

Keyboard Harmony

a guide to devising keyboard arrangements

by D. L. Stieg

Table of Contents

Click on a page number to advance to that page

- 2** Keyboard Notation and Popular Music
- 4** Notes and Major and minor Triads
- 6** Playing Triads and Inversions of Triads with the Right Hand
- 8** Chord Voicing and the Left Hand
- 10** Other Types of Chords
- 12** Arpeggios, Scale Passages, Parallel 3rds and 6ths, and Non-Chord Notes
- 14** Chord Symbols

Keyboard Notation and Popular Music

The guitar and keyboard instruments are the most popular instruments among non-classical musicians for two main reasons. Both are versatile and can be used to play complete sounding music in a variety of styles, and music reading ability is not required to learn to play either. Classical guitarists and classical keyboardists (pianists and organists) rely exclusively on staff notation for learning and playing music, but most other types of guitar music and keyboard music can be played by, and are often composed by, musicians who do not read music. For example, being able to read staff notation is of no advantage for guitarists playing folk, traditional, or popular music, because non-classical guitar music is rarely notated in staff. Non-classical guitar music can be accurately notated in tablature, however, and studying tablature scores can be an effective way to learn new styles of play. Nevertheless, the approach to learning taken by most non-classical guitarists consists of learning to make chords, and then learning to play progressions of chords, without recourse to notation of any kind, with the possible exception of chord diagrams.

Unfortunately, chord diagrams are not a viable option for keyboard music, because the expanse of possible notes is too large, and the diagrams would therefore be too unwieldy. Further, because a simpler yet equally accurate notation system has yet to be devised, staff notation is the only viable option for notating keyboard music. In spite of this, a great many amateur keyboardists, and even a number of professional keyboardists, do not read music. Rather, like most non-classical guitarists, they learn to play by learning to make chords, then learning to play progressions of chords effectively. It is commonly known that this can be done by keyboardists with practically no knowledge of music theory. In fact, practically anyone can figure out how to play a simple melody on a keyboard, solely by ear, and without recourse to any knowledge of music theory or music notation. It is also possible, and by no means a rare occurrence, for talented and dedicated keyboardists to produce music of great beauty and great complexity, again solely by ear, and without recourse to any knowledge of music theory or music notation.

Many non-classical keyboardists do read music, which is clearly an advantage, though not so great an advantage as it might seem, especially with regard to playing popular music. It is an advantage because in learning to read keyboard notation, one is in effect learning how keyboard music is constructed, and training the fingers to play chords and melodies (not incidentally, these are the two main goals of Keyboard Harmony). But it is a limited advantage because very little non-classical keyboard music is accurately notated and is an accurate account of the keyboard music on a recording. Consider that for any popular song not based on a keyboard arrangement (for instance, any song in the Popular Music Catalog), a keyboard score is at best only a rough approximation of the music on a recording. Even for popular songs that are based on a keyboard arrangement, the keyboard scores are seldom entirely correct, and they often fail to effectively capture the sound and feel of the keyboard music on the recording. As a result, unlike for classical keyboardists, the ability to read staff notation is not at all indispensable for non-classical keyboardists, and the development of fluency in non-classical styles of play can be and frequently is achieved without recourse to staff notation.

The limited usefulness of music reading ability for non-classical keyboardists is also demonstrated by the basic character of staff notation, which is largely based on the concept of key (a key is a group of related notes). By comparison, the basic character of non-classical keyboard music is largely based not on staff notation or key, but rather on chords and progressions of chords. The non-classical keyboardist's art is therefore not unlike that of the non-classical guitarist, in that it consists of playing progressions of chords effectively. In truth, the ability to transform a song chart (a progression of chords) into an effective keyboard arrangement, an important and essential skill for non-classical keyboardists, has very little if anything to do with reading staff notation. The method developed in Keyboard Harmony for acquiring this ability draws upon only those elements of music theory that are relevant to the task at hand, and it also draws upon the spirit and experience of the countless keyboardists who have taught themselves how to play in spite of their lack of formal musical knowledge and training.

