

Rotations (all-triad hexachord)

Pre-compositional theory

[0-1-2-4-7-8]

Ian Percy

*See Word Document for further pre-compositional research

Note, the use of 1 in prime form 5 extends beyond the octave

The all-triad hexachord contains all 12 prime form triads (within the octave) only once:

A ♩ = 72
Carter: hexachord 35; Forte: 6-17

Prime trichord 1 Prime trichord 2 Prime trichord 3 Prime trichord 4 Prime trichord 5 Prime trichord 6

[478 is a transposition of 034]
 [801 is a transposition of 045]
 [802 is a transposition of 046]

0 1 2 4 7 8 0 1 2 0 1 3 0 1 4 0 1 5 0 1 6 0 2 4
 1 2 4 7 8 0 7 8 1
 1 2 7

Numbers 023, 034, 035, 045, 046 and (047) are omitted from this list because they are not included in the list of prime forms in Forte's Structure of Atonal Music. Perhaps these can be used as target material which allows the process of repetition, octave transfer and varied stress to explore an expanding pitch content..? 023 cannot be found in this hexachord. 035 cannot be found in this hexachord

B ♩ = 72

Prime trichord 7 Prime trichord 8 Prime trichord 9 Prime trichord 10 Prime trichord 11 Prime trichord 12 **Carter: hexachord 35; Forte: 6-Z17**

0 2 5 0 2 6 0 2 7 0 3 6 0 3 7 0 4 8 0 1 2 4 7 8
 2 4 7 2 4 8 1 4 7 1 4 8 [478 is a transposition of 034]

Shortest chord spans: (all compound intervals)

C x 4:	2 x Perf 5th - 024817 & 028147
	2 x Aug 5 - 024718 & 027148
C# x 4:	2 x tritone - 148027 & 180247
	2 x Perf 5th - 147028 & 170248
D x 4:	4 x min 7th - 247180 & 248170
	271480 & 281470
E x 4:	2 x Maj 6th - 470281 & 480271
	2 x min 7th - 471802 & 481702
G x 4:	1 x tritone - 702481
	1 x Perf 5th - 714802
	2 x Maj 6th - 702814 & 718024
G# x 4:	1 x Perf 4th - 802471 *Shortest span*
	1 x tritone - 814702
	2 x Aug 5th - 802714 & 817024
24 chords and groups	

Could use 802471 as the order and sequence of development..?

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Chord Rotations (fundamental sequence 0 'C': 64 chords)

Ian Percy

The 4 shortest and 2 longest chord-spans are highlighted

C ♩ = 72

9

0-2-4-7-1-8
Compound aug5

0-2-4-8-1-7
Compound P5th

0-2-4-8-7-1

0-2-4-1-8-7

0-2-7-1-4-8
Compound aug5

0-2-7-1-8-4

0-2-7-4-8-1

0-2-7-4-1-8

17

0-2-8-1-4-7
Compound P5th

0-2-8-1-7-4

0-2-8-4-7-1

0-2-8-4-1-7
group 1

0-2-8-7-1-4

0-2-8-7-4-1

0-2-1-4-8-7

0-2-1-7-4-8

0-2-1-8-4-7

0-2-1-8-7-4

27

0-4-7-1-8-2

0-4-7-2-8-1

0-4-7-2-1-8

0-4-8-1-7-2

0-4-8-2-7-1

0-4-8-2-1-7

0-4-8-7-2-1

0-4-1-7-2-8

0-4-1-8-2-7

0-4-1-8-7-2

37

0-4-2-7-1-8

0-4-2-8-1-7

0-4-2-8-7-1

0-4-2-1-8-7

0-7-1-4-8-2

0-7-1-4-2-8

0-7-1-8-2-4

0-7-1-8-4-2

45

0-7-2-4-8-1

0-7-2-4-1-8

0-7-2-8-1-4

0-7-2-8-4-1

0-7-2-1-4-8

0-7-2-1-8-4

0-7-4-8-2-1

0-7-4-1-8-2

0-7-4-2-8-1

0-7-4-2-1-8
3 octaves &
Aug 5th

55

0-8-1-4-7-2

0-8-1-4-2-7

0-8-1-7-2-4

0-8-1-7-4-2

0-8-2-4-7-1

0-8-2-4-1-7

0-8-2-7-1-4

0-8-2-7-4-1

0-8-2-1-4-7

0-8-2-1-7-4

65

0-8-4-7-2-1

0-8-4-1-7-2

0-8-4-2-7-1

0-8-4-2-1-7

0-8-7-1-4-2

0-8-7-2-4-1

0-8-7-2-1-4

0-8-7-4-2-1
4 octaves &
semi-tone

Rotations (all-triad hexachord)

