CHAPTER 6: HARMONIZING THE MAJOR SCALE

The theory of chord construction and chord progressions is steeped in a process known as *harmonizing the major scale*—a system in which chords are constructed by stacking the notes of the major scale in 3rds. This harmonization process is also referred to as diatonic harmony.

DIATONIC TRIADS

Let's start by harmonizing the C major scale in triads. The first step is to write out the scale on the staff (Fig. 1A). Next, place the note that is a diatonic 3rd interval higher (two notes away in the same scale), above each scale step (Fig. 1B). The scale is now harmonized in 3rds. (Notice that some are major, while others are minor.) Finally, place the note that is a diatonic 3rd away on top of the second note (Fig. 1C). Now the process is complete: the C major scale harmonized in triads.

Fig. 1A

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C major scale

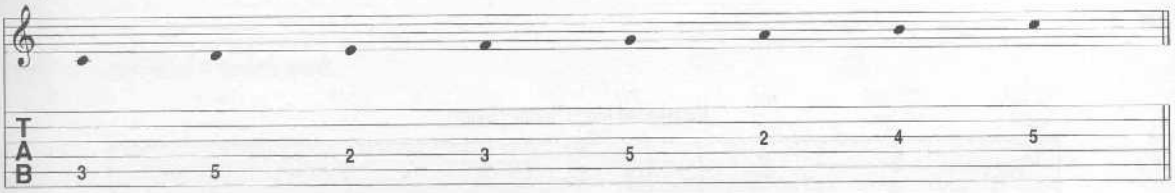


Fig. 1B

Harmonized in 3rds

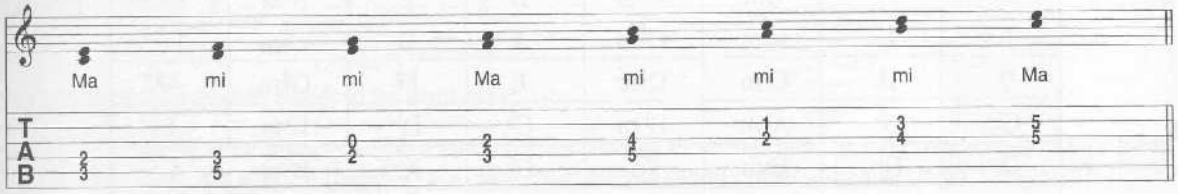
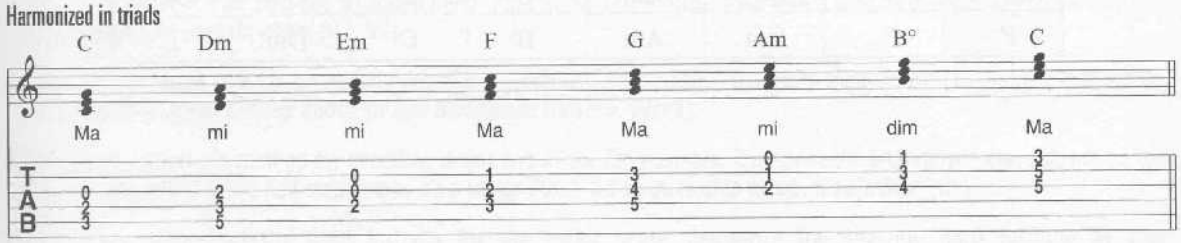


Fig. 1C

Harmonized in triads



The triad qualities are notated below the staff. (The actual chord names are written above.) This is the triad formula for the major scale, and it never deviates, no matter what key: major–minor–minor–major–major–minor–diminished. Commit it to memory, as it is the foundation for many songs and chord progressions.

Roman Numeral Notation

As discussed in Chapter 3, Arabic numbers (1, 2, 3, etc.) are used to describe scale steps. Chords, however, are identified with Roman numerals (I, II, III, etc.), both uppercase (I) and lowercase (iii). Roman numerals describe a chord's quality and *function*, or how it relates to the key of the progression. An uppercase Roman numeral indicates a major triad, lowercase represents a minor triad, and the numeric value reflects the root of the chord as it corresponds to the scale degree. A small circle (°) placed after a chord name or lowercase Roman numeral indicates a diminished triad. According to this system, the formula for harmonized triads of the major scale reads: I–ii–iii–IV–V–vi–vii° (Fig. 2).