Notes and Major and minor Triads

One of the more confusing aspects of music theory is that the same term can sometimes have several different meanings. The term note, for example, refers to a musical sound, but it also refers to a symbol representing that sound on a printed page. The term chord, at least in the simplest sense, refers to a combination of three or more notes that are sounded together. Since chords are comprised of notes, before you can develop an understanding of chords, you must first develop an understanding of notes and how they are named. This can most conveniently be done by examining a keyboard. Each key is named for the corresponding note that is sounded when the key is depressed. The notes sounded by the white keys, called the natural notes, are named with the sequence of letters A through G, which is repeated along the entire keyboard. The various repetitions of each of the seven natural notes up and down the keyboard are called octaves of that natural note. The term octave also refers to the distance between any note and the next repetition of that note up or down along the keyboard. Different octaves of the same note sound like the same note (for example, men and women singing a melody together) only in different registers (register refers to relative highness or lowness).

The black keys of the piano keyboard are arranged in groups of two and three, which are repeated along the entire keyboard. As with the white keys, the corresponding black keys in each group of two or three black keys are octaves of one another. This means that there are only five distinct notes (in various octaves) sounded by the black keys. Since the white keys are all accounted for by the seven natural notes, only twelve distinct notes can be played on a keyboard. In fact, though it may seem quite impossible, there are only twelve distinct notes in all of Western music. The black keys are named according to which white keys they are adjacent to. Each black key has two different names, since a black key immediately above a white key is called a sharp (#), and a black key immediately below a white key is called a flat (b). The white key immediately to the left of each group of two black keys is a C. The black key on the left in each group of two black keys can therefore be named either C# or Db. Similarly, the black key in

the middle of each group of three black keys can be named either G# or Ab. The musical context in which a black key note is sounded always determines which of the two enharmonic (equivalent) names should be used.

The distance between two notes is called an interval. Intervals are named with numeric values according to the relationship of the letter names of the two notes in the sequence of letters A through G. For example, the interval between an Ab and a B is a 2nd, the interval between a G# and a B is a 3rd (remember that the sequence of letters A-G repeats after G), the interval between a C and a G is a 5th, and so on. Intervals are of great importance in chord theory because types of chords are defined by the intervals between the notes of which they are comprised. The simplest types of chords, called triads, are comprised of three notes, and are constructed in thirds, which means that each successive note is a 3rd higher than the last. Triads based on the seven natural notes are relatively easy to play on a keyboard, since all that is required is to play every other white key. By playing the natural note triads you can determine for yourself that the triads built above C, F, and G have a similar sound. The C (C-E-G), F (F-A-C), and G (G-B-D) triads sound alike because they are all Major triads. You can also determine that the triads built above the notes A, D, and E have a similar sound that is markedly different from the sound of a Major chord. The a (a-c-e), d (d-f-a), and e (e-g-b) triads sound alike because they are all minor triads. Notice that capital letters are used to identify Major triads and the notes of Major triads, and that lower case letters are used to identify minor triads and the notes of minor triads. This distinction between Major and minor is an important one, not only because it will be observed throughout the remainder of this writing, but more importantly because minor chords are always identified with lower case letters in the song charts.

Playing Triads and Inversions of Triads with the Right Hand

The importance of Major and minor triads in the scheme of Western music cannot be overstated. For all but the most complicated Western music (for example, some classical music and most jazz music), Major and minor chords are used far more frequently than any other types of chords in the chord progression driving the music. In fact, the chord progressions governing simpler forms of Western music usually consist almost entirely of Major and minor chords, and there are only a very few other types of chords that are used with any regularity. Moreover, these other chord types, as well as practically any other type of chord used in Western music, are all generally regarded as variations of either Major or minor chords. Because of the central importance of Major and minor triads, the Western musical system is commonly referred to as the Major/minor system.

