

THE BARRY HARRIS 6TH AND DIMINISHED CHORD SYSTEM

by Richie Zellon

This concept was initially adopted by pianists of the bebop era as a method to create consistent forward motion when harmonizing a melodic line or simply comping. It has since become associated with the late Barry Harris who has taught its application through the use of a series of 8 note scales often referred to as, the “6th and diminished chord” system.

Each of these scales consists of a 6th chord arpeggio (eg. 1,3,5,6) interspersed with those of a diminished 7th (1,b3,b5,bb7). Let’s begin by examining the 2 principal scales in this system, or what Harris calls the “*Maj 6 diminished*” and “*Min 6 diminished*”. They are the result of first horizontally laying out the 4 notes of each 6th chord and filling the alternate spaces between them with those of a diminished 7th:

Major 6th Diminished Scale
D / F / Ab / B Symmetrical Diminished 7th Arpeggio

C Major 6th Arpeggio

Note that the above is simply a *major scale* with a chromatic passing tone between the 5th and 6th. Likewise, this next scale is a *melodic minor*, again with an added chromatic passing tone between the 5th and 6th.

Minor 6th Diminished Scale
D / F / Ab / B Symmetrical Diminished 7th Arpeggio

C Minor 6th Arpeggio

By diatonically stacking the components of both chords over their corresponding scale degrees, we end up with their 4 inversions:

Maj 6th Diminished Chords

Diagram illustrating the Maj 6th Diminished Chords. The sequence shows the Root Position (Cmaj6) followed by its 1st, 2nd, and 3rd Inversions, each preceded by a diminished chord (D°7, F°7, G#°7, B°7) that resolves to it. The diminished chords are stacked diatonically over the scale degrees of the major 6th chord.

Min 6th Diminished Chords

Diagram illustrating the Min 6th Diminished Chords. The sequence shows the Root Position (Cmin6) followed by its 1st, 2nd, and 3rd Inversions, each preceded by a diminished chord (D°7, F°7, G#°7, B°7) that resolves to it. The diminished chords are stacked diatonically over the scale degrees of the minor 6th chord.

Unfortunately, if we attempt to play these voicings on the guitar we will soon realize that they are physically out of our reach. The solution is to rearrange the notes in each voicing by dropping one of them down an octave. In this case let's drop each 2nd note from the top. For the purposes of this study, we can assign them to string groups 1,2,3,4 and 2,3,4,5. Note that the new voicings that follow, have been rearranged to start with the new root position and have been transposed to the key of D in order to avoid open strings.

Maj 6th Diminished Drop 2 Voicings

Diagram illustrating the Maj 6th Diminished Drop 2 Voicings. The sequence shows the Root Position (Dmaj6) followed by its 3rd, 5th, and 6th Inversions, each preceded by a diminished chord (E°7, G°7, Bb°7 (A#°7), C#°7) that resolves to it. The diminished chords are stacked diatonically over the scale degrees of the major 6th chord.

Minor 6th Diminished Drop 2 Voicings

Diagram illustrating the Minor 6th Diminished Drop 2 Voicings. The sequence shows the Root Position (Dmin6) followed by its 3rd, 5th, and 6th Inversions, each preceded by a diminished chord (E°7, G°7, Bb°7 (A#°7), C#°7) that resolves to it. The diminished chords are stacked diatonically over the scale degrees of the minor 6th chord.

The study of functional harmony has always taught us that any chord can be preceded by a dominant which resolves a perfect 5th down to it. The arrows in the example above denote the principle of “tension and resolve” which tonal music is based on. This effect continually takes place in the sequential application of the stacked chords in the above scale. That's because each diminished chord, which can be thought of as a rootless dom7b9, always resolves to the upcoming 6th chord. But this is not new, nor what I find most enticing about the Barry Harris “6th and diminished chord” concept. I believe the unique advantage of the system lies in viewing any chord, whether major, minor or dominant, as a form of 6th when voice leading between its surrounding diminished chords. That is, because *between each 6th and diminished chord there are no repeated notes*. As a result, *independent movement on all 4 voices of each chord is achieved when sequentially progressing from one to the other*. To that effect, here are some charts to help you better understand how the chords derived from the maj and min 6th diminished scales can be re-arranged to be used over other chord types.

