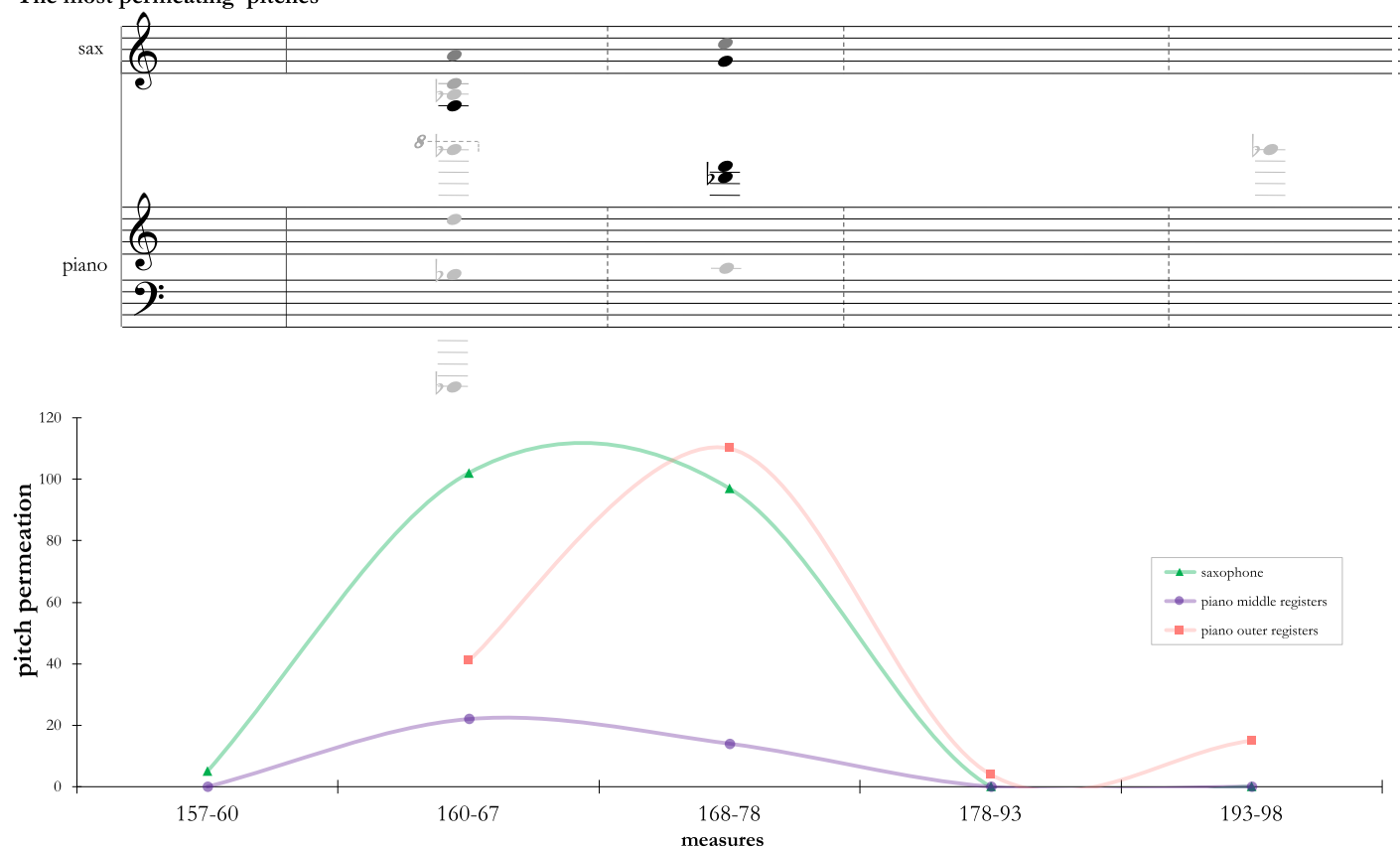
Black noteheads indicate pitches permeating most, grey noteheads indicate pitches moderately permeating.



