

# Harmonic Mechanisms

Exercises for Improvisation  
and Composition

Dan Siegel

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# Harmonic Mechanisms

## Exercises for Improvisation and Composition

### Introduction

For the last three decades of writing, playing, and studying music, I have been compiling information on my observations and discoveries on the way notes interact with each other when they are combined linearly in sequence and vertically into chords. Some of these observations are superficial, some not. Relationships can be diatonic or avoid diatonic principles altogether and abide only by the logic of symmetry. Once a structure is identified, it can be analyzed and applied as a mechanism in composition and improvisation. The process of observation, analysis, and documentation is how this work came to be.

This material can serve multiple purposes. Some of the exercises could be vehicles or inspiration for improvisation and composition, or they could function simply as practice regimens. Some of the exercises are duplicated in different sections, due to the overlap of their content. While it is written from a pianistic perspective on two staves, the information can easily be applied and played on any instrument.

Playing through these exercises, new observations, patterns, and structures will reveal themselves. The goal is to transpose the exercises to keys that you're less comfortable in, by melodically and harmonically analyzing the numeric relationships between the notes. Thinking numerically will free you to see all keys equally and allow you to form a deeper understanding of the way the components fit together. Some of the exercises will require more calculation than others and therefore require more concentration and focus, and perhaps a slower tempo.

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## Gm: Descending Scale Degrees

Repeat  
in all keys

i      vii      VI      V      IV      iii      ii      i

## Fm: Scale Degrees In 6ths

Repeat  
in all keys

V      i      ii      i      ii      i      V      i

## Gm: Descending Scale Degrees

Repeat  
in all keys

i      bVI      bVI      v      iv      III      ii      i

## C: Scale Degrees 7th Chords - 1st Inversion

Repeat  
in all keys

I      ii      iii      IV      V      vi      vii      I

Ascending Minor Major 7ths

Continue chromatically

Gm(Δ7) Am(Δ7)

Ascending Major 7ths (#5)

Repeat chromatically upward

CΔ7(#5)

Ascending Major 7ths (#5)

Continue chromatically

CΔ7 CΔ7(#5) D♭Δ7 D♭Δ7(#5)

Chromatic Major 7ths (#5)

Repeat chromatically upward

CΔ7(#5) C♯Δ7(#5)

### Descending Major 9ths

Continue chromatically

Musical notation for the exercise "Descending Major 9ths". It features a grand staff with two staves. The top staff contains a sequence of eighth notes descending chromatically, with a triplet of three notes in each measure. The bottom staff contains a sequence of eighth notes descending chromatically, also with a triplet of three notes in each measure. Above the top staff, the following chords are indicated: Eb<sup>Δ9</sup>, D<sup>Δ9</sup>, Db<sup>Δ9</sup>, C<sup>Δ9</sup>, B<sup>Δ9</sup>, Bb<sup>Δ9</sup>, A<sup>Δ9</sup>, and Ab<sup>Δ9</sup>. Below the bottom staff, there are four groups of three notes, each with a "3" above it, indicating triplets.

### Ascending Major 9ths In 5ths

Continue chromatically

Musical notation for the exercise "Ascending Major 9ths In 5ths". It features a grand staff with two staves. The top staff contains a sequence of eighth notes ascending chromatically, with a triplet of three notes in each measure. The bottom staff contains a sequence of eighth notes ascending chromatically, also with a triplet of three notes in each measure. Above the top staff, the following chords are indicated: C<sup>Δ9</sup>(#11), C#<sup>Δ9</sup>(#11), D<sup>Δ9</sup>(#11), and Eb<sup>Δ9</sup>(#11). Below the bottom staff, there are four groups of three notes, each with a "3" above it, indicating triplets.

### Descending Minor 9ths

Continue chromatically

Musical notation for the exercise "Descending Minor 9ths". It features a grand staff with two staves. The top staff contains a sequence of eighth notes descending chromatically. The bottom staff contains a sequence of eighth notes descending chromatically. Above the top staff, the following chords are indicated: Cm<sup>9</sup>, Bm<sup>9</sup>, Bbm<sup>9</sup>, and Am<sup>9</sup>.