6th Chord Equivalencies

For a min7 start the maj6 on the b3

Cmaj6	=	Am7 (<i>relative minor</i>)
Drop 2	=	Drop 2
3 (E)	=	5 (E)
6 (A)	=	1 (A)
5 (G)	=	b7 (G)
1 (C)	=	b3 (C)

For a maj7 start the maj6 on the 5

Cmaj6	=	Fmaj9 (<i>rootless</i>)
Drop 2	=	Drop 2
3 (E)	=	7 (E)
6 (A)	=	3 (A)
5 (G)	=	9 (G)
1 (C)	=	5 (C)

For a min7b5 start the min6 on the b3

Cmin6	=	Am7b5
Drop 2	=	Drop 2
b3 (Eb)	=	b5 (Eb)
6 (A)	=	1 (A)
5 (G)	=	b7 (G)
1 (C)	=	b3 (C)

For a dom7/9 start the min6 on the 5

Cmin6	=	F9 (<i>rootless</i>)
Drop 2	=	Drop 2
b3 (Eb)	=	b7 (Eb)
6 (A)	=	3 (A)
5 (G)	=	9 (G)
1 (C)	=	5 (C)

For an altered dom start the min6 on the b9

Cmin6	=	B7alt (<i>rootless</i>)
Drop 2	=	Drop 2
b3 (Eb)	=	3 (Eb)
6 (A)	=	b7 (A)
5 (G)	=	#5/b13 (G)
1 (C)	=	b9 (C)

For a maj6#11 start the min6 on the 6

Cmin6	=	Ebmaj6#11 (<i>rootless</i>)
Drop 2	=	Drop 2
b3 (Eb)	=	1 (Eb)
6 (A)	=	#11 (A)
5 (G)	=	3 (G)
1 (C)	=	6 (C)

In addition to the “Major 6th Diminished” & “Minor 6th Diminished”, there are 2 more scales that Harris introduces in his system: the *7th Diminished* and *7b5 Diminished*. Before introducing them, I have a caveat I’d like to disclose.

