

# 20 Steps to Jazz Keyboard Harmony

Sid Thomas



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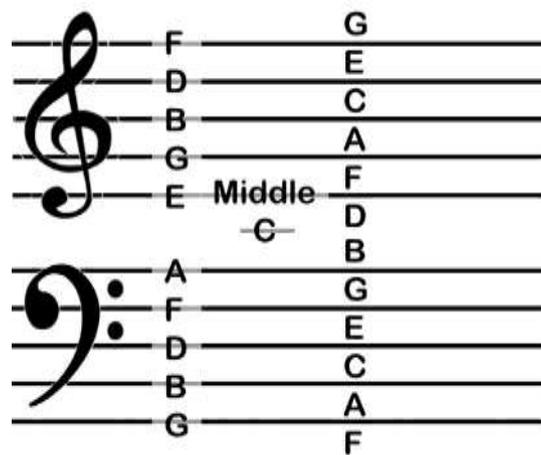
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## Prelude

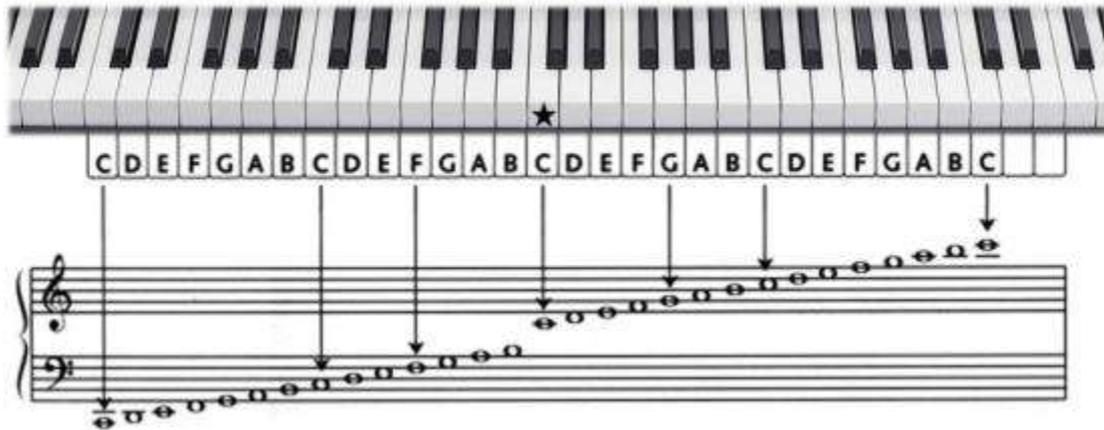
This little book represents the way I think about jazz harmony. It isn't the way *you* should think about jazz harmony, unless you want to. Years of trying to communicate what jazz is about to people of all ages, abilities, genders and experience, either one-to-one or in workshops, have taught me that there is no system. You may be one of those rare individuals who can just do it, by a combination of intuition and introspection. If so, this book probably isn't for you. But if, like me, you need some kind of structure or framework of understanding to be able to do music at all, you may find it here. At the very least, by *Step 20* you should be able to look at a chord chart and recognise (and even play) the symbols and patterns that form the foundations of the melodic theme, and improvisations based on it.

Before we go any further, I should state that this book will not teach you to play the piano. Indeed, I wouldn't dare take on that role because my own technique is the culmination of years of bad habits, neglect of the technical basics and encounters with dreadful pianos. When piano teachers have nightmares, it's me they've been dreaming about. I often run up against frustrations during rehearsals and performances which I know I could have avoided if I'd just learned to finger or sit or pedal correctly. The only advice I can give on these matters is to start as early as you can with good technical habits, gained through lessons if that's what works for you. We can all take comfort in the generosity and hospitality of jazz, which makes a place for everyone as long as you have a voice. No-one would call Thelonious Monk a virtuoso – but he's up there on Mount Olympus.

To discuss music, we need a vocabulary that we can all understand. In formal terms, this is what musical notation represents. But frequently – possibly even usually – the aspiring or practising jazz musician doesn't get on too well with The Dots. I'm not much of a sight-reader myself. After much pondering, I decided to tackle this communication difficulty through the medium of the image of the piano keyboard. The text of *20 Steps* uses grids based on the characteristic configuration of seven white and five black notes to relate fingering, notation and chord symbols. From personal experience, I know that the fingering pattern on the keyboard grid itself can convey meaning and logic to the right kind of mind. But at least a passing acquaintance with where the notes lie on the treble and bass clefs is desirable, so here's a reminder.



And here's how these notes map onto the piano keyboard. The star shows the position of middle C (if you sit up close to the centre of the keyboard, middle C is the one nearest your navel):



Something else this book won't do is teach how to improvise. It has plenty to say about how the horizontal line of melody might relate to the vertical chordal structures of harmony. This represents a good jumping-off point for creating improvised lines. But just as there's a language of chords (which this book explores), there's a vernacular of linear melody that needs to be developed (usually by absorption) in order to improvise idiomatically.

*20 Steps* acknowledges that, despite the growth of jazz studies as an academic discipline in recent decades, the learning pathway remains largely a matter of individual or group self-education. In my time I've come across jazz musicians of every kind, including child prodigies, conservatoire scholars, lifelong autodidacts (like me) and gifted intuitives. By what cognitive and physical processes do these jazz musicians acquire their skills? Teaching and learning the jazz art would be easier if we could answer this question.

There are a few accounts of individuals' journeys towards enlightenment. A classic text is David Sudnow's description of learning jazz piano improvisation (*Ways of the Hand: The Organisation of Improvised Conduct*. Routledge & Kegan Paul, 1978). By focusing on the interplay

between cognitive and physical factors, Sudnow's analysis has illuminated not just the musical experience but has also been influential in other areas of skill-acquisition – even cricketing ability! Although the path taken by Sudnow was sufficiently close to that taken by 'novice or prior player' to be the basis of his subsequently developed teaching method, the author had the advantage of starting on his quest with an already high degree of competence as a classical pianist. I don't know of many comparably forensic accounts of the experience of an autodidact for whom music education and the acquisition of jazz skills are the same thing. In a way, *20 Steps* traces the growth of my own harmonic and general musical awareness.

Immersion and imitation are central to developing facility in jazz. It's significant that Sudnow's own breakthrough came by observing the physical habits of the great pianist Jimmy Rowles. The affectations and mannerisms of jazz – its language, clothes, social attitudes, tribalism – are often ridiculed (and not without cause), but they serve an important purpose. To become a jazz musician one may first need to *act* like a jazz musician. So if it helps, wear a jazz hat, call your mother 'man', assume the persona of Bud Powell or Keith Jarrett, dream of being part of that dream band performing for that dream audience (better do some of this stuff behind closed doors). Sheer willpower can get you a long way. Jean-Paul Sartre famously wrote about observing a waiter going about his duties, and the realisation that the waiter was *playing the part of a waiter*. *20 Steps* is a script; use it to *play the part of a jazz musician*.

Finally, before you take the first step, remember: it may be a cliché, but Jon Hendricks's one word jazz poem really does say it all: 'Listen!'

## Step 0: Conventions

Notes are referred to by capital letters: C,E,B and so forth.

Sharps and flats (accidentals) do not render correctly in conventional digital text, so I will use the hash symbol (#) and lower case 'b' respectively.

Sharps and flats come after the note they qualify: D#, Gb, A#...

Notes expressed in this way are used in two slightly different contexts: as part of a chord symbol - B13, Eb7 and so on - and as specific single notes.

To distinguish the two uses, single notes will be represented in **bold face**: **C#, F, Ab...**

Notes from the next octave higher will be qualified with superscript 1, and the next octave with superscript 2 and so on.

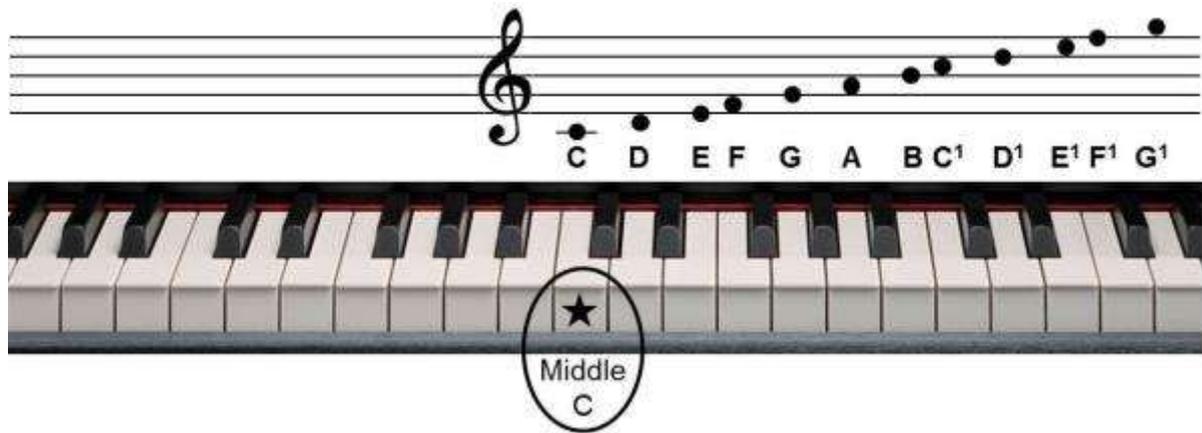
Thus: **C Bb E<sup>1</sup> A<sup>1</sup> C<sup>2</sup>** is a voicing of C13.

Each note is separated from every other by a specific interval. Intervals are expressed with respect to the root note as the origin of a major scale.

So the interval from **C** to **A** is a sixth (counting **C** as 1). Arabic numbers in chord symbols (5, 9, 13 and so on) refer to the interval with respect to the root note.

When we need to represent chords or note combinations as generalised formulae then we use Roman numerals instead of letters, representing the corresponding intervals. Thus the scale of C major is **C D E F G A B C<sup>1</sup> D<sup>1</sup>**

E<sup>1</sup>... whereas I II III IV V VI VII VIII IX X... refers to *any* and *every* major scale.



Similarly, the chord of D-9 (D minor ninth) based on the second note in the C major scale is generalised to II-9.

Notes represented in the generalised, Roman numeral format can also be qualified by accidentals in the same way as specific notes. Thus the chord of F#7 in the context of the key of C is generalised to IV#7.

Where the piano keyboard is illustrated in these pages, middle C is always indicated with a star.

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## Step 1: Basics

The *C major* scale goes like this:

**C D E F G A B C<sup>1</sup> D<sup>1</sup> E<sup>1</sup> F<sup>1</sup> G<sup>1</sup> A<sup>1</sup>**

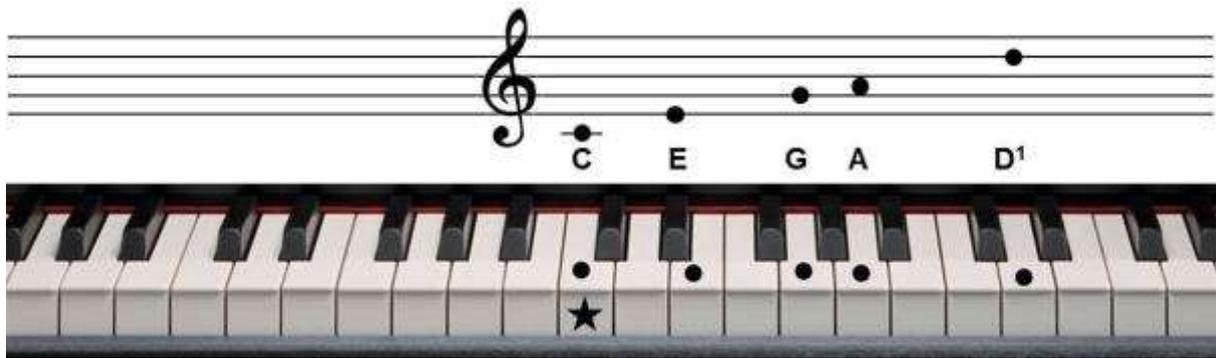
**C<sup>1</sup>** is an octave higher than **C**. The key of C is used here as an example, but everything applies equally to all other keys.

The chord of C major (sometimes called the *major triad*) is **C E G**. In terms of intervals, a major chord has the 'formula' 1 3 5; using the generalised Roman numeral convention, the I major triad is **I III V**.

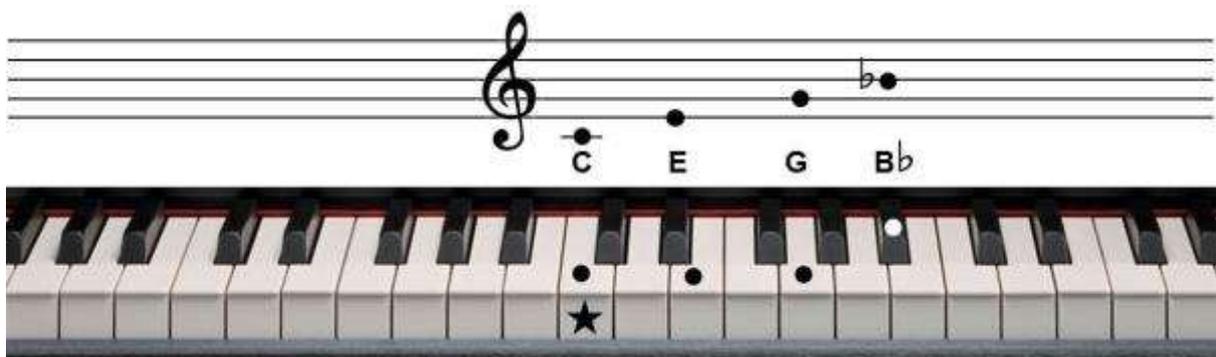


In a *chord progression* the C major chord is represented as C, or CΔ.

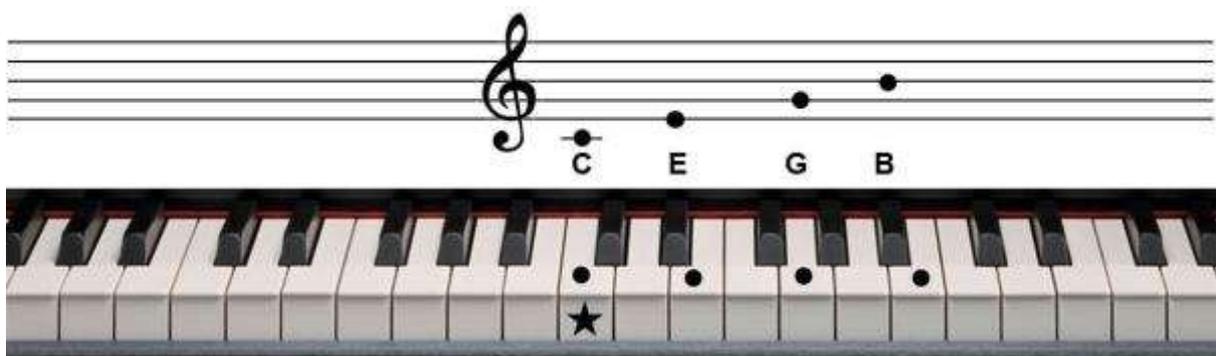
A chord to which extra notes have been added is expressed by including the interval numbers in the basic chord symbol. So C6 9 is the chord **C E G A D<sup>1</sup>**. Sometimes such chords are written as C add 6 or C add 9.



The *dominant seventh* is something in chord notation that can confuse the inexperienced. You might expect C7 to be **C E G B**. But in fact C7 represents **C E G Bb**. Don't blame me - I don't make the rules!

