

I PLOYCHORDS OF LIMITED TRANSPOSITION and POLYCHORDAL MODES

POLYCHORDS OF LIMITED TRANSPOSITION: *A device for superimposing dominant ninth chords on each other to create synthetic harmonies. This device creates a sequence or cycle of six polychords that can be transposed twice.*

The superimposition of dominant 9th chords are built by linking a common note or notes, the common note being the b7th or 9th, which becomes the root of the new chord. These chords overlap to create a new harmony. Only two full sequences of 6 polychords sharing the b7th, and two full sequences of 6 polychords sharing the 9th are possible to transpose, thus they are of limited transposition. The subsequent modes derived from this harmony can be termed *Polychordal modes*

SEQUENCE/CYCLE OF POLYCHORDS OF LIMITED TRANSPOSITION

<u>ROOT</u>	<u>b7th</u>	<u>9th</u>
C	Bb	D
Bb	Ab	C
Ab	Gb	Bb
Gb	E	Ab
E	D	F#
D	C	E

Built on b7th becoming root of new chord
The seventh of the root chord becomes the root of the next, and so on. This can be applied Six times before the starting chord repeats.

Note: Descending pattern of whole tones occur on root, b7th and 9th, e.g. C, Bb, Ab, Gb, E, D.

<u>ROOT</u>	<u>b7th</u>	<u>9th</u>
Db	B	Eb
B	A	C#
A	G	B
G	F	A
F	Eb	G
Eb	Db	F

TRANSPOSITION

<u>ROOT</u>	<u>b7th</u>	<u>9th</u>
C	Bb	D
D	C	E
E	D	F#
F#	E	G#
Ab	Gb	Bb
Bb	Ab	C

Built on 9th becoming root of new chord
Note: Ascending pattern of whole tones occur on root, b7th and 9th

By using partials b7th and 9th as the next final and adding their partials, the harmony develops as a type of Polychordal chromaticism.

II Polychords of limited transposition in practice

Adjacent chords may be superimposed by the b7th and 9th becoming 'root' of Next chord.

Using the **b7th** as the common note;
C9 can be overlapped with Bb9
Bb9 can be overlapped with Ab9 and so on.

Using **9th** as the common note;
C9 can be overlapped with D9
D9 can be overlapped with E9 and so on

More than two chords may be superimposed

Using **both b7th and 9th** as common notes;
C9 can be simultaneously overlapped with Bb9 and D9

Similarly, C9 can overlap simultaneously with Bb9 and D9 in addition to Ab9 and E9 and so on.

A type of Polychordal chromaticism will eventually occur as more chords are added simultaneously.

Figure 2 Table to find linked polychords

	Linked by 9ths →					
Linked by b7ths ↓	C	D	E	F#	Ab	Bb
	Bb	C	D	E	F#	Ab
	Ab	Bb	C	D	E	F#
	Gb	Ab	Bb	C	D	E
	E	F#	Ab	Bb	C	D
	D	E	F#	Ab	Bb	C

To find polychords which link by b7ths, go down the table. To find polychords which link by 9ths go across the table. To find polychords which link through different combinations of 7ths and ninths, go across and down the table.

Example: To find a 3-chord superimposition linked by 7ths, count three chords down C/Bb/Ab.

To find a 3-chord superimposition linked by ninths, count three chords across, C/D/E

To find a 3-chord superimposition linked by both 7th and 9th count across and down; C-D
Bb

2-CHORD SUPERIMPOSITIONS**linked by b7th**

C/Bb Bb/Ab Ab/Gb Gb/E E/D D/C

linked by 9th

C/D D/E E/F# F#/Ab Ab/Bb Bb/C

3-CHORD SUPERIMPOSITIONS**linked by b7th**

C/Bb/Ab

linked by 9th

C/D/E

linked by both b7th and 9th

C/D/Bb

4-CHORD SUPERIMPOSITIONS**linked by b7th**

C/Bb/Ab/Gb

linked by 9th

C/D/E/F#

linked by both b7th and 9th

C/D/E/Bb C/Bb/Ab/D

5-CHORD SUPERIMPOSITIONS**linked by b7th**

C/Bb/Ab/Gb/E

linked by 9th

C/D/E/F#/Ab

linked by both b7th and 9thC/D/E/F#/Bb C/Bb/Ab/Gb/D
C/D/E/Bb/Ab**6-CHORD SUPERIMPOSITIONS****linked by b7th**

