

Peter McKenzie Armstrong

Refractions

12-Tone Chords on an All-Interval Row

for autosequencer

2012

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]

ppp pp ppp

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

pp p ppp

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

ppp pp p

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]

3 3 3 4 4 4 2 2 2 2

mf *f*

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

2 2 3 3 3 2 2

p *mp* *mf* *f*

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

3 2 2 2 2 2

p *mp* *pp* *p*

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

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

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

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

System 1 (Measures 50-52): Treble and bass staves. Measure 50: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Measure 51: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Measure 52: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Dynamics: *mp* (measure 50), *mf* (measure 51), *f* (measure 52).

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

System 2 (Measures 53-56): Treble and bass staves. Measure 53: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Measure 54: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Measure 55: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Measure 56: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Dynamics: *f* (measure 53), *mf* (measure 54), *mp* (measure 55), *fff* (measure 56).

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

System 3 (Measures 57-60): Treble and bass staves. Measure 57: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Measure 58: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Measure 59: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Measure 60: Treble has a whole note chord (F#4, A4, C5); Bass has a whole note chord (F#2, A2, C3). Dynamics: *mf* (measure 57), *f* (measure 58), *mf* (measure 59), *ff* (measure 60).

[♩ = 420]

II

4

7

[340]

f ff f mf f mf mp f

mp ff mp mf pp f ppp pp

ppp pppp pp ppp

Musical score for measures 10-12. The score is written for four staves: Treble 1, Treble 2, Bass 1, and Bass 2. Measure 10 (marked with a '10' and a '8' above the staff) features a complex chordal texture in the Treble 1 and Bass 1 staves, with Treble 2 and Bass 2 containing whole notes. Measure 11 shows a continuation of the texture, with Treble 2 and Bass 1 containing more complex figures. Measure 12 features a similar texture. The dynamic marking *pppp* is present below the Bass 1 staff in measure 10, and *ppp* is present below the Bass 2 staff in measure 12. The time signature is 2/2.

Musical score for measures 13-14. The score is written for four staves: Treble 1, Treble 2, Bass 1, and Bass 2. Measure 13 (marked with a '13' and a '8' above the staff) features a complex chordal texture in the Treble 1 and Bass 1 staves, with Treble 2 and Bass 2 containing whole notes. Measure 14 (marked with a '[300]' above the staff) features a similar texture, with Treble 2 and Bass 1 containing more complex figures. The dynamic marking *ff* is present below the Bass 1 staff in measure 14, and *fff* is present below the Bass 2 staff in measure 14. The time signature is 2/2.

15 ⁸

fff f ff fff ffff mf f ff f

17 ⁸ [140] [60]

fff f mp p ppp ffff mp ppppp