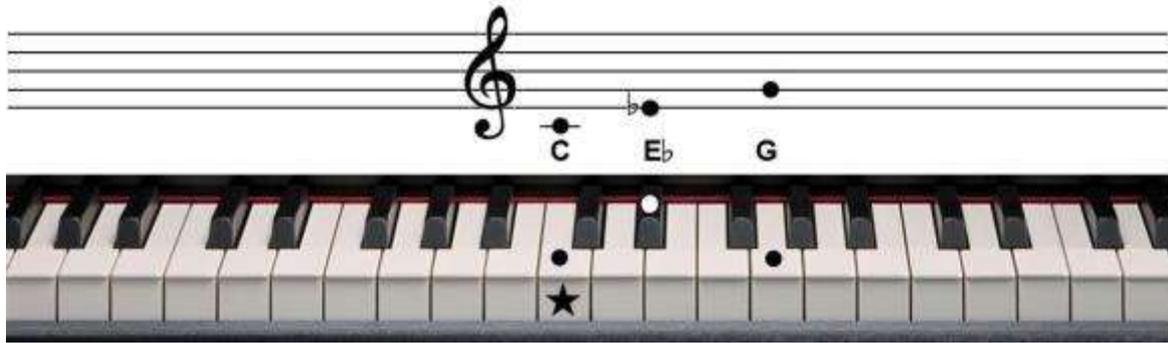


**C E G B** is the *major seventh* chord of C and its symbol is Cmaj7, or CM7, or (most commonly these days) CΔ7.



Similar rules to those just described for chords in the major scale apply to the *minor scale* too.

The basic minor chord has the formula **I IIIb V**. C minor is **C Eb G** and its symbol is Cmi or C-.



**C Eb G A** would be C-6. C-7 is **C Eb G Bb**. C-Δ7 (C minor-major seventh) is **C Eb G B**.

Notes added to major or minor chords can be *sharpened* or *flattened* and this is shown in the symbol. These additional notes form *upper structures* or *chord extensions*. They enrich the basic parent chords by adding different degrees of harmonic tension.

Examples of extended chords are **C E G B D<sup>1</sup># F<sup>1</sup>#**, which has the symbol CΔ7 9# 11# (whew!). **C Eb Gb B D<sup>1</sup>** would be C- 5b Δ7 9. **C E G Bb D<sup>1</sup># A<sup>1</sup>b** = C7 9# 13b. These are all real chords, used in jazz.

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## Step 2: Introducing sevenths

Sevenths and related chords account for much of jazz harmony.

There are three main types of seventh:

*Major seventh* (maj7, M7 or  $\Delta$ 7)

*Dominant seventh* (7)

*Minor seventh* (mi7,-7)

A general rule in playing chords on keyboards is to *spread the notes out* leaving lots of *space at the bottom*.

For example, you could play C $\Delta$ 7 as in **Example [2.1]**, but the texture is too heavy. So let some air in by moving the middle two notes (**E** and **G**) *up an octave* (**Example [2.2]**). Doesn't that sound better?

Ex. 2.1 Ex. 2.2 Ex. 2.3 Ex. 2.4 Ex. 2.5

C $\Delta$ 7 C $\Delta$ 7 C-7 C7 C7 5b

The image shows five examples of C7 chords in a grand staff. Ex. 2.1 shows a standard C $\Delta$ 7 chord with notes C, E, G, Bb. Ex. 2.2 shows a C $\Delta$ 7 chord with notes C, E, G, Bb, where E and G are an octave higher. Ex. 2.3 shows a C-7 chord with notes C, Eb, F, Ab. Ex. 2.4 shows a C7 chord with notes C, Eb, F, Ab. Ex. 2.5 shows a C7 5b chord with notes C, Eb, F, Ab, Bb.

Ex. 2.1 Ex. 2.2 Ex. 2.3 Ex. 2.4 Ex. 2.5

The image shows a keyboard diagram with five rows of notes corresponding to the examples above. A star is placed on the C key (middle C) at the bottom of the keyboard.

You can do the same thing for C-7 (**Example [2.3]**) and C7 (**Example [2.4]**).

The I VII combination played in the left hand in **Examples [2.2], [2.3]** and **[2.4]** is called the *shell*.

The combination of left-hand shell and the rest of the chord in the right hand is a simple but effective way to *voice* a chord progression and turn it into an accompaniment.

The shell is also a good left-hand basis for *improvisation*. As the right hand plays out a melodic line, notes in the line will fill out the chord as they pass.

Practice all the major and minor seventh shells. Experiment with different right-hand notes and listen to the effect.

The image shows five musical examples, labeled Ex. 2.6 through Ex. 2.10, arranged horizontally. Each example consists of a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. The left hand (bass clef) plays a shell (I-VII) in various positions. The right hand (treble clef) plays a chord. Ex. 2.6: C7 (C4, E4, G4, Bb4). Ex. 2.7: C7 (C4, E4, G4, Bb4). Ex. 2.8: C-7 (C4, Eb4, F4, Ab4). Ex. 2.9: C-7 (C4, Eb4, F4, Ab4). Ex. 2.10: C7 (C4, E4, G4, Bb4).

The image shows a diagram of a piano keyboard with five rows of fingerings, labeled Ex. 2.6 through Ex. 2.10. Each row shows the left hand (black keys) and the right hand (white keys) playing a shell and a chord. A red horizontal line is drawn across the keyboard, indicating the middle C position. A small star is placed on the C4 key.

**Example [2.5]** is C7b5, a complex form of C7. **Examples [2.6]** and **[2.7]** are forms of C7 (respectively, C9 11# 13 and C7 9b 13b) in which the shell is extended with upper structures. **[2.8]** and **[2.9]** are C- variants (C-9, C-7

11 respectively). **[2.10]** is an extended form of CΔ7 (CΔ7 9 13). Spelling out complex chord names in full like this is often not very helpful to the pianist who has to read them under combat conditions. For practical purposes, vanilla changes (see [Step 4](#)) or slash chords ([Step 5](#)) are kinder, leaving it to the performer to add the extensions and voicings that work best for her or him.

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### Step 3: More about sevenths

Here's a very common combination of chords found in jazz progressions (just for a change, the key is F):

/ G-7 / C7 / FΔ7 /

From / to / represents a bar. Play this little sequence, using simple shell voicings (**Example [3.1]**).

Ex. 3.1

i G-7      ii C7      iii FΔ7

Ex. 3.1 i  
ii  
iii

This motif is often called II-V-I. That's because the root of G-7 is note **II** in the scale of F, C is **V** and F is **I**.

II-V-I is an example of what, in standard musical theory, is called a *harmonic cadence* – a sequence of two or more chords that end a section of music by creating a sense of pause or completion. V-I, the strongest resolution, giving a sense of finality, is termed a *perfect cadence*.

Harmony in jazz, as in most of western music, is concerned with the organisation of cadences. Cadential structure is set by the melodic theme (often called the *head*) and is the framework on which improvisation is built.

Now look at the shell for the G chord and the shell for the F chord. Wouldn't it be easy just to move by a small step from **G F<sup>1</sup>** to **F E** via, say, **F# E** (**Example [3.2]**), instead of jumping up to **C B<sup>1</sup>b** and down again?

Ex. 3.2

The image shows musical notation for three measures in bass clef. The first measure has a G chord (i), the second has an F chord (ii), and the third has an E chord (iii). Below the notation is a piano keyboard diagram with three rows of keys. The first row is labeled 'Ex. 3.2 i' and shows the keys G, B, and D. The second row is labeled 'ii' and shows the keys F, A, and C. The third row is labeled 'iii' and shows the keys E, G, and B. A star is placed on the F key in the keyboard diagram.

The answer is - yes. It happens all the time in jazz. / G-7 / F#7 / FΔ7 / is a perfectly acceptable alternative to / G-7 / C7 / FΔ7 /.

Does this mean that C7 and F#7 are somehow the *same chord*? Yes, that's what it means. And here's one way to explain it: **Example [3.3]** is a common variant of the C7 chord. In this case the **G** has been flattened - so it's C7 5b. In *bebop* they used the *flattened fifth chord* all the time instead of the straight dominant seventh.

(The flattened fifth could be called *sharpened fourth*. An octave higher and it's 11#).

Now let's work out what F#7 5b would be (**Example [3.4]**). Read off the notes that make up this chord - **F# E B<sup>1</sup>b C**. Would you believe it - *the same notes* as in C7 5b, just spread out differently! So C7 5b and F#7 5b are harmonically identical.

The image shows two musical examples, Ex. 3.3 and Ex. 3.4, in a grand staff. Ex. 3.3 shows the chord C7 5b with notes F, C, G, and Bb. Ex. 3.4 shows the chord F#7 5b with notes C, F#, G, and Bb. Below the notation is a piano keyboard diagram with two rows of labels: 'Ex. 3.3' and 'Ex. 3.4'. The diagram shows the same four notes (F, C, G, Bb) on the keyboard for both examples, demonstrating that they are the same set of notes. A star is placed on the C key below the keyboard.

In **Example [3.5]** F#7 5b is used as a *chord substitution* for the basic C7. Notice **F#** is exactly 3 whole tones up from **C** and three tones down from **C<sup>1</sup>** just as **C** divides the interval of six whole tones from **F#** to **F<sup>1</sup>#** precisely in half.

This three-tone (*tritone*) relationship is notorious in musical history (it was forbidden in liturgical music, where it was referred to as the 'devil's interval').

The chord substitution rule is: *every dominant 7th chord has a tritone opposite partner* (i.e a flat 5th lower, or sharp 4th higher, same thing). It's not difficult to work out the shells of all the possible tritone substitutable partners.

An important point to notice: in the original II-V-I progression (**Example [3.1]**) the root notes of the chords (and hence the bass line) move in jumps of fourths and fifths. In the *substituted* progression (**Example [3.5]**) the bass line does not jump - it moves *chromatically*.

The minimal movement between one chord and the next makes chromatic harmony sound smooth and logical. Shifting chromatics can be very satisfying for the creative pianist, particularly when performing ballads.

Ex. 3.5

The image displays a musical example labeled 'Ex. 3.5'. It consists of two parts: a musical score and a piano keyboard diagram. The musical score is written in the bass clef and shows three measures. The first measure contains a chord labeled 'i' (C major triad). The second measure contains a chord labeled 'ii' (C minor triad). The third measure contains a chord labeled 'iii' (C minor triad). The piano keyboard diagram below the score shows the fingerings for these chords. The 'i' chord is played with the thumb on C, index on E, and middle on G. The 'ii' chord is played with the index on C, middle on E-flat, and ring on G. The 'iii' chord is played with the middle on C, ring on E-flat, and pinky on G. A red star is placed on the C key in the second measure of the keyboard diagram, indicating the root of the ii chord.

In general, jumping (*diatonic*) basslines and chords are common in pre-bebop jazz (think of *stride piano*, for example), while chromatic movement is characteristic of modern jazz. It's a good idea to try and mix the two approaches, for the sake of variety and freshness.

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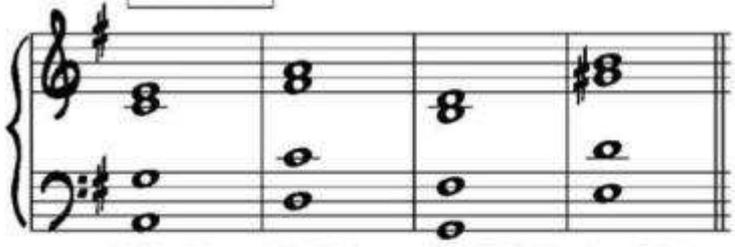
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## Step 4: Even more about sevenths

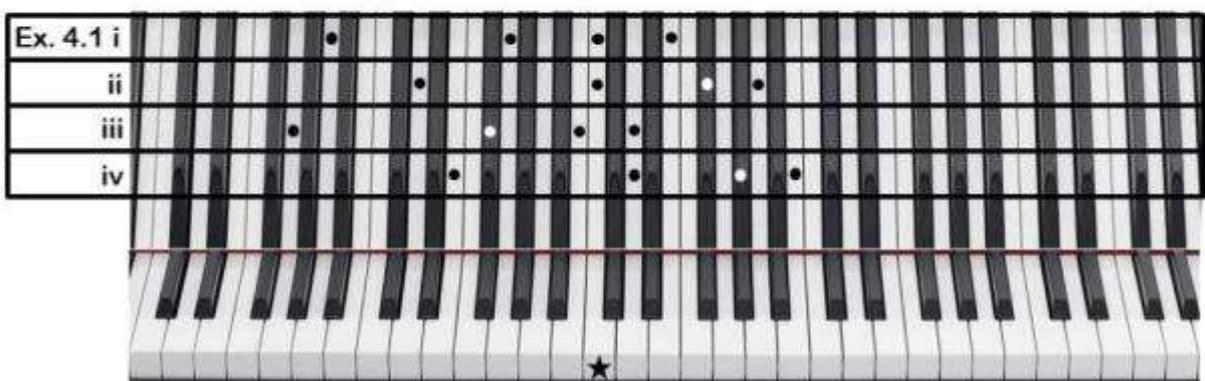
If we add one more chord to the II-V-I pattern we can set up an endless loop (key of G this time):

/ A-7 / D7 / GΔ7 / E7 / A-7 / D7 / GΔ7 / E7... etc (**Example [4.1]**)

Ex. 4.1



i A-7    ii D7    iii GΔ7    iv E7



Just as the D chord leads to the G chord by jumping down a fifth (or up a fourth, same thing), so E jumps a fifth to A. You may come across this relationship between chords referred to as the *cycle of fifths*.

We know that we may be able to use a substitute wherever we see a 7 chord. Can you work out the substitutes for D7 and E7?\*

In **Example [4.2]** a substitute sequence is given, this time using tritones.

Ex. 4.2

i A-7    ii Ab7 5b    iii GΔ7    iv Bb7 5b

Ex. 4.2 i  
ii  
iii  
iv

Let's loosen up and slot in more chromatic seventh shells. We can really make this little looping progression harmonically mobile (**Example [4.3]**). Notice that the root notes now make a nice *walking bassline*.

**Example [4.4]** is a variation on the same theme, but this time the right hand also plays, just one note - the third - of each chord. Try it - it's simple but effective and sounds more complicated than it really is.

Ex. 4.3

Musical notation for Ex. 4.3. The piece is in G major (one sharp). The bass clef contains eight chords, each with a Roman numeral below it: i, ii, iii, iv, v, vi, vii, and viii. The chords are: i (G2, B2), ii (A2, C3), iii (B2, D3), iv (C3, E3), v (D3, F#3), vi (E3, G3), vii (F#3, A3), and viii (G3, B3). The treble clef is empty.

Fingerboard diagram for Ex. 4.3. The diagram shows the positions of the eight chords (i-viii) on the fretboard. The strings are labeled i through viii on the left. A red horizontal line indicates the first fret. A star is placed on the G string at the first fret. The chord positions are: i (open), ii (1st fret), iii (2nd fret), iv (3rd fret), v (4th fret), vi (5th fret), vii (6th fret), and viii (7th fret).

Ex. 4.4

Musical notation for Ex. 4.4. The piece is in G major (one sharp). The bass clef contains eight chords, each with a Roman numeral below it: i, ii, iii, iv, v, vi, vii, and viii. The chords are: i (G2, B2), ii (A2, C3), iii (B2, D3), iv (C3, E3), v (D3, F#3), vi (E3, G3), vii (F#3, A3), and viii (G3, B3). The treble clef contains notes: G4, A4, B4, C5, D5, E5, F#5, G5.

Fingerboard diagram for Ex. 4.4. The diagram shows the positions of the eight chords (i-viii) on the fretboard. The strings are labeled i through viii on the left. A red horizontal line indicates the first fret. A star is placed on the G string at the first fret. The chord positions are: i (open), ii (1st fret), iii (2nd fret), iv (3rd fret), v (4th fret), vi (5th fret), vii (6th fret), and viii (7th fret).

Experiment with more notes in the right hand. Use some of the more far-out added notes of each 7 or substituted 7 chord. Try 5b, 5#, 9, 9b, 9#, 11#, 13, 13b. Most of these will work!

Often the basic harmonic progression at the end of a chorus will sit for two bars on the tonic chord. To avoid such monotony, it's usual to employ the I-VI-II-V motif (half-bar each, extended or substituted forms) as a *turnaround*.

A point worth bearing in mind is that the symbol notation for extended seventh series chords (and this applies not only to dominants but to major and minor sevenths too) sometimes omits the 7, since it is assumed to be part of the chord by default. Thus G7 13 might be given as G13. BbΔ7 9 may be represented as BbΔ9. A-7 11 is often encountered as A-11.

