CAGED in Practice

Chris Brown

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Abstract

This is my initial super-naive foray into this issue. It does NOT do what I wanted. For that, see the more recent “one page caged” paper, which gives an algorithm for finding any chord anywhere on the guitar neck. If this early thinking helps motivate that, great, but if you want to cut to the chase you know where to go.

What would Gene Bertoncini do? First, I have no earthly idea, but second, certainly nothing like this. What would a music theorist do? Same answer. My goal is to avoid theory (too hard for me) and to avoid musical talent (I’ve no choice) and to see how a few simple rules allow chords to be placed in five different positions per octave.

1 Readers’ Guide and Motivation

If you only have two minutes, Figs. 3 and 5 really say it all. Figs 6 – 8 are where I’m heading; movable progressions as well as movable chords.

How many possible guitar chords are there? It depends on how you count, of course. One overestimate is to ignore what strings are plucked, assume you can choose whether to fret a string with your thumb or not, then that you choose to fret 4 of the remaining 5 strings, for each of which you can choose one of 5 frets or open. That would be \(2 \cdot 5 \cdot 5^4 = 6250\) “chords”. The number that actually make musical sense and are also playable is much fewer, of course, but we’ve all seen inch-thick catalogs of guitar chords. My goal is to reduce the number of things we have to think about to some small number – like five.

For me, the CAGED system answers the question: how do I produce a particular chord at an approximate position? (Music theory being what it is, CAGED may do much more.) The system simplifies what you have to remember for this task. If you’re lucky and talented you don’t worry about this stuff intellectually, you just do it. I’m not lucky that way: I worry.

The CAGED system doesn’t seem to be a panacea. It does not offer a perfectly smooth, uniform recipe for everything we want to know. For one thing, I suspect that the range of chords produced from these shapes is not inclusive (I bet there are lots of useful chords, including lots of non-barred ones, that are not most naturally explained as simple evolutions of these shapes). For another, the natural evolution of a CAGED shape to get chord modifications like minors doesn’t always work (See Section 4). Also, as we’ll see, there are variations (that must be memorized) in just where to place the CAGED shapes on the neck. Also, I find it hard to barre above the 10th fret.
2 Assumptions and Overview

I’m assuming you’re a guitarist and you know about scales, triads and seventh chords derived from scales, major and minor keys, and maybe the circle of fifths [2]. As usual I use upper-case letters for major keys and scale degrees (D, IV), lower case for minor (b, vi).

What follows is my attempt to derive chord-progression exercises (Figs 6 – 8). CAGED is really about producing the same chord in different positions by systematically changing how it is fingered. The basic main result is shown in Fig. 3. I am in fact hoping that I (and you) can forget literally everything that’s in this paper and only remember the results of the exercises, which are chord shapes linked in time, automatically, almost subconsciously adaptable to any key. How much of such a happy outcome would be due to skull-sweat, how much to practice, how much to talent, and how much to the CAGED method I have no notion.

3 The Major CAGED Shapes

Fig. 1 shows the building blocks, always called shapes. Chords are what you get when you fret a shape at a position and play. In this paper, “first position” means bar location zero. As far as I can tell, 2nd position means bar location two. There does not seem to be a corresponding position name for bar location one. For two and above, I take position to equal bar location. Back to the shapes — These shapes produce our favorite simple C, A, G, E, D (major) chords (hence the acronym) in the first position, and they have the distinction of being movable up the neck via the bar (or barre, as we French say), and (more or less) being simply modified to minor, seventh, etc. forms.
4 Some Minor and Seventh CAGED Shapes

Applying the simplest, uniform rules to the CAGED shapes (drop the third for minor, add the flatted 7th or drop the root for the dominant 7th chord, or both), we can get some other simple shapes. Of course there are five types of seventh chords but here I stick to one. Not being Bertoncini nor even having a big chord encyclopedia, I have zero clue whether people really use these shapes or what other better shapes or shape variations exist.

Of course there are tons of suspended, 9th, 11th, 13, flat 5, split chords, etc. Since the CAGED method is really about making the same chord in a different position with a different shape, it should be useful for more advanced chords too.

In any event, things go wrong with my simple rules for the G and C chords. We sometimes wind up with possibly usable patterns (see caption), but not always.