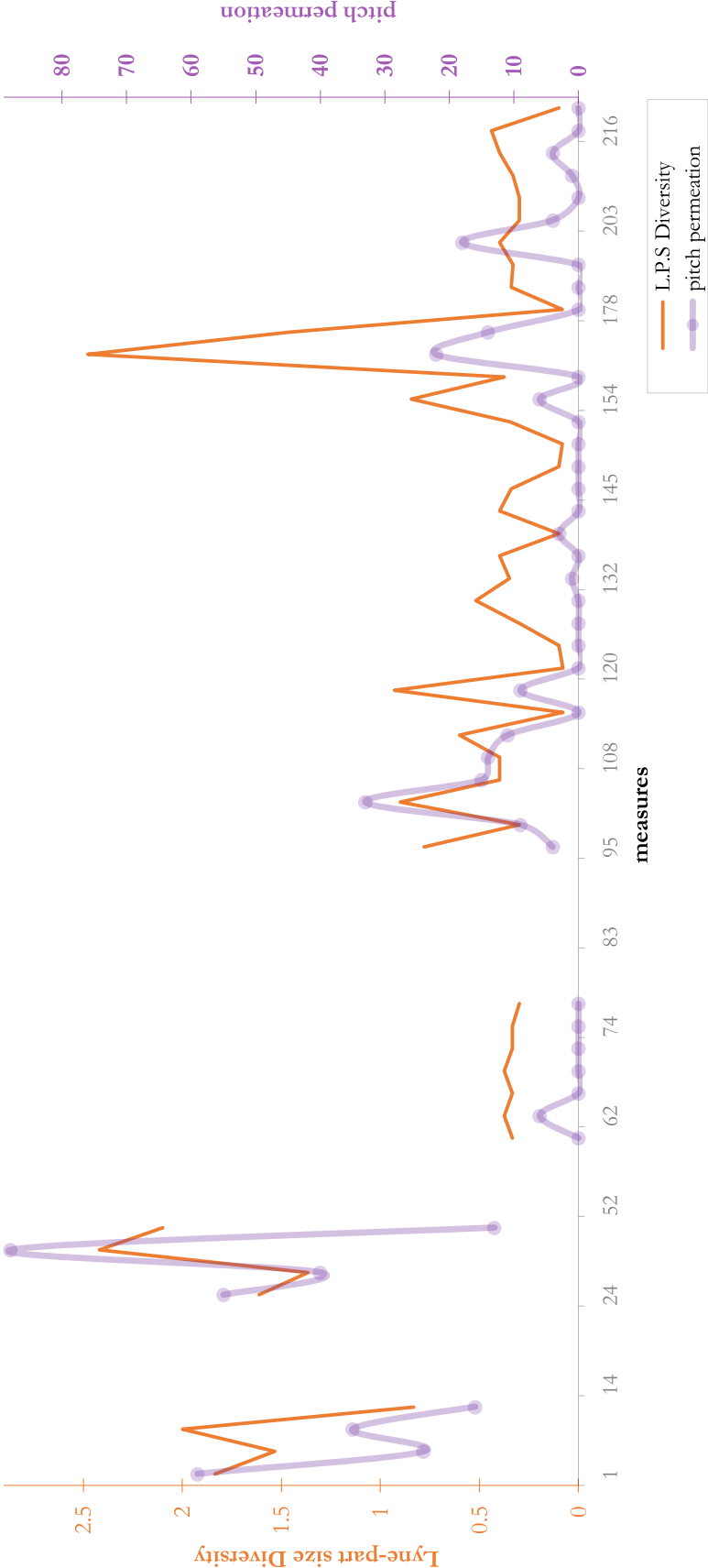
Example 37. *Whirled Series's* superarray (three arrays) for mm. 157–98, with highly permeating pitches indicated with noteheads (darker corresponding to more permeation). These five partition spans demonstrate a flux from very little pitch permeation (mm. 157–59), to greater pitch permeation (mm. 160–77), to much less, almost none (mm. 178–92), to a slight pitch permeation of only one pitch: high B $\flat$ (mm. 193–98).

Arrays		m. 157	m. 160	m. 168	m. 178	m. 193
sax	high	D $\flat$ A $\flat$ E	A E D $\flat$ P $_3$ E $\flat$ D $\flat$ G $\flat$ B $\flat$ B D	A $\flat$ F C G	B $\flat$ A D $\flat$ G $\flat$ D E B A $\flat$ G E $\flat$ C I $_5$ F	D B $\flat$ E $\flat$ G G $\flat$ B RP$_3$ A $\flat$ F A E C D $\flat$
	low	G $\flat$ B $\flat$ A D	RP$_2$ C G A $\flat$	E B E $\flat$ D $\flat$ G $\flat$ A B $\flat$ D		
		4 2 1 (of 5421)	7 3 1 ²	8 3 1	12	7 5
piano	high		RP$_2$ G C B	E $\flat$ A $\flat$ E G $\flat$ D $\flat$ B $\flat$ A F	A B $\flat$ G $\flat$ D $\flat$ F E $\flat$ A $\flat$ B C E G P$_2$ D	F A E C D $\flat$ A $\flat$ RI$_4$ B
	middle	G $\flat$	D B $\flat$	B D G		D B $\flat$ E $\flat$ G G $\flat$
	low	B E $\flat$	E $\flat$ I $_4$ E D $\flat$ A A $\flat$ F	C		
		2 1 (of 5421)	7 3 1 ²	8 3 1	12	7 5
piano	highest		RP$_1$ E $\flat$ A $\flat$ G B E C D A G $\flat$ F	D $\flat$ F	G $\flat$	B $\flat$ D A D $\flat$ B E G A $\flat$ C E $\flat$
			RI$_3$ B $\flat$	I $_4$ B $\flat$ G E $\flat$ D B G $\flat$	A $\flat$ E A D $\flat$ C	
	lowest		P$_1$ D $\flat$	E A $\flat$ A C	F E $\flat$ G D B $\flat$ B	G $\flat$ RI$_1$ F
			10 1 ²	6 4 1 ²	6 5 1	9 2 1