Often the written chord changes that a pianist works from will be in the most stripped-down form, with no embellishments except the dominant 7. It's expected that the pianist will fill out these so-called *vanilla changes* with added tones and voicings of her or his own. An excellent source of standard song vanilla changes has been compiled by Ralph Patt [<http://www.ralphpatt.com/VBook.html>].

\*Ab7 and Bb7 respectively are the substitutes for D7 and E7.

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## Step 5: Augmented and diminished chords

An augmented chord (symbol aug or, usually, +) has a sharpened fifth.

**Example [5.1]** shows D+ and **[5.2]** D-+ (D minor augmented).

The image displays four musical examples in G major (one sharp):

- Ex. 5.1:** D+ chord. Treble clef, G4, B4, D#5. Bass clef is empty.
- Ex. 5.2:** D-+ chord. Treble clef, G4, Bb4, D#5. Bass clef is empty.
- Ex. 5.3:** DΔ7+ chord. Treble clef, G4, B4, D#5. Bass clef, F#4, C5.
- Ex. 5.4:** D-7+ chord. Treble clef, G4, Bb4, D#5. Bass clef, F#4, C5.

Below the notation is a piano keyboard diagram with four rows of chord voicings:

- Ex. 5.1:** D+ voicing (G, B, D#).
- Ex. 5.2:** D-+ voicing (G, Bb, D#).
- Ex. 5.3:** DΔ7+ voicing (G, B, D#, F#, C).
- Ex. 5.4:** D-7+ voicing (G, Bb, D#, F#, C).

A star is placed on the keyboard below the C5 key.

You can augment the basic seventh chords, and use shell voicings as before. **Examples [5.3], [5.4]** and **[5.5]** are DΔ7+, D-7+ and D7+ respectively.

The 7+ chord is sometimes also symbolised as 7 13b (work it out!).

If we flatten the third and the fifth of the major triad, we get the diminished triad **I IIIb Vb**.

The parent scale of such chords is the diminished (see [Step 9](#)). Adding the note of the seventh degree of this scale gives us the diminished 7 chord, **I IIIb Vb VI**, symbol dim7 or o7, or (as I prefer) just plain o.

**Example [5.6]** is Do.

Ex. 5.5      Ex. 5.6      Ex. 5.7      Ex. 5.8      Ex. 5.9

D7+      Do      Do      Dø      D7 9b

Ex. 5.5  
Ex. 5.6  
Ex. 5.7  
Ex. 5.8  
Ex. 5.9

If we add the b7 to the diminished triad we get **I IIIb Vb VIIb**. This handy chord is -7 5b, sometimes also called the half-diminished, symbol ø.

**Example [5.7]** is Dø in the two-handed shell format.

Try this: work out the notes of Fo, Abo and Bo. You should find that they are all identical to the notes of Do.

In fact there are only three diminished chords - the D, F, Ab, B group, the Eb, Gb, A, C group and the E, G, Bb, Db group.

Similarly there are only four augmented chords. C+,E+,G#+ is one group. You can work out the other three.

Because the augmented and, particularly, the diminished chords have this uncertainty about just which note is the root, they are very useful general-purpose 'joining' chords, connecting sevenths and other, less ambiguous, chords.

You may be wondering how diminished chords fit into the system of sevenths and shells. The answer to this is very complex and takes us into advanced jazz harmony. But we can make two simple points here.

First, we can make a shell for a diminished chord just by playing **1:6** and moving **3b:5b** to the right hand as before (**Example [5.8]**).

Second, **Example [5.9]** shows D7 voiced as a shell, but with the addition of the flattened ninth - symbol D7 9b. If you work it out, you'll see that this chord is made up of Co with **D** in the bass.

In other words, you can often use the diminished chord on the dominant seventh as a substitution - Co for D7 (9b).

**Ex. 5.10**

i                      ii

A very nice extension that can be added to 7 9b chords is 11#. This rich variant on the dominant is an example of an *altered 7th* (7alt). The formal definition of a 7alt is a dominant 7th chord with altered 9 (flattened, sharpened or both) and sharpened or flattened 5 (5b is equivalent to 11#).

One way to think of a 7alt is as a note with a tritone triad on top. Root position triads don't sound as good as inversions in this case. D7alt would be Ab major triad over D. This can be represented as a *slash chord*, thus: Ab/D. An F minor triad or Ab13 quartal over D also work.

**Example [5.10]** shows two forms of D7alt, based on Ab/D and Ab13/D.

Depending on harmonic context, V7alt chords resolve naturally onto both I major and I minor.

Go back to some of the previous examples and work out diminished substitutions and 7alts for dominant sevenths.

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## Step 6: Suspensions

We've seen how most of the important jazz chords can be formed by sharpening and flattening the notes of the major triad **I III V** in different combinations. The only remaining alteration to the triad that we haven't considered is sharpening the third.

Check what happens when the third is sharpened - it becomes the fourth (confusing, isn't it?). This produces the suspended fourth, symbol **sus** or **sus4**.

**Example [6.1]** is **BbΔ sus4**, shell voicing. You might think it sounds like nothing on earth - but try moving the suspended note (**Eb**) down to the third (**D**) (**Example [6.2]**). Do you feel the sense of release? That's why it's called a suspension! The pressure to resolve the **Δsus4** to the straight **Δ** is irresistible.

The image contains three musical examples and a piano keyboard diagram. Examples 6.1, 6.2, and 6.3 are shown in a grand staff with treble and bass clefs. Example 6.1 is BbΔ sus4, Example 6.2 is BbΔ7, and Example 6.3 is Bb7 sus4. Below the staff is a piano keyboard diagram with three rows of notes corresponding to the examples. A star is placed on the D key in the keyboard diagram.

|          |         |          |
|----------|---------|----------|
| Ex. 6.1  | Ex. 6.2 | Ex. 6.3  |
| BbΔ sus4 | BbΔ7    | Bb7 sus4 |

Ex. 6.1  
Ex. 6.2  
Ex. 6.3

★

**Example [6.3]** is Bb-7 sus4, or it could be Bb7 sus4. It all depends on context. Play **Example [6.3]** followed by straight Bb7. The sense of release is there, because of the semitone movement from **Eb** to **D**.

But the same resolution doesn't occur if you play **Example [6.3]** followed by Bb-7, because the whole tone from **Eb** to **Db** is a less tense interval.

In fact it's unlikely you'll ever come across the symbol -7 sus4. Its usual name would be -11, and it's a perfectly good extended minor chord, needing no further resolution.

On the other hand the dominant seventh sus4 is such an ambiguous customer that you can leave it unresolved (you could call it a 7 11 chord).

There are entire tunes based on this ambiguity. The A section of the great *Miles* (sometimes called *Milestones* from the album of the same name) by Miles Davis is based on an unresolved C7 sus4 (**Example [6.4]**).

Ex. 6.4

G-7 A-7 BbΔ7 A-7 G-7 A-7 BbΔ7 G-7 A-7

Over pedal C.....

Ex. 6.4  
 G-7  
 A-7  
 BbΔ7  
 Pedal C

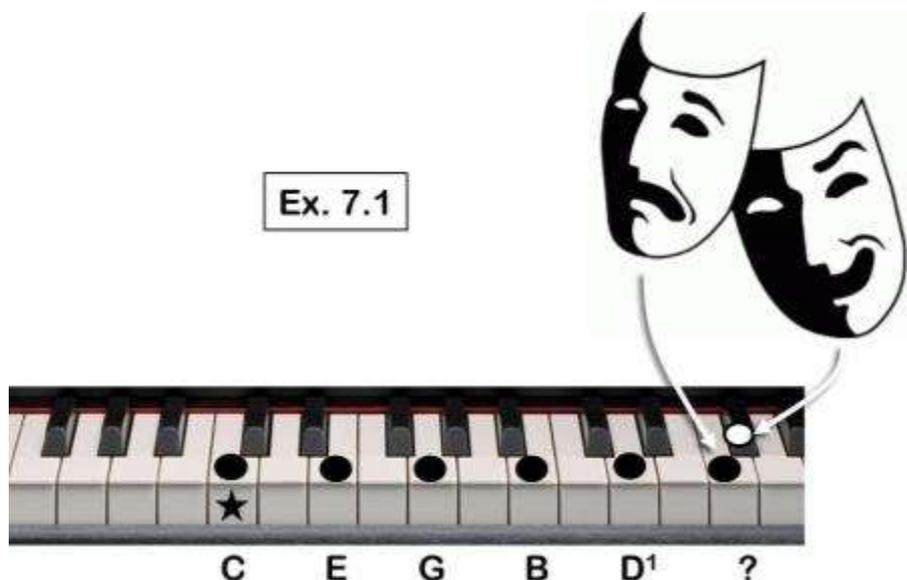
*Miles* is an example of modal jazz, and 7 sus4 chords, because of their mysterious, unresolved nature, are specially common in this kind of music.

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## Step 7: The lydian concept

We've seen that we can build chords by combining notes a third apart (**I III V VII IX** etc). Let's take a major chord and go further.

By adding **B** to  $C\Delta$  we get  $C\Delta 7$ . The next note in the sequence of added thirds is **D<sup>1</sup>**, a third higher than **B**, which gives us  $C\Delta 7 9$ . What's the next note (**Example [7.1]**)?



Since the key is C major, musical convention suggests that it would be a third above **D<sup>1</sup>**, namely **F<sup>1</sup>**. Play  $C\Delta 7 9$  with an **F<sup>1</sup>** on top. It sounds horrible. What went wrong?

The complete answer to this is complicated and we'll take another look at it later, in [Step 11](#), but one way of thinking about the problem concerns the regular nature of the interval structure of  $I\Delta$  chords.

Take  $C\Delta 7$ . The interval from **C** to **G** is a fifth. The interval from **E** to **B** is also a fifth. The chord is made from two interlocking fifths. The fifth is the

strongest, most consonant of all intervals (except the octave, of course). This makes CΔ7 a particularly stable and harmonious chord.

In CΔ7 9, the **D<sup>1</sup>** is a fifth above **G**. This gives us three interlocking fifths, and again confers stability on the chord.

We can use this pattern of overlapping fifths to predict the next note in the extended chord. It should be the fifth above **B**. Now the reason for the nasty consequence of putting **F<sup>1</sup>** on the CΔ7 9 chord become clear - it's the wrong note to preserve the pattern. The note a fifth above B is **F<sup>1</sup>#**.

To take the exercise to its conclusion, the next note, a fifth above **D<sup>1</sup>** is **A<sup>1</sup>**. This gives us the chord CΔ7 9 11# 13.

If we dismantle and re-order this chord, we find that it is made from the following notes: **C D E F# G A B**. This is a complete scale. It's the scale that fits the CΔ series of chords.

But it's not the classical C major scale. The note at position IV is raised a semitone. This scale is called the *lydian scale* of C.

The C lydian scale has one more sharp (**F#**) than the C major scale. The lydian scales corresponding to all the sharp key major scales (G, D, A etc) have an extra sharp (the fourth degree of the scale is raised by a semitone); for the flat keys (F, Bb, Ab etc) the rule is that a flat is lost.

Play some Δ7 shells with the left hand and fill in various combinations of notes from the extended (lydian) part of the chord with the right. Also experiment by playing some lydian lines with the right hand over left hand shells.

## Step 8: Lydian minor and dominant forms

Building a minor chord in thirds establishes a corresponding scale. For E minor, the chord is **E G B D F<sup>1</sup># A<sup>1</sup> C<sup>1</sup>#**, which rearranges to give the G Lydian scale, **G A B C# D E F#** (Example [8.1]).

Ex. 8.1

E- in 3rds      G Lydian scale

E- (9 11 13#)  
G Lydian scale

The general rule for minor chords is that they relate to the Lydian scale on the note a minor third above the root - or you could think of it as the Lydian scale on the relative major.

So the chord of A- corresponds to the C Lydian scale, E<sup>b</sup>- to the G<sup>b</sup> Lydian, F- to the A<sup>b</sup> Lydian and so on. Work out the scales for all the minor chords.

Can a Lydian character be introduced into the construction and scale relationships of chords in the dominant seventh series?

We know that flattening the seventh converts a  $\Delta 7$  or  $\Delta 7 9$  chord into a 7 or a 7 9. This implies that the Lydian scale can be directly related to the dominant seventh series chords also by flattening the seventh.



Ex. 8.4: G melodic minor scale

Ex. 8.5: G-7 C7 G-7 F#7

G melodic minor scale

G-7

C7

F#7

**Example [8.5]** shows G-7/C7 and G-7/F#7, both of which can serve as mobile forms of a simple C7. Note that you're not confined to the basic seventh forms of the minor and dominant chords. Many of the extended forms (9, 11#, 13, sus, 13b etc) can be introduced here.

The classic 32-bar song, *I got rhythm*, is made of four 8-bar sections arranged in the format AABA. Many jazz tunes, particularly from the bebop era, are based on *rhythm changes*. The A sections are in the key of Bb. The B section (*bridge* or *middle 8*) is made of dominant seventh chords running a cycle of fifths: .../ D7 / D7 / G7 / G7 / C7 / C7 / F7 / F7 / ...

We've seen that a chord of I7 can be expanded by using the V-/I7 or V-/Vb7 motifs. Apply this approach to the bridge of *I got rhythm* so that instead of two whole monotonous bars of each dominant seventh you have a variety of chords, changing twice a bar and spiced up by adding plenty of upper intervals.

While we're looking at introducing harmonic mobility into otherwise static instances of dominant or minor sevenths, **Example [8.6]** shows a common motif, found in several songs (notably in the first bars of Duke

Ellington's *In a sentimental mood*) and outlined in solo lines (Charlie Parker was particularly fond of it). Over a minor chord, the top note moves down in semitones - in **Example [8.6]**, **G**, **F#**, **F natural** and **E** over G-. The corresponding chord symbols are G-, G-Δ7, G-7, G-6.

**Ex. 8.6**

The diagram illustrates the chromatic movement of the top note in a G- chord. The top staff shows the notes G, F#, F, and E. The bottom staff shows the corresponding chords: G-, G-Δ7, G-7, and G-6. A piano keyboard diagram below shows the G-6 chord (G, Bb, D, E) with a star on the F key and a box highlighting the G, F#, F, E notes.

G-7 and G-6 can function as rootless C7sus4 and C9, so the motif also works for II-/V7 (G-/C7 in the key of F in this case). Picking up the chromatic notes while soloing on the rhythm changes bridge usually makes a good impression.

**Example [8.7]** is a more mobile variant of **[8.6]**, with chord inversions following the chromatic movement of the top notes.

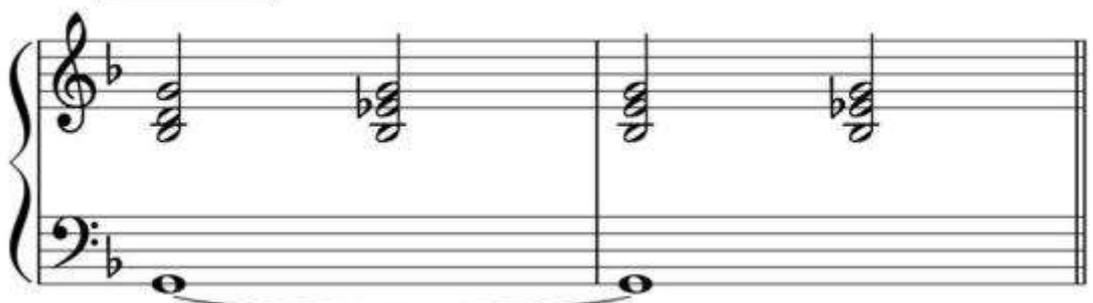
Ex. 8.7



G-      D      Bb      C



Ex. 8.8



G-      Eb/G      G-6      Eb/G



In **Example [8.8]**, the chromatic movement occurs in the middle of the minor chord. Once again, this motif occurs in some familiar pieces,



## Step 9: Diminished (and augmented) scales

The idea that a chord is a scale in shorthand form may be extended to other important harmonic structures.