Fig. 2

I	ii	iii	IV	V	vi	vii°
C	Dm	Em	F	G	Am	B°

If you know the key signature of every key, it's relatively simple to harmonize any major scale. Start by writing out the names of the notes of the scale, and then simply add the appropriate chord quality to each scale step. Fig. 3 offers a handy chart for reference.

Fig. 3

Harmonized Major Scales (Triads)

Key	I	ii	iii	IV	V	vi	vii°
C	C	Dm	Em	F	G	Am	B°
G	G	Am	Bm	C	D	Em	F♯°
D	D	Em	F♯m	G	A	Bm	C♯°
A	A	Bm	C♯m	D	E	F♯m	G♯°
E	E	F♯m	G♯m	A	B	C♯m	D♯°
B	B	C♯m	D♯m	E	F♯	G♯m	A♯°
G♭	G♭	A♭m	B♭m	C♭	D♭	E♭m	F°
D♭	D♭	E♭m	Fm	G♭	A♭	B♭m	C°
A♭	A♭	B♭m	Cm	D♭	E♭	Fm	G°
E♭	E♭	Fm	Gm	A♭	B♭	Cm	D°
B♭	B♭	Cm	Dm	E♭	F	Gm	A°
F	F	Gm	Am	B♭	C	Dm	E°

DIATONIC SEVENTH CHORDS

Triads are the most fundamental of all chords and form the basis for many popular songs—especially in rock, folk, and country. In styles such as jazz, funk, and blues, however, it is customary to employ more complex, colorful chords known as *seventh chords.*

A seventh chord is a combination of a triad with an added interval of a 7th. This translates to a triad with another 3rd interval placed on top. In Fig. 4A you'll find the C major scale harmonized in triads. Fig. 4B stacks another diatonic 3rd interval above each triad. This also translates to a diatonic 7th interval from the root of each triad. The result is the C major scale harmonized in seventh chords. You'll notice that these chords contain some pretty serious stretches in the left hand. For this reason, seventh chords are rarely voiced in a closed manner. We'll see more on their voicing later.

Figs. 4A–4B

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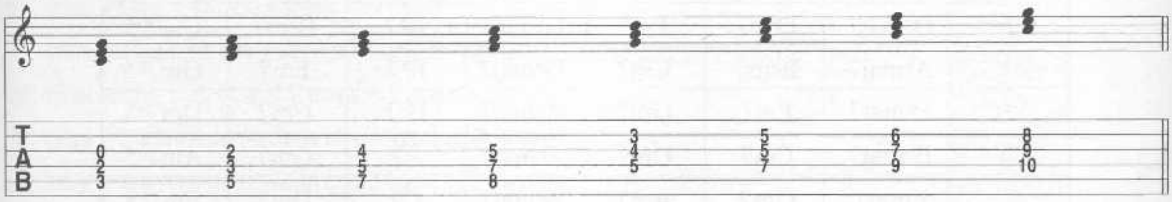
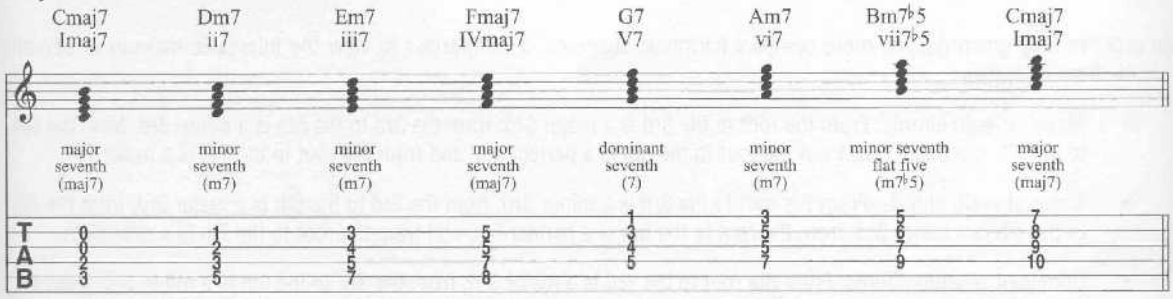
C major scale triads



C major scale harmonized in seventh chords



Now, compare these seventh chords to the triads in Fig. 1C:

