

Diminished System

Diminished Scale Construction

The diminished harmonic system produces three eight-note symmetric scales based on the minor third interval (four equal divisions of the octave). Each scale is constructed by alternating whole and half steps, the sum of which is a minor third. Each diminished scale may also be visualized as two minor tetrachords divided by a half step, two diminished seventh chords a whole step apart, or four major/minor triads a minor third apart. The diminished scale built on C:

Four major/minor triads (enharmonic spellings used for simplification):

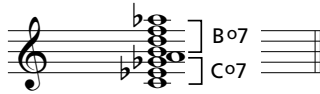
The symmetry of the diminished system is based on the minor third interval (the sum of the whole step – half step repeating pattern). Each of the three semitones within the minor third interval is a possible starting tone for the scale. The scale built on the fourth semitone is identical to the first, confirming the three transpositions of the diminished system. Like all symmetric scales, the diminished scale is non-modal.

In addition to the major/minor triads, four diminished seventh chords and four dominant seventh chords, each separated by the interval of a minor third, are diatonic to each diminished scale. These chord qualities are unique to the diminished system and are presented in depth in the following section on diminished scale harmony. A chart showing the three diminished scales and their respective diminished seventh and dominant seventh chords.

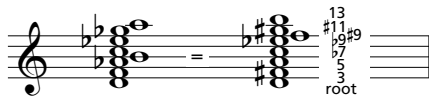
	C	C#	D
scales			
chords	C°7 Eb°7 F#°7 A°7	C#°7 E°7 G°7 Bb°7	D°7 F°7 G#°7 B°7
	A7(b9) B7(b9) D7(b9) F7(b9)	A7(b9) C7(b9) Eb7(b9) F#7(b9)	Bb7(b9) Db7(b9) E7(b9) G7(b9)

Diminished Scale Harmony

Each degree of the diminished scale produces a diminished seventh chord. The first, third, fifth, and seventh scale degrees of the scale produce a diminished seventh chord with extensions of a major seventh, natural ninth, natural eleventh, and flatted thirteenth. Note that these extensions form the other diatonic diminished seventh chord of the scale. For this reason this diminished seventh chord with complete extensions is sometimes referred to as a “double” diminished chord:



The second, fourth, sixth, and eighth scale degrees produce a diminished seventh chord with extensions of a flatted seventh, flatted ninth, flatted eleventh, and natural thirteenth. On these chords the extensions clash with the diminished seventh chord below. However, if the flatted eleventh is repositioned as the major third, and the minor third raised an octave to the position of sharped nine, this chord can be viewed as a dominant thirteenth, flat/sharped nine, sharped eleventh. The author likes to refer to this chord as the **diminished dominant chord**. It is a very common sound in jazz harmony:



The next figure shows all eight of the diatonic chords of the C diminished scale, four diminished seventh chords and four diminished dominant seventh chords:

The figure displays eight diatonic chords of the C diminished scale on a single staff. The chords are: C°Δ (notes: C, E♭, G, B♭), D7 (notes: D, F, A, C), Eb°Δ (notes: E♭, G, B♭, D), F7 (notes: F, A, C, E♭), F#°Δ (notes: F#, A, C, E♭), G#7 (notes: G#, B, D, F), A°Δ (notes: A, C, E♭, G), and B7 (notes: B, D, F, A). Each chord is accompanied by its chord symbol with extensions: C°Δ (b13, 11), D7 (13, #11, #9, b9), Eb°Δ (b13, 11), F7 (13, #11, #9, b9), F#°Δ (b13, 11), G#7 (13, #11, #9, b9), A°Δ (b13, 11), and B7 (13, #11, #9, b9).

As can be seen in the above figure the root of the diminished dominant seventh chord aligns itself with the half/whole step alignment of the diminished scale. A diminished scale starting with the half step (as opposed to the whole step) is often referred to as the “auxiliary” diminished scale. The author prefers the term “diminished dominant scale.” A great example of this diminished dominant chord/scale can be found in the Horace Silver composition *Barbara*.

The four major and minor triads found in the diminished scale can be used as upper structures for the diminished dominant chords. This translates into the common slash chord and polychord voicings for the diminished dominant chord of bIII/I, bV/I, and VI/I, the bottom note representing either a bass note or a dominant seventh chord.