Consider A<sub>o</sub>, comprising **A C E<sub>b</sub> G<sub>b</sub>**. To flesh out this skeleton into a scale we need to insert notes between the notes of the chord. We can make the pattern of intervals symmetrical by introducing notes each of which is either a semitone or a whole tone above a note in the chord of A<sub>o</sub>.

The results are two different *diminished scales*, the so-called half tone-whole tone (HW) scale and the whole tone-half tone (WH) respectively.

So to make the WH scale based on A<sub>o</sub>, we slot in the note **B** between **A** and **C**. Between **C** and **E<sub>b</sub>** comes **D**. **E<sub>b</sub>** goes to **G<sub>b</sub>** via **F**, and above **G<sub>b</sub>** the last element is **A<sub>b</sub>** (**Example [9.1]**). **Example [9.2]** shows the HW scale of A diminished.

The image displays three musical examples in a grand staff (treble and bass clefs). Example 9.1 shows the A diminished whole tone (WH) scale: A, B, C, D, E<sub>b</sub>, F, G<sub>b</sub>, A<sub>b</sub>. Example 9.2 shows the A diminished half-whole (HW) scale: A, B<sub>b</sub>, C, D, E<sub>b</sub>, F, G<sub>b</sub>, A<sub>b</sub>. Example 9.3 shows the D whole tone scale: D, E, F, G, A, B, C, D. Below the notation is a keyboard diagram with three rows of dots indicating the fingerings for each example. A star is placed on the white key of A in the keyboard diagram.

Ex. 9.1                      Ex. 9.2                      Ex. 9.3

A dim WH scale                      A dim HW                      D whole tone scale

Ex.9.1                      Ex.9.2                      Ex.9.3

Notice that the A HW scale (**Example [9.2] – A B $\flat$  C C $\sharp$  E $\flat$  E F $\sharp$  G**) is close to the A lydian dominant (**A B C $\sharp$  E $\flat$  E F $\sharp$  G**).

Diminished scales are beautiful, versatile and essential tools for the jazz musician. A notable feature of the diminished scale is that there are nine notes from the root to the same note an octave higher.

You will recall that there are only three possible diminished chords (see [Step 5](#)). Remind yourself of what they are. Work out the WH and HW scales for each of these chords and you'll find that, in terms of the notes from which they're built, there are only three different diminished scales.

The *whole-tone scale* is usually considered to be the parent of the augmented chord. D $\sharp$  (**D F $\sharp$  A $\sharp$** ) is thus associated with D whole-tone (**Example [9.3]**). Verify that the four possible augmented chords are associated with only two distinct whole-tone scales.

The whole-tone is another scale that departs from the familiar pattern of eight scale degrees from the root to the octave. In this case there are seven notes from I to I $\flat$ .

A little experimentation with left-hand diminished and augmented shells set against right-hand improvised lines based on diminished and whole-tone scale material wouldn't do any harm at this stage.

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## Step 10: Chords without roots

The system of sevenths and shells can be the foundation of quite sophisticated keyboard harmony, but it has its limits. The *root note* is an anchor, tying the chord directly to the bassline; but like all anchors, it restricts freedom too.

You recall that the formula of the major triad is **I III V**. A simple way of 'slipping anchor' - escaping from the limitations of always playing the major chord in its root/shell position - is to make the bottom note not I but III (**Example [10.1]**).

In conventional harmony this would be the first *inversion* of the chord.

The image displays three musical examples (Ex. 10.1, Ex. 10.2, and Ex. 10.3) in G major, along with a keyboard diagram illustrating the fingerings for these chords. Ex. 10.1 shows a G major triad in its root position (G-B-D) in the treble clef. Ex. 10.2 shows a G major triad in its first inversion (B-D-G) in the treble clef. Ex. 10.3 shows a G major triad in its second inversion (D-G-B) in the treble clef. The keyboard diagram below shows the keys G, B, and D highlighted with black dots for Ex. 10.1, B, D, and G highlighted with black dots for Ex. 10.2, and D, G, and B highlighted with black dots for Ex. 10.3. A red horizontal line is drawn across the keyboard at the level of the G key, and a black star is placed on the G key below the keyboard.

The seventh/shell idea can be quite conveniently adapted to the first inversion as shown in **Example [10.2]**. In the key of G, the seventh above

**B**, note III in the chord of  $G\Delta$ , is **A**, which gives us the shell. By adding  $D^1$  and  $F^{\#1}$  we have made a rootless  $G\Delta 9$ .

Notice that the notes in this form of  $G\Delta$  are identical with B-7. This introduces a general rule for major chords: the  $\Delta 7$  or  $\Delta 7 9$  with I as the root and the -7 on III are interchangeable. **Example [10.3]** shows this for  $C\Delta/E-$  and **Example [10.4]** for  $Gb\Delta/Bb-$ .

The image shows two musical examples. At the top, two staves of music are shown. The left staff, labeled 'Ex. 10.4', shows a treble clef with a key signature of one flat (Bb) and a bass clef with a key signature of two flats (Bb, Eb). The right staff, labeled 'Ex. 10.5', shows a treble clef with a key signature of one flat (Bb) and a bass clef with a key signature of one flat (Bb). Below the notation are two piano keyboard diagrams. The top diagram, labeled 'Ex. 10.4', shows a piano keyboard with a star on the Bb key. The bottom diagram, labeled 'Ex. 10.5', shows a piano keyboard with a star on the Bb key.

Try a similar manoeuvre with the dominant seventh chord. In this case I7 (9) can be substituted by  $\emptyset$  (half-diminished - see [Step 5](#)) on the third.

**Example [10.5]** presents  $C7(9)$  and  $E\emptyset$  as equivalents.

You should be able to work out that, in the case of the minor chord **I IIIb V**,  $\Delta 7$  on IIIb will substitute for  $I\Delta 7(9)$ . Thus  $E_b\Delta 7$ , for example, is a rootless C-7 (9).

**Example [10.6]** is two rounds of a  $\dots/II/V/II/VI/\dots$  sequence in the key of C, with simple I position shell voicings ( $\dots/D-7/G7/C\Delta 7/A7/\dots$ ).



Ex. 10.7

i    ii    iii    iv    v    vi    vii    viii

Ex. 10.7 i

ii

iii

iv

v

vi

vii

viii

Why not try similar things in different combinations and in other keys.

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## Step 11: Chords in fourths

So far all the chords discussed have been *tertian*, built from notes a third apart. Now we look at *quartal* harmony - chords in fourths.

Even though it isn't in the least dissonant, the interval of a fourth is strangely difficult for the ear to make sense of. Hindemith suggested that when two notes a perfect fourth apart are sounded, the ear recognises the *upper* of the two as the root!

This strengthens the case for the lydian, in which note **I** is endorsed as the keynote because its main rival in the major scale, **IV**, is destroyed by sharpening it.

It also means that quartal major chords built on **I** are not very satisfactory. The sharp fourth interval (the tritone - see [Step 3](#)) in the foundation of such a structure has the strong flavour of a dominant seventh, and although there are certainly contexts in which the root position lydian by fourths (**I IV# VII**) is usable as a form of  $I\Delta$ , they are rather specialised.

Quartal  $\Delta$  chords can, however, be very effectively built on **III**. So in the key of C, a  $\Delta$  chord by fourths would be **E A D<sup>1</sup> G<sup>1</sup> C<sup>2</sup>** (**Example [11.1]**). In conventional notation, this is equivalent to C6 9.

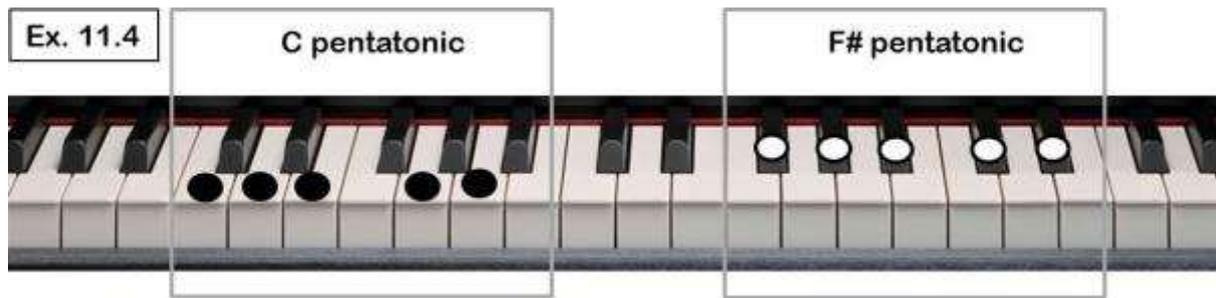
**E A D<sup>1</sup>** played in the left hand can function as a kind of quartal shell, expressing the special flavour of chords in fourths while allowing harmonic and melodic freedom in the right hand.

The image shows three musical examples (Ex. 11.1, Ex. 11.2, Ex. 11.3) in a grand staff. Ex. 11.1 shows a quartal shell with notes A2, D3, G3, and C4. Ex. 11.2 shows a quartal shell with notes A2, D3, G3, and E4. Ex. 11.3 shows a quartal shell with notes A2, C3, D3, and G3. Below the staff is a piano keyboard diagram with three rows of keys labeled Ex. 11.1, Ex. 11.2, and Ex. 11.3. A red horizontal line is drawn across the keyboard, and a black star is placed on the C4 key.

The quartal shell on **VI - A D<sup>1</sup> G<sup>1</sup>** in CΔ - is also an effective voicing.

If you want to thicken up the textures of these rather sparse structures, add the next fourth in the series (above or below the shell) to the middle of the chord. Thus **E G A D<sup>1</sup>** or **E A B D<sup>1</sup>** (**Example [11.2]**) and **A C<sup>1</sup> D<sup>1</sup> G<sup>1</sup>** or **A D<sup>1</sup> E<sup>1</sup> G<sup>1</sup>** (**Example [11.3]**), containing a *cluster* of notes a second apart, are richer, fuller forms of quartal C6 9 chords. For more about cluster voicings, see [Step 17](#).

The lydian is a perfectly suitable scale for improvisation against such chords; but notice that the notes **C D E G A** are prominent in the chord structures associated with C quartal (**Example [11.4]**). These notes make up the five-note, or *pentatonic*, scale (everyone knows F# pentatonic because it's the black notes on a piano).



Pentatonic scales are characteristic of the music of the Far East. So some of the special texture of quartal major chords comes from the exotic, faintly oriental flavour of the scales they imply.

Work out **III** and **VI**-position quartal 6 9 chords for all keys and their associated pentatonic scales.

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## Step 12: Minor chords in fourths

Perhaps the most famous and influential example of the fourths system applied to minor chords is Miles Davis's *So what*.

The tune (head) takes the form of call-and response (**Example [12.1]**), a traditional pattern going back to early blues, field songs and the African roots of jazz. The bass calls with a *modal* line. The band responds with two minor chords.

Ex. 12.1

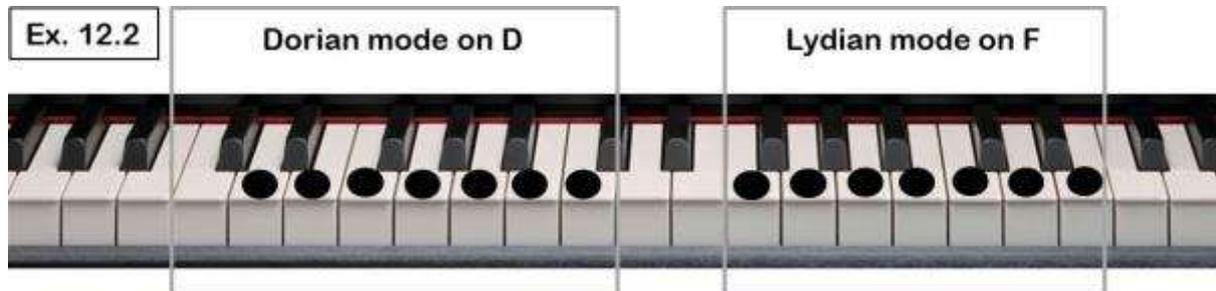
The image shows musical notation for Example 12.1. It consists of two systems of music. The top system is divided into two parts: 'Call' and 'Response'. The 'Call' part features a bass line with a modal line (a sequence of notes) and a treble line with a whole note chord. The 'Response' part features a bass line with a modal line and a treble line with a whole note chord. The bottom system is labeled 'etc...' and continues the pattern.

Ex. 12.1

The image shows a piano keyboard diagram. A star is placed on the C key (middle C). The notes of a scale are indicated by dots on the keys: C, D, E, F, G, A, B, C. The diagram illustrates the concept of modes of a given scale, which are formed by starting on any note except I – for example III - and progressing up through the notes of the scale for an octave – in our example, up to III<sup>1</sup>.

Modes of a given scale are formed by starting on any note except I – for example III - and progressing up through the notes of the scale for an octave – in our example, up to III<sup>1</sup>.

We have already become familiar with one mode, the Lydian, derived from C major (the 'white notes') running from **F** to **F<sup>1</sup>**. So *what* uses the *dorian* mode, which runs from **D** to **D<sup>1</sup>**. (**Example [12.2]**).



In *So what*, the two chords with which the horns reply to the bass's dorian call are basically E-7 followed by D-7. But their special quality comes from their voicings (and many an aspiring jazz musician has experienced the pleasure of discovering the simple secret).

The conventional shell representation of the -7 is enhanced by introducing the fourth in the left hand, making a **I IV VII** structure. **Example [12.1]** gives the quartal E- and D- chords that answer the bass's call.

The complete head comprises two statements of the section given in the example, then two rounds of the same thing but a semitone higher, followed by two back in the original key. Play it, and work out the quartal Eb- and Db- chords that occur in the middle section.

You may be thinking that there's an inconsistency between the format given here for the quartal minor (**I IV VII X XII**) and the previous assertion ([Step 11](#)) that **I IV** at the root of a chord appears ambiguous to the ear.

*So what* and all the other pieces spawned by the modal revolution in jazz exploit these ambiguities. The ear is offered several alternative ways of making harmonic sense of the piece.

D dorian is built from notes of the C major scale, so C is an implied tonal centre for the piece. But F Lydian is also a strong tonal influence, as well as D minor.

Moreover, the **IV** note in each chord makes a claim to be the defining tonal element, so both the **A** from the E- quartal chord and **G** from the D- are prominent, and their corresponding modes (if jargon's your thing, you might like to know they are the *aeolian* and *myxolydian* scales respectively) are implied.

As a consequence of these ambiguities, modal pieces using quartal minor chords have the quality of extended unresolved *suspensions*, and their lack of harmonic commitment allows the improviser a lot of freedom.

It also means that almost any combination of fourths within the relevant modes will serve as permissible chords. You can lock your fingers into the **I IV VII X XII** shape and move them all over the white keys in the D dorian section of *So what* and the resulting chords will work. Try it for D dorian and for the same mode in other keys.

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### Step 13: Dominant chords in fourths

We saw in [Step 11](#) that the tritone or sharp fourth is the 'fingerprint' of a dominant chord.

As a matter of fact, just the tritone on its own can be used very effectively as a form of the dominant seventh, especially in combinations.

**Example [13.1]** is a left-hand blues progression made of nothing but tritones. Notice the minimal movement required to get from each chord to the next. Imagine the melodic freedom such sparse harmonies allow the improviser.

Ex. 13.1

The image shows musical notation for Example 13.1, a left-hand blues progression in 4/4 time. The key signature is one sharp (F#). The bass line consists of six measures of tritone chords. The first measure is D7 (F# and C). The second is G7 (Bb and D). The third is C7 (Eb and F). The fourth is F#7 (Ab and C). The fifth is Bb7 (Db and F). The sixth is E7 (G and Bb). Each measure is accompanied by a keyboard diagram showing the two notes of the tritone on a piano keyboard, with a star marking the tritone interval. The right hand is mostly silent, with a final 'etc...' in the sixth measure.

Adding a further fourth to the tritone gives us the basic quartal dominant shell **VIIb III<sup>1</sup> VI<sup>1</sup>** (**Example [13.2]**).