Pre-compositional theory

Chord Rotations (fundamental sequence 1 'C#: 78 chords)

Ian Percy

The 4 shortest and 2 longest chord-spans are highlighted

D $\text{♩} = 72$

73
1-4-7-0-2-8
Compound P5th
1-4-7-0-8-2
1-4-7-2-8-0
1-4-7-2-0-8
1-4-8-0-2-7
Compound tritone
1-4-8-0-7-2
1-4-8-2-7-0
1-4-8-2-0-7
1-4-8-7-0-2
1-4-8-7-2-0
1-4-0-2-8-7
1-4-0-7-2-8

85
1-4-0-8-2-7
1-4-0-8-7-2
1-4-2-7-0-8
1-4-2-8-0-7
1-4-2-8-7-0
1-4-2-0-8-7
1-7-0-2-4-8
Compound P5th
1-7-0-2-8-4
1-7-0-4-8-2
1-7-0-4-2-8
1-7-0-8-2-4
1-7-0-8-4-2

97
1-7-2-4-8-0
1-7-2-4-0-8
1-7-2-8-0-4
1-7-2-8-4-0
1-7-2-0-4-8
1-7-2-0-8-4
1-7-4-8-0-2
1-7-4-8-2-0
1-7-4-0-2-8
1-7-4-0-8-2
1-7-4-2-8-0
1-7-4-2-0-8

109
1-8-0-2-4-7
Compound tritone
1-8-0-2-7-4
1-8-0-4-7-2
1-8-0-4-2-7
1-8-0-7-2-4
1-8-0-7-4-2
1-8-2-4-7-0
1-8-2-4-0-7
1-8-2-7-0-4
1-8-2-7-4-0
1-8-2-0-4-7
1-8-2-0-7-4

121
1-8-4-7-0-2
1-8-4-7-2-0
1-8-4-0-2-7
1-8-4-0-7-2
1-8-4-2-7-0
1-8-4-2-0-7
1-8-7-0-2-4
1-8-7-0-4-2
1-8-7-2-4-0
1-8-7-2-0-4
1-8-7-4-0-2
1-8-7-4-2-0
3 octaves & Maj 7th

133
1-0-2-4-8-7
1-0-2-7-4-8
1-0-2-8-4-7
1-0-2-8-7-4
1-0-4-7-2-8
1-0-4-8-2-7
1-0-4-8-7-2
1-0-4-2-8-7

141
1-0-7-2-4-8
1-0-7-2-8-4
1-0-7-4-8-2
1-0-7-4-2-8
1-0-8-2-4-7
1-0-8-2-7-4
1-0-8-4-7-2
1-0-8-4-2-7
1-0-8-7-2-4
1-0-8-7-4-2
4 octaves & semi-tone

Rotations (all-triad hexachord)

Pre-compositional theory

Chord Rotations (fundamental sequence 2 'D': 78 chords)

Ian Percy

E ♩ = 72 The 4 shortest and 2 longest chord-spans are highlighted

151

2-4-7-0-8-1 2-4-7-1-8-0 **Compound min7th** 2-4-7-1-0-8 2-4-8-0-7-1 2-4-8-1-7-0 **Compound min7th** 2-4-8-1-0-7 2-4-8-7-1-0 2-4-0-7-1-8 2-4-0-8-1-7 2-4-0-8-7-1

161

2-4-1-7-0-8 2-4-1-8-0-7 2-4-1-8-7-0 2-4-1-0-8-7 2-7-0-4-8-1 2-7-0-4-1-8 2-7-0-8-1-4 2-7-0-8-4-1 2-7-1-4-8-0 **Compound min7th** 2-7-1-4-0-8 2-7-1-8-0-4 2-7-1-8-4-0

173

2-7-1-0-4-8 2-7-1-0-8-4 2-7-4-8-1-0 2-7-4-0-8-1 2-7-4-1-8-0 2-7-4-1-0-8 2-8-0-4-7-1 2-8-0-4-1-7 2-8-0-7-1-4 2-8-0-7-4-1