- The I and IV major triads now have added major 7th intervals above their roots (B and E, respectively). Major triads with major 7ths attached (1–3–5–7) are called *major seventh chords* (Cmaj7 and Fmaj7; Imaj7 and IVmaj7).
- The ii, iii, and vi minor triads now have added minor 7th intervals (C, D, and G, respectively). Minor triads with minor 7ths attached (1–♭3–5–♭7) are called *minor seventh chords* (Dm7, Em7, and Am7; ii7, iii7, and vi7).
- The V major triad also has an added minor 7th interval (F). A major triad with a minor 7th (1–3–5–♭7) is called a *dominant seventh chord* (G7; V7).
- The vii° triad now has an added minor 7th interval (A). A diminished triad with a minor 7th (1–♭3–♭5–♭7) is called a *minor seven flat-five chord,* or *half diminished* (Bm7♭5; vii7♭5).

(Note: Here's a short-cut method for decoding major and minor 7th intervals: Transpose the interval an octave down, so that it is below the root. If it is a half step below, it's a major 7th. If it's a whole step below, it's a minor 7th.)

After you've memorized the triad formula for the major scale, memorize the seventh-chord formula as well: Imaj7–ii7–iii7–IVmaj7–V7–vi7–vii7♭5. Once you know the formula, it's easy to harmonize any major scale. Simply write down each scale step, and attach the appropriate quality. Use the chart in Fig. 5 (on the following page) for reference.

Fig. 5

Harmonized Major Scales (Seventh Chords)

Key	Imaj7	ii7	iii7	IVmaj7	V7	vi7	vii7♭5
C	Cmaj7	Dm7	Em7	Fmaj7	G7	Am7	Bm7♭5
G	Gmaj7	Am7	Bm7	Cmaj7	D7	Em7	F♯m7♭5
D	Dmaj7	Em7	F♯m7	Gmaj7	A7	Bm7	C♯m7♭5
A	Amaj7	Bm7	C♯m7	Dmaj7	E7	F♯m7	G♯m7♭5
E	Emaj7	F♯m7	G♯m7	Amaj7	B7	C♯m7	D♯m7♭5
B	Bmaj7	C♯m7	D♯m7	Emaj7	F♯7	G♯m7	A♯m7♭5
G♭	G♭maj7	A♭m7	B♭m7	C♭maj7	D♭7	E♭m7	Fm7♭5
D♭	D♭maj7	E♭m7	Fm7	G♭maj7	A♭7	B♭m7	Cm7♭5
A♭	A♭maj7	B♭m7	Cm7	D♭maj7	E♭7	Fm7	Gm7♭5
E♭	E♭maj7	Fm7	Gm7	A♭maj7	B♭7	Cm7	Dm7♭5
B♭	B♭maj7	Cm7	Dm7	E♭maj7	F7	Gm7	Am7♭5
F	Fmaj7	Gm7	Am7	B♭maj7	C7	Dm7	Em7♭5

In order to fully grasp deeper, more complex harmonic concepts, it's important to view the intervallic makeup of seventh chords from all angles.

- Major seventh chords: From the root to the 3rd is a major 3rd; from the 3rd to the 5th is a minor 3rd; from the 5th to the 7th is a major 3rd; from the root to the 5th is a perfect 5th; and from the root to the 7th is a major 7th.
- Minor seventh chords: From the root to the 3rd is a minor 3rd; from the 3rd to the 5th is a major 3rd; from the 5th to the 7th is a minor 3rd; from the root to the 5th is a perfect 5th; and from the root to the 7th is a minor 7th.
- Dominant seventh chords: From the root to the 3rd is a major 3rd; from the 3rd to the 5th is a minor 3rd; from the 5th to the 7th is a minor 3rd; from the root to the 5th is a perfect 5th; and from the root to the 7th is a minor 7th.
- Minor seventh flat-five chords: From the root to the 3rd is a minor 3rd; from the 3rd to the 5th is a minor 3rd; from the 5th to the 7th is a major 3rd; from the root to the 5th is a diminished 5th; and from the root to the 7th is a minor 7th.

Once you're familiar with major scale harmony, start drilling yourself in the following manner:

What are the I, IV, and V triads of F major? Answer: F, B♭, and C.

What is iim7–V7–Imaj7 in D major? Answer: Em7–A7–Dmaj7.

What is the V chord of E? Answer: B.

What is the V7 chord of B♭? Answer: F7.

What is I–vi–IV–V in G major? Answer: G–Em–C–D.