As in the case of quartal major chords we can slot in the next fourth in the series by bringing down an octave, giving the structure **VIIb II<sup>1</sup> III<sup>1</sup> VI<sup>1</sup>** (**Example [13.3]**). In conventional form the symbol for this would be 13 or

9 13 and it's a shape that can be employed virtually anywhere a 7 or 9, as well as 13, is encountered.

The image shows four musical examples (Ex. 13.2 to Ex. 13.5) in bass clef, each with a chord symbol below it. Below the examples is a keyboard diagram with four rows of dots indicating fingerings for each example. A red horizontal line is drawn across the keyboard at the C4 level, and a star is placed on the C4 key.

|              | Ex. 13.2 | Ex. 13.3 | Ex. 13.4 | Ex. 13.5 |
|--------------|----------|----------|----------|----------|
| Chord Symbol | G13      | G9 13    | G13 9b   | G13 11#  |
| Fingering    | •        | • •      | • •      | • •      |
| Fingering    |          | • •      | • •      | • •      |
| Fingering    |          | • •      | • •      | • •      |
| Fingering    |          | • •      | • •      | • •      |

When tertian dominants were considered ([Step 4](#)) we saw that such chords could be very effectively reshaped by altering upper intervals and mixing them in different combinations to give harmonic movement and interesting textures. The same principles apply to forms based on fourths.

Thus G7 13 9b in quartal is **F A<sup>1</sup>b B<sup>1</sup> E<sup>1</sup>** (very nice chord - a kind of altered Fo, **Example [13.4]**). G 7 13 11# would be **F B<sup>1</sup> C<sup>1</sup># E** (also nice - **Example [13.5]**).

Notice that dominant 11 (or sus 4) chords in this system look like Δ7s. So G11 13 is **F A<sup>1</sup> C<sup>1</sup> E<sup>1</sup>**, the same notes as FΔ7. This just serves to reemphasise the close harmonic relationship between V7, IVΔ and II-chords.

As a matter of fact the quartal 13 shapes on **V** will serve as II- chords in many contexts. So if you're playing something in D minor, you can often

use the G dominant shell, the G9 13 form (**Example [13.3]**) or even the G 13 11# structure (**Example [13.5]**) as versions of the tonic minor.

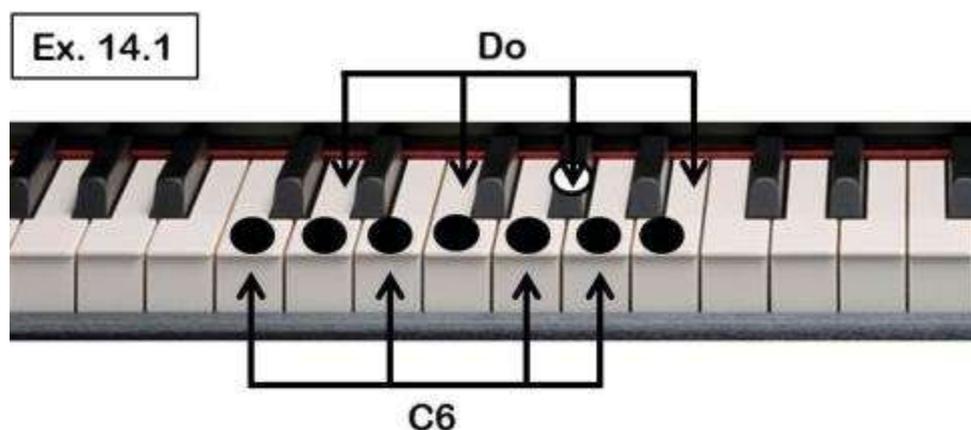
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## Step 14: Bebop and the blues

We've seen how the distinctive qualities of jazz harmony arise from the resolution of different, even opposing, tendencies - chromatic versus diatonic movement ([Step 3](#)), tertian and quartal chord construction ([Step 11](#)), for example. Let's look at another source of fruitful tension, the origins of which lie in the cultural history of jazz.

The blues is often thought of as the heart of jazz. But the logic, harmonic machinery and melodic character of the blues are a challenge to the principles we've been looking at so far. Below I suggest a connection between the *blues scale* and *the major bebop scale*.

In its bare-bones form, a bebop scale is a conventional major or minor scale with an additional note which has the effect of introducing a chromatic feature to the scale; but most importantly it turns a seven-note into an eight-note scale.



Jazz is almost invariably played in even time (that is, multiples of 2 beats to the bar) and an eight-note scale fits the metre and accent pattern of even-time music better than the straight unmodified major or minor scale.

There are whole systems of jazz harmony and improvisation built on the consequences of the bebop modification. The great pianist Barry Harris is a leading educator in this area.

In the spirit of experimentation, you could explore the consequences of adding just one note to, say, the major scale and following the procedure for *harmonising* the resulting scale by taking each degree and building a chord from notes 3, 5 and 7 above it.

For example, the most widely-used major bebop scale is what Barry Harris calls the diminished 6th. In C, that would work out as **C D E F G Ab A B C<sup>1</sup>** (Example [14.1]).

If you harmonise this, you find an interesting thing. Starting on **C**, the chord made from scale notes 3, 5 and 7 above is **C E G A**, which is C6. Starting on **D**, the chord is **D F Ab B**, which is Do. Building on **E**, the chord is **E G A C**, the first inversion of C6. On **F**, the chord is Fo, which is the first inversion of Do. On **G**, it's an inversion of C6 again, and so on all the way up - alternating C6 and Do.

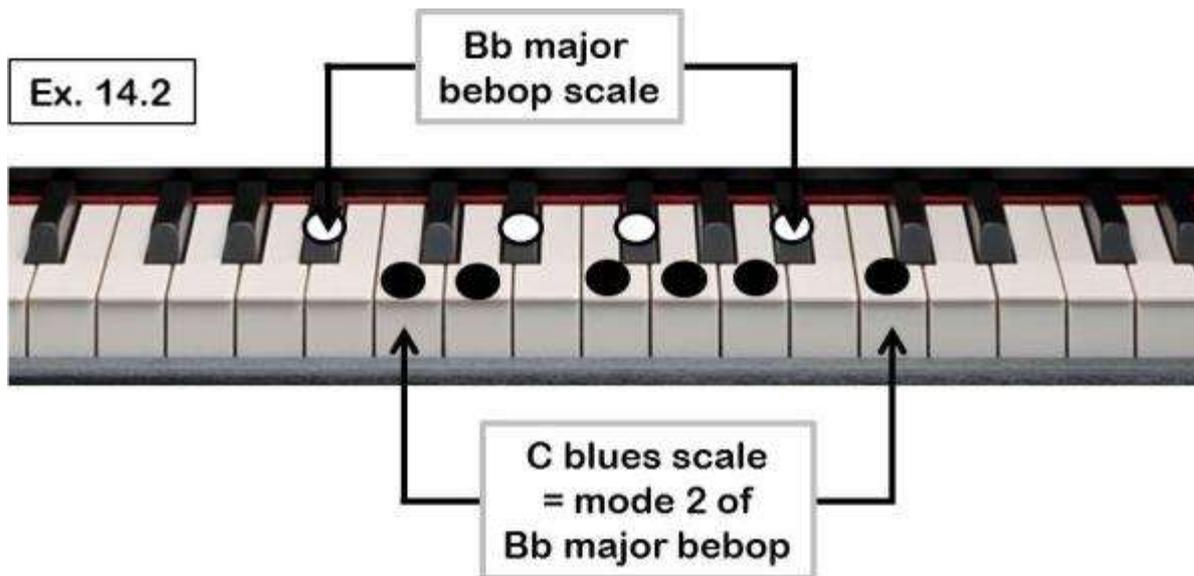
Introducing **Vlb** to the major scale gives the option of substituting II7 (basic or extended forms) for II-7, particularly in sequences involving the cycle of fifths – turnarounds, for example.

In some cases quartal VIIb 13, which includes both **VI** and **Vlb**, will serve as an exotic voicing of IΔ; for instance Bb13, **Ab-D-G**, for CΔ. Try it.

By taking any major or minor scale and adding an extra 'bebop note' at different scale degrees you will discover some quite unexpected chords when you carry out the harmonisation exercise.

There seems to be a link between the blues and bebop scales. The C blues scale is more or less identical with the 'mode' of the Bb major diminished sixth scale starting on II (**Example [14.2]**).

To generalise - the blues scale **I II IIIb IV Vb V VI VIIb** shares the same notes as the major dim 6 scale on **VIIb**.



Playing 'bluesy' on C major could be thought of as using Bb6 and Co from the parent Bb bebop scale as sources of improvised lines. The blue notes, **Eb** and **Bb** (we also include **Gb** as a blue note in this context) are implicit in this relationship.

In a way we can see two semi-separate streams running through jazz harmony. One, coming from the blues with its harmonic character rooted in dominant 7 series and related chords in fourths, has its source in the special qualities of the blue notes (**IIIb** and **VIIb**) and generally introduces a gutsy, gritty, bluesy, soulful feel to the music.

The other, based on  $\Delta 7$  and  $-7$  structures and their quartal derivatives, tends to avoid blue notes and is altogether more impressionistic, open and sometimes even a bit fragile in character.

We might think of these two conventions as representing, respectively, the African-American tradition and Western European custom and practice.

In his classic book *Jazz: Its Evolution and Essence* (1956), André Hodeir argues that assimilation of musical forms and practice from these two distinct cultures has been essential for the evolution of jazz.

A fully rounded, flexible keyboard style will be able to move between these two chordal cultures. By accessing harmonies of both kinds and putting them together in different combinations, the genteel tendencies of  $\Delta 7$ s and  $-7$ s are tempered and invigorated by the astringencies of African-American dominants, while the bluntness of the latter can be softened by the delicacies of European voicings.

**Example [14.3]** is a I VI II V I sequence built from tertian 'Euro' shells and **[14.4]** is the equivalent African-style progression as quartal 13ths. We could loop this sequence; and it would quickly become tiresome if we stuck to Euro voicings only, as it would if only African-style chords were employed. The trick is to mix them up.

Ex. 14.3

Ex. 14.4

**Examples [14.5], [14.6], [14.7] and [14.8]** give, respectively, I, VI, II and V chords in Bb, voiced in various ways. Can you recognise and name all these structures?

Try putting together chords in different combinations to give I VI II V sequences with different textures. Get a feel for what works and what doesn't (some combinations, although theoretically acceptable, just sound bad) and look out particularly for nice examples of chromatic or diatonic movement between successive chords.

Ex. 14.6

The image displays twelve chords, labeled i through xii, in a minor key. The top section shows two staves of musical notation for each chord, with the chord name written below. The bottom section shows a keyboard diagram for each chord, with black dots indicating the notes to be played. A star is placed on the keyboard diagram for each chord to indicate the position of the leading tone (the seventh scale degree).

The chords shown are:

- i
- ii
- iii
- iv
- v
- vi
- vii
- viii
- ix
- x
- xi
- xii

How do I know when and where to take the African or European (or chromatic or diatonic or quartal or tertian) route when harmonising a jazz song? The answer is that this is the art of jazz harmony, and like all arts it ultimately comes down to the creativity, judgement and taste of the artist.

Ex. 14.7

Ex. 14.7 shows a sequence of ten chords in the bass clef, labeled i through x. The chords are: i (C2, E2, G2), ii (D2, F2, A1), iii (E2, G2, B1), iv (F2, A1, C3), v (G2, B1, D3), vi (A1, C3, E3), vii (B1, D3, F3), viii (C3, E3, G3), ix (D3, F3, A2), and x (E3, G3, B2). Below the notation are ten keyboard diagrams, each showing the chord's fingering with black dots for notes and a star for the bass note. The diagrams are arranged in three rows: the first row contains i, ii, and iii; the second row contains iv, v, and vi; the third row contains vii, viii, and ix; and the fourth row contains x.

Ex. 14.8

Ex. 14.8 shows a sequence of seven chords in the bass clef, labeled i through vii. The chords are: i (C2, E2, G2), ii (D2, F2, A1), iii (E2, G2, B1), iv (F2, A1, C3), v (G2, B1, D3), vi (A1, C3, E3), and vii (B1, D3, F3).

Ex. 14.8 i is a large keyboard diagram showing the fingering for all seven chords from Ex. 14.8. A legend on the left lists the chords: i, ii, iii, iv, v, vi, and vii. The diagram shows black dots for notes and a star for the bass note for each chord. The chords are arranged in a grid: i, ii, iii, iv, v, vi, vii in the first row; ii, iii, iv, v, vi, vii in the second row; iii, iv, v, vi, vii in the third row; iv, v, vi, vii in the fourth row; v, vi, vii in the fifth row; and vi, vii in the sixth row. A star is placed on the C2 key at the bottom center of the keyboard.

And remember, if you're coming from the rock and pop traditions, try to break the habit of improvising by simply noodling around the blues scale. Otherwise it will be difficult to develop real jazz chops.

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## Step 15: The diminished cycle

Recall the diminished scale ([Step 9](#)). If you look carefully, you can find all the notes of four of the twelve possible dominant seventh chords in each diminished scale. **Example [15.1]** shows G7 in the HW diminished scale (as we saw before, it is also the diminished scale on **Bb**, on **Db** and on **E**).

The image contains three musical examples and three piano diagrams. **Ex. 15.1** shows a melodic line in G major with notes G, A, Bb, B, C, D, Eb, E, F, G. Arrows point to the notes Bb, B, Eb, and E. **Ex. 15.2** shows a quartal shell for G13 in the bass clef with notes G, Bb, D, and Eb. **Ex. 15.3** shows a quartal shell for G7 in the bass clef with notes G, B, D, and F. Below the examples are three piano diagrams. The first diagram shows a G7 chord (G, B, D, F) with a star on the G key and arrows pointing to the B, D, and F keys. The second diagram shows a G13 chord (G, Bb, D, Eb) with a star on the G key and arrows pointing to the Bb, D, and Eb keys. The third diagram shows a G7 chord (G, B, D, F) with a star on the G key and arrows pointing to the B, D, and F keys.

In [Step 5](#) we learned that a diminished chord can behave as a rootless 7<sup>9b</sup>. This relationship between diminished and dominant series chords arises from their sharing a parent scale, the diminished. The HW diminished scale is an excellent source of improvised lines against an extended dominant chord.

Try playing a simple G7 shell in the left hand set against phrases constructed from the G HW diminished scale in the right. You should find it's very effective.

Let's explore this relationship between dominant seventh and the HW diminished further. **Example [15.2]** shows G13 as a quartal shell, **F B<sup>1</sup> E<sup>1</sup>**.

Following the rule of tritone substitutions ([Step 3](#)), we expect Db13 (**Example [15.3]**) to be available as an alternative.

**G** and **Db** are two notes in the diminished sequence **G Bb Db E**. If dominant series chords of G can be substituted by equivalent chords based on **Db**, could it be that **Bb** and **E** chords will also substitute? It could indeed.

**Example [15.4]** is the quartal shell of Bb13 (**Ab D<sup>1</sup> G<sup>1</sup>**) and **Example [15.5]** is E13 (**D A<sup>1</sup>b D<sup>1</sup>b**). Take all the notes of G13, Bb13, Db13 and E13 as given in **Examples [15.2]**, **[15.3]**, **[15.4]** and **[15.5]** and put them in order and you get **G Ab Bb B Db D E F** - the G HW diminished scale.

The image shows musical notation and a piano keyboard diagram. At the top, three examples are labeled: Ex. 15.4, Ex. 15.5, and Ex. 15.6. Ex. 15.4 shows a treble clef with a whole rest and a bass clef with a quartal shell of Bb13 (Ab, D1, G1). Ex. 15.5 shows a treble clef with a whole rest and a bass clef with a quartal shell of E13 (D, Ab, D1b). Ex. 15.6 shows a treble clef with a whole rest and a bass clef with a quartal shell of G13 (F, C, G). Below the notation is a piano keyboard diagram with a grid overlay. The grid has five rows labeled 'Ex. 15.4', 'Ex. 15.5', 'Ex. 15.6 i', 'ii', 'iii', 'iv', and 'Pedal G'. The 'Pedal G' row has a star on the G key. The grid shows the notes of the diminished scale G Ab Bb B Db D E F across the keyboard.

