

Introduction

The guitar has changed in many ways since it evolved away from its ancestors but the tuning system of six strings tuned EADGBE, which is fundamentally different from any other instrument, has reigned as the standard for hundreds of years. The reason for this is that no one has yet been able to improve on it, nor, as you will see, are they ever likely to. In fact, many players have taken this aspect of the instrument for granted without ever questioning it. When you consider that virtually everything that is played on the instrument gets "filtered" through this tuning system, it is ironic that of the millions of people who play, very few fully understand the reasoning behind the pitch selection of the strings. Yet, what could be more essential than a working knowledge of the instrument itself? Most guitar methods tackle bits and pieces of many subjects and present them collectively in the equivalent of baby steps. Fretboard Logic Vol. I will teach you a great deal about just one thing: how the tuning works out on the fretboard in terms of patterns.

First a little background is in order. In this introduction, we'll look at the different classes of tunings for stringed instruments, and then discuss monophonic versus polyphonic capabilities. Next we'll examine instruments that increment in one or two dimensions and some of the problems associated with interpreting music given the different designs. Finally we'll make some observations on ergonomics and the human interface, and conclude with a comparison of methods and a discussion of objectives.

There are two primary classes of tunings for stringed instruments. They are either symmetrical, meaning equal string to string intervals, or chordal, meaning tuned to a specific chord. For example, most of the string family, violins, violas, etc., are tuned symmetrically in 5ths. The electric bass is likewise tuned in straight 4ths. On the other hand, traditional five-string banjo tuning is GDGBD, making an open stringed G Major chord, and a pedal steel is tuned to either an E9th or a C6th chord. The guitar's tuning system is neither symmetrical nor chordal. It is literally in a class by itself. The notes EADGBE from bass to treble, result in the intervals of 4th, 4th, 4th, 3rd, and 4th. The tuning produces the intervals which create the pattern organization on the fretboard.

A **monophone** is an instrument which can only produce one tone at a time. If an instrument is **polyphonic**, it is designed to produce multiple tones simultaneously, making harmonic material such as chords and their voicings possible. Instruments of the brass, woodwind and string families are generally monophonic. Keyboard instruments such as pianos, organs, etc., are polyphonic. Normally, monophones are played in groups such as brass bands, string quartets, and symphony orchestras. The members of the string family, including violins, violas, cellos, etc., given multiple strings, can produce more than one or two notes at a time,

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but the curvature of the bridge makes playing more than two simultaneous notes impractical in continuous use. Even with a relatively flat bridge, the guitar would have a similar problem given the limitation of four fretting fingers, if not for the difference in tuning systems. The pattern organization produces an optimization of four fretting fingers, and therefore a practical polyphony.

Another difference in overall instrument design concerns whether the notes increment in only one or two dimensions. On a keyboard, the notes get higher or lower in only one dimension (right to left). On a violin, the notes increment in two dimensions creating a matrix of the playing area. In a matrix, there can be several duplicates of the exact same pitch, whereas on a keyboard, there is one and only one of each. When reading for a matrix instrument, a designation or a choice must be made to determine which of the available duplicates is to be played. However, the symmetry of the tuning means that the musical patterns, such as whole step, whole step, half step, etc., will continue to apply from position to position and string to string, making certain note choices more logical than others. Put another way, the shape of, say, a minor scale will be the same on any string and in any position. The odd interval on the guitar prevents this. With piano, there are several one-to-one correspondences which simplify things for the person reading music. One finger plays one key, producing one pitch, represented by one dot on the staff in standard notation. On guitar, a separate designation is often necessary to specify the string upon which a note should be played. It would appear that since the guitar increments in two dimensions, producing multiples of most notes, combined with the irregular intervals which eliminate musical symmetry, that we are provided with the worst of all possible worlds in terms of design. That would be true only if you attempt to understand the guitar in terms of the matrix of the violin, or the polyphony of the keyboard. The guitar cannot be truly understood in terms of either the violin or the piano except by contrast and comparison (although I am convinced that many teachers and guitar method authors have attempted both).