C/Bb/Ab/Gb/E/D

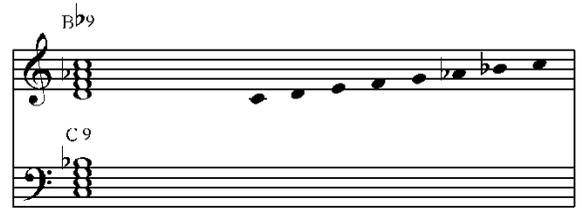
linked by 9th

C/D/E/F#/Ab/Bb

III Chord voicing: Basic superimposition and examples of chord voicing

Superimposition of two adjacent chords

Basic superimposition based on **lowered seventh** becoming root of new chord.



Some voicings for superimposition of two chords

'A' Voicing's for chords linked by lowered seventh

Uppermost voicing consisting of b7th and **ninth** of superimposed chord
Lowermost voice built on **b7th** of original chord
Other notes from both chords may be added to the 5-note voicing shown

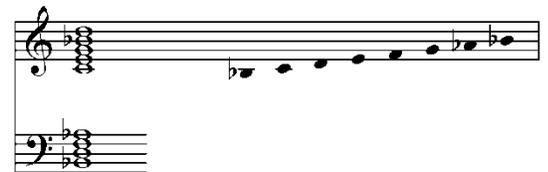


'B' Voicing's for chords linked by lowered seventh

Uppermost voicing consisting of b7th, **9th and 5th** of superimposed chord
Lowermost voice consisting of b7th, **9th and 5th** of original chord
Other notes from both chords may be added to the 5-note voicing shown

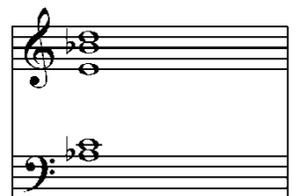


Basic superimposition based on ninth becoming root of new chord.



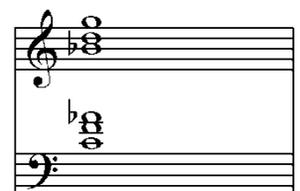
'A' Voicing's for chords linked by ninth

Uppermost voicing: consisting of **3rd, b7th and 9th** of superimposed chord
Lowermost voicing built on **b7th** of original chord
Other notes from both chords may be added;



'B' Voicing's for chords linked by ninth

Uppermost chord: consisting of **b7th, 9th and 5th** of superimposed chord
Lowermost chord built on **9th, 3rd and b7th** of original chord
Other notes from both chords may be added;



'C' Voicing's for chords linked by ninth or lowered seventh

Other notes from both chords may be added to the 5-note voicing shown



Scriabin's' Mystic chord is similar to the transposed 'C' voiced chord linked by a ninth, but is missing the G.

Mystic chord



'C' voiced Polychord



IIIb Chord voicing - Tri-chords

= $D\flat 9 + B 9 + E\flat 9$

OR

$D\flat 9 + E\flat 9 + F 9$

$D\flat 9 + B 9 + A 9$

IIIc - Four chord voicing

Same as previous chord, transposed

$C 9 + D 9 + E 9 + F\sharp 9$

and

$C 9 + D 9 + E 9 + B\flat 9$

and

$C 9 + D 9 + B\flat 9 + A\flat 9$

IV Polychordal modes

When two adjacent dominant chords in the cycle share the common note of the b7th, the resulting mode is Mixolydian b6th

The diagram shows two adjacent dominant chords, B \flat 9 and C9, in a polychordal arrangement. The B \flat 9 chord is in the treble clef and the C9 chord is in the bass clef. The resulting mode is Mixolydian b6th, shown as a scale in the treble clef. An arrow points to the lowered 6th degree of the scale, labeled "Lowered 6th".