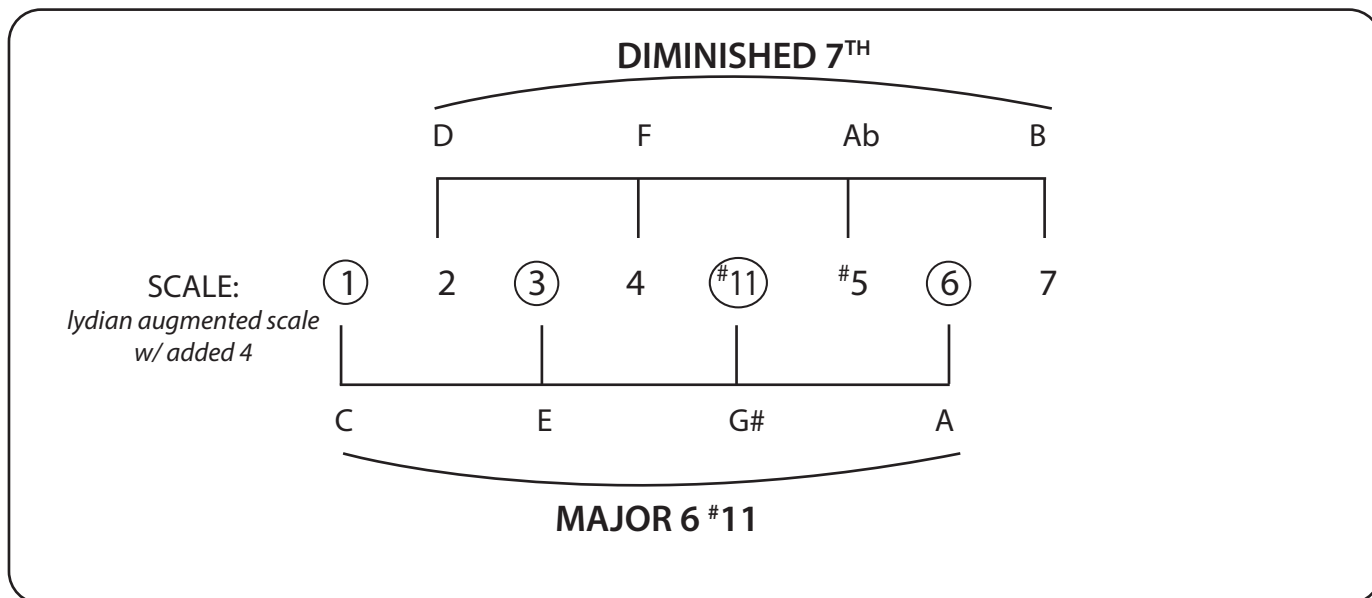
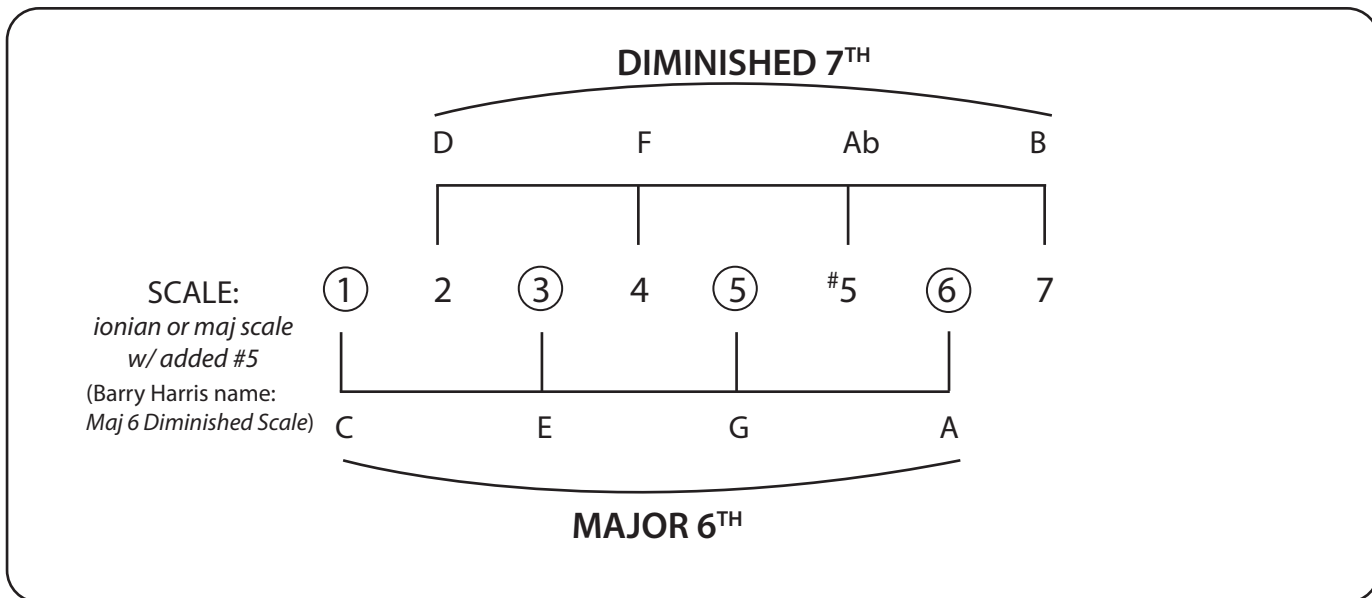
Although these scales can be used in a linear fashion to improvise, I value their utility more as a resource to create added harmonic movement whenever applying the chord sequence they generate. Despite the fact that the added note provides a ready made 8th note line, I don’t regard this as its principal purpose. Instead, I believe it is to supply the missing degree needed to build all 4 diminished chord inversions which in turn resolve to each ensuing 6th chord. I find that viewing the added note as a fixed member of the scale, a limiting factor during improvisation. Why? For instance, when inserting a note between the b7 and the root of the mixolydian scale, I agree with the conventional analysis that it is acting as a chromatic passing tone and *not* as the catalyst that gives birth to a *new* so called “bebop scale”. Consequently, if we understand the function of approach tones, during single note improvisation we have the alternative to add that chromatic passing tone between *any* other consecutive pair of notes in the scale!

The use of arpeggios derived from 7 note scales and the concept of targeting them with diatonic and chromatic approach tones, has been an effective and widely accepted practice by most musicians dating back to the bebop era. So why re-invent the wheel? Hence, I find that the vertical (chordal) application of this system supersedes that of its horizontal (scalar) one. In accordance with this view, throughout this study I will not discuss the role of these scales in the creation of single note lines. Furthermore, when referring to each 8 note scale, I will use its established heptatonic identity, and simply note the temporary addition of the chromatic passing tone in use.