The most permeating pitches



Example 38. Flux of correlated pre-compositional and surface-synchronic emergent properties (*L.P.S. Diversity* and *PitchPermeation*) as vessels of form in *Whirled Series*, piano middle register. *L.P.S. Diversity* and *pitch permeation* here have a correlation coefficient of 0.79, which is high (1 is the highest). They fluctuate up and down together, with coordinated peaks and valleys.



Example 39. The motto of Thelonious Monk's *'Round Midnight* "ragged" in various ways by the opening of Babbitt's *Gloss*. Hanninen's (1996, 2012) analytical notation is used to indicate various kinds of association.

Babbitt's *Gloss*
m. 2
R. H.

Babbitt's *Gloss*
m. 1
L. H.

Monk's
'Round Midnight
(main melody)

Babbitt's *Gloss*, mm. 1–2

Annotations:

- $C_{\text{repetition}}$ (purple bracket)
- $C_{\text{rhythm: short-long}}$ (purple bracket)
- $C_{\text{ip}} \langle P4 \rangle$ (orange bracket)
- $C_{\text{ip}} \langle \text{asc. } P4, \text{ desc. } M3 \rangle$ (orange bracket)
- $C_{\text{pc}} \{E\flat, F, B\flat, G\sharp\}$ (orange bracket)
- $C_{\text{ip}} \langle P4 \rangle$ (green bracket)
- $C_{\text{pc}} \{B\flat, E\flat\}$ (green bracket)
- $C_{\text{pc}} \text{ subset } \{B\flat, E\flat, F\}$ (green bracket)
- $C_{\text{ip}} \langle P4, M2, P4 \rangle$ (green bracket)
- $C_{\text{ip}} \text{ skips}$ (blue bracket)
- $C_{\text{contour}} \langle 0123 \rangle$ (blue bracket)
- $C_{\text{ip}} \langle \text{desc. } M3, \text{ desc. } m3 \rangle$ (orange bracket)
- $C_{\text{contour}} \langle 201 \rangle$ (purple bracket)
- $C_{\text{ip}} \text{ skips}$ (purple bracket)
- $C_{\text{pc}} \{B\flat, E\flat, F\}$ (green bracket)
- $C_{\text{ip}} \langle P4, M2 \rangle$ (green bracket)
- $C_{\text{pc}} \{C\sharp, F\sharp, D\}$ (green bracket)

Example 40. *Canonical Form*, mm. 189–94, (a) score; (b) chord reduction in register and rhythm;
 (c) voice-leading reduction of “ragged” tonality in (b)

The image displays three musical notations for Example 40 from *Canonical Form*, measures 189–94:

- (a) Score:** A complex musical score for piano, featuring multiple staves with intricate rhythmic patterns, dynamic markings (e.g., *pp*, *mp*, *mf*), and articulation. It includes various musical symbols such as slurs, ties, and accidentals.
- (b) Chord Reduction:** A reduction of the score showing chords in a simplified register and rhythm. It uses a grand staff (treble and bass clefs) to represent the harmonic structure. Chords are indicated by vertical lines and dots, with some notes circled to highlight specific intervals or voicings.
- (c) Voice-leading Reduction:** A reduction focusing on the voice-leading of the “ragged” tonality. It shows the movement of individual voices (melodies) across the staves, with notes connected by lines to show their progression. The notation includes various musical symbols like slurs, ties, and accidentals to indicate the specific voice-leading.

Below the reductions, a series of Roman numerals and accidentals are listed, likely indicating the harmonic progression or tonal centers:

V I⁶ VI[#] IV^b ———^b V I^{#9} — ^b7

Example 41. Tonal voice-leading graph and score of mm. 21–29 of *Whirled Series*: a cadential progression in F major

graph

21 24 27 30 33

I V I

Sax (in C)

Piano

21 24 27 30 33

p pp mf f mp

8 8 8 8 8

3 5

Example 42. $G\flat/F\sharp$ Lydian tonality/modality suggested at mm. 44–47 of *Whirled Series*

aggregate
boundary

Sax (in C)

Piano

(C $\sharp$ 7)

pp

“I – V⁶” in F $\sharp$

D $\sharp$ minor $\xrightarrow{R}$ F $\sharp$ major F $\sharp$ major $\xrightarrow{L}$ A $\sharp$ minor

Example 43. Examples of multivalence in music theory: (a) Gottfried Weber demonstrating his concept *Mehrdeutigkeit* in the opening of Mozart's String Quartet in C major, K. 465, "Dissonance"; (b) Rameau's *double emploi*; (c) neighbor-tone vs. chordal analysis of Wagner's *Tarnhelm* leitmotif; (d) Lewin's dual perception analysis of the Siegmund/Sieglinde progression from Wagner's *Die Walküre*; (e) the rabbit/duck illusion (*dubbit*) discussed by Joseph Jastrow, Ludwig Wittgenstein, and David Lewin; (f) Lewin's *product network*, showing both harmonic- and melodic-generation of parallel organum.