All of the above points toward the fact that developing the ability to play Major and minor triads built above each of the 12 distinct notes is an essential step in becoming a competent keyboardist. This is actually easier to accomplish than it might seem to be because of two important considerations. First, there is a basic similarity in structure between the Major and minor triads built above the same note. The note above which a triad is built is called the Root. The next note is called the 3rd because it is a 3rd higher than the Root. The third note of a triad, which is a 3rd higher than the 3rd, is called the 5th of the chord, because it is a 5th higher than the Root. The 5ths of the Major and minor triads built above a given Root are one and the same note, and an awareness of this similarity in structure greatly simplifies the task of learning to play Major and minor triads on the keyboard. Second, with only one exception, the 5th above any white key is also a white key, and with only one exception, the 5th above any black key is also a black key. The exception among the white keys is B, the 5th above which is F#, and the exception among the black keys is Bb, the 5th above which is F. Applying this knowledge will greatly simplify the task of figuring out how to play Major and minor triads above each of the 12 distinct notes. For reasons that will become evident further along, you should do this with your right hand in the upper half of the keyboard. Before long you'll discover for yourself that the 3rd of a

Major triad is one half-step higher than the 3rd of a minor triad built above the same Root, and vice versa.

Developing fluency with the right hand in making all 12 Major and minor triads is an important step in the process of acquiring the ability to transform a chord progression into a viable keyboard arrangement. It is of no less importance to develop the ability to play Major and minor triads in inversions and other chord voicings as well. The basic R-3-5 structure of a triad defines the three notes of the triad, but the notes don't necessarily have to be in that order in a chord voicing (a chord voicing is an arrangement of the notes of the chord). For example, either the 3rd (3-5-R) or the 5th (5-R-3) can be the lowest note in the chord voicing, creating what are known as chord inversions. Chord inversions have a rather different sound than a Root position chord voicing, in which the Root is the lowest note. You would do well to develop the ability to play all 12 Major and minor chords with the right hand in both inversions as well as in the basic R-3-5 configuration, because this will greatly increase your flexibility regarding arranging a chord progression for keyboard. For the same reason, two other right hand chord voicings for the Major and minor triads that you should become familiar with are R-3-5-R, in which the octave Root above creates a much more complete sound, and R-5-3, which has a distinctly balanced and very beautiful sound.

Chord Voicing and the Left Hand

The C nearest the middle of a full 88-key piano keyboard is called Middle C. In piano notation, which makes use of two five-line staves joined together by a bracket, notes above Middle C are notated on the upper (treble) staff, and notes below Middle C are notated on the lower (bass) staff. This parallels the fact that the keyboardist's left hand naturally falls over the lower (bass) register of the instrument, and the right hand naturally falls over the upper (treble) register of the instrument. This bass/treble distinction is the most obvious difference between the functions of the two hands in chord voicing, but there are two other significant differences as well. The first of these is the fact that in a two-hand chord voicing, the lowest note played by the left hand, which is referred to as the bass note of the chord voicing, determines whether the chord is in Root position (Root of the chord in the bass) or in an inverted position (a note other than the Root in the bass). In other words, in a two-hand chord voicing, chord inversions played with the right hand are of no consequence in determining whether the chord voicing is a Root position voicing or an inversion. Learning to play right hand chord inversions is nevertheless of great value and importance, because it allows for learning to play a wider variety of two-hand chord voicings.

The other important distinction between the function of the two hands in a two-hand chord voicing is the fact that smaller intervals between bass register notes tend to produce an undesirable and unmusical effect, and should therefore be avoided. You can confirm this by playing and observing the sound and effect of R-3-5 voicings played with the left hand in the bass register. You will find that the lower down into the bass register you go, the more the R-3-5 voicings tend to sound ambiguous and unmusical. By comparison, larger intervals between the bass register notes in a two-hand chord voicing produce a more pleasant and balanced effect. Because of this, the most common left hand configurations in two-hand chord voicings are R-5, R-5-R, and R-R, and you would do well to learn to play all three configurations above each of the 12 distinct notes. Another possible left hand configuration, R-5-3, takes into account the difference between Major and minor triads, and has the unique advantage of including all three

notes of a triad. Since all four of these left hand configurations are in Root position, other configurations must be used to create two-hand inverted chord voicings, which generally speaking should be used sparingly, because their overuse tends to detract from the musical sense of a chord progression.