The following charts, in addition to demonstrating the construction formula of the 4 scales taught by Barry Harris, also include some other variations that I find useful. For easy comparison, each scale is demonstrated with a C root, as well as grouped into one of 3 categories: *major*, *minor* or *dominant*.

The circled scale degrees denote the foundation for each inversion of the given 6th or 7th chord while the surrounding notes denote those of the diminished arpeggio.

MAJOR & DIMINISHED PAIRINGS



MINOR & DIMINISHED PAIRINGS

DIMINISHED 7TH

D F Ab B

① 2 ③^b 4 ⑤ ⑥^b ⑦^b 7

C Eb G B^b

MINOR 7TH

SCALE:
aeolian or nat. minor scale w/ added 7

DIMINISHED 7TH

D F Ab B

① 2 ③^b 4 ⑤ ⑤[#] ⑥ 7

C Eb G A

MINOR 6TH

SCALE:
melodic minor scale w/ added #5
(Barry Harris name:
Min6 Diminished Scale)

DIMINISHED 7TH

D F Ab B

① 2 ③^b 4 ⑤^b ⑥^b ⑦^b 7

C Eb Gb Bb

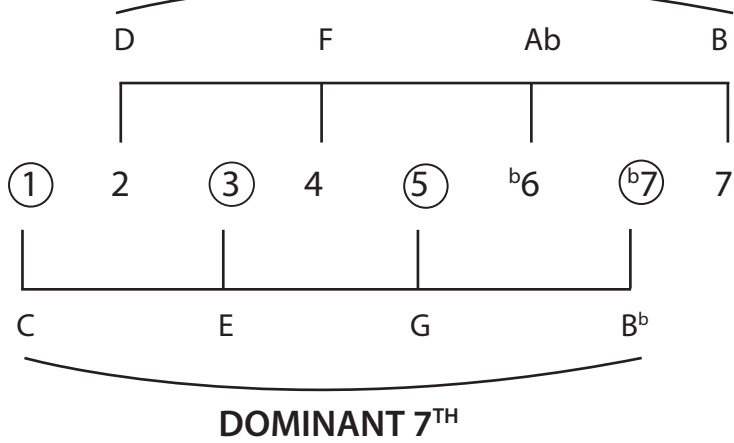
MINOR 7^b5

SCALE:
locrian nat.2 scale w/ added 7

DOMINANT & DIMINISHED PAIRINGS

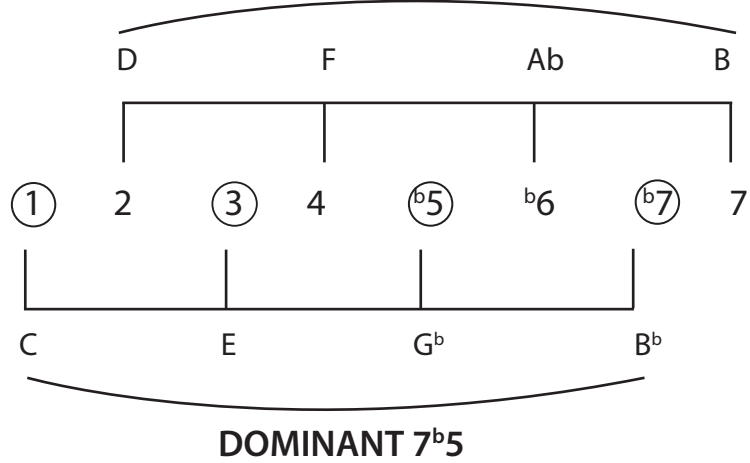
DIMINISHED 7TH

SCALE:
*mixolydian b6
 scale w/ added 7*
 (Barry Harris name:
7th Diminished Scale)



DIMINISHED 7TH

SCALE:
*major locrian
 scale w/ added 7*
 (Barry Harris name:
7th b5 Diminished Scale)



Major 6th & Diminished Chord Pairings

Dmaj6/ Dim7 pairings

by Richie Zellon

(NOTE: All the dim7 chords here can also be viewed as rootless A7b9 chords)

Drop 2 Voicings

Scale in bass: 1 (Ionian w added #5)

	D6	Edim7	D6/F#	Gdim7	D6/A	A#dim7	D6/B	C#dim7	D6
(It's also: Bm7/D)	Edim7	Bm7	Gdim7	Bm/A	A#dim7	Bm7	C#dim7	Bm7/D)	
T	7	8	5	6	7	9	10	12	14
A	4	6	3	5	7	8	10	11	12
B	7	8	4	6	7	9	11	12	14
B	5	7	4	5	7	8	9	11	12

"Borrowing"

Arpeggiate each chord voicing with "borrowed" voice first, followed by original voicing!

