Unlocking the Guitar Fretboard: An Intervallic Approach Towards Melodic Improvisation

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UNLOCKING THE GUITAR FRETBOARD: AN INTERVALLIC APPROACH
TOWARDS MELODIC IMPROVISATION

By

Jesse S. Hale

A DOCTORAL ESSAY

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
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UNLOCKING THE GUITAR FRETBOARD: AN INTERVALLIC APPROACH TOWARDS MELODIC IMPROVISATION

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This manual will present seven skills/concepts that will ultimately allow a student to tap into their own imagination in order to originate musical ideas and produce these on the guitar. The seven skills/concepts presented in the manual have proven to be helpful in a guitarist’s ability to reproduce and originate musical ideas on their instrument.

The first skill/concept (Chapter 2) will introduce and develop the divisions of an octave using intervallic study. The second skill/concept (Chapter 3) will expose and develop an understanding of the overtone series. The third (Chapter 4) will discuss the tuning of the guitar and the complications that arise from its unique tuning. The fourth (Chapters 5-11) will establish an ability to recognize and produce interval construction on the guitar. The fifth skill/concept (Chapter 12) will expose and develop a process of ear-training that uses the overtone series as its foundation. The sixth (Chapter 13) will develop one’s ability to create musical ideas using intervallic ‘seeds’ as a catalyst for musical origination. The seventh skill/concept (Chapters 14-15) will be to understand the principles behind chord construction on the guitar using the intervallic skills previously described above.
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Chapter 1

INTRODUCTION

Background

Every one of us is born with an ability and desire to be creative and express ourselves. This desire to be creative appears at many different times throughout our lives. However, this usually occurs when certain skills have been planted, tended to, allowed to blossom and then cultivated. For some, expressing themselves creatively takes much effort, and for others being creative seems to come with ease. Regardless of the way in which we approach being creative, every artisan goes through much thought, perspiration, exploration and discovery in order to gain understanding and mastery of their craft.

Music can be described as an organization of sound through time. Organizing various sounds into musical speech is much like the organizing of words into logical sentences. This manual will focus on seven skills/concepts that, when combined, help one to develop musical origination, musical conversation and/or musical speech. The terms musical origination, musical conversation, and musical speech will be used throughout this manual in order to describe the process of creating musical words, sentences and phrases. Like spoken language, musical origination can be eloquent or archaic. The ultimate goal behind musical origination is to spontaneously and logically communicate and express oneself through their instrument.

When learning to be conversant with the guitar many questions and issues are raised. To answer those questions, in my own personal journey, I first chose to consult
the music literature of the past and present. Initially, I did not find what I was looking for, however, what I did achieve through my research was an increased knowledge of theory and philosophy of music. This knowledge has proven to be important for me in so many ways as there is no doubt that theory and philosophy of music are both extensively employed in musical conversation. However, by exclusively studying theory and philosophy I discovered that I was still not able to be musically conversant. I concluded that the ability to be musically conversant would have to come first from listening and playing with music, via recordings, drone pitches and chord progressions, and that I would build my skills of conversing musically much like the way a baby would learn its mother tongue. Currently there is a need for music literature that addresses the process of developing musical origination on the guitar.

In order to approach this need, I found that I needed to reduce the seemingly infinite variables that one is presented with when faced with complete freedom. By reducing a certain problem or skill set I was able to show myself, as well as my students, not only how to solve a problem or use a given skill, but found that I was also able to produce unique and logical paths towards developing musical origination. For example, by controlling the musical soundscape, whether through the use of a drone pitch or chord progression, a teacher is able to have their student explore sound through boundaries that can be widened or narrowed. The idea is to allow the student to experience the sensation of freedom and exploration through their instrument, much like the use of training wheels allows one to experience how it will ultimately feel to ride on a bicycle.
Statement of the Purpose

This manual will present seven skills/concepts that will ultimately allow a student to use their imagination in order to originate musical ideas and produce these on the guitar. The skills/concepts presented in this manual have proven to be readily absorbed and are essential in a guitarist’s ability to reproduce and originate musical ideas on their instrument.

The first skill/concept (Chapter 2) will be to introduce and develop the divisions of an octave using intervallic study. The second skill/concept (Chapter 3) will expose and develop an understanding of the overtone series. The third (Chapter 4) will discuss the tuning of the guitar and the complications that arise from its unique tuning. The fourth (Chapters 5-11) will establish an ability to recognize and produce interval construction on the guitar. The fifth skill/concept (Chapter 12) will expose and develop a process of ear-training that uses the overtone series as its foundation. The sixth (Chapter 13) will develop one’s ability to create musical ideas using intervallic “seeds” as a catalyst for musical origination. The seventh skill/concept (Chapters 14-15) will be to understand the principles behind chord construction on the guitar using the intervallic skills previously described above.

It has been through my teaching experience in college, elementary and private sectors, to students ages 5 through 60, that the seven concepts in this manual were developed. It is also interesting to note that these seven concepts have proven to be readily understood by different levels and aptitudes of guitarists. More importantly, these concepts produce the sensation of personal understanding, creativity and thus achievement on one’s instrument. It is my hope that the skills/concepts developed within
this manual will provide an excellent supplement for the current classical guitar studio and add to the development of a well-rounded guitarist.

**Literature Review**

Many ideas presented in this manual are entirely original realizations developed through a constant inner search for easy solutions to complex problems. This being said, there are some notable authors whom must be mentioned because they have greatly helped in my understanding and insight into the subject matter presented in this manual. These authors and their respective texts are Arnold Schoenberg’s *Theory of Harmony*, Johann Joseph Fux’s *The Study of Counterpoint*, The Advancing Guitarist by Mick Goodrick and Jon Damian’s *The Guitarist’s Guide to Composing and Improvising*. All of these texts have been read numerous times and have contributed greatly to my personal understanding and development of this manual.

Arnold Schoenberg’s *Theory of Harmony* is difficult reading but has proven to be quite worth the work required to understand his thought process and his approach to music making. Every concept in this book relates one way or another to the overtone series. Schoenberg took great pains to justify, sometimes forcefully, his ideas on these grounds. However, all musical examples are worked out on the grand staff and are heavily reliant upon the piano rather than the guitar. Schoenberg’s explanation of harmony in relation to the overtone series is masterful and his exercises concerning movement from one chord to another have proven to be very influential in the development of my own ideas concerning hearing, organization and understanding of music making.
The art of organizing harmony in a horizontal as well as vertical synergy is known by musicians as counterpoint. It has been the western world of music that has developed, over hundreds of years, a great understanding and system of harmony. In order to better understand this complex art form I decided to start from the beginnings of counterpoint study. The 18th century author Johann Joseph Fux and his book, *The Study of Counterpoint*, truly opened my eyes to the art of harmony and counterpoint. Fux presents a few hard and fast rules to counterpoint and its production which are viewed by later authors of the 19th and 20th centuries as being too rigid and old fashioned. Yet, it was precisely these old fashioned rules which allowed me to get my feet on the ground in a subject matter that is quite complex. It was the reduction of Fux’s ideas that made his book so accessible. I have spent countless hours reading and making up my own exercises to further my understanding of this subject matter. This resulted in a strong sense of pre-hearing motion in music and the ability to produce balanced and interesting chord progressions for the guitar.

*The Advancing Guitarist* by Mick Goodrick is a book that has seen much success since its publication in 1987. I highly agree with Mick Goodrick when he states that few guitar methods discuss the art of playing up and down a single string and that much can be learned from practicing in this manner. Guitar methods seem to predominately focus on position playing which encompasses playing scales using several strings in a particular area, or position, of the guitar. Although position playing is important to understand, the inclusion of single string playing is just as important, if not more, and will improve one’s ability to produce musical ideas on the guitar. String instrumentalists should continually build upon their ability to create musical ideas on a single string in order to better
understand phrasing, musical word creation as well as push their own creative process when being musically conversant. The author also focuses on the modes derived from the major scale. However, the book does not discuss active vs. resting tones thus the true flavors of a given mode are not fully realized. I feel strongly that to bring awareness to the modes of any parent scale one must first understand active vs. resting tones and their relationship to the overtone series. I have found this book to be excellent for the guitarist whom has already achieved a firm understanding of music theory but the novice/intermediate guitarist may feel frustrated.

Mick Goodrick ends his book by placing a heavy emphasis on the importance of understanding intervals and counterpoint production. Yet, he does not describe how interval shapes on the guitar are produced and provides only a few of his own examples of counterpoint. What Goodrick achieves through this chapter is to encourage a student to think about and take up the study of intervals and counterpoint in order to improve one’s overall ability to produce music.

Jon Damien’s *The Guitarist’s Guide to Composing and Improvising* is one of the better books available to guitarists looking to broaden their musical horizons. Jon Damien does not claim to have produced a method for the guitar but rather has filled the pages of his book with ideas which will hopefully be taken up by a pro-active student. This book is very similar to Mick Goodrick’s text in that it is directed towards a jazz/rock guitar student whom can presumably read and write music, improvise and has an understanding of music theory and chord production. Jon Damien’s main goals seem to be to awaken the guitar student to the many possibilities in tone production, tonal/color palette or
musical “seed” production as well as introducing the reader to the crucial role counterpoint plays in order to create musical lines of interest.

Jon Damien is not the first to conceive of the concept of intervallic “seed” production. However, I immediately recognized the importance and practicality of intervallic “seed” production in order to build a musician’s awareness of a sound palette or musical vocabulary. Jon Damien does not however explain this concept in a manner that can be readily understood by a novice or intermediate guitarist because in order to reproduce these ideas on the guitar one must first have a firm understanding of interval production.

The remainder of Jon Damien’s text is dedicated to the art of counterpoint production yet is merely a brief introduction to a highly complex art form. Jon Damien does state that he is only giving a small peek into the world of counterpoint and points to other texts that undertake this art form in great length. Because Jon Damien only attempts to give a brief look into a large world the end result is one of confusion for the reader. However, he deserves credit for directing his reader to take up the study of counterpoint. Counterpoint study in music can easily be compared to the study of perspective in the visual arts. I firmly believe that such a key aspect of music production should be heavily emphasized in any musicians study and thus I applaud Jon Damien for bringing attention to this matter in his text.
Methodology

This manual is directed towards the beginning guitarist but will also provide the intermediate to advanced guitarist with plenty of material to absorb and ponder. Therefore, this manual will provide a method which will start with the simple and move progressively to the more complex. Most, if not all, of the exercises in this manual will be presented in a manner in which it will not be necessary to be musically literate (the ability to read/write musical notation). There is no argument that it is essential for the developing musician to become musically literate in order to enjoy the massive repertoire of current and past compositional masters. However, musical literacy is not required in order to understand and develop the musical concepts presented in this manual.

The skills/concepts presented in this manual are all heavily dependent upon the overtone series. The overtone series has been used throughout time in order to explain and defend the western approach to key, scale and chord construction. In fact, chord construction on the guitar relies heavily upon the overtone series as will be developed in Chapters 14-15. It is also through the overtones at any given moment which creates the feeling of active versus resting tones. Therefore, developing a student’s awareness to this overtone series will greatly help the student understand and identify the difference between active and resting tones from within their own bodies and ears. As a student progresses he/she should develop their own unique understanding and discovery as to why certain notes have a tendency to go one way or the other and thereby create feelings of tension and resolution in musical conversation. Music can be explained as a constant ebb and flow of tension and resolution. One’s awareness to this ebb and flow can be further heightened by approaching ear training using the overtone series as a guide. This
approach has proven to allow a student to readily identify the full chromatic scale from a given pitch. A highly developed relative pitch is the final goal of this approach.

The learning of the overtone series as well as its application to ear training will heighten one’s awareness of the mental tools necessary in order to master the other skills/concepts that are presented and developed within this manual. This is definitely the case when approaching interval construction on the guitar. Once an intervalllic concept is introduced, such as moving in 3rds on a single string, it is essential that the guitarist practice this intervalllic idea over a single chord, or chord progression. A simple chord, chord progression or drone pitch to practice against can be achieved through many means including a teacher, friend, recording or other musical aid. Doing this allows the student to experience how an interval “seed” changes throughout a tonal or key center.

Developing a guitarist’s knowledge of chord shapes and their inversions through the expansion of the overtone series and intervalllic recognition will be the final skill presented in this manual. The basic chord shapes and inversions that result are seen as essential tools for any guitarist. This section of the book is highly rational and requires much use of the thinking mind rather than the intuitive ear yet it is seen as an essential tool in order to progress towards mastery and navigation of the guitar fretboard. It is the hope of the author that this rational approach will later turn into an intuitive and creative process for the student once a full understanding of the concepts is achieved in this section.
Conclusion

The seven skills/concepts presented in this manual are not the only skills necessary in order to become highly adept at conversing musically. However, I am confident that these skills will allow the guitarist to develop a confidence towards their ability to hear as well as produce what they are hearing on their instrument. Ultimately one’s ability to converse musically entails many aspects which involve both the thinking/rational mind as well as the feeling/intuitive mind processes. In order to best develop these skills it is essential to teach oneself how to approach a given musical soundscape. However, in order to teach oneself you must first have a certain amount of confidence that you can in fact attach, or tune in, to the never-ending and highly complex creative energies that are around us at all times. These creative energies are not separate from us but are rather a part of us. We only need the confidence from within in order to not constantly judge our creative processes as we build them. Judgment only succeeds in diminishing our ability to be creative. Yet we are creatures which tend to constantly judge, in an instant, what we are doing at any given moment. The skills/concepts presented in this manual will aid in making the judgmental voice within become quieter and thus allow the creative/intuitive voice to become louder.
Chapter 2

INTERVALS

Background

The term *interval* is used in music to describe the distance between two notes. In order to communicate from one musician to another the distance from A’ C#, Bb’ E, or D’ C# it becomes essential to have a common ground, terminology or nomenclature that can describe a specific distance from one note to another. Therefore musicians refer to the distance from one note to another as an *interval*.

There are three main methods that musicians use with one another in order to communicate and express the divisions of an octave or intervals. Half steps have been decided upon, in the Western music tradition, as the smallest musical unit. The three methods used are all different ways in which to describe, view and discuss the twelve possible half-steps devised within an octave. These three methods are named Solfege, Proper Number System and Slang Number System. When using the divisions of the octave it is important to comprehend using all three methods in order to later build scales and chords with a fundamental pitch or key center as its basis. These three methods of communication are explained below in Fig. 2.1.
In western music there are currently twelve different types of intervals present between what we denote as the $P_1$ and the $P_8$. These are, in order of smallest to largest, the $P_1$, $m_2$, $M_2$, $m_3$, $M_3$, $P_4$, Tri-tone ($Aug4/dim5$), $P_5$, $m_6$, $M_6$, $m_7$, $M_7$ and the $P_8$. The $P_8$ is also referred to as an octave and is always the same letter name as the $P_1$.

These twelve equally tempered intervals are all that exist in Western music theory but we can also describe intervals that create a special effect known as the unison as well as the augmenting or diminishing of pre-existing intervals.

**What is the Unison?**

The unison happens when two or more instruments sound the exact same tone or pitch at the same time. The unison can happen on any pitch within a chord or key center. Most instruments cannot produce the unison by themselves. However the guitar is unique in that the unison can be accomplished by fretting a note on one string while playing the same exact pitch on another string. Any time a tone is doubled, such as happens in a...
unison, the effect is one in which we increase strength to this pitch. One way to explain the unison and the effect it has upon its listeners would be to use a conversation as its model. If during a conversation two or more people were to suddenly echo or agree with a certain idea, topic or viewpoint, than this echoing or agreement amongst each other gives strength or weight to this viewpoint. Unisons are most desirable on the guitar as it gives a unique, rich and large sound within the sound box of the guitar and can create a stirring effect upon its listeners.

Augmented and Diminished Intervals?

The terms augmented and diminished can, in theory, be applied to any interval in order to describe an alteration (lengthening or shortening) of the original distance by a semi-tone, or half-step. To augment simply means to make an interval bigger, by a half-step, than it was in its original state. Likewise, to diminish means to make an interval smaller, by a half-step, than it was in its original state.