183

2-8-1-4-7-0 **Compound min7th** 2-8-1-4-0-7 2-8-1-7-0-4 2-8-1-7-4-0 2-8-1-0-4-7 2-8-1-0-7-4 2-8-4-7-1-0 2-8-4-0-7-1 2-8-4-1-7-0 2-8-4-1-0-7 2-8-7-0-4-1 2-8-7-1-4-0

195

2-8-7-1-0-4 2-8-7-4-1-0 2-0-4-7-1-8 2-0-4-8-1-7 2-0-4-8-7-1 2-0-4-1-8-7 2-0-7-1-4-8 2-0-7-1-8-4 2-0-7-4-8-1 2-0-7-4-1-8

205

2-0-8-1-4-7 2-0-8-1-7-4 2-0-8-4-7-1 2-0-8-4-1-7 2-0-8-7-1-4 2-0-8-7-4-1 **3 octaves & Maj 7th** 2-1-4-7-0-8 2-1-4-8-0-7 2-1-4-8-7-0 2-1-4-0-8-7 2-1-7-0-4-8 2-1-7-0-8-4

217

2-1-7-4-8-0 2-1-7-4-0-8 2-1-8-0-4-7 2-1-8-0-7-4 2-1-8-4-7-0 2-1-8-4-0-7 2-1-8-7-0-4 2-1-8-7-4-0 2-1-0-4-8-7 2-1-0-7-4-8 2-1-0-8-4-7 2-1-0-8-7-4 **4 octaves & tone**

Rotations (all-triad hexachord)

Pre-compositional theory

Chord Rotations (fundamental sequence 4 'E': 64 chords)

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The 4 shortest and 2 longest chord-spans are highlighted

F = 72

229

4-7-0-2-8-1
Compound Maj6th

4-7-0-2-1-8

4-7-0-8-2-1

4-7-1-8-0-2
Compound min7th

4-7-1-8-2-0

4-7-1-0-2-8

4-7-1-0-8-2

4-7-2-8-1-0

4-7-2-0-8-1

4-7-2-1-8-0

4-7-2-1-0-8

240

4-8-0-2-7-1
Compound Maj6th

4-8-0-2-1-7

4-8-0-7-2-1

4-8-1-7-0-2
Compound min7th

4-8-1-7-2-0

4-8-1-0-2-7

4-8-1-0-7-2

4-8-2-7-1-0

4-8-2-0-7-1

4-8-2-1-7-0

4-8-2-1-0-7

251

4-8-7-0-2-1

4-8-7-1-0-2

4-8-7-2-1-0

4-0-2-7-1-8

4-0-2-8-1-7

4-0-2-8-7-1

4-0-2-1-8-7

4-0-7-1-8-2

4-0-7-2-8-1

4-0-7-2-1-8

261

4-0-8-1-7-2

4-0-8-2-7-1

4-0-8-2-1-7

4-0-8-7-2-1

4-1-7-0-2-8

4-1-7-0-8-2

4-1-7-2-8-0

4-1-7-2-0-8

269

4-1-8-0-2-7

4-1-8-0-7-2

4-1-8-2-7-0

4-1-8-2-0-7

4-1-8-7-0-2

4-1-8-7-2-0

4-1-0-2-8-7

4-1-0-7-2-8

4-1-0-8-2-7

4-1-0-8-7-2
3 octaves &
min 7th

279

4-2-7-0-8-1

4-2-7-1-8-0

4-2-7-1-0-8

4-2-8-0-7-1

4-2-8-1-7-0

4-2-8-1-0-7

4-2-8-7-1-0

286

4-2-0-7-1-8

4-2-0-8-1-7

4-2-0-8-7-1

4-2-1-7-0-8

4-2-1-8-0-7

4-2-1-8-7-0

4-2-1-0-8-7
4 octaves &
Maj 3rd

Rotations (all-triad hexachord)

Pre-compositional theory

Chord Rotations (fundamental sequence 7 'G': 64 chords)

Ian Percy

G ♩ = 72 The 4 shortest and 2 longest chord-spans are highlighted

293

7-0-2-4-8-1 7-0-2-4-1-8 7-0-2-8-1-4 7-0-2-8-4-1 7-0-2-1-4-8 7-0-2-1-8-4 7-0-4-8-2-1 7-0-4-1-8-2 7-0-4-2-8-1 7-0-4-2-1-8