Borrowing on the top voice X = Non-harmonic suspension (very dissonant-must resolve !)

	D6	Edim7	D6/F#	Gdim7	D6/A	A#dim7	D6/B	C#dim7	D6									
x sus4			x #5		maj7		9		x sus4									
T	3	2	5	3	6	5	7	6	9	7	10	9	12	10	14	12	15	14
A	0	2	2	3	5	5	7	7	8	7	8	10	10	11	11	12	12	
B	2	3	3	4	6	6	7	7	9	7	8	10	10	11	11	12	12	
B	0	2	4	4	5	5	7	7	8	7	8	9	9	11	11	12	12	

Borrowing on 2nd voice

	D6	Edim7	D6/F#	Gdim7	D6/A	A#dim7	D6/B	C#dim7	D6							
maj7			9		x sus4		x #5		maj7							
T	7	8	5	3	6	5	7	6	9	7	10	9	12	10	14	12
A	6	4	7	6	4	4	6	7	8	7	8	10	10	11	11	12
B	7	8	4	4	5	5	7	7	9	7	8	10	10	11	11	12
B	5	7	4	4	5	5	7	7	8	7	8	9	9	11	11	12

(p.2 Major 6th & Diminished Chord Pairings)

Borrowing on 3rd voice

D6 Edim7 D6/F# Gdim7 D6/A A#dim7 D6/B C#dim7 D6
 x #5 maj7 9 x sus4 x = #5

Musical notation for Borrowing on 3rd voice. The notation shows a sequence of chords: D6, Edim7, D6/F#, Gdim7, D6/A, A#dim7, D6/B, C#dim7, and D6. The guitar fretboard diagrams below the notation show the following fret numbers for each chord:

2	3	5	6	7	9	10	12	14
0	2	3	5	7	8	10	11	12
3 2	4 3	6 4	7 6	9 7	11 9	12 11	14 12	15 14
0	2	4	5	7	8	9	11	12

Borrowing Mix #1

D6 Edim7 D6/F# Gdim7 D6/A A#dim7 D6/B C#dim7 D6

Musical notation for Borrowing Mix #1. The notation shows a sequence of chords: D6, Edim7, D6/F#, Gdim7, D6/A, A#dim7, D6/B, C#dim7, and D6. The guitar fretboard diagrams below the notation show the following fret numbers for each chord:

7	3	5	7 6	7	9	12 10	12	15 14
6 4	2	5 3	5	7	10 8	10	12 11	12
7	4 3	6 4	6	9 7	9	11	12	14
5	2	4	5	7	8	9	11	12

Borrowing Mix #2

D6 Edim7 D6/F# Gdim7 D6/A A#dim7 D6/B C#dim7 D6

Musical notation for Borrowing Mix #2. The notation shows a sequence of chords: D6, Edim7, D6/F#, Gdim7, D6/A, A#dim7, D6/B, C#dim7, and D6. The guitar fretboard diagrams below the notation show the following fret numbers for each chord:

2	3	6 5	6	7	9	10	14 12	14
2 0	3 2	3	5	8 7	8	10	11	14 12
3 2	3	4	7 6	7	11 9	12 11	12	15 14
0	2	4	5	7	8	9	11	12

Minor 6th & Diminished Chord Pairings

Dmin6/ Dim7 pairings

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(NOTE: All the dim7 chords here can also be viewed as rootless A7b9 chords)

	Dm6	Edim7	Dm6/F	Gdim7	Dm6/A	A#dim7	Dm6/B	C#dim7	Dm6
	(G9 Db7alt Bm7b5		G9 Db7alt Bm7b5		G9 Db7alt Bm7b5		G9 Db7alt Bm7b5		G9) Db7alt) Bm7b5)
Drop 2 Voicings									
Scale in bass:	1	2	b3	4	5	#5	6	7	(1)
(D mel/min w added #5)									
T	6	8	5	6	7	9	10	12	13
A	4	6	3	5	6	8	10	11	12
B	7	8	4	6	7	9	10	12	14
B	5	7	3	5	7	8	9	11	12

"Borrowing"

Arpeggiate each chord voicing with "borrowed" voice first, followed by original voicing!