So we can extend the rule about tritone substitution to state that the dominant seventh series chords on 3b and 6 may also substitute by virtue of their sharing a common parent diminished scale.

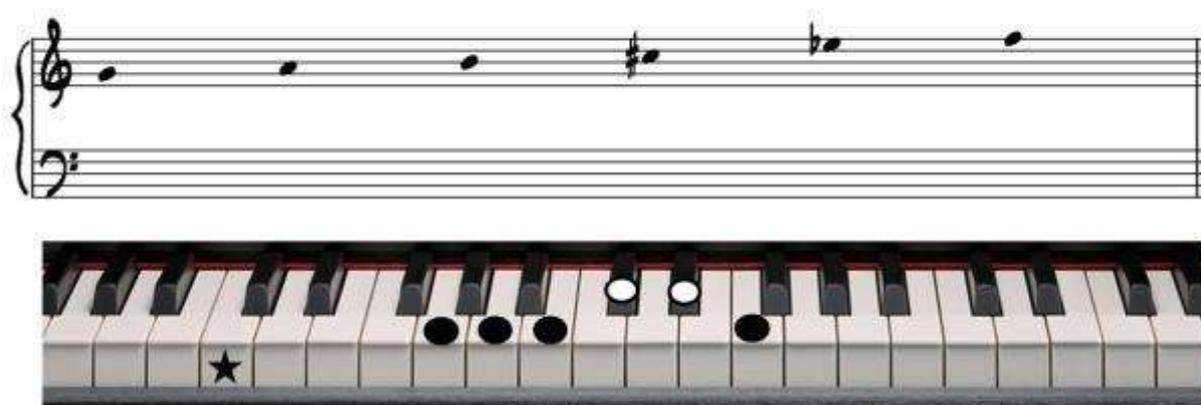
**Example [15.6]** presents a nice form of quartal G7 9b 13, followed by the equivalent structures in the diminished substitution cycle (Bb7 9b 13, Db7 9b 13, E7 9b 13), all over a sustained pedal **G**. Don't you think it makes a beautiful and mysterious progression?

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## Step 16: The augmented cycle

The whole-tone scale on **G** (**Example [16.1]**) is the parent of G+. It also fits to G7 5b. Might there be an augmented cycle of substitutions along the lines of the diminished cycle described in [Step 15](#)?

Ex. 16.1



The image shows a musical example labeled 'Ex. 16.1'. It consists of two parts: a musical staff and a piano keyboard. The musical staff is in treble clef and contains a whole-tone scale starting on G4. The notes are G4, A4, B4, C5, D5, and E5. The piano keyboard below shows the same notes highlighted with black dots: G4 (white key), A4 (black key), B4 (white key), C5 (black key), D5 (white key), and E5 (black key). A small black star is placed on the white key of G4.

The answer is yes. The chords of G7 5b, B7 5b and Eb7 5b are all made of notes in the whole-tone scale of G. But the interchangeability of chords from this parent scale extends further.

Any 7 5b chord with, as its root, any note of the whole-tone scale will substitute for any other.

Thus G7 5b, A7 5b, B7 5b, C#7 5b, Eb7 5b and F7 5b are completely equivalent when set against the whole-tone scale of **G**.

Chords of the dominant seventh series thus offer enormous scope for the construction of corresponding improvised themes. By drawing on lydian dominant, HW diminished and whole-tone scale materials, lines of great freedom and flexibility can be created.

Choose a key and work out the notes of the relevant Lydian dominant, HW diminished and whole-tone scales. You should find that only two of the twelve possible notes are not included in any of these scales. What are they?\*

Play the simple root-position tertian seventh shell of your key in the left hand and with the right construct some improvised lines that either include or avoid these two notes. What does this tell you about the limitations on absolute freedom when building a solo over seventh chords?

\*The 4th and the major 7th. Sometimes notes like these that don't occur in any of the scales related to a particular chord are called *avoid notes*. Ordinarily your improvised lines over that chord should omit the avoid notes. The bad sound of F against the extended chord of C major discussed in [Step 7](#) is another example of an avoid note - dealt with, in this case, by sharpening it.

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## Step 17: Clusters

**Example [17.1]** is a quartal form of G13. We can re-order the notes so that the hard dissonance (**F-E**) is on the inside and the soft dissonance (**B-A**) on the outside of the chord (**Example [17.2]**). Sometimes these are referred to as the A and B forms of the chord respectively - though I don't like this terminology because A and B are also note names, which could lead to confusion.

The image displays three musical examples (Ex. 17.1, Ex. 17.2, Ex. 17.3) and a keyboard diagram illustrating the chord voicings.

**Ex. 17.1:** Shows a quartal form of G13 in the treble clef, with notes G4, B4, D5, and F5. The bass clef is empty.

**Ex. 17.2:** Shows the same quartal form of G13 in the bass clef, with notes G3, B3, D4, and F4. The treble clef is empty.

**Ex. 17.3:** Shows two variations of the G13 chord in the bass clef. The first variation has notes G3, B3, D4, and F4. The second variation has notes G3, B3, D4, and F4, with a sharp sign above the notes.

The keyboard diagram shows the piano keyboard with a grid of dots indicating the positions of the notes for each example. The notes are: G (white), B (black), D (white), and F (black). A star is placed on the C key below the keyboard.

| Ex. 17.1 | Ex. 17.2 | Ex. 17.3 i |
|----------|----------|------------|
| ii       | iii      | iv         |
| v        | vi       |            |

The form with the soft dissonance on the outside is a very handy inversion which can be slotted into a progression of quartal thirteenths as a tritone substitution to give a satisfying sense of harmonic motion. For instance, **Example [17.3]** presents a sequence from A13 to G13 via an intermediate inverted Eb13 (tritone substitution for A13) and so on through Db13 to F13 to B13...

$\Delta 7$  chords, like quartal thirteenths, also include hard dissonances that can be clustered by inversion. **Example [17.4]** is D $\Delta 7$  with the minor second at the bottom of the chord.

The image displays musical examples and keyboard diagrams for clustered forms of 13 and  $\Delta 7$  chords. At the top, four examples (Ex. 17.4 to Ex. 17.7) are shown in a grand staff. Ex. 17.4 is a D $\Delta 7$  chord with the minor second at the bottom. Ex. 17.5 shows two inversions (i and ii) of a quartal thirteenth chord. Ex. 17.6 shows two inversions (i and ii) of another quartal thirteenth chord. Ex. 17.7 shows two inversions (i and ii) of a third quartal thirteenth chord. Below the staff, a keyboard diagram illustrates the fingerings for these chords. The diagram shows the keys from C4 to G4, with dots indicating the notes of the chords. A star is placed on the C4 key. The keyboard diagram is organized into rows for each example and its inversions: Ex. 17.4, Ex. 17.5 i and ii, Ex. 17.6 i and ii, and Ex. 17.7 i and ii.

Clustered forms of 13 and of  $\Delta 7$  can be neatly interconnected. In **Example [17.5]**, Eb13 (the tritone substitution of A13) resolves onto D $\Delta 7$  with the smallest of upward chromatic shifts.

The minor second cluster is such a distinctive feature of these chords that they can be slimmed down into three-note structures. **Example [17.6]** is Eb13/DΔ7 voiced in this minimal form.

The cluster format of DΔ7 will also serve as a voicing of B-7(9). The resolution of clustered F#13 onto B-7 9 is presented in **Example [17.7]**.

If it's difficult for the ear to make sense of these rather exotic chord voicings and resolutions, play them against bass root notes in the left hand (**Example [17.8]**).

The image contains two musical examples and a corresponding piano keyboard diagram. **Ex. 17.8** shows a sequence of five chords in the right hand, each with a unique voicing, while the left hand plays a simple bass line of root notes. **Ex. 17.9** shows a resolution of a clustered F#13 chord into a B-7(9) chord, with the right hand playing a diminished scale and the left hand playing a bass line. Below the notation is a piano keyboard diagram with labels for 'Ex. 17.8 i' (fingerings ii, iii, iv, vi) and 'Ex. 17.9 RH i' (RH ii, RH iii, RH iv, RH v) and 'LH'. A star is placed on the keyboard below the C4 key.

Clustered 13 shapes in the left hand (LH) can be very usefully combined with open right-hand (RH) triads (second inversions seem to work especially well). Running the triads through part of a diminished scale

adds a rich, free dimension to the basic dominant. **Example [17.9]** does this for Eb13.

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## Step 18: More about clusters

In [Step 17](#) we looked at the very simplest kind of cluster - two definitive notes in dissonant proximity. Let's develop these ideas further.

A recurring theme in these discussions has been that a chord is a selection of notes from a particular scale, arranged in such a way as to represent the essence of the scale, by reinforcing relationships and implying the missing notes through the overtone series.

But there's no reason why notes in a scale shouldn't be combined in ways that don't follow the strict rules of tertian or quartal construction.

Take the Eb lydian scale, for example. Among the chords we can extract from this scale are Eb $\Delta$ 7(9), C-7(9 11), F7(9 11 13), Eb6 9, A $\emptyset$  and so on. But we could just as well play clusters of notes, or even, if a really dense texture is called for, the whole scale in one Sic Semper Tyrannus of a chord. **Examples [18.1], [18.2], [18.3] and [18.4]** are illustrations.

The image displays four musical examples, labeled Ex. 18.1 through Ex. 18.4, arranged horizontally. Each example consists of a musical staff with a treble clef on the top line and a bass clef on the bottom line. Ex. 18.1 shows a cluster of notes in the bass clef (F, G, A, Bb, C) and a whole rest in the treble clef. Ex. 18.2 shows a cluster of notes in the bass clef (F, G, Ab, Bb, C) and a whole rest in the treble clef. Ex. 18.3 shows a cluster of notes in the bass clef (F, G, Ab, Bb, C) and a cluster of notes in the treble clef (D, E, F, G, A, Bb, C). Ex. 18.4 shows a cluster of notes in the bass clef (F, G, Ab, Bb, C) and a cluster of notes in the treble clef (D, E, F, G, A, Bb, C). Below each staff is a piano keyboard diagram with a star marking the notes of the cluster.

We seem to be coming to the conclusion that it's actually rather arbitrary to elevate tertian or quartal chords to positions of central significance in the harmonic scheme, even though they clearly dominate our experience of mainstream European and African-American music.

In reality, there are chords by seconds, chords by fifths, chords by flattened sixths, by fourteenths, by sharpened thirty-thirds, by any interval you care to choose, and by any and every combination of these.

So perhaps we should turn our thinking upside-down and, instead of regarding a chord as some kind of offspring of a parent scale, we might picture a scale as a *broken chord by seconds*!

Which brings us to the place where melody and harmony meet. It is customary to think of them as separate elements. This is particularly true for the jazz keyboard where the left hand usually bangs out the vertical structures we know as chords while the right hand moves through the horizontal world of melodic line. But the best players are able to place and voice their changes melodically while shaping melodies with the structural inevitability of a well-orchestrated chord.

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## Step 19: Getting in register

Although everyone should get familiar with the tertian and quartal major, minor and dominants and all the other standard chords, the discussion of clusters ([Step 17](#), [Step 18](#)) should carry the clear message that there are great opportunities for experimentation with chordal and scale structures.

If you spend any time at all playing around with clusters, or indeed chords of any sort, you'll quickly realise that the keyboard isn't uniformly available across its range for producing harmonious sounds. To sound right, a chord has to be in the correct *register*.

The further down the keyboard you go, the more widely spaced the notes of a chord should be if they are to sound clearly. As a general rule, for an instrument in a decent state of tuning (and if the tuning's too far out, some chord forms such as clustered quartal 13ths will never sound right in any register) intervals closer than about a fourth or fifth are not recommended lower than the region around **G** below middle **C**, unless a special effect is desired such as dark or ominous atmospherics.

For clusters, there is a sweet spot beginning at **G** below middle **C** (plus or minus a tone) and extending upward. There is an upper limit because beyond about **G** over middle **C**, the left hand begins to intrude into the right hand's improvising space.

So we see that the window for clusters is surprisingly narrow - no more than about an octave - and it is one of the important skills of keyboard harmony to be able to organise the voicings of your chords in a way that keeps the clusters in this optimal position.

To illustrate this, **Example [19.1]** is an accompaniment to *Autumn leaves*. in G minor, employing a range of tertian, quartal, clustered and shell-voiced chords, with some substitutions and reharmonisations thrown in, organised so that the dissonances cluster in the sweet spot.

**Ex. 19.1**

5 C-7 F13 9b [q] Bb6 9 Eb6 9

9 A0 D9 11# G-6 9 G13 9#

13 Db-9 Gb13 C-9 F13 B-9 E13 Bb-9 Eb13

17 A-7 A0 D7 9# Ab13 G-6 9 Bb9 11#

25 A-7 11 D13 [q] G-9 Db13 11# C-9 F7 9# A/Bb BbΔ9 D/Eb EbΔ9

29 A0 11 D7 9# Db13 [q] Gb13 [q] B13 [q] E13 [q]

A0 9 Eb9sus D9sus Ab13 11# [q] G-11

In this case I've included chord names but omitted keyboard grids (I tried including them but it was like being in the middle of a zebra stampede and more confusing than enlightening).

Quartal voicings are indicated by **[q]**. The first 8 bars run through the changes in a fairly conventional way. The second 8 include some reharmonisation (note the chromatic II-Vs in bars 9 to 12).

Note also the slash chords in bars 23 and 24. Formally they could be represented as  $\Delta 7 9\# 11\#$ , but it's neater to express them as the root note-slash-major chord a semitone down.

There's a more outlandish reharmonisation in bars 27-28, using a cycle of open and closed quartal 13 voicings.

If the dots in **Example [19.1]** aren't helpful, you should be able to find the shape you want by searching the text for the relevant chord symbol.

There's a good reason why *Autumn leaves* is one of the most performed songs in jazz (there are more than 1400 commercial recordings). Its logical structure invites harmonic exploration, applying the principles described in these pages, and will repay careful study.

So ends (except for some final thoughts in [Step 20](#)) this personal account of where jazz chords come from and where they may be heading. There's still plenty of exploration to be done, so what are you waiting for?

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## Step 20: The Chromatic Universe

In the early days of learning the jazz trade it's probably helpful to be able to associate a particular chord with a specific scale - D $\Delta$ 7 with D Lydian, for example. But we've begun to see that that these associations are not unbreakable and exclusive rules.