Although the terms augmented and diminished can be theoretically used to alter any interval, there are some intervals which are regularly altered from their normal position and become either augmented or diminished. The intervals that are regularly altered are the P4 and the P5. The reason for this alteration is because the P4 and P5 are examples of intervals which do not ever become major or minor as they are perfect. Therefore, if a P5 becomes bigger by half-step we label it as an Aug5.

Logically we can then deduce that if the P5 becomes smaller by half-step then we would call it a dim5. The exact same rules apply to the augmenting and diminishing of a P4.
The only other times we really find the terms **augmented** or **diminished** applied to imperfect intervals (intervals which are either minor or major) are in the case of the **Aug2** as well as the **dim7**. These aforementioned intervals result in the same sound as the **m3** and **M6** respectively. However, in theoretical evaluation (as well as application) these alterations are not spelled, viewed or heard as being the **m3** or **M6** and are instead spelled, viewed and heard as the **Aug2** or **dim7**. This confusing matter of correct theoretical nomenclature will become clearer as these concepts are more readily understood in your mind’s eye. As usual, clarity of these issues will only happen with much drilling, application, experience and time.

**What Is An Octave?**

One way of describing an octave would be to compare the phenomenon of the octave to a building with several floors. Let’s say that each level of a multilevel building is equal in distance from one floor to the next. If person “A” was to move from level 1 to level 2 of a building they would remain the same in size yet they would now be further from the ground then they were when standing upon level 1. However, if a second person, person “B”, were to remain on level 1 and then look up to person “A” on level 2 an illusion would take place where person “A” will look smaller. The further person “A” travels upwards in the building the more that person “B” will perceive person “A” as getting smaller and smaller in size.

Advanced string players are familiar with a similar type of illusion, relating to measurements, because it is present upon any string instrument. As a string player moves higher and higher up a string the repetition of an octave repeats at a smaller and smaller
distance. At the same time, the string is also vibrating at faster and faster rates thus creating the effect of a higher and higher pitch or tone.

This very same illusion is witnessed by us at all times in many different ways. We see this when we watch birds flying through the air, when seeing airplanes traveling through the sky or even when watching cars traveling down a road. Rationally we have learned through experience that the object has remained constant in size but our perception is one in which the further we are from an object the smaller we perceive it.

How Do We Divide The Octave?

The octave over time has been divided in many different ways. Once the octave was established, or discovered, the next logical task was to further divide the octave into other possible pitches. Over time there have been many suggestions as to how this can be accomplished. In modern times the Western world has settled upon a division system known as Equal Temperament.

Throughout written history the exact method to divide an octave has changed many times and thus we can deduce that this task must not be an easy one. We can better understand this challenge when we ponder a similar question in relation to color. When does the color yellow officially change into the color orange? Even though we know that there are many different shades or hues of what we denote as yellow in color, at what precise moment does yellow become orange? This is definitely not an easy question to answer and has, no doubt, created much debate over such a seemingly simple topic.

As was stated above this very same problem is present when trying to divide the space which is present between octaves. Over time, the great thinkers and players of
music have settled upon the division of the octave into semi-equal relationships of half-steps. Even though the distance from one half-step to another is not exactly the same, some are slightly bigger/smaller, it is easier to visualize all half-steps as being the same size and relationship to one another. Certainly, for the very young student there is no need to present anything other than that the half-step is the smallest possible division and that they are all the same in size and distance to one another. There are twelve possible half-steps within an octave and in order to discuss the distance from one note/tone to another we must discuss and make clear the concept of intervals.

It is important to address as a side note that the half-step is the smallest pitch recognized in Western music theory yet in the theories of Northern and Southern Classical Indian music the quarter step, or shrutis, are recognized and employed on a regular basis. It is interesting to note that, like half-steps, quarter-steps are not exactly the same in distance to one another. As a musician’s ear grows they become accustomed to making some intervals a little bigger or smaller depending on the particular color or context that they are trying to inflect through the music. Quarter steps are employed in Western music as well, especially in Blues and Jazz. Even though quarter steps are employed in the Western music language they are not regularly addressed in theoretical concepts nor are they thought of or employed the same as shrutis are in Classical Indian music.

**Let’s Put it All Together**

Intervals can seem overwhelming and difficult to the novice. However, using these three concepts presented below makes learning intervals seem quite easy.
CONCEPT #1: The equivalent to walking in music is to move in whole steps or half steps. An understanding of this can be realized by observing one’s own footsteps. A half step is when we place one foot directly in front of the other with no space in between them and is the smallest interval. A whole step is then logically created by leaving a space that is one foot length in between steps. In order to make sure the student understands, I will drill this concept by asking them to show me what a half/whole step looks like and will give directions such as walk a whole step forward, go another whole step forward, go a half step forward, another half step forward, go a whole step backwards and finally to go a half step backwards. Once this concept is fully understood we can begin discussing the musical alphabet.

CONCEPT #2: The musical alphabet is comprised of the notes A, B, C, D, E, F and G. After G an A will appear again which is followed by B, C…etc. into infinity. If the student is very young this is a great time to ask what does infinity mean to them and to explain that this pattern goes on and on in both directions. Therefore before A there will always be a G and before E there will always be a D…etc. This concept is again drilled extensively until you feel that the student is completely aware of what comes after a letter and also what comes before a letter of the musical alphabet. I always find it important to make a joke about the fact that there is no “H” in the musical alphabet and remind the student that after G comes A; likewise, before A comes G. Sometimes I will make up square card stock with the names of the musical alphabet on them in order to allow the student to physically manipulate the cards into the correct order. I will always draw out on paper the musical alphabet for the student such as demonstrated in Fig 2.2. The next step is to let the student know that in natural notes the only half-steps are between B’ C and E’ F.

**Fig. 2.2** The Musical Alphabet

```
...A BC D EF G A BC D EF...etc.
W \( \frac{1}{2} \) W W \( \frac{1}{2} \) W W W \( \frac{1}{2} \) W W \( \frac{1}{2} \)
```

**Tip:** The way to simplify this all down is to explain that **everything** is a whole step except for B’ C and E’ F. The next step would be to drill this by asking the student questions that makes them think about and therefore comprehend this concept thoroughly.
CONCEPT #3: Accidentals are needed in order to move a note of the alphabet to the left or right of its natural, or original, position. The symbols used to express an accidental are demonstrated in Fig. 2.3 below.

Fig. 2.3  Five Types of Accidentals Used in Music Notation

\[
\begin{array}{cccc}
\flat & \flat & \sharp & \# & \times \\
\text{♭ ≡} & \text{♭} & \text{♮} & \text{♯} & \text{X}
\end{array}
\]

♭ = double flat; lowers the natural note a whole step.
♭ = flat; lowers the natural note a half step.
♮ = natural; returns a note to its default, natural or original status.
All notes are natural and do not need this symbol next to it in order to express this fact.
♯ = sharp; raises the natural note a half step.
X = double sharp; raises the natural note a whole step.

Let’s Drill These Concepts

With the three concepts stated above we now have all the tools necessary in order to create and analyze intervals of any type. It is essential to be able to conceptualize any given interval in one’s own mind before being able to reproduce them on one’s instrument. Therefore the student should drill these concepts on paper and in their mind, without their instrument, before continuing further. This will also help to develop a student’s spatial intelligence in immense ways.
Let's Drill the m2nds and M2nds

Tip #1: A 2 whether minor or major must look like a 2. This means that if the note “G” is the P1 than the next letter of the alphabet, in this case, some kind of an “A”, whether it is sharp, double-sharp, natural, flat or double-flat, will be the m2 or M2. There are no exceptions. This way we see the “G” as representing the 1 and the “A” as the 2.

Tip #2: The ultimate determining factor for whether the second is minor or major has to do with the distance between the P1 and the given 2. If the distance is a half-step then it is what we as musicians call a m2. However, if it is a whole-step then the difference between the two notes is called a M2. (Example: A’ B = M2; A’ Bb = m2; E’ F = m2; E’ F# = M2; E’’ FX= M2; E’’ F# = m2).

*Please remember that an X is the symbol used for a double-sharp.

Tip #3: Any distance between two notes can be made smaller or bigger using accidentals if and when it is deemed to be necessary. Please review Figure 2.3 as necessary.

Tip #4: Always have the student revert to thinking about notes as being in their “natural” state when dealing with accidentals of any kind. It is important for the student to realize what happens between two “natural” notes before trying to have them think in terms of shortening or lengthening distances with accidentals. (Example: A#’ B# is the same as saying A’ B as far as the distance between the two notes is concerned. The same holds true for Bb’ Cb& .we might as well be saying B’ C).
Exercise 2.1 Analyze whether the distance between the two given notes are a m2 or a M2.

1.) A’ B = ____

2.) C’ D = ____

3.) B’ C = ____

4.) G’ A = ____

5.) D’ E = ____

6.) F’ G = ____

7.) E’ F = ____

Exercise 2.2 Please fill in the blank using the M2 higher than the given note.

1.) G’ ____ = M2

2.) B’ ____ = M2

3.) D’ ____ = M2

4.) C’ ____ = M2

5.) F’ ____ = M2

6.) A’ ____ = M2

7.) E’ ____ = M2
Exercise 2.3 Please fill in the blank using the m2 higher than the given note.

1.) A’ ____ = m2
2.) E’ ____ = m2
3.) C’ ____ = m2
4.) F’ ____ = m2
5.) B’ ____ = m2
6.) G’ ____ = m2
7.) D’ ____ = m2

Exercise 2.4 Please fill in the blank using the M2 higher than the given note.

1.) B#’ ____ = M2
2.) D#’ ____ = M2
3.) F#’ ____ = M2
4.) C#’ ____ = M2
5.) A#’ ____ = M2
6.) G#’ ____ = M2
7.) E#’ ____ = M2
Exercise 2.5 Please fill in the blank using the m2 higher than the given note.

1.) A#’ _____ = m2

2.) C#’ _____ = m2

3.) E#’ _____ = m2

4.) G#’ _____ = m2

5.) D#’ _____ = m2

6.) B#’ _____ = m2

7.) F#’ _____ = m2

Exercise 2.6 Please fill in the blank using the M2 higher than the given note.

1.) Bb’ _____ = M2

2.) Db’ _____ = M2

3.) Gb’ _____ = M2

4.) Cb’ _____ = M2

5.) Fb’ _____ = M2

6.) Eb’ _____ = M2

7.) Ab’ _____ = M2
Exercise 2.7 Please fill in the blank using the m2 higher than the given note.

1.) Fb’ ____ = m2

2.) Db’ ____ = m2

3.) Gb’ ____ = m2

4.) Ab’ ____ = m2

5.) Cb’ ____ = m2

6.) Bb’ ____ = m2

7.) Eb’ ____ = m2

Let’s Drill the m3rds and M3rds

Tip #1: A 3 whether minor or major must look like a 3. This means that if the note “G” is the P1 than some kind of a “B”, whether it is sharp, double-sharp, natural, flat or double-flat, will be the m3 or M3. There are no exceptions.

Tip #2: The ultimate determining factor for whether the 3 is minor or major has to do with the distance between the P1 and the given 3. If the distance is one and a half steps then it is what we as musicians call a m3. However, if it is two whole steps then the difference between the two notes is called a M3. (Example: A’ C# = M3; A’ C = m3; E’ G = m3; E’ G# = M3; E’ GX = M3; E’ G#= m3).

*Please remember that an X is the symbol used for a double-sharp.

Tip #3: Any distance between two notes can be made smaller or bigger using accidentals if and when it is deemed to be necessary. Please review Figure 2.3 as is necessary.
Tip#4: Always have the student revert to thinking about notes as being in their natural state when dealing with accidentals of any kind. It is important for the student to realize what happens between two “natural” notes before trying to have them think in terms of shortening or lengthening distances with accidentals. (Example: A#’ C# is the same as saying A’ C as far as the distance between the two notes is concerned. The same holds true for Cb’ Eb& we might as well be saying C’ E).

Exercise 2.8 Analyze whether the distance between the two notes is a m3 or a M3.

1.) B’ D = ____
2.) F’ A = ____
3.) C’ E = ____
4.) A’ C = ____
5.) G’ B = ____
6.) D’ F = ____
7.) E’ G = ____
**Exercise 2.9** Please fill in the blank using the **M3** higher than the given note.

1.) A’ ____ = M3

2.) D’ ____ = M3

3.) C’ ____ = M3

4.) B’ ____ = M3

5.) G’ ____ = M3

6.) F’ ____ = M3

7.) E’ ____ = M3

**Exercise 2.10** Please fill in the blank using the **m3** higher than the given note.

1.) B’ ____ = m3

2.) D’ ____ = m3

3.) F’ ____ = m3

4.) A’ ____ = m3

5.) C’ ____ = m3

6.) G’ ____ = m3

7.) E’ ____ = m3
Exercise 2.11 Please fill in the blank using the M3 higher than the given note.

1.) A#’ _____ = M3
2.) D#’ _____ = M3
3.) B#’ _____ = M3
4.) E#’ _____ = M3
5.) C#’ _____ = M3
6.) G#’ _____ = M3
7.) F#’ _____ = M3

Exercise 2.12 Please fill in the blank using the m3 higher than the given note.

1.) B#’ _____ = m3
2.) E#’ _____ = m3
3.) A#’ _____ = m3
4.) D#’ _____ = m3
5.) G#’ _____ = m3
6.) C#’ _____ = m3
7.) F#’ _____ = m3
Exercise 2.13 Please fill in the blank using the M3 higher than the given note.

1.) Ab’ ____ = M3
2.) Eb’ ____ = M3
3.) Bb’ ____ = M3
4.) Fb’ ____ = M3
5.) Cb’ ____ = M3
6.) Gb’ ____ = M3
7.) Db’ ____ = M3

Exercise 2.14 Please fill in the blank using the m3 higher than the given note.

1.) Bb’ ____ = m3
2.) Db’ ____ = m3
3.) Fb’ ____ = m3
4.) Ab’ ____ = m3
5.) Cb’ ____ = m3
6.) Eb’ ____ = m3
7.) Gb’ ____ = m3
Let’s Drill the Perfect 4ths and Augmented 4ths

**Tip #1:** A 4 whether perfect or augmented must look like a 4. This means that if the note “G” is the P1 than some kind of a “C”, whether it is sharp, double-sharp, natural, flat or double-flat, will be the P4 or Aug4. There are no exceptions.

**Tip #2:** The ultimate determining factor for whether the fourth is perfect or augmented has to do with the distance between the P1 and the given 4. If the distance is two and a half steps then it is what we as musicians call a P4. However, if it is three whole steps then the difference between the two notes is called an Aug4 which is also the sound of the TT. (Example: A’ D = P4; A’ D# = Aug4; E’ A = P4; E’ A# = Aug4; E’# A# = P4; E’# AX= Aug4).

*Please remember that an X is the symbol used for a double-sharp.*

**Tip #3:** Any distance between two notes can be made smaller or bigger using accidentals if and when it is deemed to be necessary. Please review Figure 2.3 as is necessary.

**Tip #4:** Always have the student revert to thinking about notes as being in their natural state when dealing with accidentals of any kind. It is important for the student to realize what happens between two “natural” notes before trying to think in terms of shortening or lengthening distances with accidentals. (Example: A’# D# is the same as saying A’ D as far as the distance between the two notes is concerned. The same holds true for Cb’ Fb&. we might as well be saying C’ F).

**Tip #5:** At this point it becomes harder to mentally count two and a half steps. However, committing to memory the fact that B’ C and E’ F are the only half steps will greatly help the student in analyzing the P4. This is because, as stated above, P4 are two and a half steps in distance from each other. Therefore, if we know that two notes are a fourth
apart from each other then all we need to do is look for “one” half-step between these fourths. If there is only “one” half-step between two notes that are a fourth apart then you will find that the total distance will ultimately result in two and a half steps or a $\text{P4}$. (Example: A’ D is a 4th apart. However, if it is a $\text{P4}$ it will need to be exactly two and a half steps. Is there “one” half-step between A’ D? The answer is “yes”. The half-step B’ C is between A’ D and therefore results in a $\text{P4}$. We can always count to make sure by looking at A’ B = whole step; B’ C = half-step and C’ D = whole step. If added together the total between A’ D = two and a half steps/$\text{P4}$).