When two adjacent dominant chords in the cycle share the common note of the 9th, the resulting mode is Lydian dominant or acoustic scale.

The diagram shows two adjacent dominant chords, C9 and D9, in a polychordal arrangement. The C9 chord is in the treble clef and the D9 chord is in the bass clef. The resulting mode is Lydian dominant, shown as a scale in the treble clef. An arrow points to the raised 4th degree of the scale, labeled "Raised 4th".

Modes derived from 3-chord superimpositions

C \flat 9 B \flat 9 A \flat 9

Polychordal superimposition of C \flat 9, B \flat 9, and A \flat 9 chords in the treble clef.

Linked by b7ths

Scale for the mode derived from C \flat 9, B \flat 9, and A \flat 9 chords, linked by b7ths.

C \flat 9 D \flat 9 E \flat 9

Polychordal superimposition of C \flat 9, D \flat 9, and E \flat 9 chords in the treble clef.

Linked by 9ths

Scale for the mode derived from C \flat 9, D \flat 9, and E \flat 9 chords, linked by 9ths.

C \flat 9 B \flat 9 D \flat 9

Polychordal superimposition of C \flat 9, B \flat 9, and D \flat 9 chords in the treble clef.

Linked by both b7ths and

Scale for the mode derived from C \flat 9, B \flat 9, and D \flat 9 chords, linked by both b7ths and 9ths.

Modes derived from 4-chord superimpositions

C⁹ B^{b9} A^{b9} G^{b9}



C⁹ D⁹ E⁹ F^{#9}



C⁹ B^{b9} A^{b9} D⁹



C⁹ D⁹ E⁹ B^b



Modes derived from 5-chord superimpositions

C⁹ B^{b9} A^{b9} G⁹ E⁹



C⁹ D⁹ E⁹ F^{#9} A^{b9}



C⁹ D⁹ E⁹ F^{#9} B^b



C⁹ B⁹ A^{b9} G^{b9} D⁹

C⁹ D⁹ E⁹ B^{b9} A^{b9}

When all six chords in the cycle are superimposed the resulting mode is a chromatic scale. Bartok's Polymodal chromaticism is the superimposition of diatonic modes on each other that share the same tonic/final and can create a chromatic scale, whereas the resulting chromatic scale from the above system is brought about by the superimposition of dominant ninth chords.

V Polychords of limited transposition musical aesthetic

Polychords of limited transposition, as Messiaen's modes of limited transposition and Bartok's Polymodal chromaticism, serve the purpose of not being tied to any one obvious key or tonal centre. The resulting harmonies serve to create a certain degree of freedom from the western 12 key tonality. Bi-chords linked by a lowered seventh sound closer to a dominant chord-type than a bi-chord linked by a ninth. As more than two chords are superimposed, the resulting harmony and derived modes become more ambiguous, moving away from the dominant relation and creating an 'other-worldliness'.

The system came into place when experimenting with the upper partials of the harmonic series, namely the b7th and the 9th and trying to avoid the resulting dominant 7th-type chord which, in Western tonality, leads for the most part back to a tonic. The resulting chords are akin and can be said in jazz terms to be a form of extended/altered dominant seventh-type chord. The differentiating factor in the above system is that the chords are linked by a series of either or both lowered sevenths and ninths that may be transposed only twice. This differs from, for example, a chord progression sequence like II-V-1, which may be transposed into twelve keys and firmly establishes a tonal centre.

Experimentation with a multitude of voicing's for the polychords will give varying degrees of harmonic sounds.

VI summary

Polychords of limited transposition: A sequence or cycle of six polychords that can only be transposed twice. They are linked by either or both the b7th and the 9th becoming the root of the new chord or chords. The resulting harmonies have no obvious tonal centre, allowing a certain harmonic freedom.

Polychordal modes: Modes resulting from Polychords of limited transposition

Other sequences could be arrived at by linking other partials, chord-types and so on. The above sequence however, was in answer to a particular problem, that of taking dominant seventh and dominant ninth chords away from a tonal centre.