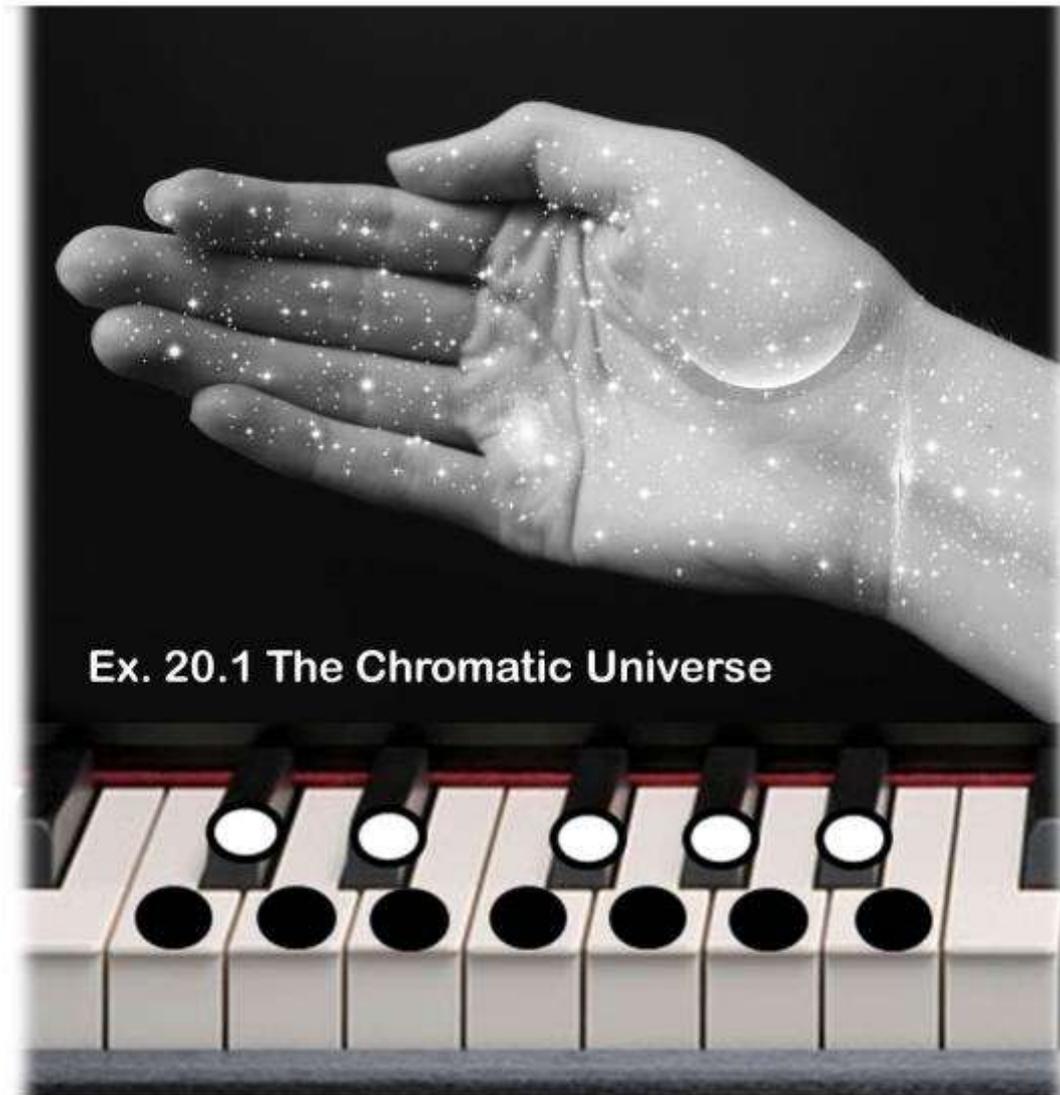
The conventional, practical view of a chord is as the epitome of a parent scale, a kind of instant summary of that scale made from its most characteristic elements.

Some, perhaps most, notes in the parent scale are only implied by the chord; but since they aren't stated explicitly, there is no particular reason why improvised lines based on that chord should be confined to the components of just one 'correct' scale.

For example, we think of C $\Delta$ 7 as expressing the C Lydian scale, **C D E F# G A B**. But the notes underlined aren't actually spelled out in the C $\Delta$ 7 chord, so they could just as well be something else.

Only the conditioning of the western ear disallows a scale like **C D $\flat$  D $\sharp$  E F G A $\flat$  A $\sharp$  B** from fitting the chord of C $\Delta$ 7.

Take this line of thought to its logical conclusion and you realise that all chords converge on a common parent scale - the chromatic scale (**Example [20.1]**).



The journey through harmony, from triads and keyboard shells via quartal structures, voicings, registers and clusters is long and hard. It can seem a disappointing and anticlimactic conclusion to this pilgrimage to find that the meaning of it all turns out to be nothing more exotic than the plain old chromatic scale.

But, as George Russell tells us, to understand the true profundity of this seemingly trivial conclusion is to break through into the *Chromatic Universe*. And when all is said and done, the notes are there before us,

exactly the same twelve notes for everyone, from the greatest musicians to struggling mortals like the author and the reader.

The only thing stopping you and me from creating great things is - us.

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## Coda: sources and resources

I said in the Prelude that this book is just one of many ways of making sense of jazz harmony. There are numerous books, web sites and recordings that approach the subject from every conceivable direction. Here are some I know of that usefully supplement, extend, or offer alternative views on, the material in *20 Steps*.

The standard works are probably *The Jazz Piano Book* (Sher Music, 1989) and *The Jazz Theory Book* (Sher Music, 1995) by Mark Levine. If you work through these venerable volumes, you will have a pretty comprehensive understanding of basic modern jazz practice. That's not to say I agree with everything in there: I once had an amicable disagreement with Mark about extensions to the half-diminished chord. If theory is your thing, and particularly if you conceive of music as emerging from patterns and numbers, *Modality* by Jeff Brent and Schell Barkley (Hal Leonard, 2011) may be for you. I know Jeff doesn't accept my argument for the foundational status of the lydian scale, but I think we remain on good terms.

On the subject of the lydian, I must mention George Russell's *The Lydian Chromatic Concept of Tonal Organization* (First edition 1953). I have a very early edition of this legendary work, and study it with admiration coupled with a degree of incomprehension. Later editions have become bigger and deeper. Getting one's head around Russell's system is one way of induction into truly contemporary theory and practice. What I'm saying is, this is advanced stuff.

A curious book I came across is *How to Play the Piano Despite Years of Lessons*, by Ward Cannel and Fred Marx (Crown & Bridge, 1976). It shares many of the attitudes stated and implied in *20 Steps* and, although aimed at getting the reader to play any and every kind of music, it has a solid core of jazz at its heart.

Of the almost overwhelming volume of jazz audio and video online, one source deserves special mention and that is the series of tutorials on jazz standards produced by Doug McKenzie, a pianist of rare elegance and accomplishment (search for him on YouTube). He has rigged up a camera above the keyboard to capture the performance, and an annotated panel is added to the video, showing the notes as they are played and drawing attention to particular harmonic or melodic features. A unique and invaluable resource.

As for pianists to listen to and learn from, I have benefitted most from practitioners of the 'less is more' style. You can listen to John Lewis, Horace Silver and Bobby Timmons and not feel that what you hear is utterly beyond reach. I also recommend pianists who sensitively accompany singers (including themselves). Nat King Cole, Carmen McRae, Jimmy Rowles and Ray Bryant are examples.

There are many many published and online sources of charts for songs and jazz standards. The various *Real Books* and related collections give both melodic lines and chord progressions. If you're a gigging player, you will quickly find that hauling around these essential sources in hard-copy form requires a wheelbarrow. These days many musicians prefer the convenience of chord changes only, usually in digital form such as the iPad and Android App versions of *iReal Pro* or *FakeBook Pro*.

It's reassuring to know that there's a comprehensive support system out there. But don't neglect listening, transcribing and harmonising for yourself. Not only will the habit of making your own lead sheets aid the development of your jazz skills, it will help you develop a distinctive voice.

## Encore: jargon buster

A glossary of some of the technical terms used in *20 Steps*.

**+**: symbol for an augmented chord, I-III-V#.

**o**: symbol for a diminished chord, I-IIIb-Vb-VI.

**ø**: symbol for a half-diminished or minor 7 5b chord, I-IIIb-Vb-7b.

**Δ**: symbol for a major chord, I-III-V.

**-**: symbol for a minor chord, I-IIIb-V.

**A (B, C...) section**: structural unit of a song. A typical standard form is AABA, comprising a repeated A section, followed by a B section and finally a reprise of the A section.

**accidental**: a note with a pitch not included in the scale indicated by the key signature of the music. Thus in the key of Bb (key signature two flats, Bb and Eb), the notes **E natural** and **F sharp** would be accidentals.

**added note**: in classical harmony, a tone other than the seventh added to a basic triad. An example is **A** added to a C major chord. Added notes are the rule in jazz harmony and are built into the chord symbol. The symbol for CΔ with an added **A** is C6.

**aeolian**: the mode on the 6th degree of the major scale. Also called the natural minor scale or, when played downward, descending melodic minor

scale. The aeolian mode of D major is the natural B minor scale - **B C# D E F# G A**.

**altered:** a 7alt chord is a dominant 7th in which the 5th is flattened or sharpened and the 9th is flattened, sharpened or both. For example C7alt may be voiced **C E Bb Db<sup>1</sup> Gb<sup>1</sup>**. A handy shortcut to creating a 7alt voicing is to play the root with a tritone triad above. So C7alt could also be expressed in slash format, as Gb/C.

**ascending melodic minor:** has been called the jazz minor scale. It is derived from the natural minor scale (see aeolian) by raising both the 6th and 7th degrees by a semitone. The scale of B ascending melodic minor is **B C# D E F# G# A#**.

**augmented:** augmentation refers to extending the interval of a perfect fifth, **I-V**, by raising **V** a semitone. An augmented chord (symbol +) has the formula I-III-V#.

**avoid note:** a non-chordal note that sounds bad. An example is the fourth against a major 7th chord. The lydian system deals with this clash by sharpening the fourth. The concept of avoid notes is useful in the early stages of learning the art of improvisation but fades to insignificance as one develops increasing harmonic and chromatic freedom.

**ballad:** a song played at a slow and reflective tempo, allowing the soloist to stretch out lyrically. Often double time is implied or overtly stated at appropriate points in the performance. The pace and mood of a ballad invites harmonic invention on the part of the keyboard player.

**bar:** commonly called a measure in N. America.

**bassline:** the foundation to the harmonic progression of a jazz performance, in which the bass instrument in the group forges a melodic line from the roots or lowest defining notes of the chord changes.

**bebop:** jazz style, the beginning of modernism, developed by the likes of Charlie Parker, Dizzy Gillespie and Bud Powell. Generally bebop themes are based on the chord progressions of standard songs, emphasising upper structures and alterations in complex flowing improvised lines.

**bebop scale:** most commonly a major scale with **V<sup>b</sup>** added as a chromatic passing note (it's sometimes called the flattened sixth scale). Thus E bebop is **E F# G# A B [C] C# D#**, with the chromatic note bracketed. The extra note has the effect of better fitting the scale, and phrases derived from it, to the time basis of jazz, predominantly a 2- and 4-beat music. It also reduces the complexity of harmonising the notes of the scale to just two chords and their inversions, I6 and Ilo.

**blues:** as a foundational form in the evolution of jazz, a song, usually 12 bars long, with a characteristic harmonic shift from I in the first four bars to IV in bar 5. As a style, a mood created from distinctive blues scales, blue notes and blues riffs.

**bridge:** the middle (usually B) section of a tune, that contrasts with the A section, often by moving to a remote key. In the typical 32 bar AABA song form, the bridge B is sometimes referred to as the middle 8.

**cadence:** a sequence of two or more chords that signal the end of a musical phrase.

**changes:** the chords that harmonise a song and form the structure on which the soloist builds an improvisation.

**chord:** two or more notes sounded simultaneously and forming the unit of harmony.

**chorus:** one full cycle of a head, or of a solo based on the complete chord progression.

**chromatic:** descriptive of harmonic or melodic relations derived from the chromatic scale, which includes all 12 tones, from **I** to **VII**.

**chromatic universe:** conceived by the composer George Russell as the musical space connecting the diatonic world of defined chords and scales with the free improvisation dimension. *Chromatic Universe Parts 1, 2 and 3* are tracks on Russell's legendary album *Jazz in the Space Age* (1960).

**classical:** a rather devalued term that refers to the canon of Western (largely European) high art music but, since the fracturing and globalisation of music genres in the 20th century, it has lost the discriminatory worth it once had.

**cluster:** a combination within a chord of two or more notes a semitone or tone apart.

**cycle of fifths:** also known as the circle of fifths. The relationship between the 12 keys of the chromatic scale, represented as an endless sequence running in one direction through consecutive sharp keys and in the other successive flat keys. Thus C (no sharps), G (one sharp), D (two sharps), A (three sharps) and so on are successively a fifth apart. Chords moving according to the cycle of fifths represent much of basic jazz harmony and cadence structures. The chords of the foundational II-V-I sequence are related through the cycle of fifths.

**descending melodic minor:** scale of the form **VIIb VIb V IV IIb II I**. See ascending melodic minor.

**devil's interval:** the tritone.

**diatonic:** descriptive of melody or harmony that uses only the unaltered major (or sometimes minor) scale. The opposite of chromatic.

**diminished:** if the tone a third or a fifth above **I** is flattened it is said to be diminished. A diminished chord (symbol o) consists of I-III<sup>b</sup>-V<sup>b</sup>-VI.

**dissonant:** a musical sound perceived as unpleasant or harsh, that is, as not consonant. Experiencing a sound as consonant or dissonant is largely a matter of cultural conditioning and musical context. The chords and progressions used in jazz harmony depend on the tensions and textures of a combination of consonances and dissonances for their special quality.

**dominant:** the fifth degree of the major or minor scale. The dominant seventh (symbol 7) is the triad built on **V** with an added 11th. Thus G7 (**G-B-D<sup>1</sup>-F<sup>1</sup>**) is the dominant 7th chord in the key of C major

**dorian:** the dorian mode is the scale built on the notes of a major scale starting on **II**. D dorian (the second mode of C major) is made of the white notes on the piano, starting on **D**.

**dots:** dismissive term for written notation, used by non-reading jazz musicians.

**eleventh:** one of the upper intervals beyond the seventh in extended chords. If unmodified it functions as a suspension. It is commonly sharpened in lydian harmony.

**extension:** an added note that is part of the upper structure of an expanded chord.

**fifth:** after the octave, the most important perfect interval.

**flatten:** to lower a note by a semitone.

**fourth:** the octave, fifth and fourth represent the three perfect intervals in western diatonic music.

**half diminished:** symbol  $\emptyset$  or  $-7 5b$ , a minor 7 chord with a flattened fifth.

**hard dissonance:** the interval of a minor second or major seventh. In  $F\Delta 7$  voiced **F-A-C-E**, the hard dissonance is on the outside of the chord. When voiced **C-E-F-A**, the hard dissonance is on the inside.

**harmonic minor:** the harmonic minor scale differs from the natural minor scale (see aeolian) in that the seventh degree is raised by a semitone. For example, E harmonic minor consists of **E F# G A B C D#**.

**harmony:** refers to the vertical structures of chords and their progressions, as opposed to the horizontal linear structure of melody.

**head:** the melodic theme or song, forming the first and last chorus of a jazz performance and establishing the harmonic basis of improvised solos.

**horizontal:** the melodic or improvised line in jazz is often referred to as horizontal, in contrast to chords, which are pictured as vertical structures.

**HW:** one of the two forms of diminished scale, in which the interval between the first and second degree is a semitone (half tone, H) and between the second and third is a whole tone (W). The pattern is continued upward for the rest of the scale. For example, the F HW diminished scale consists of **F Gb Ab A B C D Eb**.

**improvisation:** spontaneous production of a new tune based on the chord progression of the theme melody (head).

**interval:** the difference between two notes of different pitches. Usually an interval is numbered with respect to degree I of the major scale. Thus the interval of **C** to **Ab** is a flattened sixth.

**inversion:** chord inversion places a note other than the root at the bottom. In formal musical theory, the first inversion of a chord such as the major triad, **I-III-V** would be **III-V-I<sup>1</sup>** and the second inversion **V-I<sup>1</sup>-III<sup>1</sup>**.

**jazz:** the most influential musical style of the 20th century and the only art form born and developed in the United States. A type of music heartily disliked by people who have never heard it ('I hate jazz, but I like what you do'). From its former position at the top of popular culture, it has withdrawn to become the interest of a discerning few and the concern of a small life-sustaining community.

**jazz musician:** to misquote Samuel Johnson, a harmless drudge who must pay with flattery and is supported with insolence. One who knows thousands of chords and plays to audiences of three, unlike pop musicians who know three chords and play to audiences of thousands.

**key:** a typical piece of music will be in a major or minor key. That is, it will consist of notes and harmonies determined by one of the major or minor scales. For example, if a piece is in A major (or its relative minor, F# minor), the notes **C**, **F** and **G** will be sharpened, as they are in the A major or F# natural minor scale. In conventional notation, a sharp will be placed on the each of the **C**, **F** and **G** degrees of the staff at the beginning of each line, representing a key signature of A major or F# minor.

**keyboard:** there it is - the whole of music in just seven white notes, five black, repeated up to seven times or so. How hard can it be? (This is the most rhetorical of questions).

**leading note:** also called leading tone. A note that resolves onto another a semitone above or below it. In the most common cadence, **V7 - I $\Delta$** , the dominant 7 chord has two leading notes, one resolving upwards to the root of I, the other a semitone downwards onto the II of I $\Delta$ . In Bb, for

example, V7 is F7, **F-A-C-Eb**. The **A** of F7 resolves up to the **Bb** of BbΔ, and the **Eb** resolves down to the **D** of BbΔ.