(a)

...forces it [the ear], indeed, for reason of coherence to take it initially as a G minor triad.....
and as the tonic chord of G minor.
The chord progression of this bar is thus:

G : D - G
C : V - G; V - G - i
or C: V - G; V - G - i,
or C: V - G; i,
or C: V - G; i.

Example 4.6
Harmonic interpretations
of m. 4. Weber, *Versuch*
(1832: III, 208).

(b)

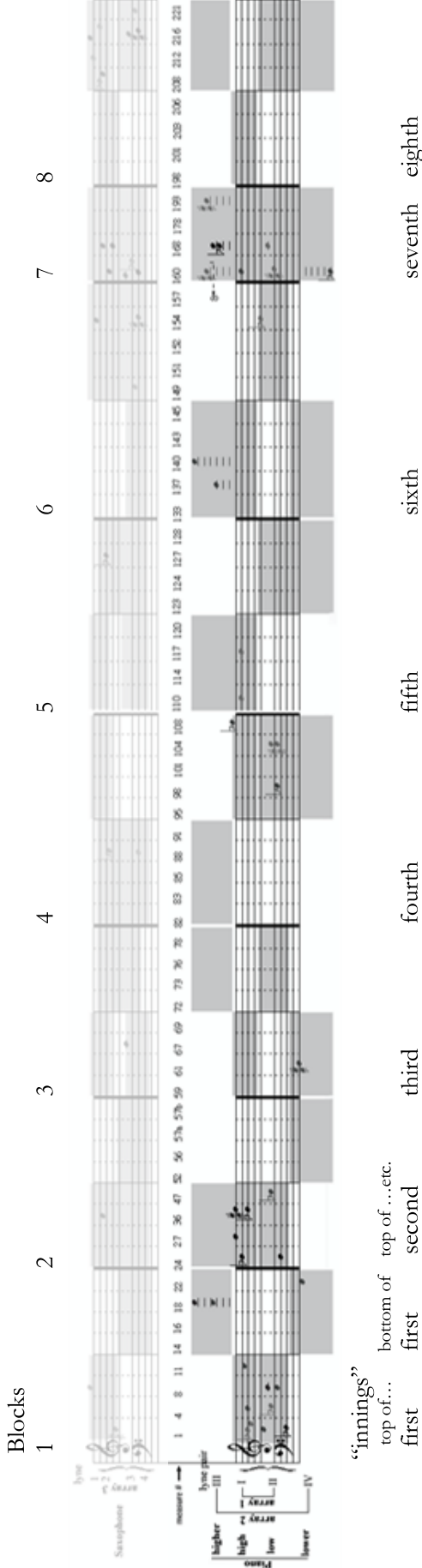
(c)

Tarnhelm leitmotif

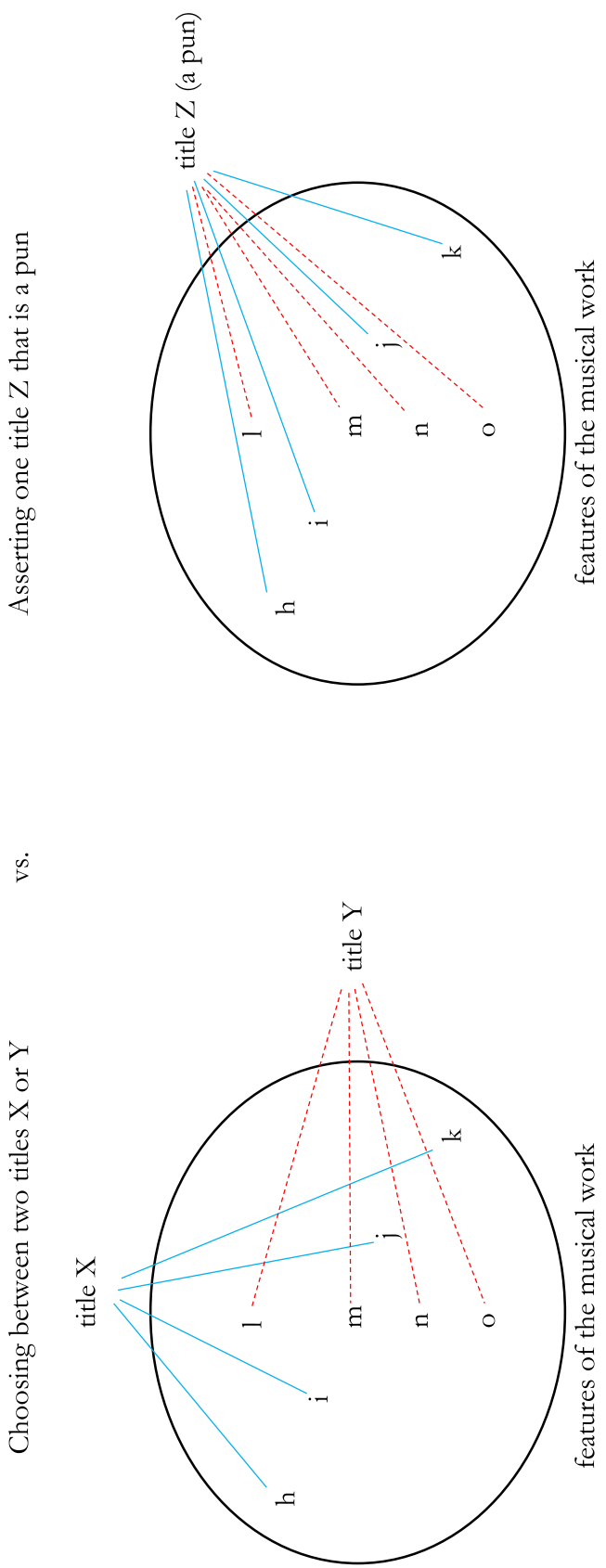
(d)