Another important consideration regarding fashioning two-hand chord voicings is to avoid using a limited number of chord voicings, because this tends to have a monotonous and unmusical effect. By comparison, using a wide variety of chord voicings creates more musical interest, and in this way generally enhances a keyboard arrangement. Two other important considerations regarding fashioning two-hand chord voicings are doubling and voice leading. Doubling, which refers to including a specific note of the triad more than once in a chord voicing, is practically unavoidable in a two-hand chord voicing. In terms of having a favorable effect on the sound and general usefulness of a chord voicing, the Root is the best note of a triad to double, followed closely by the 5th. The 3rd is the least advisable note of a triad to double, which means that a four-note chord voicing in which only the 3rd is doubled would not be a very well-balanced and generally useful chord voicing.

Voice leading refers to making connections between chord voicings by creating short “lines” in the interior texture of the music. The bass notes create a “line” that sounds throughout and beneath the music. The melody of the song, which usually is not even included in an accompanying keyboard arrangement, is another “line” of obvious importance in the overall scheme of the music. In a similar sense, interesting “lines” of far shorter duration can be created in a keyboard arrangement by using chord voicings that create a sense of movement between the notes of consecutively sounded chords. A keyboard arrangement can be made much more musically interesting by developing in this manner short melodic “lines” in the interior and uppermost notes of consecutive chord voicings. The development of physical skills is obviously of paramount importance in becoming a competent keyboardist, but the mastery of nuances of this sort is another important requirement for fashioning keyboard arrangements that are musically satisfying and that make musical sense.

Other Types Of Chords

The theory of chords and the practice of playing chords on a keyboard instrument are interrelated, but they are nevertheless two separate and different aspects of becoming familiar with chords. More often than not, an understanding of the theory behind a particular type of chord, and the practice of playing the chord, amount to two rather different ways of reaching the same conclusion. This is the case, for example, with the two other possible types of triads, which are the diminished triad and the Augmented triad. A triad was previously defined as a three note chord in which the middle and top notes are stacked in 3rds above the Root. The two types of 3rds are a minor 3rd (m3), or the distance between the Root and 3rd of a minor triad (3 half-steps), and a Major 3rd (M3), or the distance between the Root and 3rd of a Major triad (4 half-steps). In a minor triad, the chord notes are stacked at a m3 above the Root, then a M3 above the 3rd. In a Major triad, the chord notes are stacked at a M3 above the Root, then a m3 above the 3rd. In theory, a diminished triad is a triad in which the chord notes are stacked at a m3 above the root, then a m3 above the 3rd. In practice, however, a diminished chord is a minor chord with a lowered (diminished) 5th. Similarly, in an Augmented triad, the chord notes are stacked at a M3 above the Root, then a M3 above the 3rd, but in practice an Augmented chord is a Major chord with a raised (Augmented) 5th. Augmented and diminished chords have a markedly different sound than Major and minor chords, and are not commonly used with any regularity in most types of non-classical music, the two main exceptions being jazz and blues.

