

Peter McKenzie Armstrong

Refractions

12-Tone Chords on an All-Interval Row

for autosequencer

Opus 13

Edition Ottaviano Petrucci

NOTES

In the mid '80s I wrote the first of several algorithms collectively named "IntLens", which, given any pitch class series (probably a 12-tone row), complemented &/or compounded its intervals in all combinations of selection by class, outputting each result as a chord graph with associated statistical goodies.

Now for a sounding realization of that idea, I have chosen input 0 1 4 2 9 5 11 3 8 10 7 6, Mallalieu's all-interval row (the most perfectly self-similar, with its second half retro-inverting the first), to ensure that chord-to-chord contrast will stem maximally from registral differences and minimally from source-specific quirks.

Viewing the total process as one of expansion, I have assigned importance to relative pitch density at a chord's extremities (top/bottom), and made such densities determine for each chord both duration (via tempo settings) and volume level.

In order to avoid notehead collision in tighter-registered chords, each chord is scored in two columns: one for black keys, with a collective sharp sign; and a second for whites, with a collective natural sign. The column pair is to be read as sounding at once.

There are two movements, based on alternate ordering criteria. The first sequences chords outerly by range, innerly by density; the second reverses this sort priority.

Not explicit in the score (though implemented in the audio files) is consistent chord arpeggiation. This is applied in Movement I as "rolls" in row-sequence order (rather than up or down), and in Movement II as "unrolls" – correspondingly ragged endings following block-chord attacks.

Refractions is dedicated in memory of Phil Winsor, who mentored the IntLens project during my season at UNT and once corralled me as keyboardist in a chordal adventure of his own. He dared anything graced with discipline.

– PMA

in memoriam Phil Winsor

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8 [♯ = 45] [34] [79] [15] [48]

1

1

1

1

8

ppp *pp* *ppp*

6 8 [26] [29] [79] [113] [34] [37] [71]

2

2

2

2

8

pp *p* *ppp* *pp*

9 8 [57] [59] [115] [132] [166] [20] [71]

2

2

2

2

8

ppp *pp* *p* *mp* *ppp* *pp*

2
12 8 [79] [96] [93] [113] [152] [115] [149]

p

15 8 [118] [135] [152] [146] [180] [264] [213] [247]

mp *mf* *mp* *mf*

18 8 [113] [264] [281] [62] [76] [79] [93] [107] [141]

p *mf* *f* *pp* *p*

21 ⁸ [124] [160] [163] [247] [264] [281] [314]

mf *f*

23 ⁸ [113] [146] [199] [267] [300] [281] [314]

p *mp* *mf* *f*

26 ⁸ [113] [149] [141] [174] [104] [129] [152]

p *mp* *pp* *p*

29 ⁸ [129] [135] [132] [138] [155] [143] [163]

8

32 ⁸ [124] [174] [104] [118] [121] [118] [152] [163]

8

mp *pp* *p*

35 ⁸ [160] [194] [185] [236] [171] [188]

8

mp *mf* *mp*

38 ⁸

[169] [171] [194] [211] [208] [225] [163] [320] [205] [239] [171] [194]

mf *p* *f* *mp* *mf* *mp*

44 ⁸

[227] [295] [205] [239] [241] [205] [183] [255] [239] [272]

mp *mf* *mp* *f* *mf* *f*

6
50 8 [177] [191] [211] [244] [295] [328] [239] [255]

8 *mp* *mf* *f* *ff* *mf*

53 8 [258] [275] [278] [261] [205] [379] [199] [216]

8 *f* *mf* *mp* *fff* *mp*

57 8 [255] [272] [306] [323] [250] [339]

8 *mf* *f* *mf* *ff*

[♩ = 420]

System 1: 3/8 time. Treble and Bass staves. Organ accompaniment in the middle. Dynamics: *f*, *ff*, *f*, *mf*, *f*, *mf*, *mp*, *f*.

System 2: 4-measure rest. Treble and Bass staves. Organ accompaniment in the middle. Dynamics: *mp*, *ff*, *mp*, *mf*, *pp*, *f*, *ppp*, *pp*.

System 3: 7-measure rest. Treble and Bass staves. Organ accompaniment in the middle. Dynamics: *ppp*, *pppp*, *pp*, *ppp*.

System 4: [340]. Treble and Bass staves. Organ accompaniment in the middle. Dynamics: *ppp*.

10

Musical score for measures 10-12. The score is written for four staves. The first staff (treble clef) contains notes in measures 10 and 11, and rests in measure 12. The second staff (treble clef) contains notes in measures 10 and 11, and rests in measure 12. The third staff (bass clef) contains notes in measures 10 and 11, and rests in measure 12. The fourth staff (bass clef) contains notes in measures 10 and 11, and rests in measure 12. The dynamic marking *pppp* is present in measure 10, and *ppp* is present in measure 12. The number 8 is written below the first staff in measure 10, and the number 2 is written below the fourth staff in measures 10, 11, and 12.

pppp *ppp*

13

[300]

Musical score for measures 13-15. The score is written for four staves. The first staff (treble clef) contains notes in measures 13 and 14, and rests in measure 15. The second staff (treble clef) contains notes in measures 13 and 14, and rests in measure 15. The third staff (bass clef) contains notes in measures 13 and 14, and rests in measure 15. The fourth staff (bass clef) contains notes in measures 13 and 14, and rests in measure 15. The dynamic marking *ff* is present in measure 13, and *fff* and *ff* are present in measure 15. The number 8 is written below the first staff in measure 13, and the number 2 is written below the fourth staff in measures 13, 14, and 15.

ff *fff* *ff*

15 ⁸

7 7 7

fff f ff fff ffff mf f ff f

17 ⁸ [140] [60]

7 3 3 3

fff f mp p ppp fffff mp ppppp