(e)

Example 44. *Whirled Series's* pre-compositional registral plan, with highly permeating pitches overlaid. Active (grey-shaded) vs. inactive (white) registers swap within each block in the piano part of *Whirled Series's* (first half). (The saxophone swaps active vs. inactive lynes, which have overlapping registers, thus obscuring their binary swapping.)



Example 45. Comparison of how two different kinds of titles, specific type titles (X and Y) vs. pun titles (Z), can allude to features (h, i, j, k, l, m, n, o) of a musical work

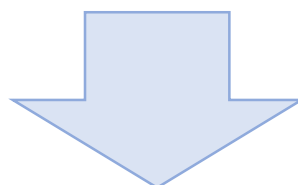


Example 46. “Whirling” of one pitch from the front to the back order position relates the aggregate presentation at the 12^1 partition to the original source row on which the array is based.

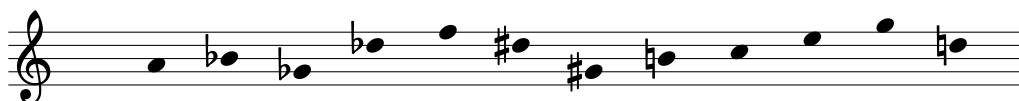
Row form RI_7



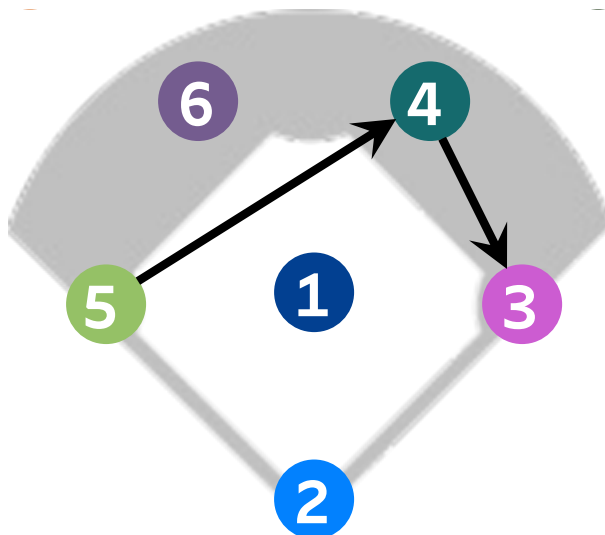
Pitch class D “whirled” around to the back



Ordered aggregate
at the 12^1 partition
within the four-lyne
all-partition array



Example 47. Baseball’s “around the horn” triple play: outs on 3rd, 2nd, and 1st base



Example 48. Interval classes highlighted in triads in Babbitt's *Around the Horn* (1993)

86
 Part I
 3 5
 5 3
 17
 4 5 3 3 5
 31
 3 4 4 3 4 3 5
 37
 5 4 4 3 4 3 4
 48
 3 5
 5 4
 F major
 F# major
 A major
 A# minor
 D major
 Gb major
 Eb minor
 Db major
 F minor
 F minor
 Ab major
 F# minor
 B minor
 F major

Example 49. The 543 aggregate partition, the 543 partitioning of the octave, and the intervals of the baseball “charge” fanfare