**Tip #6:** In the case of the $\text{Aug4}$ we have a total distance of three whole steps. This happens when between natural notes when there are no half-steps between two notes that are a fourth apart. This actually only occurs once between the notes F’ B. We can see this when asked if there is a half step present between F’ B? The answer is “no”. Neither B’ C nor E’ F are present between F’ B. If we look closer and count the total distance between the notes F’ B we find that: F’ G = whole step; G’ A = whole step and A’ B = whole step. This results in three whole steps which in musical terms we say is an $\text{Aug4}$ which also results in the sound known as the TT.
Exercise 2.15 Analyze whether the distance between the two notes is a P4 or an Aug4.

1.) A’ D = ____

2.) C’ F = ____

3.) E’ A = ____

4.) G’ C = ____

5.) B’ E = ____

6.) D’ G = ____

7.) F’ B = ____

Exercise 2.16 Please fill in the blank using the P4 higher than the given note.

1.) F’ ____ = P4

2.) A’ ____ = P4

3.) C’ ____ = P4

4.) E’ ____ = P4

5.) G’ ____ = P4

6.) B’ ____ = P4

7.) D’ ____ = P4
Exercise 2.17 Please fill in the blank using the Aug4 higher than the given note.

1.) D’ ____ = Aug4

2.) A’ ____ = Aug4

3.) E’ ____ = Aug4

4.) B’ ____ = Aug4

5.) F’ ____ = Aug4

6.) C’ ____ = Aug4

7.) G’ ____ = Aug4

Exercise 2.18 Please fill in the blank using the P4 higher than the given note.

1.) E#’ ____ = P4

2.) G#’ ____ = P4

3.) B#’ ____ = P4

4.) D#’ ____ = P4

5.) F#’ ____ = P4

6.) A#’ ____ = P4

7.) C#’ ____ = P4
**Exercise 2.19** Please fill in the blank using the Aug4 higher than the given note.

1.) A#’ ____ = Aug4

2.) C#’ ____ = Aug4

3.) E#’ ____ = Aug4

4.) G#’ ____ = Aug4

5.) B#’ ____ = Aug4

6.) D#’ ____ = Aug4

7.) F#’ ____ = Aug4

**Exercise 2.20** Please fill in the blank using the P4 higher than the given note.

1.) Bb’ ____ = P4

2.) Db’ ____ = P4

3.) Fb’ ____ = P4

4.) Ab’ ____ = P4

5.) Cb’ ____ = P4

6.) Eb’ ____ = P4

7.) Gb’ ____ = P4
Exercise 2.21 Please fill in the blank using the Aug4 higher than the given note.

1.) Db’ ____ = Aug4
2.) Fb’ ____ = Aug4
3.) Ab’ ____ = Aug4
4.) Cb’ ____ = Aug4
5.) Eb’ ____ = Aug4
6.) Gb’ ____ = Aug4
7.) Bb’ ____ = Aug4

Let’s Drill the Perfect5ths and diminished5ths

Tip #1: A 5 whether perfect or diminished must look like a 5. This means that if the note “G” is the P1 then some kind of a “D”, whether it is sharp, double-sharp, natural, flat or double-flat, will be the P5 or dim5. There are no exceptions.

Tip #2: The ultimate determining factor for whether the 5 is perfect or diminished has to do with the distance between the P1 and the given 5. If the distance is three and a half steps then it is what we as musicians call a P5. However, if it is three whole steps then the difference between the two notes is called a dim5 which is also in the position of the TT. (Example: A’ E = P5; A’ Eb = dim5; E’ B = P5; E’ Bb = dim5; E#’ B# = P5; E#’ B= dim5; Eb’ Bb = P5; Eb’ Bbb = dim5).

Tip #3: Any distance between two notes can be made smaller or bigger using accidentals if and when it is deemed to be necessary. Please review Figure 2.3 as is necessary.
Tip #4: Always have the student revert to thinking about notes as being in their natural state when dealing with accidentals of any kind. It is important for the student to realize what happens between two “natural” notes before trying to think in terms of shortening or lengthening distances with accidentals. (Example: A’ E# is the same as saying A’ E as far as the distance between the two notes is concerned. The same holds true for Cb’ Gb&. We might as well be saying C’ G).

Tip #5: As was the case in fourths, at this point it becomes harder to mentally count three and a half steps. However, having the student commit to memory the fact that B’ C and E’ F are the only half steps will greatly help in analyzing a P5. This is because, as stated above, the P5 is three and a half steps in distance from the P1. Therefore, if two notes are a fifth apart from each other all the student needs to do is look for “one” half-step between these fifths. If there is only “one” half-step between two notes that are a fifth apart then you will find that the total distance will ultimately result in three and a half steps or a P5. (Example: A’ E is a fifth apart. However, in order to be a P5 it will need to be exactly three and a half steps. Is there “one” half-step between A’ E? The answer is “yes”. The half-step B’ C is between A’ E and therefore results in a P5. We can always count to make sure by looking at A’ B = whole step; B’ C = half-step; C’ D = whole step and D’ E = whole step. If added together the total between A’ E = three and a half steps/P5).

Tip #6: In the case of the dim5 we have a total distance of three whole steps. This happens between natural notes when there are “two” half-steps present between two notes that are a fifth apart. Make sure the student understands that this actually only occurs once when looking at “natural” notes between the notes B’ F. We can see this when
asked if there is a half step present between B’ F? The answer is “yes”. Both B’ C and E’ F are present between B’ F. If we look closer and count the total distance between the notes B’ F we find that: B’ C = half-step; C’ D = whole step; D’ E = whole step and E’ F = half-step. This results in three whole steps which in musical terms we say is a P5 which also results in the sound known as the TT.

Exercise 2.22 Analyze whether the distance between the two notes is a P5 or a dim5.

1.) D’ A = ____

2.) F’ C = ____

3.) A’ E = ____

4.) C’ G = ____

5.) E’ B = ____

6.) G’ D = ____

7.) B’ F = ____
Exercise 2.23 Please fill in the blank using the P5 higher than the given note.

1.) B’ ____ = P5

2.) D’ ____ = P5

3.) F’ ____ = P5

4.) A’ ____ = P5

5.) C’ ____ = P5

6.) E’ ____ = P5

7.) G’ ____ = P5

Exercise 2.24 Please fill in the blank using the dim5 higher than the given note.

1.) F’ ____ = dim5

2.) A’ ____ = dim5

3.) C’ ____ = dim5

4.) E’ ____ = dim5

5.) G’ ____ = dim5

6.) B’ ____ = dim5

7.) D’ ____ = dim5
Exercise 2.25 Please fill in the blank using the P5 higher than the given note.

1.) A#’ ____ = P5

2.) F#’ ____ = P5

3.) D#’ ____ = P5

4.) B#’ ____ = P5

5.) G#’ ____ = P5

6.) E#’ ____ = P5

7.) C#’ ____ = P5

Exercise 2.26 Please fill in the blank using the dim5 higher than the given note.

1.) F#’ ____ = dim5

2.) D#’ ____ = dim5

3.) B#’ ____ = dim5

4.) G#’ ____ = dim5

5.) E#’ ____ = dim5

6.) C#’ ____ = dim5

7.) A#’ ____ = dim5
Exercise 2.27 Please fill in the blank using the P5 higher than the given note.

1.) Ab’ ____ = P5
2.) Fb’ ____ = P5
3.) Db’ ____ = P5
4.) Bb’ ____ = P5
5.) Gb’ ____ = P5
6.) Eb’ ____ = P5
7.)Cb’ ____ = P5

Exercise 2.28 Please fill in the blank using the dim5 higher than the given note.

1.) Db’ ____ = dim5
2.) Bb’ ____ = dim5
3.) Gb’ ____ = dim5
4.) Eb’ ____ = dim5
5.) Cb’ ____ = dim5
6.) Ab’ ____ = dim5
7.) Fb’ ____ = dim5
Let’s Drill the minor6ths and Major6ths

**Tip #1**: A 6 whether minor or major must look like a 6. This means that if the note “G” is the P1 than some kind of an “E”, whether it is sharp, double-sharp, natural, flat or double-flat, will be the m6 or M6. There are no exceptions.

**Tip #2**: The ultimate determining factor for whether the sixth is minor or major has to do with the distance between the P1 and the given 6. If the distance is four whole steps then it is what we as musicians call a m6. However, if it is four and a half steps then the difference between the two notes is called a M6. (Example: E’ C = m6; E’ C# = M6; E#’ C# = m6; E#’ CX= M6; Eb’ Cb = m6; Eb’ C = M6).

**Tip #3**: Always have the student revert to thinking about notes as being in their “natural” state when dealing with accidentals of any kind. It is important for the student to realize what happens between two “natural” notes before trying to think in terms of shortening or lengthening distances with accidentals. (Example: A’ F# is the same as saying A’ F as far as the distance between the two notes is concerned. The same holds true for Cb’ Ab& we might as well be saying C’ A).

**Tip #4**: Because the M6 and m6 are so far from the P1 it will be much easier for the student to think of a 6, be it major or minor, in relationship to the P5. If a note of the 6 is a half step higher than the P5 then it will be in the position of the m6. Likewise, if the note of the 6 is a whole step higher than a P5 then it will be in the position of the M6.
Exercise 2.29 Analyze whether the distance between the two notes is a m6 or a M6.

1.) A’ F =

2.) D’ B =

3.) G’ E =

4.) C’ A =

5.) F’ D =

6.) B’ G =

7.) E’ C =

Exercise 2.30 Please fill in the blank using the m6 higher than the given note.

1.) C’ _____ = m6

2.) F’ _____ = m6

3.) B’ _____ = m6

4.) E’ _____ = m6

5.) A’ _____ = m6

6.) D’ _____ = m6

7.) G’ _____ = m6
Exercise 2.31 Please fill in the blank using the M6 higher than the given note.

1.) A’ ____ = M6

2.) C’ ____ = M6

3.) E’ ____ = M6

4.) G’ ____ = M6

5.) B’ ____ = M6

6.) D’ ____ = M6

7.) F’ ____ = M6

Exercise 2.32 Please fill in the blank using the m6 higher than the given note.

1.) E#’ ____ = m6

2.) B#’ ____ = m6

3.) F#’ ____ = m6

4.) C#’ ____ = m6

5.) G#’ ____ = m6

6.) D#’ ____ = m6

7.) A#’ ____ = m6
Exercise 2.33 Please fill in the blank using the M6 higher than the given note.

1.) F#’ ____ = M6

2.) B#’ ____ = M6

3.) E#’ ____ = M6

4.) A#’ ____ = M6

5.) D#’ ____ = M6

6.) G#’ ____ = M6

7.) C#’ ____ = M6

Exercise 2.34 Please fill in the blank using the m6 higher than the given note.

1.) Eb’ ____ = m6

2.) Bb’ ____ = m6

3.) Fb’ ____ = m6

4.) Cb’ ____ = m6

5.) Gb’ ____ = m6

6.) Db’ ____ = m6

7.) Ab’ ____ = m6
Exercise 2.35 Please fill in the blank using the M6 higher than the given note.

1.) Ab’ ____ = M6
2.) Db’ ____ = M6
3.) Gb’ ____ = M6
4.) Cb’ ____ = M6
5.) Fb’ ____ = M6
6.) Bb’ ____ = M6
7.) Eb’ ____ = M6

Let’s Drill the minor7ths and Major7ths

Tip #1: A 7 whether minor or major must look like a 7. This means that if the note “G” is the P1 than some kind of an “F”, whether it is sharp, double-sharp, natural, flat or double-flat, will be the m7 or M7. There are no exceptions.

Tip #2: The ultimate determining factor for whether the seventh is minor or major has to do with the distance between the P1 and the given 7. If the distance is five whole steps then it is what we as musicians call a m7. However, if it is five and a half steps then the difference between the two notes is called a M7. (Example: E’ D = m7; E’ D# = M7; E#’ D# = m7; E#’ DX = M7; Eb’ Db = m7; Eb’ D = M7).

Tip#3: Always have the student revert to thinking about notes as being in their “natural” state when dealing with accidentals of any kind. It is important for the student to realize what happens between two “natural” notes before trying to think in terms of shortening or
lengthening distances with accidentals. (Example: A#’ G# is the same as saying A’ G as far as the distance between the two notes is concerned. The same holds true for Cb’ Bb& we might as well be saying C’ B).

Tip #4: Because the M7 and m7 are so far from the P1 it will be much easier for the student to think of a 7, be it major or minor, in relationship to the P8. If a note of the 7 is a half step behind the P8 then it will be in the position of the M7. Likewise, if the note of the 7 is a whole step behind the P8 then it will be in the position of the m7.

Exercise 2.36 Analyze whether the distance between the two notes is a m7 or a M7.

1.) A’ G = ____

2.) C’ B = ____

3.) E’ D = ____

4.) G’ F = ____

5.) B’ A = ____

6.) D’ C = ____

7.) F’ E = ____
Exercise 2.37 Please fill in the blank using the m7 higher than the given note.

1.) C’ _____ = m7

2.) F’ _____ = m7

3.) B’ _____ = m7

4.) E’ _____ = m7

5.) A’ _____ = m7

6.) D’ _____ = m7

7.) G’ _____ = m7

Exercise 2.38 Please fill in the blank using the M7 higher than the given note.

1.) D’ _____ = M7

2.) A’ _____ = M7

3.) E’ _____ = M7

4.) B’ _____ = M7

5.) F’ _____ = M7

6.) C’ _____ = M7

7.) G’ _____ = M7
Exercise 2.39 Please fill in the blank using the m7 higher than the given note.

1.) C#' _____ = m7

2.) F#' _____ = m7

3.) B#' _____ = m7

4.) E#' _____ = m7

5.) A#' _____ = m7

6.) D#' _____ = m7

7.) G#' _____ = m7

Exercise 2.40 Please fill in the blank using the M7 higher than the given note.

1.) A#' _____ = M7

2.) C#' _____ = M7

3.) E#' _____ = M7

4.) G#' _____ = M7

5.) B#' _____ = M7

6.) D#' _____ = M7

7.) F#' _____ = M7
Exercise 2.41 Please fill in the blank using the m7 higher than the given note.

1.) Cb’ ____ = m7

2.) Fb’ ____ = m7

3.) Bb’ ____ = m7

4.) Eb’ ____ = m7

5.) Ab’ ____ = m7

6.) Db’ ____ = m7

7.) Gb’ ____ = m7

Exercise 2.42 Please fill in the blank using the M7 higher than the given note.