Apart from triads, the next most commonly used chord type is 7th chords, which are formed by stacking a fourth note at a 3rd above the 5th of a triad. Since there are four types of triads, and since there are two types of 3rds (m3 and M3), it follows that there are eight possible types of 7th chords. However, the only three types used with enough frequency to warrant mention here are a Dominant 7th chord (usually known more simply as a 7th chord), a Major 7th chord, and a minor 7th chord. A 7th chord (for example, D7) is a Major chord with a 7th added at a m3 above the 5th. A Major 7th chord (for example, DM7) is a Major chord with a 7th added at a M3 above the 5th. A minor 7th chord (for example, dm7) is a minor chord with a 7th added at a m3 above the 5th. In

practice, however, and quite apart from the theory behind them, all three of these types of 7th chords are formed by lowering a doubled Root in a chord voicing. The doubled Root is lowered two half-steps for a 7th chord and a minor 7th chord, and one half-step for a Major 7th chord. Another less frequently encountered chord type is 9th chords, which are formed by stacking a fifth note at a 3rd above the 7th of a 7th chord. Only three of the sixteen theoretically possible 9th chords are used with any frequency, and they parallel the three most commonly used types of 7th chords. A 9th chord (for example, D9) is based on a Dominant 7th chord, a Major 9th chord (for example, DM9) is based on a Major 7th chord, and a minor 9th chord (for example, dm9) is based on a minor 7th chord. In practice, in each case, the 9th of the chord is formed by raising a doubled Root in the chord voicing by two half-steps. In addition, it is important to include the 7th in the chord voicing for a 9th chord in order to achieve the full harmonic effect.

Like the chord types so far considered, most other commonly used chord types can also be considered variations of Major and minor triads. A suspended chord (for example, D_{susp}, or D_s) is a Major chord in which the 3rd is raised by one half-step. Suspended chords usually resolve to (are followed by) the Major chords on which they are based. A 7_{susp} chord (for example, D7_{susp}, or D7_s) is a Dominant 7th chord in which the 3rd is raised by one half-step. Like suspended chords, 7_{susp} chords usually (but not necessarily) resolve to the 7th chords on which they are based. A 6th chord (for example, D6 or d6) is a Major or minor triad with a note added at two half-steps above the 5th. A modal chord (for example, D_{modal} or D_{mod}) is a Major or minor triad in which the 3rd is lowered to two half-steps above the Root. Since the function of the left hand is more or less the same for voicing all types of chords, these and other alterations of Major and minor chords are made for the most part with the right hand. In fact, the alteration of chord notes in the right hand, which is closely related to the previously discussed notion of voice leading, is often the manner in which progressions of chords are devised. Two other general rules regarding voicing different types of chords on a keyboard instrument are that the 3rd and 5th of the chord are generally the preferred notes to use in the bass for chord inversions, and that the Root and 5th are the preferred notes to double.

Arpeggios, Scale Passages, Parallel 3rds and 6ths, and Non-Chord Notes

The basic understanding of chords developed in the preceding pages, together with the guide to chord symbols included herein as an appendix, should allow you to correctly identify the notes of all the chords called for in popular music song charts. In addition, the numerous observations about chord voicing contained in the preceding pages should allow you to create smooth and musically sensible transitions from each chord to the next. There are, however, several other aspects to the art of devising successful keyboard arrangements that are also of great importance. The most crucial of these are creativity and good musical sense, neither of which is dependent on a formal knowledge of music, and neither of which can be readily explained or taught. There are several other important concepts and techniques that are likewise not dependent on a formal knowledge of music, and that are therefore worthy of mention here. The most obvious of these is rhythm, which can be used by any competent keyboardist, regardless of his or her familiarity with music theory, to develop musical interest, rhythmic repetition, and rhythmic contrast in a keyboard arrangement, all of which can make for a more effective arrangement.