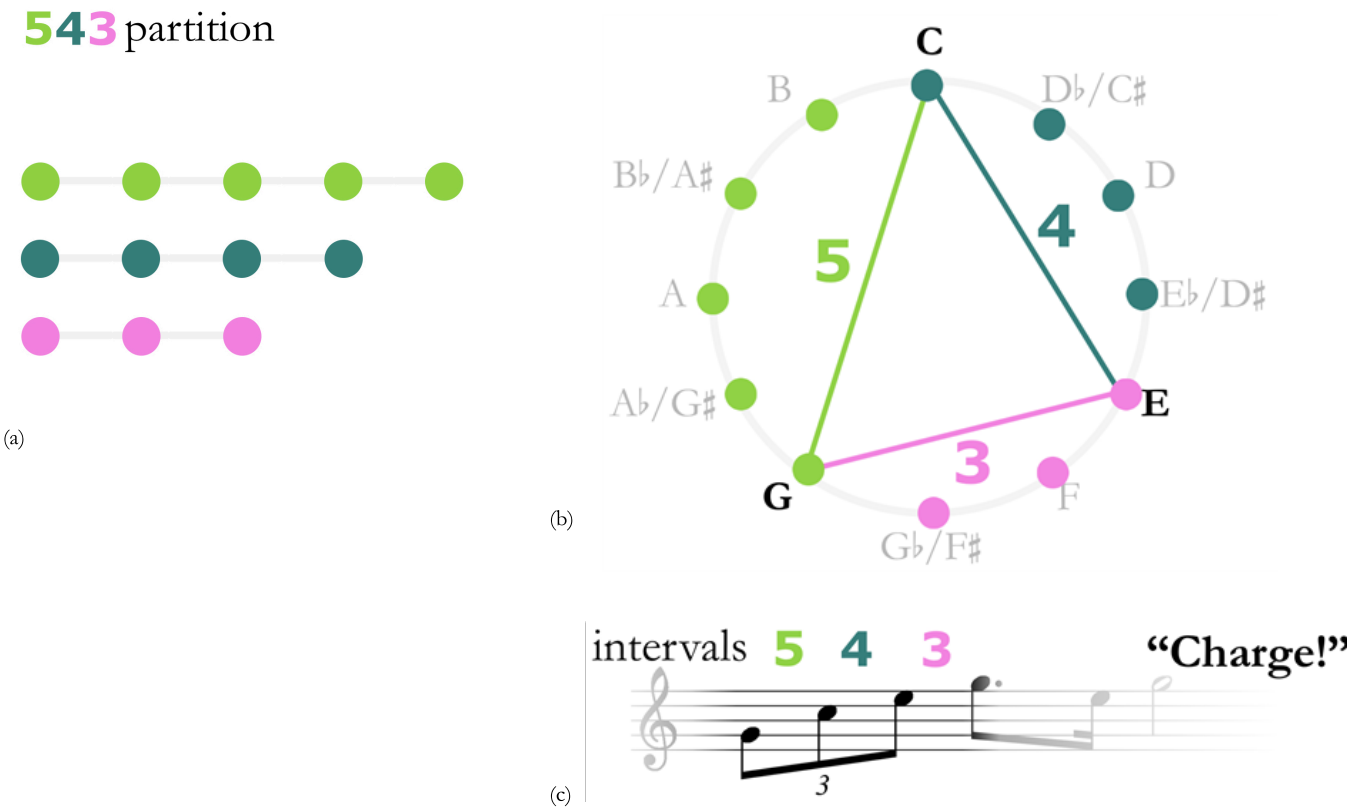


Image 1. René Magritte, *Clairvoyance* (1936)



Image 2. Magritte, *Violation (Act of Violence) (Attendant)* (1937)