1.) Fb’ ____ = M7

2.) Cb’ ____ = M7

3.) Gb’ ____ = M7

4.) Db’ ____ = M7

5.) Ab’ ____ = M7

6.) Eb’ ____ = M7

7.) Bb’ ____ = M7
Answers to Exercises

Exercise 2.1
1.) M2  2.) M2  3.) m2  4.) M2
5.) M2  6.) M2  7.) m2

Exercise 2.2
1.) A  2.) C#  3.) E  4.) D
5.) G  6.) B  7.) F#

Exercise 2.3
1.) Bb  2.) F  3.) Db  4.) Gb
5.) C  6.) Ab  7.) Eb

Exercise 2.4
1.) CX  2.) E#  3.) G#  4.) D#
5.) B#  6.) A#  7.) FX

Exercise 2.5
1.) B  2.) D  3.) F#  4.) A
5.) E  6.) C#  7.) G
Answers to Exercises (Continued)

Exercise 2.6

1.) C  2.) Eb  3.) Ab  4.) Db
      5.) Gb  6.) F  7.) Bb

Exercise 2.7

1.) Gbb  2.) Ebb  3.) Abb  4.) Bbb
      5.) Dbb  6.) Cb  7.) Fb

Exercise 2.8

1.) m3  2.) M3  3.) M3  4.) m3
      5.) M3  6.) m3  7.) m3

Exercise 2.9

1.) C#  2.) F#  3.) E  4.) D#
      5.) B  6.) A  7.) G#

Exercise 2.10

1.) D  2.) F  3.) Ab  4.) C
      5.) Eb  6.) Bb  7.) G
Answers to Exercises (Continued)

Exercise 2.11

1.) CX  2.) FX  3.) DX  4.) GX
5.) E#  6.) B#  7.) A#

Exercise 2.12

1.) D#  2.) G#  3.) C#  4.) F#
5.) B  6.) E  7.) A

Exercise 2.13

1.) C  2.) G  3.) D  4.) Ab
5.) Eb  6.) Bb  7.) F

Exercise 2.14

1.) Db  2.) Fb  3.) Abb  4.) Cb
5.) Ebb  6.) Gb  7.) Bbb

Exercise 2.15

1.) P4  2.) P4  3.) P4  4.) P4
5.) P4  6.) P4  7.) Aug4
Answers to Exercises (Continued)

Exercise 2.16

1.) Bb  2.) D  3.) F  4.) A
5.) C  6.) E  7.) G

Exercise 2.17

1.) G#  2.) D#  3.) A#  4.) E#
5.) B  6.) F#  7.) C#

Exercise 2.18

1.) A#  2.) C#  3.) E#  4.) G#
5.) B  6.) D#  7.) F#

Exercise 2.19

1.) DX  2.) FX  3.) AX  4.) CX
5.) EX  6.) GX  7.) B#

Exercise 2.20

1.) Eb  2.) Gb  3.) Bbb  4.) Db
5.) Fb  6.) Ab  7.) Cb
Answers to Exercises (Continued)

Exercise 2.21
1.) G  2.) Bb  3.) D  4.) F
5.) A  6.) C  7.) E

Exercise 2.22
1.) P5  2.) P5  3.) P5  4.) P5
5.) P5  6.) P5  7.) dim5

Exercise 2.23
1.) F#  2.) A  3.) C  4.) E
5.) G  6.) B  7.) D

Exercise 2.24
1.) Cb  2.) Eb  3.) Gb  4.) Bb
5.) Db  6.) F  7.) Ab

Exercise 2.25
1.) E#  2.) C#  3.) A#  4.) FX
5.) D#  6.) B#  7.) G#
Answers to Exercises (Continued)

Exercise 2.26

1.) C  2.) A  3.) F#  4.) D
5.) B  6.) G  7.) E

Exercise 2.27

1.) Eb  2.) Cb  3.) Ab  4.) F
5.) Db  6.) Bb  7.) Gb

Exercise 2.28

1.) Abb  2.) Fb  3.) Dbb  4.) Bbb
5.) Gbb  6.) Ebb  7.) Cbb

Exercise 2.29

1.) m6  2.) M6  3.) M6  4.) M6
5.) M6  6.) m6  7.) m6

Exercise 2.30

1.) Ab  2.) Db  3.) G  4.) C
5.) F  6.) Bb  7.) Eb
Answers to Exercises (Continued)

Exercise 2.31

1.) F#  2.) A  3.) C#  4.) E
5.) G#  6.) B  7.) D

Exercise 2.32

1.) C#  2.) G#  3.) D  4.) A
5.) E  6.) B  7.) F#

Exercise 2.33

1.) D#  2.) GX  3.) CX  4.) FX
5.) B#  6.) E#  7.) A#

Exercise 2.34

1.) Cb  2.) Gb  3.) Dbb  4.) Abb
5.) Ebb  6.) Bbb  7.) Fb

Exercise 2.35

1.) F  2.) Bb  3.) Eb  4.) Ab
5.) Db  6.) G  7.) C
Answers to Exercises (Continued)

Exercise 2.36

1.) m7  2.) M7  3.) m7  4.) m7
5.) m7  6.) m7  7.) M7

Exercise 2.37

1.) Bb  2.) Eb  3.) A  4.) D
5.) G  6.) C  7.) F

Exercise 2.38

1.) C#  2.) G#  3.) D#  4.) A#
5.) E  6.) B  7.) F#

Exercise 2.39

1.) B  2.) E  3.) A#  4.) D#
5.) G#  6.) C#  7.) F#

Exercise 2.40

1.) GX  2.) B#  3.) DX  4.) FX
5.) AX  6.) CX  7.) E#
Answers to Exercises (Continued)

Exercise 2.41

1.) Bbb  2.) Ebb  3.) Ab  4.) Db

5.) Gb  6.) Cb  7.) Fb

Exercise 2.42

1.) Eb  2.) Bb  3.) F  4.) C

5.) G  6.) D  7.) A
Chapter 3
THE OVERTONE SERIES: AN ACOUSTIC PHENOMENON

Background

Most of us learned as children that what we perceive as a single color is really produced by a combination of two or more colors. Sound is no different. When a guitar string is set into motion a tone, or pitch, is sounded as a result. The tone heard foremost is known as the fundamental pitch. However, it is fascinating to learn that, like color, what we perceive as a single tone is actually a combination of many tones or sympathetic vibrations, referred to as overtones. These sympathetic vibrations are not readily heard upon one’s first, or even second, attempt at listening for overtones. However, with a trained ear and careful listening one can begin to perceive the overtones that are sympathetically vibrating above a fundamental pitch. Regardless of perception, it remains a fact that any tone created by a vibrating string is really a combination of several tones and each of these tones are oscillating within certain constant and precise ratios to one another in order to produce the illusion of one tone.

Overtones Simplified

In order to fully grasp the musical overtone series, in its entirety, much study and thought will need to be undertaken by the student. This is not a topic which can be readily understood in a short amount of time. Luckily, there have been numerous authors whom have dedicated their life’s work to just this topic. However, in order to understand and build upon the skills presented in this manual the student will only need to be familiar
with the first three overtones. The first three overtones produced above a fundamental
tone are very important as they are the tones most readily heard, other than the
fundamental, by the human ear. As stated above, please make the student realize that
when first trying to hear the pitches that are vibrating above a fundamental pitch one may
not be able to immediately perceive these “ghost” pitches. However, with patience and
much ear training the “overtones” will become extremely apparent to the point of not
only hearing the tones but also physically feeling the vibrations from within one’s self.
The first step is to have the student mentally comprehend that these overtones are in fact
real and are not imaginary nor are they theoretical in nature.

These first three overtones are illustrated, using an “E” as the fundamental pitch,
in Fig. 3.1 below.

As can be seen above, from a fundamental tone (in this case it is “E”) several
other tones are also set into motion and can be distinctly heard by the trained ear. Some
instruments are better than others in allowing these tones to be heard but they are always
present regardless of perception. It is also important to note that the overtones are always
the same in their relationship to the fundamental.
In Fig. 3.1 the “E” to the far left is the tone that is most perceived by the ear also known as the fundamental pitch. However, with careful listening the student can learn to hear, with the human ear, the notes that are surrounded by parentheses, which are the overtones.

The overtones in Fig. 3.1 are the most important overtones for understanding the make-up and philosophy of this manual. These overtones can be heard from left to right or low to high as can be seen in Fig. 3.1. The first overtone, above the fundamental tone, is the $P_5$, next is the $P_8$ of the fundamental pitch followed by the $M_3$. The philosophy of this manual is that these three overtones give birth to all of the other intervallic possibilities.

**Discover the Overtones on Your Guitar**

Have the student prove that the overtones are truly ringing by plucking the low “E” string, or the thickest string, and watching to see if any of the other strings are sympathetically vibrating. Sympathetic vibration between strings will occur when a string recognizes its fundamental or overtone is sounding in another. Therefore, when the low “E” string is plucked the student should be able to witness the “B” string vibrating as they both share a common overtone. Likewise, if the student plucks the “A” string they can witness the high “E” string vibrating for the very same reason.
Chapter 4

SHAPE-SHIFTING CREATED BY THE TUNING OF THE GUITAR

Background

The tuning of the guitar has evolved throughout time into what we currently know as standard tuning. There are many scordatura tunings (those which are different from standard tuning) available to any string instrument and the guitar is no exception. This being said, the modern standard tuning of the six string guitar is tuned from thickest to thinnest, or lowest to highest, to the pitches of E-A-D-G-B-E.

To the beginning student this tuning will not present anything strange or unique at all as the beginner simply tunes their instrument as instructed. However there comes a time when a maturing guitarist will wonder why their instrument is tuned in the manner known as standard tuning. Furthermore, an in depth understanding of the tuning of the guitar will give rise to the students ability to make simple the complexities of the guitar and the various fingerings and problems presented by its unique tuning. Have the student look at each pair of adjacent strings in order to observe that $E' - A' = P4$, $A' - D' = P4$, $D' - G' = P4$, $G' - B' = M3$ and lastly $B' - E' = P4$. The student can then make the realization that strings that are adjacent to one another are tuned in $P4$ with one exception: $G' - B' = M3$.

This observation could bring about the question of “Why aren’t all of the strings tuned in $P4$’s to one another?” If all of the strings were tuned in $P4$’s to one another this would result in the tuning, from thickest to thinnest, or lowest to highest, of E-A-D-
G-C-F. Upon first look there does not seem to be anything wrong with this tuning and to tune in this manner would solve a lot of headache when visualizing shapes on the guitar; as all intervallic shapes created on the guitar would remain consistent by tuning in this manner. However, one problem presented when tuning in all \textbf{P4th's} is that we would not end up with an open “E” on either side of the guitar. Instead we would have a low “E” on the sixth string and a high “F” on the first string. One reason it is important to have an “E” on either end of the guitar is that it enables one to use bar chords which are an extremely important asset to the guitarist.

Therefore, as guitarists we make a trade-off. In order to have an “E” on both ends of the guitar, thereby allowing bar chords, we must give up the ability to maintain intervallic shapes as they are moved through our instrument from string to string. It is interesting to note that most other string instruments do maintain their intervallic shapes such as the violin, viola, cello, bass and mandolin just to name a few examples. This does not imply that an instrument which maintains intervallic shapes, by its nature, is easier to play. A master musician is quite aware that each instrument has its pros and cons and that all instruments take a lifetime in order to truly master.

What are intervallic shapes? Let’s have the student look at this in more detail using chords as an example. As beginning guitarists we are all introduced, almost immediately, to three main chords. These chords are E, A and D (See Fig.4.1 below). There are many ways to realize these chords on the guitar but when we are thinking of a specific intervallic shape we are then limited as to how they can be produced. The intervallic shape that we are first introduced to as students is produced by the lowest note being the \textbf{P1} which is then followed by a \textbf{P5} higher, a \textbf{P8} higher, and lastly, a \textbf{M3} higher.
Therefore we can say that the intervallic shapes, of these specific chords, are all a 1583. More detail will be given in regards to intervallic shapes in the chapters following. Each of the three chords we will be looking at (E, A and D) all share the same intervallic make-up. And it is with these three chords that shape shifting on the guitar can be better understood.

SHAPE SHIFTING OBSERVED USING E, A & D MAJOR TRIADS ON THE GUITAR

Fig. 4.1

The three chords seen in Fig. 4.1 look different but are actually the exact same shape intervallically. The reason that they all look different from one another is because there is a tuning difference between the G and B string. One can imagine this change in chord shapes to be similar to the illusion created when viewing a straw immersed in water. Because each of these chords are major triads and are intervallically the same, the shapes should remain constant. This would be case if the guitar was tuned in P4ths
throughout. However, as explained previously the standard tuning is not tuned in $P_4$ths throughout as from the G string to the B string we end up with a $M_3$. All of the remaining strings are $P_4$ths in relation to one another.

The difference between a $M_3$ and a $P_4$ is only a half-step. Therefore, as a chord shape moves from left to right, or low to high, into the area of the B string the end result is one in which the note that falls upon the B string moves higher by a half-step. If we look at the chords in Fig. 4.1 we can see that the first chord “E” does not fall upon the “B” string at all and therefore is the true, non-morphed, shape of a major chord on the guitar in standard tuning. The second chord “A” looks different from “E” but a closer look will reveal that the only difference, between the shapes of “E” and “A”, is in the note that falls upon the “B” string which has moved up in its shape by a half-step. Even though we have to finger the “A” chord differently than the “E” chord this chord is the same as the original “E” shape but simply shape-shifted. The same thing holds true when moving from “A” to “D”. Again, with close observation between the “A” shape and the “D” shape one can see that the note that falls upon the “B” string is the one that has moved up by half-step. In the end the third chord, “D”, in Fig. 4.1 looks dramatically different from its original shape of “E”. This is because it has gone through two shape-shifting processes. First when the “E” chord moved over to become “A”, and a second time when “A” moves over to become “D”.

Understanding this process of shape-shifting can be an eye-awakening discovery for the student. Instead of them thinking of E, A and D major triads as being three different chord shapes they can visualize these shapes as the same non-morphed “E” chord, that has merely been shifted along the way due to the tuning of the guitar.
SHAPE-SHIFTING OBSERVED USING THE MAJOR SCALE

In Fig. 4.2 above we are able to see how a major scale is shape-shifted, or morphed, as it moves horizontally across the strings. In Fig. 4.2a & 4.2b we see a major scale in its original, un-altered, state as none of the notes are played on the “B” string. However, in Fig. 4.2c we see that the last three notes have touched the “B” string and has therefore been shifted a half-step higher in its position on the guitar neck. And in Fig.
4.2d we see again a shifted version of the major scale however this time the “B” string is affecting the middle of the shape and has an after effect on the last three notes that fall on the high “E” string as well. We need to remember that the interval from “B” to “E” is a P4 and therefore their relationships will remain constant to each other as in their original un-morphed shape seen in Fig. 4.2a & 4.2b.

It is interesting to note that the intermediate guitarist will be familiar with these one-octave scale shapes presented in Fig. 4.2. However, most student guitarists are not aware that all of these one-octave shapes are actually the same and are merely being morphed due to the irregular tuning of the guitar. These concepts will be a continuous element in the chapters that follow. It is important to keep in mind that these principles are affecting all intervallic shapes when moved across the fingerboard of the guitar in a horizontal fashion. If the student guitarist can truly visualize this effect as a morphing of its original shape then the brain no longer needs to memorize many shapes as separate entities from one another. Instead the brain realizes that one intervallic shape is the same as another but only looks different because of the tuning difference between the “G” and “B” strings.

Lastly, if the guitar was tuned from one string to the other in continuous P4 relationships then this morphing illusion would simply not take place. It is fun to try this out and all student guitarists should experience this effect first hand by re-tuning their guitar to all P4ths. It is one thing to read, intellectualize or theorize about a concept. It is entirely another to realize a concept by physically doing and experiencing it through one’s instrument.
Chapter 5

SECONDS AS AN INTERVALLIC SHAPE

Background

Learning to improvise can at first feel quite daunting and vast especially to the
novice. However, I like to break one’s fears from the very beginning by allowing them to
experience their own innate ability to select and play correct tones on their guitar using
2nds. The skill set that will be explained in this chapter has proven to be the easiest and
most readily obtainable concept regardless of skill or age. Even the beginner can achieve
success and gain confidence through experiencing first hand one’s ability to walk on the
guitar using 2nds or whole and half steps.

The first step for the student is to approach the guitar by playing only one string at
a time while listening to music that does not modulate its tonal center. It is preferable for
the student to listen to and play against a song that is in a slow/medium tempo and does
not modulate to different key centers. A teacher could also play a small chord progression
for the student supplying them with a non-modulating tonal landscape. Once the student
is able to fully grasp and select the correct pitches presented by non-modulating songs or
chord progressions then they can practice against songs with modulating key centers, or
even temporary key centers such as found in Blues/Jazz progressions.