**lydian**: the mode on the fourth degree of the major scale. A major scale or chord with a sharpened fourth. The lydian scale comprises **I II III IV# V VI VII**. The lydian dominant scale is the lydian with a flattened **VII**. Lydian structures are the theoretical foundation of an influential harmonic and melodic system devised by the composer and arranger George Russell.

**major**: the major scale is made of notes separated by the following interval structure - **I-whole tone-II-whole tone-III-semitone-IV-whole tone-V-whole tone-VI-whole tone-VII-semitone-I<sup>1</sup>**. The major chord is derived from the major scale, has the formula **I-III-V** and the symbol maj or Δ.

**melodic minor**: ascending minor scale is constructed thus - **I II IIIb IV V VI VII**. The descending minor scale form is **VIIb VIb V IV IIIb II I**.

**melody**: with harmony and rhythm, one of the principal rudiments of music. A melody, also called a tune or song, is a sequence of notes forming a musical line varying in pitch and making a rhythmic pattern. A solo created on the harmonic structure of a tune is an improvised melody. Creating new melodies on the spot is the essence of jazz.

**middle 8**: the B section of a standard 32 bar song with the form AABA.

**minor**: scales in which the third degree is flattened, and chords derived from such scales. See aeolian, harmonic minor, melodic minor.

**mode**: a scale starting on one of the notes in a major or minor scale, and proceeding stepwise to the next octave. The dorian mode starts on the second degree of the major scale, the lydian on the fourth. The major scale is termed the ionian mode, starting on degree one. Modal jazz,

which emerged in the 1950s, is characterised by its use of relatively static, non-cadential harmony and quartal chord forms.

**modern jazz:** the sort of jazz your mother doesn't like. The modern jazz era began with bebop, which appeared around 1940. So modern jazz is only modern if you think something 75 and more years old is modern. In other words, a meaningless term.

**motif:** sometimes also called motive. A short melodic, harmonic or rhythmic figure that serves as a recurrent structural unit in a musical phrase or theme.

**motion:** general term for movement of musical lines in relation to each other.

**music:** organised noise. Or sometimes just noise. Nietzsche said 'Without music, life would be a mistake.' Quite a lot of music is a mistake.

**ninth:** the first of the upper intervals beyond the seventh in extended chords. May be sharpened or flattened or both.

**notation:** what a jazz-type fellow would call 'the dots'.

**octave:** the interval between a note of a particular frequency and another half (octave lower) or double (higher) its frequency. For a conventional major or minor scale, the note an octave higher is the eighth degree. As an example, the scale of E major runs from **E** to **E** an octave higher (**E<sup>1</sup>**), thus. **E F# G# A B C# D# E<sup>1</sup>**.

**overtone:** any resonant frequency above a musical note's fundamental frequency. The different qualities of different instruments and voices depend on their overtone complements. The harmonic series is a regular

sequence of overtones that determine a chord's degree of dissonance and consonance.

**passing:** a passing chord is a non-diatonic chord connecting two diatonic chords. For example G6 and C6 can be connected by the passing chord Go. A passing note is a non-harmonic note in a melodic line connecting two chord tones.

**pentatonic:** a five-note scale, originally characteristic of Asian, African and indigenous folk traditions but assimilated into Western music, including blues and jazz, since the early 20th century. The major pentatonic scale on I has the interval structure **I-II-III-V-VI**. The minor pentatonic is a 'mode' of the major starting on VI: **VI-I<sup>1</sup>-II<sup>1</sup>-III<sup>1</sup>-V<sup>1</sup>**.

**perfect:** the interval between two tones is said to be perfect if each note occurs in the major scale of the other. Accordingly, the octave (**I-I<sup>1</sup>**), fourth (**I-IV**) and fifth (**I-V**) are perfect intervals. Perfect intervals are classically the most consonant. In harmony, the perfect cadence is the progression from V (or V7) chord to IΔ.

**piano:** 'A parlor utensil for subduing the impenitent visitor. It is operated by depressing the keys of the machine and the spirits of the audience.'  
(Ambrose Bierce).

**pop:** in its heyday, jazz was popular music. Half way through the last century, popular music became pop, and jazz became a specialised minority form, albeit an influential one. There's no point in lamenting this. As the rock people say 'shut up and play yer guitar'.

**progression:** the harmonic structure of a song is represented by its chord progression, or chord sequence, other wise called the changes. A chord

progression encodes all the information required to create an accompaniment or an improvised line.

**quartal:** refers to the harmonic system in which chords are built of notes a fourth apart (in contrast to tertian, the more traditional system of chords in thirds). One explanation for the origin of piano quartal voicings is that they are derived from guitar, where chord structures reflect the conventional tuning of lower strings a fourth apart.

**register:** to place chords in the optimal register is to locate them in the section of the keyboard within which voicings (particularly those with complex dissonance or cluster structures) sound most clearly and harmoniously.

**reharmonisation:** a tune will usually have a basic chord sequence that conforms more or less to the standard rules of harmony. Reharmonisation can be as simple as elaboration and enrichment of the basic changes or, at the other extreme, could involve a complete reworking of the harmonic framework and cadential structure.

**relative major, minor:** the relative minor of I is degree VI of the I major scale. The relative major of I is degree III of the I minor scale. Thus F# is the relative minor of A major, whereas C is the relative major of A minor. Relative major and minor keys share the same key signature.

**resolution:** movement of chords or notes from dissonance to consonance.

**rhythm:** the tempo and pattern of beats made by musical sounds over time. The rhythm section of a jazz group usually comprises a bass instrument, drums and a chord-playing instrument (keyboard, guitar or similar).

**rhythm changes:** the chords to *I got rhythm* (Gershwin), on which many jazz tunes are based. The form is the classic 32 bar AABA structure and makes much use of basic and altered II-V-I motifs.

**root:** the fundamental tone on which a chord is built, and which gives a chord symbol its name.

**rootless:** a voicing in which the chord is structured as an inversion, or from which the root note is omitted altogether, is referred to as rootless.

**scale:** a sequence of tones from I to I an octave higher (I<sup>1</sup>). As a resource for playing smooth, connecting improvised lines, a scale should comprise tones that are no more than a semitone or whole tone apart. I once worked out that there are 95 possible scales that obey this rule. But there are many other widely used scales too, some of which (like the pentatonic, or harmonic minor) contain intervals of greater than a whole tone. Some classic jazz tunes are based on scales with exotic intervallic structure - *Nardis* by Miles Davis, for example, uses a so-called 'Gypsy' scale. The definitive sourcebook is *Thesaurus of Scales and Melodic Patterns* by Nicolas Slonimsky. John Coltrane is said to have developed his style by working his way through this book from cover to cover.

**second:** the scale tone one step above the tonic.

**section, A, B, C...:** most jazz tunes are structured in sections, commonly eight bars long or multiples thereof, which may be repeated as part of the melody. *I'll remember April* is an example of a song with an ABA structure, comprising an initial 16 bar A section, a 16 bar B section (bridge), then a repeat of the A section.

**semitone:** half a tone. The smallest interval in Western tonal music and the structural unit of chromatic scales.

**sequence:** the chord sequence, or progression, represents the harmonic structure of a song in a form that allows an accompaniment or improvised line to be created in real time.

**seventh:** seventh chords are the foundation of jazz harmony. The major 7th consists of the major triad with an added **VII**. The dominant 7th is a major triad with an added **VIIb**. The minor 7th is a minor triad with added **VIIb**. The diminished chord is often represented as o7, even though the note added to the diminished triad appears to be **VI** from the root. I suppose this is because the parent scale, the diminished, has eight rather than seven degrees, which would make the added note not the sixth but the seventh. I find this rather unhelpful, so in *20 Steps* I have side-stepped the issue by using o or dim, without the seventh, as the symbol for the full diminished chord.

**sharp:** a note raised by a semitone.

**shell:** two widely-spaced notes, **I** and **VII**, from a seventh chord, played in left hand while the right hand plays other chord notes, extensions or melodic lines.

**sixth:** the interval between **I** in the major scale and **I** of the relative minor scale. The note an octave higher than the sixth is the thirteenth. The bebop scale is a major scale with an additional chromatic note at **VIIb**.

**slash chord:** a conventional chord symbol followed by a slash, followed by a non-chordal tone that serves as the root. Slash notation can often simplify what would otherwise be a complex explicit symbol. Compare, for example, F-9/Bb with Bb7 9 11 13.

**soft dissonance:** (compare with hard dissonance) the interval of a major second or minor seventh. In F13 voiced **Eb-G-A-D**, the soft dissonance is

on the inside of the chord (and the hard dissonance is on the outside). When voiced **A-Eb-D-G**, the soft dissonance is on the outside. These two versions of the 13th chord are sometimes called (ambiguously) the A and B forms respectively.

**solo**: the improvisation, based on the changes, played by an individual in a band.

**standard**: a tune from the basic jazz repertoire. Usually a popular song from the golden age of shows, films or tin pan alley, or a jazz composition (often based on the changes of a standard song) gone viral. A written collection of standards and their changes is called a Fake Book.

**stride**: typical piano style of 1930s, taking its name from the way the left hand alternates bass notes and middle-register chord voicings (giving an oom-pah feel), while the right hand states the melody or an improvised line. In the hands of the masters such as Art Tatum and Fats Waller, stride is an exhilarating art form and is an essential skill for the unaccompanied pianist.

**substitution**: replacement of a chord by a different chord with similar or logically related harmonic function. A common substitution is the tritone, where a dominant 7 chord is replaced by the 7th of the note a sharp fourth above it. Reharmonisation involves extensive use of chord substitutions.

**suspension**: a major or dominant chord in which the third above the root is raised a semitone (symbolised as sus4). The tension inherent in suspensions is released by allowing the 4th to resolve to the third. Many jazz pieces of the modal era - Herbie Hancock's *Maiden voyage* is an example - are based on extended unresolved suspensions.

**swing:** a rhythmic feel, unique to jazz, that originates in part from the layering of 3-time over 4 and the placement of emphasis and syncopation. But to explain swing, let alone teach it, is difficult - it seems, in the immortal words of Andréas Voutsinas, 'or you got it, or you ain't'. The Swing Era refers to the period in jazz history immediately preceding the rise of bebop in the 1940s.

**symbol:** chord symbols summarise the harmonic structure of a tune. Each chord is represented by a root note, often followed by a symbol indicating the quality of the chord (major =  $\Delta$ , minor = -, diminished = o and so on), with the addition of numbers indicating notes that serve as extensions to the basic chord.

**tertian:** the traditional system of chords built in thirds - in contrast with quartal structures, which are based on fourths.

**texture:** the same chord voiced in different ways can have very different sonorities, timbres or textures.

**theme:** in formal music theory, a jazz piece could be considered to be an example of theme and variations, where the theme is the tune, song or head that defines the harmonic architecture and style of the performance, and the improvised solos are the variations.

**theory:** many great intuitive jazz musicians got along perfectly well without knowing any of the stuff in this glossary, or even without more than a strictly practical acquaintance with what's in *20 Steps*. If you're one of these, good for you. For the rest of us, at least some inkling of theory is necessary to make sense of the challenge posed by the creation of meaningful jazz.

**third:** the tone on degree three of the major, whole tone or related diatonic scales is the major third. It is flattened in minor or diminished scales.

**thirteenth:** the uppermost interval beyond the seventh in extended chords. May be unmodified or flattened. Extended chords built from the different combinations of modified, sharpened and flattened thirteenths, elevenths and ninths represent a large palette of harmonic colours.

**tonal:** broadly, a musical work is defined as tonal if it has one home pitch (tonal centre) at a time and uses melodic lines and harmonies derived from diatonic scales. Some definitions distinguish between tonal and modal music. Most of jazz for most of its history has been a tonal music, but the language of jazz has always been ready to assimilate resources from other traditions, such as chromatic, serial, polytonal, microtonal and freely improvised forms.

**tone:** A note, of a particular pitch, quality, and duration. An interval equal to two semitones.

**tonic:** the tonal centre or keynote in tonal music. Degree I of a diatonic scale. At the right time, add gin, ice and lemon and you have the elixir of life.

**triad:** a chord build from three notes a third apart. **I-III-V** is the formula of the major triad on I, **I-III<sup>b</sup>-V** the minor triad, **I-III<sup>b</sup>-V<sup>b</sup>** the diminished triad, **I-III-V<sup>#</sup>** the augmented triad and **I-III<sup>#</sup>-V** the suspended triad.

**tritone:** interval of three whole tones. The 'devil's interval'. Tritone substitution is a common form of reharmonisation in which a basic or extended dominant 7 chord is replaced by the equivalent chord on the tone **IV<sup>#</sup>** (or **V<sup>b</sup>**) above.

**turnaround:** a harmonic motif, forming a cadence at the end of a section of a tune, that introduces the opening chord of the next section, or leads back to the top. The commonest form of turnaround sequence is some variation of I-VI-II-V.

**upper structure:** the notes of a chord extension above the basic triad with added sixth or seventh. Thus in F13 9b 11#, for example, the dominant 7th, **F-A-C-Eb** is extended with the upper structure **F#<sup>1</sup>-B<sup>1</sup>-D<sup>1</sup>**. Notice that the upper structure itself makes a triad (an inversion of B minor in this case), and gives the whole chord a complex polytonal texture.

**vanilla:** the plain vanilla changes refer to the unextended chords, omitting upper structures, substitutions and reharmonisations. The definitive collection of vanilla changes for jazz standards is Ralph Patt's *Vanilla Book*. Often an experienced keyboardist or guitarist will prefer to work from a chart of vanilla changes rather than one with more complex chord voicings, because such bare-bones representation allows the freedom for creative harmonisation.

**vertical:** chords are often thought of as vertical structures, in contrast to the horizontal nature of melodic or improvised lines.

**voicing:** the combination of consonant and dissonant tones in a chord that allows it to perform a specific harmonic function, to establish a mood and to sit properly in register.

**walking bass:** the four (it's usually four) in a bar melodic line, played by the bass instrument in a group, that defines the harmonic progression by connecting root, chordal and non-chordal tones to the changes. Walking bass often includes skips and other rhythmic flourishes and can, when moving in lockstep with the drums, impart a driving urgency to the performance.

**western music:** the musical style of jazz is considered to have influences from the Western European tradition, but to draw its primary inspiration from the roots of African tribal music. The main elements of improvisation, syncopation, swing and rhythm that characterise jazz can be traced to Africa and became fused with the formalities of western music by oppressed black people whose ancestors had been taken from their home lands. As Wynton Marsalis put it in 1985: 'Jazz is something Negroes invented...the nobility of the race put into sound ...Jazz has all the elements, from the spare and penetrating to the complex and enveloping.'

**WH:** one of the two forms of diminished scale, in which the interval between the first and second degree is a whole tone (W) and between the second and third is a semitone (half tone, H). The pattern is continued upward for the rest of the scale. For example, the F WH diminished scale consists of **F G Ab Bb B Db D E**.

**whole tone:** an interval of two semitones. The whole-tone scale has six degrees, each a tone above the preceding, has no unique keynote and no modes. There are only two whole-tone scales, one starting on a particular note, say **A**, and the other a semitone higher (**Bb**). The whole tone is the parent scale of the augmented chord. The lack of a tonal centre gives the whole tone scale and derived chords an unresolved, uncommitted feel. This ambiguity was explored throughout his creative life by Claude Debussy, who was influential on jazz harmony and voicings in the modern era.

## About the author

Howard Sidney Thomas was born long ago in a land far away (well, Wales). He was brought up in a tough neighbourhood and became interested in music because he was afraid to go outside. His earliest influences were the swing records his father brought back from WWII. Soon he discovered bebop and became a confirmed beatnik. His first instrument was clarinet, a difficult machine to play in the modern style. To learn the principles of harmony he began noodling around on keyboard and remains an accidental pianist to this day. He has performed in many different bands, enjoys accompanying singers and teaches one-to-one and in workshops.

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For examples of Howard Sidney Thomas's music, as well as the story of his day job as a scientist, visit his website: <http://sidthomas.net/wp/>