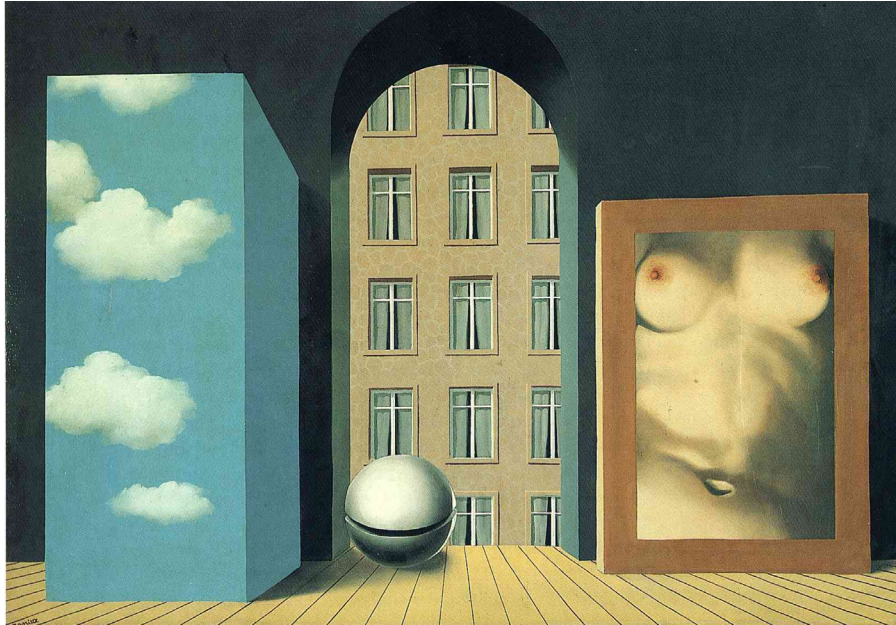
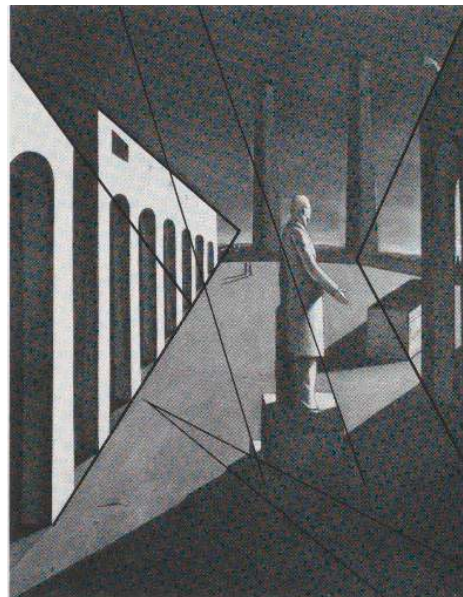
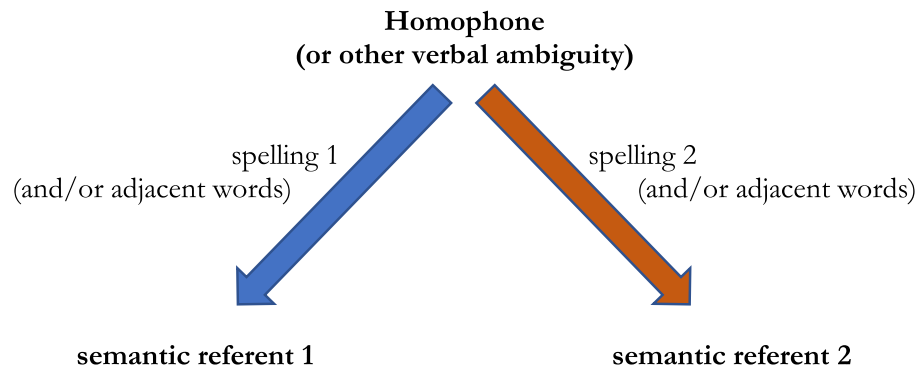


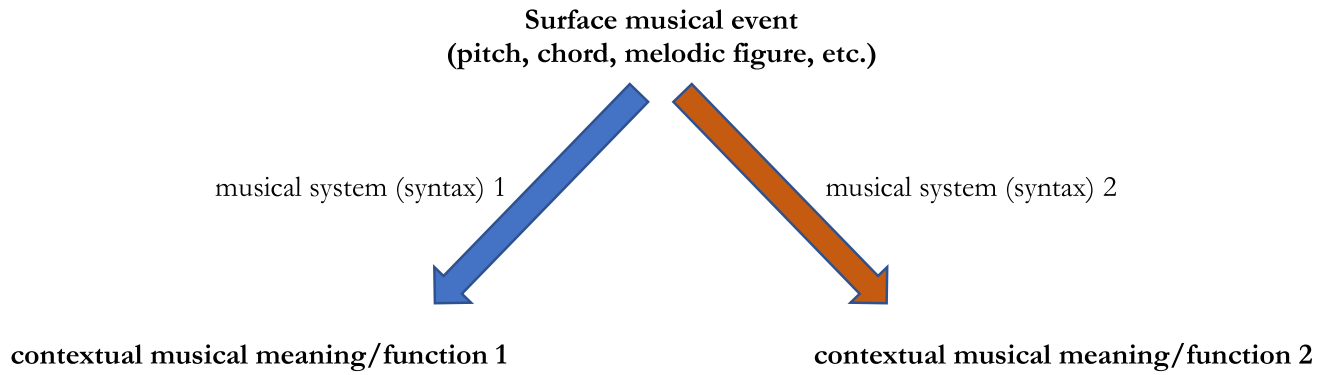
Image 3. (a) Giorgio de Chirico, *The Enigma of a Day* (1914);
(b) perspective annotations from Rubin (1982)