### Descending Minor 9ths

Continue chromatically

Musical notation for the exercise "Descending Minor 9ths". It features a grand staff with two staves. The top staff contains a sequence of eighth notes descending chromatically. The bottom staff contains a sequence of eighth notes descending chromatically. Above the top staff, the following chords are indicated: Cm<sup>9</sup>, Bm<sup>9</sup>, Bbm<sup>9</sup>, and Am<sup>9</sup>.

F#<sup>o</sup> Fm A<sup>o</sup> Abm C<sup>o</sup> Bm Eb<sup>o</sup> Dm

Ascending Major Triads in 1st Inversion | b9 on the Bottom

F/F# Ab/A B/C D/Eb F/Gb

Ascending Major Triads in 1st Inversion (Built on the 6th)  
7th on the Bottom

Bb<sup>6(b9)</sup> Db<sup>6(b9)</sup> E<sup>6(b9)</sup> G<sup>6(b9)</sup> Bb<sup>6(b9)</sup>

Descending Major Triads in 2nd Inversion (Built on the b3)  
3rd on the Bottom

E7(#9) Db7(#9) Bb7(#9) G7(#9)

Cm Ab C#m A Dm Bb D#m B

Minor To Major

Cm7 Ab C#m7 A Dm7 Bb D#m7 B

Minor To Major

Cm7 A° Abm B+ C#m Bb° Am C+

Can also be played with a #5th

Parallel Major 7ths

Continue with different roots

CΔ7 C#Δ7 DΔ7 EbΔ7



Ascending Major Triads at Minor 3rds

C/F#      Eb/A      F#/C      A/Eb      C/F#

Minor Triad Variety - 2nd Inversion

Cm/C#      Ebm/E      F#m/G      Am/Bb

Minor Triad Variety - 2nd Inversion

Cm/E      Ebm/G      F#m/A#      Am/C#

These voicings can be applied to a G/Bb/Db/E dominant 7th chord

Minor Triads - 2nd Inversion

Transpose chromatically

Bbm/B      C#m/D      Em/F      Gm/Ab

Ascending 1st Inversion Major Triads - with Lower Neighbor Tone  
at Minor 3rds

Repeat  
Chromatically

Musical notation for Ascending 1st Inversion Major Triads with Lower Neighbor Tone at Minor 3rds. The piece is in B-flat major. The right hand plays a sequence of four triads: Bb/Ab, Db/B, E/D, and G/F. The left hand provides a bass line with notes: Bb, Db, E, G. The right hand melody consists of eighth notes with a lower neighbor tone (indicated by a bracket) for each triad.

Descending Major Triads - with Upper Neighbor Tone  
at Minor 3rds

Repeat  
Chromatically

Musical notation for Descending Major Triads with Upper Neighbor Tone at Minor 3rds. The piece is in B-flat major. The right hand plays a sequence of four triads: Bb, G, E, and C#. The left hand provides a bass line with notes: Bb, G, E, C#. The right hand melody consists of eighth notes with an upper neighbor tone (indicated by a bracket) for each triad.

Ascending 2nd Inversion Major Triads - with Whole Step Upper Neighbor  
at Minor 3rds

Repeat  
Chromatically

Musical notation for Ascending 2nd Inversion Major Triads with Whole Step Upper Neighbor at Minor 3rds. The piece is in B-flat major. The right hand plays a sequence of four triads: C/C#, Eb/E, Gb/G, and A/Bb. The left hand provides a bass line with notes: C, Eb, Gb, A. The right hand melody consists of eighth notes with a whole step upper neighbor tone (indicated by a bracket) for each triad.

Descending 2nd Inversion Major Triads - with Whole Step Upper Neighbor  
at Minor 3rds

Repeat  
Chromatically

Musical notation for Descending 2nd Inversion Major Triads with Whole Step Upper Neighbor at Minor 3rds. The piece is in B-flat major. The right hand plays a sequence of four triads: C/Db, A/Bb, Gb/G, and Eb/E. The left hand provides a bass line with notes: C, A, Gb, Eb. The right hand melody consists of eighth notes with a whole step upper neighbor tone (indicated by a bracket) for each triad.