Major triad upper structures derived from C diminished dominant:

The figure shows three major triad upper structures derived from the C diminished dominant scale. The chords are: Eb/C7 (bIII/I), Gb/C7 (bV/I), and A/C7 (VI/I). Each chord is shown with its notes on a staff and its chord symbol with extension: Eb/C7 (b13, 11), Gb/C7 (b13, 11), and A/C7 (13, #11, #9, b9).

Note that these diminished dominant chords are derived from the C diminished dominant scale, making them diatonic to the C#, E, G, and Bb diminished scales.

Augmented System

The augmented harmonic system produces four six-note symmetric scales based on the major third interval (three equal divisions of the octave). Each scale is constructed by alternating augmented seconds and half steps, the sum of which is a major third. The scale may also be visualized as the juxtaposition of two augmented triads an augmented second apart*:

The first staff shows a scale starting on C, with intervals labeled 'aug 2' and 'm 2' alternating. The second staff shows two augmented triads: 'C augmented triad' (C, E, G) and 'D# augmented triad' (D#, F#, A), with an augmented second interval between G and D#.

The major third interval is composed of four semitones, each representing a starting tone for the scale. The augmented scale pattern built on the fifth semitone is identical to that of the first, therefore there is a total of four transpositions of the augmented scale system.

The four augmented scales*:

The scales are transposed to C, Db, D, and Eb. The chords are listed below each scale:

C	Db	D	Eb
E	F	F#	G
A ^b	A	B ^b	B
CΔ ⁺ EΔ ⁺ A ^b Δ ⁺	D ^b Δ ⁺ FΔ ⁺ AΔ ⁺	DΔ ⁺ F#Δ ⁺ B ^b Δ ⁺	E ^b Δ ⁺ GΔ ⁺ BΔ ⁺

(* Enharmonic spellings are used for simplification)

Augmented Substitutions

The augmented scale does not contain the tritone interval; therefore, unlike the diminished and whole-tone symmetric scales, it is not a dominant scale. However, use of the augmented scale need not be limited to the augmented major seventh chord; its use may be broadened to include any chord containing an augmented triad or augmented major seventh upper structure. Since the melodic minor harmonic system and the augmented scale both share an augmented major seventh, augmented scales can be used as exotic substitutes for the melodic minor chord/scales, including the dominant scales:

MELODIC MINOR MODE

AUGMENTED SCALE

Ionian $\flat 3$

Phrygian $\sharp 6$

Lydian $\sharp 5$

Lydian $\flat 7$

Mixolydian $\flat 6$

Locrian $\sharp 2$

Locrian $\flat 4$

or

or*

* Does not share augmented major seventh, but substitutes well because of other common tones.

The definition of a pentatonic scale can be expanded to include any five-note scale. Pentatonics of this type are often referred to as altered pentatonics. Altered pentatonics contain half steps and tritones and are more dissonant than pure pentatonics. They have less of the “built-in” melodic flexibility, but are very useful as “shapes” when improvising.

Altered pentatonics are created by altering one or more tones of a pure pentatonic scale. Any alteration is possible, but the most common alterations are the $\flat 3$ (Dorian or minor $7\flat 5$ pentatonic), the $\flat 6$ (major $\flat 6$ pentatonic), the dominant 7 (dominant 9 or minor 6 pentatonic) and the $\flat 2$ (major $\flat 2$ pentatonic). These pentatonics are illustrated in the following figure.

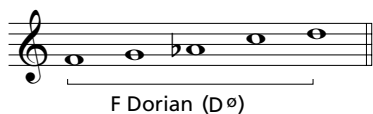
Altered Pentatonics

	Dorian pentatonic	(minor $7\flat 5$ pentatonic)
$\flat 3$ alteration		
	major $\flat 6$ pentatonic	
$\flat 6$ alteration		
	dominant 9 pentatonic	(minor 6 pentatonic)
$\flat 7$ alteration		
	major $\flat 2$ pentatonic	(dominant $\#9$ pentatonic)
$\flat 2$ alteration		

C harmonic minor scale



Component pentatonic



C harmonic major scale



Component pentatonics



C diminished scale



Component pentatonics



Some typical blues phrases:

E7(#9)



A musical phrase in 4/4 time, starting with a tempo marking of quarter note = 120. The key signature has one sharp (F#). The phrase consists of a series of eighth and sixteenth notes, including a triplet of eighth notes. There are several accents (^) over notes. The phrase ends with a double bar line.