A major premise of this method is that the issues of the guitar should be understood separate from the issues of music for learning purposes. They are always at work together while playing, but while learning, they are best kept apart in one's mind. The guitar is imbued with a pattern organization which can be considered an ergonomic interface between the player and the music he or she plays. On the instrument side, the patterns are the interface for the four fretting fingers as output devices. On the music side, the tone groups and rhythms combine to produce a vibratory interface for our ears as input devices, which we perceive as music of differing quality and character. Those qualities and characters in turn become perceived as styles and physiological messages to which we respond as human beings given our own background and development. The fretboard, to repurpose the old tire ad, is where the rubber meets the road. If you're familiar

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with computers, think of a piano keyboard as a hardware interface. By contrast, the guitar's should be considered a software interface, and not so obvious. The concept of interface can also be related to the typewriter keyboard in an interesting, if somewhat bizarre, way. Most people never question why each key is placed where it is on a typewriter or computer keyboard. If asked, they usually think what is termed the "QWERTY" organization, was developed for speed and ease of typing. In fact, the reverse is true. The mechanical linkages of the old style typewriters were easily overrun and jammed by an average typist. The designers were unable to come up with a speedier design, so some "Dilbertian" engineer hit upon the idea of slowing people down. The typewriter interface was designed to actually slow down the user to prevent key jams. Fortunately, the guitar's interface was designed to improve output, unlike the typewriter keyboard.

Fretboard Logic was developed to help guitarists achieve their musical goals regardless of whatever style of music or type of guitar is preferred. By becoming acquainted with the guitar's interface, you'll be able to apply other areas of study in a more organized manner. A large percentage of guitarists are self taught and rely on gathering random nuggets of information from here and there without much in the way of a game plan. Unfortunately, a thorough grasp of the fretboard layout is not really the kind of thing that you can pick up off a recording, or learn from a friend. It tends to get lost in the sauce, as the cook said.

Most guitar books fall into three categories: Popular arrangements, methods and what can only be termed reference books. Many books that are advertised as teaching methods are actually only useful for occasional reference material, since the material is not presented with any semblance of organization or structure. The attitude of the authors seems to be, "You figure it out." Fretboard Logic is not just another mindless "chord encyclopedia" or redundant "scale and mode" book. How chords and scales work out on the guitar is actually explained in terms of the fretboard pattern organization. On the other hand, a lot of guitar methods overwhelm even dedicated students by trying to cover reading, theory, technique, repertoire, style, etc., all at one time but on a simplified level. Many teach songs that are of no interest except perhaps, to small children. Books that are style oriented such as rock, heavy metal, blues, jazz, country, and classical methods, often do much the same thing, limiting the focus to certain kinds of music, guitars, techniques and/or artists. The problem with this is they often try to do too much at one time without proper foundations, and frequently students just drift away, perhaps blaming themselves for lack of talent. And another thing. Educational publishers prefer to use public domain material since they don't have to pay out composer royalties. Maybe you don't want to play songs that were a hit 75 years ago. The classic one for this is the kid who went into his first guitar lesson dreaming of "Eruption" and came out playing "Go Tell Aunt Rhody."

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With all that said, I want to conclude with some observations that may surprise you. As a practicing guitarist, I am of the firm belief that no one else can make you a better player. It is up to each of us as individuals to stand out among the others. There is no method, gimmick, book or video which has the ability to make you play better or worse. Being a quality player means continually practicing and playing with the intent of improving, never giving up and often sacrificing much in the process. You can't substitute a few weeks or months of intense effort for years of sustained effort. That's not even the worst of it. It is all too easy to lose the hard won ground gained by sustained practice, to a few weeks or even days off from the grind. Ok, so you're thinking, "Well, what about those self-taught guys who never read a book or took a lesson and play better than a lot of guys who've taken lessons for years?" As far as I'm concerned, any guitarist can reasonably claim that he or she is self-taught even if they've taken years of lessons and read countless books. The reason is that only we as individuals can make that all important leap from theory to practice, and practice to perfection. Also, it comes easier for some than others.

I see Fretboard Logic as a kind of rosetta stone for guitar players. In other words, it is merely a learning tool. On the other hand, it won't make anyone a better player until they find a way to use it to produce music that other people want to listen to. Each of us has to find our own way to make that happen.