For the student, the key concept to grasp is that they will only be allowed to use
one string and will be walking up and down the neck using the m2/M2 or half and whole
steps. Once this is understood it is up to the student to try and find the correct tones, or
colors, that are present within the music. The student is not trying to copy or mimic what
they hear other musicians playing within a song. Rather, they are trying to listen to the overall soundscape, or colors, that are present in their own mind. Soundscapes are a direct result of the implied chord progressions of a song which in turn produces a tonal key center. The student does not need to understand what a chord progression, tonal key center or soundscape is in order to correctly select the tones, in this case m2/M2, of the music they are listening to or working against.

A great way to discuss with the student what is happening within a tonal landscape is to liken it to a visual reference, such as a painting or rug. As an artist will choose certain colors/shapes, and omit others, within their composition a musician will want to select certain tones to be heard in their organization of a song. For example, if a rug uses the colors of yellow, red, and gray we could say that its musical soundscape is made up of these colors. If the color green were to randomly appear within the aforementioned rug it would seem to be out of place with the other colors and musically speaking would result in a tension not desired at that moment in time. As a side note, it is important to state that all notes whether complimentary or discordant are possible if used in an organized fashion. However, before the student can learn to use tones that are discordant they must first learn to hear what is correct or complimentary.

To re-iterate, the present goal is for the student to master the ability to ascertain the correct pitches that are being presented by a given chord progression. The teacher should refrain from giving cues to the student of whether the selected tones are correct or not correct. The goal is for the student to learn to internalize whether or not they think that the current tone being played fits in with the music they are listening to. If the student looks to the teacher for guidance it is best to ask the student if they think that the
current tone sounds correct to them and remind them to listen not only to themselves but also to the music being played. Whether the student has selected the appropriate tone or not does not initially matter as everyone has the capability, with practice and time, to discern a musical scale from a given song or chord progression.

Fig. 5.1

Whole Steps on a Single String

a.)

b.)

c.)

d.)
e.)
f.)
As can be seen in Fig. 5.1 whole steps will look the same regardless of which string it is played upon. Likewise, in Fig. 5.2 it can be seen that half steps will also look the same regardless of which string they are played upon. Notice how in both circumstances there is no shape-shifting taking place as we are only dealing with a single string at a time.

Generally speaking, if you are on a tone that is on the third fret then a half step higher will be the tone that is on the fourth fret of the same string. Likewise, if you are playing an open string then a half step higher will be found on the first fret of the same
string. In the case of whole steps, if you are playing a tone that is on the fifth fret then a whole step higher will be the tone that is on the seventh fret of the same string. Likewise, if you are playing an open string then the whole step higher will be found on the second fret of the same string. These concepts should be fully understood by the student before beginning to try their hand at improvising using whole and half steps on a single string.

Fig. 5.3

Whole Steps on Consecutive String Pairs

a.) b.) c.)

recognizing how to move from string to string in whole steps is crucial in beginning to develop a student’s horizontal playing style. Some musical ideas require
horizontal movement, movement from string to string, while other musical ideas demand vertical motion which occurs when we remain on a single string. In Fig. 5.3a above we are able to see the low “E” string fifth fret tone moving up a whole-step to the “A” string second fret. The resulting tones are exactly the same as if we had remained upon the low “E” string and had first played the fifth fret and then moved up a whole-step to the seventh fret. As seen in Fig. 5.3 the shape of a whole step when moving from string to string remains a consistent shape until we get to Fig. 5.3d. Every time we have a shape that moves from the “G” to “B” string it will be morphed a half step higher due to the tuning of the standard guitar.

Fig. 5.4

Half Steps on Consecutive String Pairs
Fig. 5.4 above demonstrates the shapes created when moving in half steps from string to string. This shape also remains exactly the same when moved across the strings in a horizontal fashion except for Fig. 5.4d. Fig. 5.4d creates a different shape visually but remains a half step aurally. The reason for the change in shape visually in Fig. 5.4d can again be attributed to the tuning difference between the fourth string “G” to the third string “B” which is a M3rd relationship. All other consecutive strings on the guitar are tuned in P4th relationships.

Regardless of the resulting visual shape the “sounds” created in Fig. 5.4 are all half steps in relation to one another. Over time our ear-hand connection is trained to understand the difference in the visual shapes that are created when falling upon the “G” and “B” strings. However, in our mind’s eye a half step will always be a half step and does not even have a shape as we are dealing with pitch and not visual aspects.

The goal for the student is to now produce the correct whole and half step relationships against a musical soundscape while moving up and down the neck of the guitar. The student should move up as far as is comfortable before moving back down. An open string sound may not always be the correct tone to begin with and when dealing with whole and half steps on consecutive strings the student will need to begin in a higher position in order to obtain the correct relationships when moving from string to string. These concepts will only be understood from physically doing and practicing. It is only through personal experience that the many little adjustments and realizations that take place in the mind, as well as on one’s instrument, can become part of our whole musical understanding.
Application

The following exercises are to be completed on single as well as consecutive strings using rhythms of the students or teachers choice. Exercises are given in numeric terms in order to express an abstract concept and do not represent any specific tones within a given scale. Distances between tones will vary depending upon the tonal landscape the student is playing against. Therefore, the student will need to use their ear to discern whether they will need to use a half step or a whole step from the current tone there are playing. When working with consecutive strings there are several ways in which to achieve the exercises given below. Have the student explore the possibilities and get to know their instrument.

Exercises using whole and half-steps combined

1.) 121, 232, 343, 454, 565….or ABA, BCB, CDC, EFE, FGF….
2.) 989, 878, 767, 656, 545….or AGA, GFG, FEF, EDE, DCD….
3.) 123, 234, 345, 456, 567….or ABC, BCD, CDE, DEF, EFG….
4.) 987, 876, 765, 654, 543….or AGF, GFE, FED, EDC, DCB….
5.) 2345, 3456, 4567, 5678….ABCD, BCDE, CDEF, DEFG….
6.) 9876, 8765, 7654, 6543….BAGF, AGFE, GFED, FEDC….
7.) Encourage the student try and make up exercises of their own choice.
8.) Remind the student to listen to the music as they are playing and to try to be musical with their rhythms.
Chapter 6

OCTAVES AS AN INTERVALLIC SHAPE

Background

Learning to use and identify the P8 is the next essential step for the student beyond single note recognition of the m2 and M2. Playing the P8 takes more effort from the novice as it requires them to hold their hands in a large open position as well as develop their ability to use more than one finger at a time. However, what is convenient about the P8 is that the shape does not change as the student moves vertically up and down the neck of the guitar.

The student must use their ears to judge whether or not the next P8 is a half or whole step higher. The shape of the P8 will change however, as with all shapes and intervals, as we move across the neck of the guitar horizontally. One common mistake a student will make in the beginning is to simply play every possible note by moving in half-steps. If you notice the student doing this…stop them and remind them to pre-hear the next tone that they feel will be correct. Having them sing out loud the next pitch that they are pre-hearing will usually correct this common mistake.

If the student learns to pre-hear before they play a single note, then they are truly learning to connect their ears with their hands, and this is the ultimate goal after all. If the student never sings out loud and decides instead to skip this step, then they are only hurting themselves in developing the most crucial step of building their ability to improvise. Even during speech, we are pre-hearing what it is that we are about to say. We never just throw words or patterns out of our mouths in conversation as this would result
in nonsensical speech. This type of nonsense could be fun for a little, but certainly not for a long period of time and it is definitely not a good technique if we are trying to grab our audience’s attention.

Fig. 6.1

Perfect Octaves Spanning Three Strings

In Fig. 6.1 above we can see the shape of the P8 as it is moved horizontally across the guitar fretboard. In Fig. 6.1a and 6.1b we see the true or original shape of the P8 interval. In Fig. 6.1c and 6.1d we see the morphed version of the P8 interval.
Another way to achieve the P8 is to skip two strings between our tones that create the interval of the P8 as can be seen in Fig. 6.2 above. In this type of shape we have only one example of an un-morphed version of the P8 and this is the shape presented in Fig. 6.2a. In Fig. 6.2b and 6.2c we see the P8 in its morphed version.

Application

The application of the P8 shapes should be experienced and practiced while listening to a non-modulating chord progression or song. Move in a vertical fashion up and down each string set and be sure to make use of shapes presented in Fig. 6.1 and Fig. 6.2. As the student gets the hang of the P8 over a musical soundscape, encourage them to move rhythmically within the given progression or tune you are playing within. Remind them that it is rhythm that gives more of an impression of musical speaking than playing correct tones. The student can play all the right tones with terrible rhythm and it will
sound terrible, whereas they can also play all the wrong tones with an interesting rhythm
and the result will sound more like musical speech than the prior. All living things have a
rhythm and music is no exception.
Chapter 7

FIFTHS AS AN INTERVALLIC SHAPE

Background

The interval of the 5th is the student’s first introduction to an interval that does not necessarily maintain its “quality” as it progresses through a key center vertically up and down the guitar neck. For example, sometimes a 5th will be a P5, and at others it will become a dim5 or an Aug5. As discussed earlier in this manual all intervallic shapes will visually change as they are moved horizontally across the guitar neck due to the nature of standard tuning. It is important for the student to remember that this change in shape is not due to the interval changing “quality”; rather, the shape is changing or morphing its visual reference merely because of a tuning difference between the “G” and “B” strings and the rest of the guitar. How does the student discern between playing a P5, dim5 or Aug5?

Behavior of 5ths Within a Major Key

Let’s examine what happens to 5ths as they move through a major key center. In the key of C major we have the tones C, D, E, F, G, A, B & C. When improvising, if the student happened to fall upon a “D” tone, then the 5th higher would result in an “A” tone. If we analyzed the distance between “D” and “A” we would discover that it is a P5. If the student then cycled up through the key one position higher we would next start on an “E” and the 5th higher would result in a “B”. Again we find that “E” to “B” results in a P5 relationship to one another. Next we would begin upon “F” and would go up a 5th
to “C”. Again, we find that from “F” to “C” is a **P5**. The next set of **5ths** would result in the tones of “G” and “D” which is also a **P5**. “A” to “E” would be the next set of **5ths** higher in the key center of C major which is also a **P5**. However, when we get to the next pair of **5ths** we arrive upon “B” and “F”. From “B” to “F” we find that this relationship results in a **dim5**. Lastly, we have the tones “C” to “G” and again find that the relationship between these results is a **P5**.

What we can commit to memory is that in any major key structure, as well as all of its inherent modes, the result is one in which all **5ths** will result in the interval of a **P5** with one **dim5**. This may seem like a lot to remember or even comprehend to anyone and especially to the novice. However, all we really need to recognize as a beginning improviser is to be aware that the **5th** can present itself as being either a **P5** or a **dim5**. In the end it will be your ear which will be able to determine whether the correct **5th**, at a given moment, will be a **P5** or a **dim5**.

**Behavior of 5ths in Melodic Minor**

Melodic minor is a heptatonic scale, like a major scale, but has a different result from major key centers when dealing with the interval of the **5th**. Let’s look at the key of C Melodic Minor which is spelled C, D, Eb, F, G, A, B & C. If we examine the **5th** relationships we discover that we again have four **P5**, two **dim5** as well as one **Aug5**. The two **dim5** are between the tones “A” and “Eb” as well as between “B” and “F”. The **Aug5** occurs between the tones “Eb” and “B”.

Behavior of 5ths in Harmonic Minor

Harmonic minor is another example of a common heptatonic key center which also contains the **P5**, **Aug5** and **dim5** within its structure. Let’s look at the key of C Harmonic Minor which is spelled C, D, Eb, F, G, Ab, B & C. Upon examining the 5th relationships we find four **P5**, two **dim5** and one **Aug5**. The two **dim5** are between the tones “D” and “Ab” as well as between “B” and “F”. The **Aug5** occurs between the tones “Eb” and “B”. When analyzing things such as this the student may find it all quite confusing and seemingly impossible to decipher, especially to the novice. However, we can simplify all of this if the student makes the realization that as they are working with 5ths to expect to see the shapes of **P5**, **dim5** and **Aug5**. Again, it will be their ear that will guide them to discern which 5th will work at a given moment.

Fig. 7.1
All of the above shapes in Fig. 7.1 result in the intervallic quality of a P5. However, in 7.1d we notice a difference in the visual representation of the P5 but, by now the student should be getting used to the morphing of shapes created by the tuning difference between the “G” and “B” strings on the guitar.

Fig. 7.2

Perfect 5th Shapes (Alternate Version)
Fig. 7.3

Perfect 5ths (2nd Alternate Version)

a.)
b.)

Fig. 7.4

Diminished 5th Shapes

a.)
b.)
c.)
d.)
e.)
In Fig. 7.4 we see the visual shapes created by the **dim5**. If the student has the **P5** shapes memorized then the act of diminishing becomes easier as they only need to make the **P5** shape smaller by a half-step. This also means that the student will only need to memorize the shapes of the **P5** and then diminish when needed or is determined by the music that they are playing against.

**Fig. 7.5**

**Diminished 5th (Alternate Version)**

![Diagrams of diminished 5th shapes](image-url)
In Fig. 7.7 we are looking at the intervallic shape of the Aug5. It is important to note to the student that the Aug5 and the m6 are technically the same shape and sound. However, the difference lies in the overall relationship within the key structure or given
chord quality. The only time we will come across this shape is when playing over Melodic Minor or Harmonic Minor scale qualities. There are few songs that employ the Melodic Minor and/or Harmonic Minor sound for the entire song. This being said, it is common in Minor Key structures to have momentary key center modulations to Melodic or Harmonic Minor. Even though some might view these kinds of ideas to only be prominent in Jazz or modern twentieth century compositions one can find examples of momentary key modulations in the music of the Baroque period to present time.

Fig. 7.8

Augmented 5ths (Alternate Version)
Fig. 7.9

Augmented 5ths (2nd Alternate Version)

a.)

b.)

Exercises

1.) 151, 262, 373, 484….or DAD, EBE, FCF, GDG….

2.) 15, 62, 37, 84….or EB, CF, GD, EA….

3.) Encourage the student to make up some of their own.

4.) Remind the student to use varied rhythms as they become better at hearing 5ths.
Chapter 8

FOURTHS AS AN INTERVALLIC SHAPE

Background

The interval of the 4th can become the quality of a P4, Aug4 or a dim4. This chapter will discuss and give visual diagrams for each quality of 4ths. However, the student only needs to memorize the shape of the P4. If one has a firm understanding of the P4 shape then it becomes easy to make this shape bigger (augment) or smaller (diminish) by a half step when the music dictates our ear to do so.

Behavior of 4ths in a Major Key

Let’s look closely at what happens to 4ths as they move through a major key. (Keep in mind that whatever happens in a major key will also take place in all of its modes as well.) If we are in the key of C major we will have the tones C, D, E, F, G, A, B & C. From “C” to “F” is a P4. Next, we have the tones “D” to “G” which also results in a P4. “E” to “A” will be next and is a P4. “F” to “B” follows next, but results in an Aug4. Next, we have the tones “G” to “C” which is a P4. “A” to “D” will follow and is also a P4. Lastly, we have the tones “B” to “E” and this is also a P4. From this, we can assess that all major keys and their resulting modes contain six P4 and one Aug4.

Behavior of 4ths in Melodic Minor

Let’s observe what happens to 4ths as it shifts through Melodic Minor and its resultant modes. In the key of C melodic minor we have the tones C, D, Eb, F, G, A, B &
C. We end up with four **P4** beginning on the tones C, D, G & A; two **Aug4** beginning on the tones Eb & F; and this key center also contains one **dim4** between the tones of “B” and “Eb”. Analyzing this allows the student to expect a combination of **P4**, **Aug4** and **dim4** when exploring intervals within a melodic minor key center. The goal is not to memorize certain patterns but to simply be aware that the intervallic shape of the 4th is apt to change depending upon the context/key center of the music at any given moment.

**Behavior of 4ths in Harmonic Minor**

In the key of C harmonic minor we have the tones of C, D, Eb, F, G, Ab, B & C. These tones result in four **P4** beginning on C, D, Eb & G; two **Aug4** beginning on the tones of F & Ab; as well as a **dim4** that is created between the tones of “B” and “Eb”. It is important to note to the student that a **dim4** creates the same sound as a **M3**. The difference lies in the spelling and also the context within which the performer is thinking.