Example 50. Analogy between verbal and musical multivalence

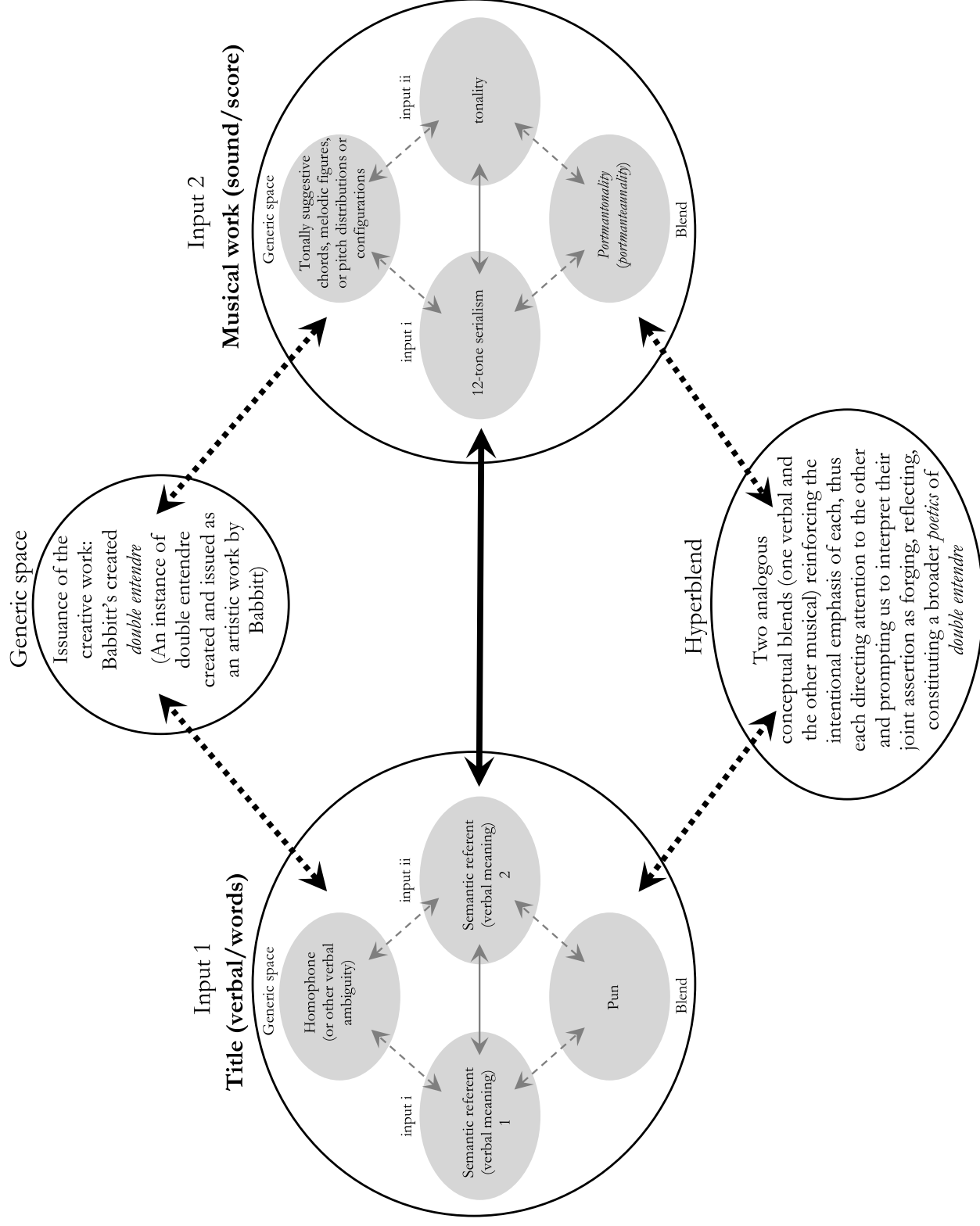


(a)



(b)

Example 51. Hyperblend of verbal appellative (titular) pun and musical *portmanteau* (*portmanteau*)



Example 52. Loose transcription of Stanley Jordan and Russell Malone's improvisation
One for Milton (2011), with analytical annotations

Type E all-combinatorial hexachord
C#-D hexatonic scale

0:08 (also Liszt's *Faust Symphony*)

Type E all-combinatorial hexachord
D-E $\flat$ hexatonic scale

0:12

0:17 E minor

Type E all-comb. hexachord
D-E $\flat$ hexatonic scale

0:20

C#-D hexatonic C-C# D#-E hexatonic E minor C Whole-tone C#-D hexatonic

Type E all-combinatorial hex.
C-C# hexatonic scale

Type E all-combinatorial hexachord
D-E $\flat$ hexatonic scale

0:35

0:41

Type E all-combinatorial hex.
D#-E hexatonic

Type E all-combinatorial hex.
D-E $\flat$ hexatonic scale

Type E all-combinatorial hexachord
D-E $\flat$ hexatonic scale

0:49

1:02

1:10 (also allusion to Schoenberg's *Orchestral Piece, Op. 16, no. 1*)

1:45

Octatonic Webernesque perpetuum mobile

etc.