Borrowing on the top voice X = Non-harmonic suspension (very dissonant-must resolve !)

Dm6	Edim7	Dm6/F	Gdim7	Dm6/A	A#dim7	Dm6/B	C#dim7	Dm6
11		x #5		maj7		9		11
3-1	5-3	6-5	7-6	9-7	10-9	12-10	13-12	15-13
0	2	3	5	6	8	10	11	12
2	3	4	6	7	9	10	12	14
0	2	3	5	7	8	9	11	12

Borrowing on 2nd voice

Dm6	Edim7	Dm6/F	Gdim7	Dm6/A	A#dim7	Dm6/B	C#dim7	Dm6
maj7		9		11		x #5		maj7
6	8	5-3	6-5	7-6	9-8	10-8	11-10	12-11
6-4	7-6	4	6	7	9	10	12	14
7	8	3	5	7	8	9	11	14
5	7							12

(p.2 Minor 6th & Diminished Chord Pairings)

Borrowing on 3rd voice

Dm6 Edim7 Dm6/F Gdim7 Dm6/A A#dim7 Dm6/B C#dim7 Dm6
 x #5 maj7 9 11 x = #5

1	3	5	6	7	9	10	12	13
0	2	3	5	6	8	10	11	12
3	2	4	7	9	10	12	14	15
0	2	3	5	7	8	9	11	12

Borrowing Mix 1

Dm6 Edim7 Dm6/F Gdim7 Dm6/A A#dim7 Dm6/B C#dim7 Dm6

1	3	5	7	7	9	12	12	15
2	0	5	5	6	10	10	12	12
2	4	6	6	9	9	10	12	14
0	2	3	5	7	8	9	11	12

Borrowing Mix 2

Dm6 Edim7 Dm6/F Gdim7 Dm6/A A#dim7 Dm6/B C#dim7 Dm6

1	3	6	6	7	9	10	13	13
2	0	5	5	8	10	10	11	14
3	2	6	7	10	10	12	12	15
0	2	3	5	7	8	9	11	12

Ode To Joy

by Ludwig Van Beethoven

Arranged by Richie Zellon

A

G6 Cdim7 G6 G6 Cdim7 G6 Adim7 G6 Adim7 G6 G6 D9

1

7 7 8 10 | 10 8 7 | 8 8 10 7 | 7 5 5

5 5 7 8 | 8 7 5 10 | 8 8 10 5 | 5 5 5

7 7 8 9 | 9 8 7 8 | 7 7 8 7 | 7 5 5

5 5 7 9 | 9 7 5 10 | 9 9 10 5 | 5 4 4

G6 Cdim7 G6 G6 Cdim7 G6 Adim7 G6 Adim7 G6 D9 G6

5

7 7 8 10 | 10 8 7 | 8 8 10 7 | 5 3 3

5 5 7 8 | 8 7 5 10 | 8 8 10 5 | 5 5 5

7 7 8 9 | 9 8 7 8 | 7 7 8 7 | 5 4 4

5 5 7 9 | 9 7 5 10 | 9 9 10 5 | 4 5 5

B

D9 G6 D9 G6 D9 G6 Adim7 G6 A7 D7#5

9

5 5 7 | 5 8 7 | 5 8 7 | 5 10

5 5 5 8 | 5 7 5 8 | 5 7 5 10 | 8 7 11

5 5 7 7 | 5 9 7 7 | 5 9 7 8 | 7 6 11

4 4 5 7 | 4 7 5 9 | 4 7 5 10 | 9 5 10

(Ode To Joy p.2)

C

G6 Cdim7 G6 G6 Cdim7 G6 Adim7 G6 Adim7 G6 Adim7 G6

13

8

7	7	8	10	10	8	7		8	8	10	7	5	3	3
5	5	7	8	8	7	5	10	8	8	10	5	4	5	5
7	7	8	9	9	8	7	8	7	7	8	7	5	4	4
5	5	7	9	9	7	5	10	9	9	10	5	4	5	5