Compound tritone Compound Maj6th

303

7-0-8-1-4-2 7-0-8-2-4-1 7-0-8-2-1-4 7-0-8-4-2-1 7-1-4-8-0-2 7-1-4-8-2-0 7-1-4-0-2-8 7-1-4-0-8-2 7-1-4-2-8-0 7-1-4-2-0-8

Compound P5th

313

7-1-8-0-2-4 7-1-8-0-4-2 7-1-8-2-4-0 7-1-8-2-0-4 7-1-8-4-0-2 7-1-8-4-2-0 7-1-0-2-4-8 7-1-0-2-8-4 7-1-0-4-8-2 7-1-0-4-2-8 7-1-0-8-2-4 7-1-0-8-4-2

Compound Maj6th

325

7-2-4-8-1-0 7-2-4-0-8-1 7-2-4-1-8-0 7-2-4-1-0-8 7-2-8-0-4-1 7-2-8-1-4-0 7-2-8-1-0-4 7-2-8-4-1-0 7-2-0-4-8-1 7-2-0-4-1-8 7-2-0-8-1-4 7-2-0-8-4-1

Compound Maj6th

337

7-2-1-4-8-0 7-2-1-4-0-8 7-2-1-8-0-4 7-2-1-8-4-0 7-2-1-0-4-8 7-2-1-0-8-4 7-4-8-0-2-1 7-4-8-1-0-2 7-4-8-2-1-0

3 octaves & Maj 6th

346

7-4-0-2-8-1 7-4-0-2-1-8 7-4-0-8-2-1 7-4-1-8-0-2 7-4-1-8-2-0 7-4-1-0-2-8 7-4-1-0-8-2 7-4-2-8-1-0 7-4-2-0-8-1 7-4-2-1-8-0 7-4-2-1-0-8

4 octaves & semi-tone

Rotations (all-triad hexachord)

Pre-compositional theory

Chord Rotations (fundamental sequence 8 'G#: 78 chords)

Ian Percy

H ♩ = 72 The 4 shortest and 2 longest chord-spans are highlighted

Shortest Span

8-0-2-4-7-1 Compound P4th

8-0-2-4-1-7

8-0-2-7-1-4 Compound aug5th

8-0-2-7-4-1

8-0-2-1-4-7

8-0-2-1-7-4

8-0-4-7-2-1

8-0-4-1-7-2

8-0-4-2-7-1

8-0-4-2-1-7

8-0-7-1-4-2

8-0-7-2-4-1

8-0-7-2-1-4

8-0-7-4-2-1

8-1-4-7-0-2 Compound tritone

8-1-4-7-2-0

8-1-4-0-2-7

8-1-4-0-7-2

8-1-4-2-7-0

8-1-4-2-0-7

8-1-7-0-2-4 Compound aug5th

8-1-7-0-4-2

8-1-7-2-4-0

8-1-7-2-0-4

8-1-7-4-0-2

8-1-7-4-2-0

8-1-0-2-4-7

8-1-0-2-7-4

8-1-0-4-7-2

8-1-0-4-2-7

8-1-0-7-2-4

8-1-0-7-4-2

8-2-4-7-1-0

8-2-4-0-7-1

8-2-4-1-7-0

8-2-7-0-4-1

8-2-7-1-4-0

8-2-7-1-0-4

8-2-7-4-1-0

8-2-0-4-7-1

8-2-0-4-1-7

8-2-0-7-1-4

8-2-0-7-4-1

8-2-1-4-7-0

8-2-1-4-0-7

8-2-1-7-0-4

8-2-1-7-4-0

8-2-1-0-4-7

8-2-1-0-7-4

8-4-2-7-1-0

8-4-2-0-7-1

8-4-2-1-7-0

8-4-2-1-0-7

8-7-0-2-4-1 3 octaves & Maj 7th

8-7-0-2-1-4

8-7-0-4-2-1

8-7-1-4-0-2

8-7-1-4-2-0

8-7-1-0-2-4

8-7-1-0-4-2

8-7-2-4-1-0

8-7-2-0-4-1

8-7-2-1-4-0

8-7-2-1-0-4

8-7-4-0-2-1

8-7-4-1-0-2

8-7-4-2-1-0 4 octaves & Maj 3rd