Fig. 8.1
The intervallic shape of the $\textbf{P4}$ is relatively easy to memorize as it ends up being found on the next string higher and within the same fret. This happens because the guitar is tuned in $\textbf{P4}$ except for the $\textbf{M3}$ relationship between the “G” and “B” string. This accounts for the difference in shape in Fig. 8.1d. Remind the student that these shapes seen above are all the same sounds and result in the sound of the $\textbf{P4}$.

Fig. 8.2

Aug4th Shapes

a.)

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by the student and then memorized. I will usually only show a student what a \textbf{P4} looks like and then ask them to deduce how to approach augmenting or diminishing the interval of the \textbf{4th}.

Fig. 8.3

![Diminished Fourth Shapes]

It is important to once again bring attention to the student that a \textbf{dim4} is exactly the same as a \textbf{M3}. The difference between these intervals has to do with context which will become better understood by the student as they become more accustomed to music theory. In the meantime, we only need to visualize a \textbf{dim4} as a \textbf{P4} that has become smaller by a half step.
Fig. 8.4

P4th Shape (Alternate Version)

Fig. 8.5

Aug 4th Shapes (Alternate Version)

Fig. 8.6

dim4th Shapes (Alternate Version)
Figs. 8.4, 8.5 and 8.6 are all very useful when building chords that require the use of extensions such as the eleventh. The use of the dim4 is never required within any chordal context; however, it is an intervallic structure that is present within melodic and harmonic minor key structures and this is why it is included in this chapter.

**Exercises**

1.) 14, 52, 36, 74….or AD, EB, CF, GD….

2.) 74, 36, 52, 14….or FC, BE, DA, GC….

3.) 141, 252, 363, 474….or ADA, BEB, CFC, DGD, EAE….

4.) 747, 636, 525, 414….FCF, EBE, DAD, CGC….

5.) Have the student come up with some of their own exercises that utilize 4ths.

6.) Remind the student to be musical by varying rhythms as they come to their mind.

7.) Make sure the student is pre-hearing everything that they do.

8.) Remind the student to not play if they cannot pre-hear the next tone.

9.) Encourage the student by letting them know that they will succeed.
Chapter 9

THIRDS AS AN INTERVALLIC SHAPE

Background

The intervallic shape of the 3rd is a very important shape because it is used to establish chordal textures. It has also been the primary way to build harmonic textures since the beginning of western music and its development of harmony. All intervallic shapes are important but have found the 3rd to be of particular importance which will only become apparent to the student with time, practice and careful observation.

Fig. 9.1

Major Third Shapes on a Single String
There are three main ways in which to achieve the shape of the 3rd on the guitar. Explain to the student that it is the M3, P5 and P8 intervallic shapes that should be visualized exclusively in order to find all other intervallic shapes on the guitar. This process simplifies things considerably for the student’s brain and also helps in the process required to memorize the other shapes as well.

Fig. 9.2

Minor Thirds on a Single String

The intervallic shape of the m3 can be easily identified if you commit to memory the shape of the M3. The m3 is simply viewed by the mind as a M3 that is a half step smaller in size. Again this frees up the mind to memorize only what is necessary.
Fig. 9.3

Major Thirds on Consecutive Strings

a.)  

b.)  

c.)  

d.)  

e.)  

One can move across the entire spectrum of the guitar fretboard rather quickly by combining the intervallic shapes of the 3rds produced on a single string with those created on consecutive strings. Remember to account for the morphing effect that occurs between the “G” and “B” strings. 3rds alternate between being a M3 at one moment and then a m3 in another. The student should never recognize and then memorize a pattern but should instead listen to the musical background, created by a single chord or chord progression, in order to select the appropriate quality of the M3 or m3. When learning to pre-hear the appropriate quality of any intervallic shape it is a common error to resort to using their rational/intellectual mind and will thus begin to notice or recognize patterns rather than to constantly keep one’s mind focused on using their ear. Patterns can be observed everywhere but this is never the goal when being musically conversant.
Fig. 9.4

Minor Thirds on Consecutive Strings

a.)

b.)

c.)

d.)

e.)

Fig. 9.5

Major Thirds (Alternate Version)

a.)

b.)

c.)
In Figs. 9.5 and 9.6, we see the intervallic shape of the 3rd which will prove to be especially helpful to the student when building chords. In the exercises that follow, it is important to note that 3rds will constantly change from being the intervallic shape of a M3 in one moment and then to suddenly become a m3 in another. It is of the utmost importance for the student to keep one ear on the musical soundscape in order to properly determine which 3rd will best apply. Again, one should avoid memorizing or looking for patterns when moving 3rds through a key structure. There will always be patterns to be observed; however, as the music progresses through time in a linear fashion patterns often do change into slightly different shapes. One can imagine this effect in music to be much like that of a kaleidoscope and its slight variations that occur when one turns its scope. Luckily, our ears learn to become highly adept at interpreting what one is hearing and can also learn to predict what will occur next.
Exercises

1.) 131, 242, 353, 464….or EGE, FAF, GBG, ACA.…

2.) 646, 535, 424, 313….or GEG, FDF, ECE, DBD.…

3.) 13, 24, 35, 46, 57….or AC, BD, CE, DF.…

4.) 75, 64, 53, 42, 31….or CA, BG, AF, GE.…

5.) 13, 42, 35, 64, 57….or AC, DB, CE, FD.…

6.) 75, 46, 53, 24, 31….or GE, DF, EC, BD.…

7.) Have the student begin on any pitch and try to move in 3rds across the entire span of the guitar.
Chapter 10

SIXTHS AS AN INTERVALIC SHAPE

Background

The intervallic shape of the 6th tends to be a neglected shape for the novice improviser and the inclusion of this interval can greatly expand a student’s musical vocabulary. The 6th is also an inversion of the interval of the 3rd. When playing against a musical soundscape the goal again is to pre-hear the intervallic shape. At first, as with any new intervallic shape, you will need to use more of your rational rather than intuitive mind. But, as you become more comfortable with a certain shape one will greatly benefit by consciously make an effort to switch the mind’s emphasis from the intellect to the ear. Our intuitive mind is much faster at adapting to very complex situations while our rational mind actually slows us down when being confronted with various complexities. In the end, the advanced improvising musician is using his/her rational and intuitive mind in harmony. However, the student must constantly and consciously give attention to both mental aspects during practice sessions.

The intervallic shape of the 6th will change between becoming minor and major. It does not constantly alternate from major to minor, but rather this changing in quality is dictated by the musical soundscape. Therefore, right from the beginning the emphasis should be upon listening while at the same time making sure that you are in fact using the intervallic shape of the 6th and not mistakenly playing a different shape.
In Fig. 10.1 above we see the intervallic shape of the M6 when applied to the guitar. Figs. 10.1a and 10.1b are representative of the original non-morphed versions of the M6. Figs. 10.1c and 10.1d are still M6 and merely look different as they are being morphed by the tuning difference between the “G” and “B” strings.
Fig. 10.2

mi6th Shapes

a.)

b.)

c.)

d.)

Fig. 10.3

M6th Shapes (Alternate Version)

a.)

b.)
Exercises

1.) 161, 272, 383….or AFA, BGB, CAC….

2.) 838, 727, 616….or as above yet in reverse

3.) 16, 27, 38, 49….

4.) 94, 83, 72, 61….

5.) 16, 72, 38, 94….

6.) 94, 38, 72, 16….
Chapter 11

SEVENTHS AS AN INTERVALLIC SHAPE

Background

The use of the intervallic shape of the 7th can definitely feel awkward for quite some time. However, as in the case of 6ths the student’s vocabulary can and will benefit greatly with the incorporation of these large melodic leaps. They must be treated with care as 7ths and 6ths seem to ask for or even need certain resolutions. These intervallic shapes are also sometimes better received if approached from the tones above or below in order to prepare the large leap melodically. However, all of these things do become apparent by the intuitive mind and it never fails to amaze me how a student will figure out the seemingly complex rules concerning proper melodic movement with nothing more than time, hard work and careful observation of their own playing. Rules usually are nothing more than an observation of things that have seemed to work for others in their application. Having a student learn to tap into their intuitive mind can prove to be very powerful especially when used in tandem with their rational, thinking side of their mind. Neither approach is better than the other; however, the student must use both approaches to truly achieve the mastery we hear by the greats that have gone before us.

One common myth that surrounds musicians is that the improvising musician is somehow naturally able to play music without even needing to work at his/her skills. It would be a mistake to presume that mastery of any craft is the result of inherent genius.
There will always be examples that seem to defy this principle. However, the majority of musical greats have spent countless hours honing and perfecting their craft in order to perform and create with effortless mastery.

Fig. 11.1

M7th Shapes

In Fig. 11.1 above we can see the shapes created by the intervallic shape of the 7th when applied to the guitar. It might be easier to memorize these shapes if the student first relates them to the P8. As stated in previous chapters the main intervallic shapes to be memorized are the P8, P5, and M3. All of the other shapes can and should be viewed in relation to these in order to ease and aide in the process of memorization. The majority
of 7th shapes will be in the form of a $m7$ or $M7$. However, the student will come across the intervallic shape of the $\text{dim}7$ as well when encountering and playing over the harmonic minor soundscape.

Fig. 11.2

mi7th Shapes

a.)

b.)

c.)

d.)

Fig. 11.3

M7th Shape (Alternate Version)
Fig. 11.4

mi7th Shape (Alternate Version)

Fig. 11.5

dim7th Shapes

a.)

b.)

c.)

d.)
In Fig. 11.5 we see the **dim7** intervallic shapes created when applied on the guitar. To the careful observer one might mistake this **dim7** shape to be the intervallic shape of the **M6**. This observation is correct as the **dim7** and the **M6** are one and the same except for the way it is applied and observed in the mind. In the end, context and application are the determining factors for whether the student is using a **dim7** or a **M6**. Again, these complexities only become clear to the student with much study of theory as well as application through daily practice.

### Exercises

1.) 171, 282, 393....
2.) 939, 828, 717....
3.) 17, 28, 39....
4.) 93, 82, 71....
5.) 17, 82, 39, (10)4....
6.) (10)4, 39, 82, 17....
Chapter 12

EAR TRAINING USING THE OVERTONE SERIES AS ITS MODEL

Background

The most important skill/tool the student can develop as a musician is to pre-hear. Pre-hearing happens when the student is present minded while performing. It entails not only hearing the notes and rhythms that are currently being played but also the ability to hear into the near future and simultaneously visualizing how/where the future rhythms and sounds will take place on the instrument. The student only needs to allow themselves the time to truly pre-hear their ideas in order to build this skill. The student should never mindlessly play without first conceptualizing a musical idea whether improvised or memorized. However, before the student can create musical ideas they must first be able to simply select pitches within a given boundary such as the intervallic exercises presented in Chapters 5-11. Chapters 5-11 will aid the student in learning what an intervallic shape will sound like as well as ways in which to produce them on the guitar. However, when it comes to truly pre-hearing an intervallic shape this skill can only be developed from within. As stated previously, pre-hearing only happens when the student gives themselves time to hear a sound/idea from within their imagination and then bring it into existence through their hands and instrument.

Resting vs. Active Tones

Ear training is essential to any musician and this process can either be difficult or easy depending on how one conceptualizes and organizes pitch in their mind. This
chapter will discuss a way to organize the process known as ear training by using the overtone series as its model. From the overtone series we can derive a concept regarding pitches which we will term as either being active or resting. The first three overtones present in the overtone series are the P1/P8, P5 and M3. When a tone is played on an instrument these same overtones are also the most audible to the trained human ear. Therefore, it is the P1/P8, P5 and 3rds that have been selected as resting tones. Resting tones can be viewed as planets which inherently have a gravitational pull. It is important to note that the M3 planet will also include the altered m3 as a possible resting tone.

![Fig. 12.1 Musical Planets and their Respective Moons](image-url)
The active tones will be the remaining tones which are listed in order from smallest to biggest: m2/M2, P4, Aug4, m6/M6, and the m7/M7. All active tones fall to their respective resting tone that directly lie beneath them. The only exception to this rule is when encountering the Aug4 or the m7/M7 which will resolve upwards to the resting tone that is directly above. To clarify this we can say that the active m2/M2 belongs to the resting P1/P8; the active m6/M6 belongs to the resting P5; the active P4 belongs to the resting m3/M3; the active Aug4 belongs to the resting P5; lastly, the active m7/M7 belongs to the resting P1/P8.

**Strong vs. Weak Active Tones**

There is no rule that states that an active tone must resolve to its respective resting tone. However, it is important for the student to recognize cognitively, and learn to hear intuitionally, the seemingly magnetic pull that exists between an active tone and its respective resting tone. Active tones can be classified as having a strong or weak magnetic pull. The magnetic pull stems from the tension that exists between the resting and active tones that are sounding at a given moment. What will determine whether the magnetic tension is strong or weak depends upon the distance between the respective resting and active tones that are sounding. A distance of a half step will be defined as a strong active tone, whereas a distance of a whole step will be defined as a weak active tone.
Strong vs. Weak Active Tones Further Defined

Therefore, if a \( P_1 \) is sounding, then the \( m_2 \) would be considered to be a strong active tone as it is a half step from its respective resting tone. However, the \( M_2 \) would be considered to be a weak active tone as it is a whole step away from the \( P_1 \). Some of my students have made the observation that the \( M_2 \) and \( m_3 \) are a half step in relation to one another and would then wonder if there was a tension between these tones. Even though this is a correct observation the answer is that the 2nds, whether major or minor, only have a magnetic pull in relation to the \( P_1 \) and have absolutely no relationship with the \( M_3 \) or \( m_3 \).

The \( P_4 \) is unique in that it can be a strong active tone if it is sounded against the resting \( M_3 \) due to the half step resolution. However, the \( P_4 \) can also be a weak active tone when sounded against the resting \( m_3 \) due to its whole step resolution.

The \( m_6/M_6 \) belongs to the gravitational pull of the \( P_5 \). The \( m_6 \) is a strong active tone due to its half step resolution. The \( M_6 \) is a whole step away from the \( P_5 \) and is therefore a weak active tone.

The \( \text{Aug}4 \) is unique as it resolves upwards and belongs to the gravitational pull of the \( P_5 \). The \( \text{Aug}4 \) resolves upwards by a half step and therefore falls under the definition of a strong active tone.

The \( m_7/M_7 \) also resolves upwards and belongs to the gravitational pull of the \( P_1 \) or \( P_8 \). The \( m_7 \) is a whole step away from the resting \( P_8 \) and is therefore a weak active tone. The \( M_7 \) is a half step away from the resting \( P_8 \) and can be defined as a strong active tone.
Resolution of Active Tones

It is a natural tendency to want to resolve things which create or cause tension. However, this does not mean that we should avoid tension as tension creates motion. We can witness this in the constant ebb and flow of the tide as the waves push in and then recede back into the ocean again and again. A motionless body of water will not have this ebb and flow effect and will remain still until affected by tension. Yet as we know, waters that are still or stagnant for long periods of time will become moldy. In music we are constantly dealing with ways to create motion as well as stillness. It is the overall balance or imbalance between these two effects that gives the total affect/impression of a given piece upon its listener.

As a general rule I like to impress upon my students that strong active tones need resolution whereas weak active tones do not need resolution. In fact, as a side note, it is the weak active tones which end up being considered by the greats as appropriate extensions/tensions over a given chord. Even though rules are made to be broken, I must reiterate that strong active tones must be resolved to their respective resting tone. There are always ways in which to fight a tendency to resolve, but it is wise for the student to first follow the rule in order to develop a strong understanding of how to fight this tendency without creating an awkward sounding musical idea or concept.