Among the most important techniques used by keyboardists is arpeggios, which means sounding the notes of a chord voicing one at a time in succession rather than all at once. Arpeggios are most commonly made from the lowest note to the highest note of a chord voicing, but descending arpeggios (from the highest note to the lowest note) and skip arpeggios (in which the notes of the chord voicing are not sounded in consecutive order in either direction) are also possible. Sounding the notes of chord voicings in succession (arpeggios) creates movement and rhythmic interest in a musical arrangement, and it also creates an effective musical contrast to the use of block chords (sounding the notes of chord voicings all at once). Another way to create movement in an arrangement is by the use of scale passages, or short melodic phrases that are used mainly to enhance transitions between chords. The technique of weaving a progression of chords together more effectively by using short melodic passages is an important tool in crafting interesting and musically sensible keyboard arrangements. These melodic passages are called scale passages because they are based on the scale (the notes of a key in successive order) and

the key (a group of 7 of the 12 distinct notes) of the music. Scale and key are two of the most basic elements of music theory and staff notation, but any keyboardist possessed of a good musical ear is capable of using scale passages to enhance a keyboard arrangement. This is so because the notes of the scale and key generally make more sense to the ear than non-key notes, so correct-sounding notes for scale passages can be determined in an experimental fashion just as well as in a theoretical fashion.

An even more challenging and rewarding technique, which again does not require a formal knowledge of music, is using scale passages consisting of two matching melodic lines moving in parallel motion. There are a limited number of choices regarding the interval between the two parallel melodies. The intervals of a 2nd and a 7th are not acceptable because they sound too dissonant (unharmonious, or harsh to the ear). The same is true of a 4th and a 5th, although parallel 5ths, and to a lesser degree parallel 4ths, are fairly common in rock music. The most harmonious intervals for parallel motion are 3rds and 6ths, and the use of parallel 3rds and parallel 6ths is a very common technique in keyboard music of all types. The musical effect of melodic passages using parallel 3rds or 6ths is very striking and very beautiful, and quite unlike the musical effect of arpeggios or block chords. Another frequently used technique in keyboard music is parallel octaves, which are particularly effective for bass runs, but which can be used for short melodic passages in a higher register as well.

When an accompanying keyboard arrangement does not include the melody of the song, which is often the case, the use of melodic passages and parallel motion creates musical interest by developing contrasting melodic ideas in the accompaniment. Since melodic passages normally include notes that are not included in the chord, they obviously require an exception to the general rule of playing the notes of the chord. In a broader sense, chord symbols should not be interpreted too strictly, because sometimes interesting and beautiful results can be obtained by adding a note to a chord, or by altering one of the notes of a chord. The chord symbols in a song chart are a good starting point, but the effectiveness of a musical arrangement is no less dependent on the imagination and technical skill of the musician who fashions that arrangement.

CHORD SYMBOL PRONUNCIATION (STRUCTURE)

Major Related Chords :

G	G Major
D7	D 7 or D 7 th
As	A suspended
FM7	F Major 7 th
*Dmod	D modal (D Root, 2 nd , 5 th)
Bb6	B flat 6 th (Bb with added 6 th)
E7s	E 7 suspended or E 7 th suspended
**G5	G 5 th (Root, 5 th)
F9	F 9 th (F7 with added 9 th)
AM9	A Major 9 th (AM7 with added 9 th)
B+	B Augmented (B with Augmented 5 th)
A7-5+	A 7 Augmented 5
Db-5 ^o	D flat diminished 5 th

minor related chords :

d	d minor
am7	a minor 7 or a minor 7 th
*amod	a modal
em9	e minor 9 th (em7 with added 9 th)
**d5	d 5 th
gm6	g minor 6 th (g with added 6 th)
***a# ^o	a sharp diminished (a# with diminished 5 th)

Other chords :

D-add E	D add E (D with the added note E)
G/A	G over A (G above an A bass note)
e/D5	e minor over D 5 th (e above a D5 bass)

* These chords are sometimes incorrectly referred to as s2 chords (a suspension is a half-step and not a whole step) or as 9th chords (when no 7th is either present or implied).

** As with modal chords, 5th chords are not normally identified as either Major or minor in orientation, but this is a useful distinction for filling in harmonies and building new harmonies.

*** Because diminished chords frequently contain a diminished 7th as well, they are often called diminished 7th chords. A diminished triad is interchangeable harmonically with a diminished 7th chord.