

The tables below give list for the three types of 3-chords for the 11 harmonies possessing symmetries. One must remember that the reversal of the orientation for the cycle induces the transformation  $C \leftrightarrow C, F\sharp \leftrightarrow F\sharp, H \leftrightarrow C\sharp, F \leftrightarrow G, D \leftrightarrow B\flat, E \leftrightarrow G\sharp, A \leftrightarrow D\sharp$  and produces a new scale with minor type chords mapped to major type chords and vice versa. Also one must remember that all 3-chords except those which are simple majors or minors lack the third so that their emotional tone remains uncharacterized. For instance,  $C6$  does could be replaced with  $Cm6$  and  $G7$  with  $Gm7$ . The reader can check the chords by direct inspection of the figures. The convention used is that vertex number one corresponds to  $C$  note.

$(n_0, n_1, n_2)$	0-chords	1-chords	2-chords
(2,12,6)	$(Faug, Gaug)$	$(Cm, Dm, Em, F\sharp m, G\sharp m, Bbm)$ ,	$(C9, D9, E9, F\sharp 9, G\sharp 9, Bb9)$ .
		$(F6, G6, A6, B6, C\sharp 6, D\sharp 6)$ .	

Table 1. The table gives various types of 3-chords for harmonies with  $Z_6$  rotational symmetry. Note that half-octave shift is an exact symmetry. Note that  $G^{aug} = CEG\sharp, F^{aug}$  act as bridges between the groups related by half octave shift. The chords have been arranged so that they form orbits of  $Z_6$ . “Amino-acid chords” correspond to preferred chords at the orbits.

$(n_0, n_1, n_2)$	0-chords	1-chords	2-chords
(0,16,4)		$(D7, D6, G\sharp 7, G\sharp 6)$ ,	$(Bb9, B9, E9, F9)$ .
		$(G4+, A9-, C\sharp 4+, D\sharp 9-)$ ,	
		$(Emaj7, Gmaj7, Bbmaj7, C\sharp maj7)$ ,	
		$(C9-, A9-, F\sharp 9-, D\sharp 9-)$ .	
(4,8,8)	$(Cex3, Eex2, F\sharp ex3, Bbex2)$ .	$(Dmaj7, E9-, A7, A6)$ ,	$(Bb9, F9, C9, G9)$ .
		$(G\sharp maj7, Bb9-, D\sharp 7, D\sharp 6)$ .	$(E9, B9, F\sharp 9, C\sharp 9)$ .

Table 2. The table gives various types of 3-chords for the two harmonies with  $Z_4 = Z_2^{rot} \times Z_2^{refl}$  symmetry. 4-plets represent the orbits. First cycle has no harmonic loners. Second cycle gives rise to bio-harmony (4,8,8) for which 0-quint chords are dissonant. Both cycles have  $Z_2$  rotation symmetry acting as a vertical reflection symmetry in figures and realized also as half-octave shift so that 4-plets contains chords and their half-octave shifts. The genuine reflection symmetry acts as a horizontal reflection symmetry in figures. The cycles correspond to figures ??, ??.

$(n_0, n_1, n_2)$	0-chords	1-chords	2-chords
(0,16,4)		$(Em, Bbm), (Cm, F\sharp m)$ ,	$(D9, G\sharp 9)$ ,
		$(G6, C\sharp 6), (A6, D\sharp 6)$ ,	$(E9, Bb9)$ .
		$(D4+, G\sharp 4+), (B4+, F4+)$ ,	
		$(Cmaj7, F\sharp maj7), (G6-, C\sharp 6-)$ .	
(2,12,6)	$(Aex4, D\sharp ex2)$ .	$(Am, D\sharp m), (G9-, C\sharp 9-)$ ,	$(C9, F\sharp 9)$ ,
		$(C4, F\sharp 4), (E4+, Bb4+)$ ,	$(A9, D\sharp 9)$ ,
		$(Dmaj7, G\sharp maj7)$ ,	$(D9, G\sharp 9)$ .
		$(Bmaj7, Fmaj7)$ .	
(4,8,8)	$(Aex2, Hhex8, D\sharp ex2, Fex8)$ .	$(D7, G\sharp 7), (Amaj7, D\sharp maj7)$ ,	$(G9, C\sharp 9), (A9, D\sharp 9)$ ,
		$(A4+, D\sharp 4+), (E7, Bb7)$ .	$(B9, F9), (E9, Bb9)$ .

Table 3. The table gives various types of 3-chords for harmonies with  $Z_2$  rotation symmetry acting as half-octave shift. The doublets represent 2-chord orbits. The cycles correspond to figures ??, ??, and ??.

$(n_0, n_1, n_2)$	0-chords	1-chords	2-chords
(2,12,6)	$(F\sharp ex3, Hex4),$	$(Am, D\sharp), (A6, D\sharp7),$	$(C9, F9), (B9, F\sharp9),$
		$(D7, B\flat6), (G6-, Fmaj7),$	$(E9, C\sharp9).$
		$(D4+, B\flat9-), (E9, G\sharp4+),$	
(2,12,6)	$(Dex4, Hex4).$	$(F, Fm), (C6-, B\flatmaj7),$	$(C9, D\sharp9),$
		$(D7, G\sharp6), (Gmaj7, D\sharp6-).$	$(D\sharp9, C\sharp9),$
		$(C\sharp4-, A4+), (E4+, F\sharp6).$	$(E9, B9).$
(4,8,8)	$(Fex1, D\sharp ex3, G\sharp ex1, Aex2).$	$(E7, E6), (Amaj7, B9-),$	$(D9, B9), (C9, C\sharp9),$
		$(G, C\sharp m), (D7, F\sharp6).$	$(F9, G\sharp9), (D\sharp9, B\flat9).$
(2,12,6)	$(Hex3, Eex7).$	$(D7, G\sharp6), (G, D\sharp m),$	$(C9, D\sharp9),$
		$(F, Fm), (C6-, B\flatmaj7),$	$(D9, C\sharp9),$
		$(A9-, C\sharp4+), (E7, F\sharp6).$	$(E9, B9).$
(2,12,6)	$(F\sharp ex2, Fex3).$	$(F, B\flat m), (C7, G\sharp6),$	$(B\flat9, D\sharp9),$
		$(Amaj7, B9-), (E6, E7),$	$(C9, C\sharp9),$
		$(G, C\sharp m), (D7, B6).$	$(D9, H9).$

Table 4. The table gives various types of 3-chords for harmonies with single reflection symmetry. The cycles correspond to figures ??, ??, ??,??, ??.