As stated earlier, all active tones have a natural tendency to fall to their respective resting tone. The exception to this general rule happens when active tones resolve upwards such as the Aug4 and the m7 and M7. It is interesting that the active tones which resolve upwards do not necessarily need to resolve to their respective resting tones whether strong or weak. In fact, it is very common to have the 7ths as well as the Aug4
simply sit over a chord sound and will end up sounding as a chord tone instead of a
tension needing resolution. Maybe this is because these tensions are able to fight gravity
by their innate ability to resolve upwards. All of the other tensions such as the m2 and
M2, P4 and the m6 and M6 must follow the rules of gravity.

To further make the point of why strong active tones need to resolve, and weak
active tones do not, can be better understood when thinking of magnets. If two magnets
are far enough apart there will exist no attraction or pull between them. However, as they
get closer to each other there is a point when the magnetic pull will begin. At this point of
awareness, when the magnets begin to sense the presence of the other the magnetic pull is
not at its strongest but tension exists nonetheless. This level of tension can be likened to
the whole step or weak active tone. As the magnets get closer and closer the magnetic
pull becomes so strong that one would need to force them apart in order to not have them
touch as it is their nature to become one. It is this level of tension which can be likened to
the half step or strong active tone. Keep in mind, however, that the tensions that resolve
upwards fight this tendency on their own regardless of being strong or weak active tones.
Again, this can be attributed to their innate ability to resolve upwards thus being treated
differently than the active tones which resolve downwards.
Exercises

Sing aloud until you are able to pre-hear with ease:

1.) Do’ Re’ Do; Do’ Ra’ Do
2.) Do’ Mi’ Do; Do’ Me’ Do
3.) Do’ Fa’ Mi; Do’ Fa’ Me
4.) Do’ So’ Do
5.) Do’ La’ So; Do’ Le’ So
6.) Do’ Ti’ Do; Do’ Te’ Do
7.) Do’ Fi’ So
Chapter 13

INTERVALLIC SEED CONCEPT

Background

Intervalic seeds are created when the student mixes two or more intervals within a horizontal melodic line. The student can then use intervalic seeds in order to create musical words and are most effective when rhythmically displaced in order to add interest. The best musicians can take a simple intervalic seed concept, move it through a key center and allow the seed to change and develop into a new intervalic seed. The focus of this chapter will be to show how to use, and move through a key center, a single intervalic seed at a time. An important skill as an improviser is to get as much as one can out of a simple idea or intervalic seed concept. In order to build this skill we limit ourselves to certain tonal configurations, or intervalic seeds, and improvise by altering articulation, rhythm, dynamics and space.

We use numbers in order to express intervalic seeds and the numbers used represent intervals in an abstract manner. Therefore, a number 6 will represent the interval of a sixth. Yet, is nondescript of whether it is a m6 or M6. It is the moment or tonal soundscape you are playing over, that will determine the sixth being a m6 or a M6.

The smallest possible intervalic seed would be referred to as being represented by the number 22. The number 22 is shorthand for an interval of a second which is then followed by an additional interval of a second. As stated above, the music will determine the specific quality of the interval of the second and could at one moment be a m2 followed by a M2. The intervalic seed of 22 could also be a M2/m2, or a M2/M2, etc.
How does one know when to play a minor or major second? The answer is that you will know which is correct if you use your ears and imagination and then simply pre-hear the correct pitches. The student’s rational mind then needs to take over and intellectually make sure that they in fact did achieve their goal of playing the intervallic seed of a 22.

The importance of learning how to create interval shapes on the guitar becomes clear and it is now that the student will truly begin to apply these skills. Each intervallic seed will present itself with certain problems that need to be solved before applying intervallic seed concepts to the guitar. Such as, which strings can we achieve a 22 upon? Can we achieve a 22 on a single string or are two strings needed? If two strings are needed will they be adjacent or can they be distant from one another? Once the student has conceived of a solution of how to apply an intervallic seed they will have formed an intervallic shape. It will be important to keep this intervallic shape as they then move it through a key center.

To summarize, when practicing over a chord or chord progression using intervallic seeds we are using, at first, more of our rational, thinking mind. However, there will come a point where the intuitive mind will want to take over and the student will then begin to pre-hear the given intervallic seed. We do want the intuitive mind to take over but it is still very important, especially in the beginning, to have the student regularly check their intuitive mind with their rational mind.
In Fig. 13.1 we see a realized version of playing the intervallic seed 22 in
stepwise motion through the key of C major. In 13.1a we begin on the “B” string with the
pinky on the 5th fret which gives us the note “E”. The tone that is a 2nd higher than “E”
is “F” which we can find on the “E” string fret. From the “F” we move another 2nd to
the note “G” which is found on the “E” string fret. Therefore our intervallic seed shape
used in Fig. 13.1 is one in which we will play one note on the “B” string and two notes on
the “E” string. There are several other ways in which to achieve the intervallic seed of 22
so it is important not to change the shape as you progress through a key. After you are
comfortable with a particular shape then come up with another way to achieve the same
intervallic seed concept and then move it through the same key. Do this same process for
all seed shapes presented in the exercises below. Even though the example above is
presented in the key of C major the student should practice the seed 22 over a song in which they do not know the key center and then simply make sure that they are in fact playing 2nds. The student will rationally be making sure to play two 2nds in a row in order to achieve a seed of 22. However, the student will be intuitively pre-hearing whether the 2nd that is required, by the musical soundscape they are playing against, is specifically a m2 or a M2.

**Exercises**

Have the student practice all seeds until comfortable; they should try to conceive of as many possible ways as they can in order to produce each intervallic seed. Remind the student to vary and thus improvise with rhythm, articulation, use of space and dynamics while using seed concepts.

1.) Intervallic seeds beginning with a second: 22, 23, 24, 25, 26, 27, 28
2.) Intervallic seeds beginning with a third: 32, 33, 34, 35, 36, 37, 38
3.) Intervallic seeds beginning with a fourth: 42, 43, 44, 45, 46, 47, 48
4.) Intervallic seeds beginning with a fifth: 52, 53, 54, 55, 56, 57, 58
5.) Intervallic seeds beginning with a sixth: 62, 63, 64, 65, 66, 67, 68
6.) Intervallic seeds beginning with a seventh: 72, 73, 74, 75, 76, 77, 78
Chapter 14
SEVENTH CHORD CONSTRUCTION CONCEPTS

Background

I can vividly remember being a beginning guitarist and coming across guitar instruction books with titles similar to “1,501 Chords for the Guitar”. These kind of books actually exist in many fashions and they seem to imply that a guitarist must either memorize all of the chord shapes over time or simply “plug and play” a shape from these books into a given song or format. Not to mention, they typically lack insights into how the author devised these chord shapes. These types of so-called “instruction” books seem to be valuable only to the originating author as it generates revenue for the sale of the book. I, as well as many other guitarists, have fallen victim to purchasing these instruction books. I am also just as certain that these books once purchased have remained nearly untouched on a shelf to collect dust. This is not because the information within is not pertinent but rather because the presentation of information is overwhelming and not organized.

This chapter will simplify chord construction by showing ways which “seventh-chords” can be devised using the three major chord shapes of E, A and D. When the concepts in this chapter are fully understood then the reader should be able to take these same principles a step further and begin to construct, on their own, any chord shape or chord quality that they wish without memorizing a multitude of different shapes. It is always much more powerful to be able to devise rather than replicate.
As seen previously in Chapter 4, the chords E, A and D are the same chord shapes (intervalically) even though they look and are therefore fingered differently by the guitarist. As was discussed in Chapter 4, these three chord shapes would not look differently if the guitar was consistently tuned in P4th intervals from string to string.

**Let’s Begin with D Major**

We will begin by looking at how to create the four different seventh-chords, found in a major key structure, using the D shape on the guitar. The D chord and its movable shape will be a good place to begin as the derivation of these seventh-chord shapes are straightforward. These will also give greater insight into the way that we construct the seventh-chord shapes of the E and A chord shapes that will follow.

Fig. 14.1

In Fig. 14.1 above we see the “open” D chord shape for the guitar. We say it is “open” because it employs an open string which happens to be upon the “D” string in this case. Once this shape is learned the first thing we need to do is to figure out how to move
this same shape up and down the neck. By moving this shape we maintain its quality of
being a major chord yet the name of the chord changes as we are changing the root of the
chord.

When teaching how to move a chord shape I will first ask the student hold the D
chord shape and then to play it. The next step is to move everything up by a half-step.
Inevitably, almost all students move the notes they are physically holding on the G, B
and E strings and forget to move the D string pitch. This common mistake is easily
corrected and it is this author’s opinion that through making this mistake the student
becomes more aware of the impact an open string possesses when employed within a
chord shape.

Fig. 14.2 The D Major Movable Chord Shape

In Fig. 14.2 above we see the result of moving the “open” D chord shape. As
guitarists we call this the movable “D” shape. However, in Fig.14.2 we see that the actual
chord that is heard is an F chord. It is called an F chord because the root of this chord
falls on the third fret of the “D” string which is an “F”. Therefore, the resulting sound and
name of this chord is an F chord. The numbers found below the diagram in Fig. 14.2 are
the actual intervals, in slang, that are present within the chord. With this in mind, let’s look at how to turn this shape into a seventh chord.

**How to Produce Seventh-Chords Using the D Major Movable Shape**

Fig. 14.3

<table>
<thead>
<tr>
<th>F Major</th>
<th>Fmaj7</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="F Major Diagram" /></td>
<td><img src="image2" alt="Fmaj7 Diagram" /></td>
</tr>
<tr>
<td>Int.: 1 5 8 3</td>
<td>Int.: 1 5 7 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F7</th>
<th>Fmin7</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="F7 Diagram" /></td>
<td><img src="image4" alt="Fmin7 Diagram" /></td>
</tr>
<tr>
<td>Int.: 1 5 b7 3</td>
<td>Int.: 1 5 b7 b3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fmin7b5</th>
<th>Emaj7</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5" alt="Fmin7b5 Diagram" /></td>
<td><img src="image6" alt="Emaj7 Diagram" /></td>
</tr>
<tr>
<td>Int.: 1 b5 b7 b3</td>
<td>Int.: 1 5 7 3</td>
</tr>
</tbody>
</table>
Major key structures, or tonalities, produce four different types of seventh-chords. These are listed from largest to smallest, the \textbf{Major7}, \textit{7} or \textbf{Dominant7}, \textit{minor7} and last, but not least, the \textbf{minor7b5} or \textbf{half-diminished} chords.

In Fig. 14.3 above, we see how a movable “D” shape, in this case F (due to its position on the neck), is used to create the four different seventh-chords found within a major key structure. The concept is to first drop, by half-step, the \textit{P8} of a triad which then becomes the M7 tone in relationship to the “root” or name of the chord. By doing this we have effectively changed the F triad into an \textbf{Fmaj7} chord. If we take the \textbf{Fmaj7} chord and drop the “7”, again by half-step, we change the “7” to become a “\textit{b7}”. This changes the chord quality from \textbf{Fmaj7} to \textbf{F7}. The next smallest chord is achieved by dropping the “3”, by a half-step, which results in a “\textit{b3}”. Doing this changes the \textbf{F7} to an \textbf{Fmin7} chord. Lastly, we will drop the “5” by a half-step which will result in changing the \textbf{Fmin7} to an \textbf{Fmin7b5} chord. The only tone not affected thus far has been the “\textit{1}” which also happens to be the name of the chord, in this case the “F”. If we lower the “\textit{1}” by a half-step then we will also change the name of the chord and we should also see that it changes the \textbf{Fmin7b5} to become an \textbf{Emaj7} chord.

By doing the above exercise we have discovered the four different types of seventh-chords that are present within a major key center, or tonality, using the “D” movable shape. This exercise will allow the guitarist to see that seventh chords are constructed from a major triad shape. One shape becomes another by altering one note at a time by a half-step which first results in the largest seventh chord, the \textbf{Maj7}, to the smallest major seventh chord, the \textbf{min7b5}. 
Let’s Look At The A Major Shape

Using the exact same principles applied to creating seventh chords with the “D major triad” and its movable shape we will now look at the “A major triad” and its movable shape. The only difference will be that the “A major triad” will also have an alternate shape which is created by moving the “5th” of the triad up an octave as can be seen in Fig. 14.6.

Fig. 14.4

In Fig. 14.4 above, we see the standard “A major triad” that is used by guitarists. This is called an “open” chord as it uses an open string in its production. Once this shape is internalized the next step would be to discover its movable shape. In order to find its movable shape all one needs to do is to first move each tone of the “A major triad” up by a half-step. Again, most guitarists will move every tone they are holding up a half-step and will neglect to move the open string. A gentle reminder to also include the open string, if not already moved, will complete the moveable “A major triad” shape.
Figs. 14.5 and 14.6 illustrate the “A major triad” as a moveable shape. Fig. 14.5 is probably the more commonly known “A major triad” moveable shape. However, Fig. 14.6 is also commonly used in songwriting and voice-leading though may not be as immediately recognizable to the novice or intermediate guitarist. The only difference between these two shapes is that in Fig. 14.6 the “5th” has been moved up an octave.
How to Produce Seventh-Chords Using the A Major Movable Shape

Fig. 14.7

C

\[
\begin{array}{c|c|c|c|c}
& x & x & & \\
\hline
1 & 5 & 8 & 3 & \\
\end{array}
\]

Int.: 1 5 8 3

C7

\[
\begin{array}{c|c|c|c|c}
& x & x & (3) & \\
\hline
1 & 5 & b7 & 3 & \\
\end{array}
\]

Int.: 1 5 b7 3

Cmaj7

\[
\begin{array}{c|c|c|c|c}
& x & x & (3) & \\
\hline
1 & 5 & 7 & 3 & \\
\end{array}
\]

Int.: 1 5 7 3

Cmin7

\[
\begin{array}{c|c|c|c|c}
& x & x & (3) & \\
\hline
1 & 5 & b7 & b3 & \\
\end{array}
\]

Int.: 1 5 b7 b3

Cmin7b5

\[
\begin{array}{c|c|c|c|c}
& x & x & (3) & \\
\hline
1 & b5 & b7 & b3 & \\
\end{array}
\]

Int.: 1 b5 b7 b3

Bmaj7

\[
\begin{array}{c|c|c|c|c}
& x & x & (2) & \\
\hline
1 & 5 & 7 & 3 & \\
\end{array}
\]

Int.: 1 5 7 3
Seventh-Chords Within a Major Key Using the A Major Movable Shape (Alternate)

Fig. 14.8

C

\begin{align*}
\text{Int.:} & \quad 1 & 8 & 3 & 5 \\
\end{align*}

\begin{align*}
\text{Cmaj7}
\end{align*}

\begin{align*}
\text{Int.:} & \quad 1 & 7 & 3 & 5 \\
\end{align*}

C7

\begin{align*}
\text{Int.:} & \quad 1 & b7 & 3 & 5 \\
\end{align*}

\begin{align*}
\text{Cmin7}
\end{align*}

\begin{align*}
\text{Int.:} & \quad 1 & b7 & b3 & 5 \\
\end{align*}

\begin{align*}
\text{Cmin7b5}
\end{align*}

\begin{align*}
\text{Int.:} & \quad 1 & b7 & b3 & b5 \\
\end{align*}

\begin{align*}
\text{Bmaj7}
\end{align*}

\begin{align*}
\text{Int.:} & \quad 1 & 7 & 3 & 5 \\
\end{align*}

\begin{align*}
\text{(3)}
\end{align*}

\begin{align*}
\text{(3)}
\end{align*}

\begin{align*}
\text{(3)}
\end{align*}

\begin{align*}
\text{(3)}
\end{align*}

\begin{align*}
\text{(2)}
\end{align*}

\begin{align*}
\text{(2)}
\end{align*}
Let’s Look At The E Major Shape

The “E major triad” as a basic open shape is not problematic and seems to be readily understood by the novice guitarist. However, converting this shape into a seventh chord was, for this author, the hardest to come to grips with. In order to better demonstrate this we will need to visually look at and, more importantly, aurally listen to the following diagrams.

Fig. 14.9  The E Major Chord Shape

Fig. 14.10  The E Major Moveable Chord Shape
In Fig. 14.10 we can see the “E major moveable” chord shape. However, we can also create the more popular or commonly used alternate version of this chord shape by moving the “5th” up an octave just as we did with the “A major moveable” shape in Fig. 14.6. Let’s take a look at the “E major moveable” chord shape that has the “5th” displaced up an octave.