E-7

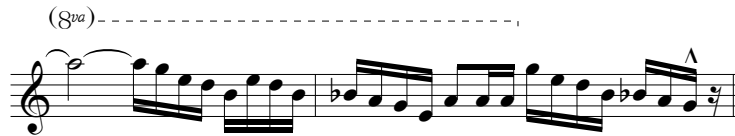


A musical phrase in 4/4 time, starting with a tempo marking of quarter note = 120. The key signature has one sharp (F#). The phrase consists of a series of eighth and sixteenth notes, including a triplet of eighth notes. There are several accents (^) over notes. The phrase ends with a double bar line.



A musical phrase in 4/4 time, continuing from the previous phrase. It consists of a series of eighth and sixteenth notes, including a triplet of eighth notes. There are several accents (^) over notes. The phrase ends with a double bar line.


(8va)-----



A musical phrase in 4/4 time, continuing from the previous phrase. It consists of a series of eighth and sixteenth notes, including a triplet of eighth notes. There are several accents (^) over notes. The phrase ends with a double bar line.

A7

E7



Two musical phrases in 4/4 time. The first phrase is for A7 and the second is for E7. Both phrases consist of a series of eighth and sixteenth notes, including a triplet of eighth notes. There are several accents (^) over notes. The phrases end with double bar lines.

Primary Color Tones of the Modes

Each mode has a minimal number of intervals which, along with the root, provide the basic color of the mode. This combination of primary color tones is not shared by any other mode. The unaltered modes each contain two primary color tones. The altered modes contain the same primary color tones as their unaltered counter parts, along with the altered tone or tones as the third or fourth color tone. Example: Primary color tones of Dorian are $\flat 3$ and $\flat 6$. Primary color tones of Dorian $\sharp 7$ are $\flat 3$, 6 , and $\sharp 7$.

Primary color tones of the unaltered modes:

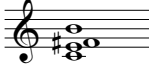
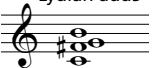

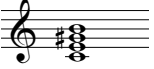

Ionian:	4, 7
Dorian:	$\flat 3$, 6
Phrygian:	$\flat 2$, 5
Lydian	$\sharp 4$, 7
Mixolydian	3, $\flat 7$
Aeolian:	$\flat 6$, 2
Locrian	$\flat 5$, $\flat 2$

APPENDIX D

Summary of Upper Structures (Grips)

The following is a list of the most useful four-note grips. This list is not meant to be exhaustive. The author has limited this list to those grips that make particularly strong chord voicings within their respective systems. Even so, the possibilities are many.

The grips are named for the type of seventh chord each represents, and the chord quality of the grip should not be confused with the chord quality created when the grip is combined with a bass note. Each grip is presented below followed by scales(s) from which it can be derived. The roman numeral(s) represent the location of the grip within the parent scale. Any grip extracted from a parent scale provides a potential voicing for any of the modes of that scale.

Grip	Parent Scale and degree	Spelling
Lydianadd3	major (IV) melodic minor (♭III)	Lydian add3 
Lydianadd5	major (IV) harmonic minor (♭VI) harmonic major (IV)	Lydian add5 
Δ	major (I, IV) harmonic minor (♭VI) harmonic major (I) augmented (I, III, #V)	Δ 
Δ(#5)	melodic minor (♭III) harmonic minor (♭III) harmonic major (I, ♭VI) augmented (I, III, #V)	Δ(#5) 
-Δ	melodic minor (I) harmonic minor (I, ♭VI) harmonic major (IV) augmented (I, III, #V)	-Δ 

Grip**Parent scale and degree****Spelling**

-Δ(#5)

harmonic minor (I)
 harmonic major (♭VI)
 diminished (I, ♭III, ♭V, ♭♭VII)
 augmented (I, III, #V)



Δ(#5)sus4

harmonic minor (I, ♭III)
 harmonic major (I)
 diminished (I, ♭III, ♭V, ♭♭VII)



°Δ

harmonic minor (♭VI)
 harmonic major (♭VI)
 diminished (I, ♭III, ♭VI, ♭♭7)



-7

major (II, III, VI)
 harmonic minor (IV)



ø

major (VII)
 melodic minor (II, VI, VII)
 harmonic minor (II, IV)
 harmonic major (II)
 diminished (II, IV, ♭VI, VII)



°7

harmonic minor (II, IV, ♭VI, VII)
 harmonic major (II, IV, ♭VI, VII)
 diminished (I, ♭III, ♭V, ♭♭VII)