Fig. 14.11  The E Major Moveable Chord Shape (Alternate)

The chord shape in Fig. 14.11 results in a more balanced sound as the guitar tends to get a little muddy in its lower registers. These same issues, in regards to balance, affect the piano as well and certain chord shapes that work in the middle register of the piano do not sound as balanced when placed in the upper registers. The same holds true for placing chord shapes, or voicings, in the lower register of the piano and the guitar is no different in this regard. In order to devise our seventh chord shapes for the “E major moveable” chord shape, we will follow the same pattern that was used with the “D major moveable” and “A major moveable” chord shapes.
How to Produce Seventh-Chords Using the E Major Movable Shape

Fig. 14.12

G

\begin{array}{c}
\text{G} \\
\text{Int.: 1 5 8 3} \\
(3)
\end{array}

Gmaj7

\begin{array}{c}
\text{Gmaj7} \\
\text{Int.: 1 5 7 3} \\
(3)
\end{array}

G7

\begin{array}{c}
\text{G7} \\
\text{Int.: 1 5 b7 3} \\
(3)
\end{array}

Gmin7

\begin{array}{c}
\text{Gmin7} \\
\text{Int.: 1 5 b7 b3} \\
(3)
\end{array}

Gmin7b5

\begin{array}{c}
\text{Gmin7b5} \\
\text{Int.: 1 b5 b7 b3} \\
(3)
\end{array}

F#maj7

\begin{array}{c}
\text{F#maj7} \\
\text{Int.: 1 5 7 3} \\
(2)
\end{array}
Seventh-Chords Using the E Major Movable Shape (Alternate)

Fig. 14.13

G

\[ \begin{array}{ccc}
  & x & x \\
(3)
\end{array} \]

Int.: 1 8 3 5

Gmaj7

\[ \begin{array}{ccc}
  & x & x \\
(3)
\end{array} \]

Int.: 1 7 3 5

G7

\[ \begin{array}{ccc}
  & x & x \\
(3)
\end{array} \]

Int.: 1 b7 3 5

Gmin7

\[ \begin{array}{ccc}
  & x & x \\
(3)
\end{array} \]

Int.: 1 b7 b3 5

Gmin7b5

\[ \begin{array}{ccc}
  & x & x \\
(2)
\end{array} \]

Int.: 1 b7 b3 b5

F#maj7

\[ \begin{array}{ccc}
  & x & x \\
(2)
\end{array} \]

Int.: 1 7 3 5
Conclusion

Now that we have made a mess of things let’s clean it up and review the essential parts of this lengthy discussion. Even though this chapter may seem lengthy, and thus confusing, it is actually comprised of a simple concept which always relates back to the three shapes of E, A and D. Each of these three shapes, even though they look different once placed upon the guitar, is exactly the same. They are the same because their intervallic make-up is comprised of a P1, P5, P8 and M3 from lowest sounding to highest sounding. As an interesting side note, this organization of tones is also the exact make-up, or order, of the overtone series.

1.) The E, A and D triads are each comprised of a P1, P5, P8 and M3.

2.) In order to create the standard voicing of a maj7 chord out of a triad one need only to lower the P8 by a half-step. This will result in a P1, P5, M7 and M3.

3.) The E and A triads are unique in that they have their standard voicing, as mentioned above, as well an alternative voicing where the P5 is relocated to the top of the chord. This results in a P1, M7, M3 and P5.

With the three concepts described in detail above you will be able to, with careful thought, quickly and easily devise a maj7 chord from a major triad. These three concepts presented above are crucial to creating any existing chord structure and therefore must be memorized. Once you are comfortable with these concepts you can then mutate the maj7 chord into the other 7th chords that exist within a major key structure.
1.) The **maj7** chord is the biggest 7th chord that exists.

2.) When the 7th of a **maj7** chord is flattened, by a half-step, it results in a **dom7** chord.

3.) When the 3rd of a **dom7** chord is flattened, by a half-step, it results in a **min7** chord.

4.) When the 5th of a **min7** chord is flattened, by a half-step, it results in a **min7b5** chord.

Within a major key structure the hierarchy of 7th chords, from largest to smallest, is **maj7, dom7, min7** and **min7b5**. If we used the tone “G” as the root for each of these chords we would have **Gmaj7, G7, Gmin7** and **Gmin7b5**. It is not the scope of this manual to discuss or clarify the vast world of music theory and chord construction principles. There are numerous texts which deal with music theory and all that it entails. It is highly advised that the serious guitar student delve into as many of these texts as one can in order to gain further insight into such a beautiful and important subject.
Chapter 15

HOW TO INVERT A SEVENTH CHORD

Background

When first introducing chord construction to a student it is best to present chords in an orderly fashion due to the complexity of the subject matter. Since tertian harmony is the main mode of chord construction we tend to conceive of chords as being a succession of thirds placed on top of a given note. Therefore, if we were trying to construct a chord with the name of “C”, we would accomplish this by starting with the tone “C” and then we would proceed to stack thirds above this tone such as the tones “E and G”. By doing this we are able to neatly organize in our minds eye the concept of a chord and its components. The tones “C, E and G” signify to a musician that we have a “C major” triad. The “C” is acting as the P1, which is then followed by an “E” or the M3 above “C”, and lastly we have the tone “G” which is functioning as the P5 above “C”.

It is not always clear to the novice that no matter how these tones are presented, or arranged by a musician, the end result of the tones “C, E and G”, upon the listener, will be a “C major” triad. This means that we could play, as a chord, the tones “C, E, G”; “C, G, E”; “E, C, G”; “E, G, C”; “G, C, E”; or “G, E, C” and all of these arrangements of tones will result in a chord that we, as musicians, would define as a “C major” triad.

When we arrange or rearrange tones of a given chord we are inverting a chord structure. Each time we invert we are changing the way that a chord feels even though the chord is not changing its name. Inversions have distinct flavors and are necessary in order to have smooth voice-leading when moving from one chord to another. Inversions might
sound quite confusing. Unwinding this Gordian knot will require many years of careful study to just begin the process of true mastery. However, let’s start with a few rules that will simplify this vast topic.

**Chord Inversion Rules**

1.) The tone that is lowest sounding at any given moment will determine the type of inversion that is being used or heard.

2.) A chord is said to be in “Root Position” if its lowest sounding pitch is the Root, or \( P_1 \), of the given chord.

3.) A chord is said to be in “First Inversion” if its lowest sounding pitch is the 3rd, be it a \( M_3 \) or a \( m_3 \), of the given chord.

4.) A chord is said to be in “Second Inversion” if its lowest sounding pitch is the 5th, be it a \( P_5 \), \( \text{dim}_5 \) or an \( \text{Aug}_5 \), of the given chord.

5.) A chord is said to be in “Third Inversion” if its lowest sounding pitch is the 7th, be it a \( \text{Maj}_7 \) or a \( m_7 \), of the given chord.

In order to make these concepts more clear, the next few examples will show how to invert \( \text{Maj}_7 \) chords which were previously devised in Chapter 14. Each example will begin with a \( \text{Maj}_7 \) in Root Position and will proceed to First Inversion, Second Inversion and lastly Third Inversion.
Dmaj7 Moveable Shape and its Inversions

Fig. 15.1

Please take note that even though we are using the moveable Dmaj7 shape that the actual chord heard is an Fmaj7. This is because the chord is beginning on the third fret of the “D” string which is an “F” tone. In a private lesson situation I do not show these inversions as seen in the above diagram. Rather, I have the student figure them out by understanding the principle behind these inversions. If you follow the intervals on the “D” string you will notice that when in “Root Position” the interval is the P1. The next
shape is in “First Inversion” and now the interval on the “D” string is the M3. When we move these tones up the neck again and create a “Second Inversion” shape the interval on the “D” string is now the P5. Lastly, in the “Third Inversion” shape the interval that is upon the “D” string is now the M7.

If you were to follow the “G” string tones as it moves from “Root Position” to “First Inversion”, “Second Inversion” and “Third Inversion” you will find the same concept is happening. In “Root Position” the interval that is on the “G” string is the P5. This P5 will move up to the next highest tone in the chord which will be the M7. The M7 will move up into the next position and become a P1. Finally, the P1 will move up to the “Third Position” and become a M3.

If this concept is understood by the student then they should be able to create the inversions that are seen above in Fig. 15.1 on their own. I encourage the reader to do the same as this is the true path to understanding these shapes and also the nature of inverting any shape on the guitar. Even though each of these inversions are made up of the same tones you will immediately notice that they do not feel or sound the same. Upon first doing this, our ears are usually shocked that these shapes/inversions are actually the same chord. It is highly advised to become very accustomed to the unique sounds created by each inversion so that the unknown, and thus strange, becomes familiar.

In the next diagram below we will look at the moveable “Amaj7” shape. Please remember that we have both standard and alternate versions of this shape as was explained in Chapter 14.
Amaj7 Moveable Shape and its Inversions (Standard)

Fig. 15.2

(Root Position)
Bbmaj7

(1)

First inversion
Bbmaj7

(3)

(Second Inversion)
Bbmaj7

(7)

(Third Inversion)
Bbmaj7

(10)
Amaj7 Moveable Shape and its Inversions (Alternate)

Fig. 15.3

As stated previously, the goal here should not be to look at the above diagram and memorize the shapes. Rather, one should create the inversions/shapes on their own starting from the “Root Position” shape. All one needs to understand is that each string is its own entity and that whichever interval is present on that string will become the next interval of the given chord when inverted. Therefore, in the case of a Maj7 chord as seen above a M3 (wherever it is) will become a P5, a P5 will become a M7, a P1 will become a M3 and a M7 will become a P1.
**Emaj7 Moveable Shape and its Inversions (Standard)**

Fig. 15.4

( Root Position)

**Fmaj7**

Int.: 1 5 7 3

(1)

( First inversion)

**Fmaj7**

Int.: 3 7 1 5

(3)

( Second Inversion)

**Fmaj7**

Int.: 5 1 3 7

(7)

( Third Inversion)

**Fmaj7**

Int.: 7 3 5 1

(10)
Emaj7 Moveable Shape and its Inversions (Alternate)

Fig. 15.5

(Root Position)

Fmaj7

(1)

Int.: 1 7 3 5

(First inversion)

Fmaj7

(3)

Int.: 3 1 5 7

(Second Inversion)

Fmaj7

(6)

Int.: 5 3 7 1

(Third Inversion)

Fmaj7

(10)

Int.: 7 5 1 3

It must be re-iterated that the goal is not to mindlessly memorize but rather to internalize the concepts presented above until they are fully comprehended and can thus be conceived in the mind’s eye. The shape is important, the sound is important and knowing which tone is which interval, in the overall chord, is also extremely important. If these things are truly understood then we can create many other chord possibilities using
these shapes alone. The next step would be to take your other chord shapes, **Dom7**, **min7** and **min7b5**, and then discover the inversions for these chords as well. The shapes for these will be shown below in the remaining diagrams in this chapter. However, it is highly advised that the student figure these out on their own so that they may gain confidence in their ability to comprehend these concepts.

**D7 Moveable Shape and its Inversions**

Fig. 15.6
A7 Moveable Shape and Its Inversions (Standard)

Fig. 15.7

(Root Position)
Db7

x
x

(4)

Int.: 1 5 b7 3

(First Inversion)
Db7

x
x

(6)

Int.: 3 b7 1 5

(Second Inversion)
Db7

x
x

(10)

Int.: 5 1 3 b7

(Third Inversion)
Db7

x
x

(1)

Int.: b7 3 5 1
A7 Moveable Shape and Its Inversions (Alternate)

Fig. 15.8

(Root Position)
Db7

(First Inversion)
Db7

(Second Inversion)
Db7

(Third Inversion)
Db7
E7 Moveable Shape and Its Inversions (Standard)

Fig. 15.9

(Root Position)
\[\text{A7}\]
\[
\begin{array}{ccc}
\bullet & \bullet & \bullet \\
\bullet & \bullet & \bullet \\
\end{array}
\]
Int.: 1 5 b7 3

(First Inversion)
\[\text{A7}\]
\[
\begin{array}{ccc}
\bullet & \bullet & \bullet \\
\bullet & \bullet & \bullet \\
\end{array}
\]
Int.: 3 b7 1 5

(Second Inversion)
\[\text{A7}\]
\[
\begin{array}{ccc}
\bullet & \bullet & \bullet \\
\bullet & \bullet & \bullet \\
\end{array}
\]
Int.: 5 1 3 b7

(Third Inversion)
\[\text{A7}\]
\[
\begin{array}{ccc}
\bullet & \bullet & \bullet \\
\bullet & \bullet & \bullet \\
\end{array}
\]
Int.: b7 3 5 1
E7 Moveable Shape and Its Inversions (Alternate)

Fig. 15.10

(Root Position)
A7

(First Inversion)
A7

(Second Inversion)
A7

(Third Inversion)
A7
Dmin7 Moveable Shape and Its Inversions

Fig. 15.11

(Root Position)
Fmin7

(First Inversion)
Fmin7

(Second Inversion)
Fmin7

(Third Inversion)
Fmin7
Amin7 Moveable Shape and Its Inversions

Fig. 15.12

(Root Position)
Dbmin7

(First Inversion)
Dbmin7

(Second Inversion)
Dbmin7

(Third Inversion)
Dbmin7
Amin7 Moveable Shape and Its Inversions (Alternate)

Fig. 15.13

(Root Position)
Dmin7

(First Inversion)
Dmin7

(Second Inversion)
Dmin7

(Third Inversion)
Dmin7
Emin7 Moveable Shape and Its Inversions

Fig. 15.14

(Root Position)
Amin7

(First Inversion)
Amin7

(Second Inversion)
Amin7

(Third Inversion)
Amin7
Emin7 Moveable Shape and Its Inversions (Alternate)

Fig. 15.15

(Root Position)
Emin7

(First Inversion)
Emin7

(Second Inversion)
Emin7

(Third Inversion)
Emin7
Dmin7b5 Moveable Shape and Its Inversions

Fig. 15.16

(Root Position)
Gmin7b5

Int.: x x 1 b5 b7 b3

(First Inversion)
Gmin7b5

Int.: x x b3 b7 1 b5

(Second Inversion)
Gmin7b5

Int.: x x b5 1 b3 b7

(Third Inversion)
Gmin7b5

Int.: x x b7 b3 b5 1
Amin7b5 Moveable Shape and Its Inversions

Fig. 15.17

(Left)

(Root Position)
Dmin7b5

\[
\begin{array}{ccc}
& x & x \\
1 & b5 & b7 & b3 \\
\end{array}
\]

Int.: 1 b5 b7 b3

(5)

(First Inversion)
Dmin7b5

\[
\begin{array}{ccc}
 & x & x \\
b3 & b7 & 1 & b5 \\
\end{array}
\]

Int.: b3 b7 1 b5

(7)

(Second Inversion)
Dmin7b5

\[
\begin{array}{ccc}
& x & x \\
b5 & 1 & b3 & b7 \\
\end{array}
\]

Int.: b5 1 b3 b7

(10)

(Third Inversion)
Dmin7b5

\[
\begin{array}{ccc}
 & x & x \\
b7 & b3 & b5 & 1 \\
\end{array}
\]

Int.: b7 b3 b5 1

(1)
Amin7b5 Moveable Shape and Its Inversions (Alternate)

Fig. 15.18
Em7b5 Moveable Shape and Its Inversions

Fig. 15.19

(Root Position)
Em7b5

(First Inversion)
Em7b5

(Second Inversion)
Em7b5

(Third Inversion)
Em7b5
Emin7b5 Moveable Shape and Its Inversions (Alternate)

Fig. 15.20

(Root Position)
Amin7b5

(First Inversion)
Amin7b5

(Second Inversion)
Amin7b5

(Third Inversion)
Amin7b5
BIBLIOGRAPHY