![Figure 2: Simple Minor, Dominant Seventh, and Minor Seventh Shapes. C: C can be barred up the neck, maybe c too, but awkward fingering on string 1. C7 doesn’t need a bar but that loses str. 1 and 6 in general. c7 gives several choices, can bar the lower frets, pick strs. 1 and 3 or 3 and 5: should bar upwards OK. A: textbook simplicity. G: g very awkward: use D, E, or A shape instead. g7 rather weird: lots of choices, can pick a combination you like or use another shape. E. Textbook. D. Textbook but as always, 6th string is tacit in all shapes.](image-url)
5 The Major CAGED Chords

Our obvious **Basic Principle:** *Moving a shape up a fret raises the corresponding chord root by a semitone.*

*E.g.,* a C shape barred at fret 2 gives a D chord.

From this principle flows a not-as-obvious **Corollary:** *Putting the CAGED shapes end to end, in that order, and rotating them generates all the CAGED-shaped chords on the neck.*

Thus you can find five each of C, A, G, E, and D chords (Fig. 3) at or below fret 12. Thus we have our first opportunity for practical exercise: learn to find the CAGED chords all over the neck. The slight perturbations of the bar positions are annoying.
Figure 3: The guitar neck, nut to left, with C,A,G,E,D major chords overlaid (top to bottom): watch the C and D overlap. Learn!
6 Un-CAGED Keys

What about a B chord? What about a G♭ chord? Generally how do we answer questions like: "How do I play a chord with root X at or near position Y?"

First, note that Fig. 4 is really just another version of Fig. 3: it illustrates the Corollary of Section 5. So you can read off it that if you want to play a G chord in fifth position use a D shape, barring on fret 5.

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Figure 4: What shape to use, given certain bar positions (column) and desired CAGED root (row).

Now we can use the Basic Principle of Section 5 to extend our result to all roots. Fig. 4 shows shapes stepping up the neck (to the right) to produce higher chords (up the scale on the left).

To use the table in Fig. 5, choose a root (row) and your desired bar position (column), and look in table for the shape. If you find a blank, you can use the shape to the left or the right on that row in its indicated column. E.g., you want a B♭ chord in sixth position — you find an exact solution: bar at sixth fret and use an E shape. You want a F chord in 7th positions: no luck, but you can use the A shape at fret eight or the C shape at fret five.
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Figure 5: What shape to use given an approximate bar position and any desired root.
7 Some CAGED Cadence Progressions

Any major melody can be harmonized with I, V, IV chords, but the result is often boring. Bluegrass, lots of (non-Irish tradition) folksongs, some rock, and some blues are based on I, V, IV chords (but make liberal use of others!).

Chords often come in predictable progressions, especially cadences (strong endings to phrases or pieces). For the I, V, IV harmonizations a usual cadence is IV, V, I.

Jazz tends to use circle of fifths progressions, implying the cadence ..., iii, vi, ii, V, I. Your favorite theory book will tell you more. (My two favorites are [1; 2].)

Applying what we have done so far to the idea of cadence progressions gives us some new exercises. Navigating along the dashed arrows in Figs. 6 – 8 should build up little muscular-spatio-temporal routines (skills, licks,...), which may help in reading and playing music smoothly. Chord numbers (ii, V) are general, but names (G, e) refer to the chords for shapes in first position. Practice all positions!

My assumption here is that we want to remain in approximately the same position for these progressions. This makes for boring backup if done for too long, and dramatic shifts are part of the art, but maybe we can think of those shifts as punctuation between the more restricted positioning of these exercises.

The reader could extend these cadential mini-exercises off to the left by adding more chords in the progressions. Work out favorite or useful progressions. Obvious ones are further excursions around the circle of fifths, or the popular (seemingly ubiquitrous) “Pachelbel Progression”: I, V, vi, iii, IV, I, IV, V. Wiesenthal suggests... e7, A7, D, d7, G7, C, c7, F7, B♭,... [3].

8 Conclusion

We’re done. To play a progression around a particular position in a particular key, find the key in the column labels of Fig. 5, find your desired root bar location in the row labels, and use the progression in Figs 6 — 8 corresponding to the shape you find in that row and column of the table. c’est tout. All you need to do is make it “automatic”. Put this paper under your pillow, sure, but don’t forget to practice a bit too.

9 Future Work: A Minor Modest Proposal

All the work of this paper could be re-worked for the minor keys. The triads induced by roots in a major scale (and assumed in this paper) are I, ii, iii, IV, IV, vi, vii°. For a minor key you’ll need i, ii°, III, iv, V, VI, vii°. Then there are a handful of modes to consider! Since the chord shapes (i.e. Fig. 1) vary, this whole blamed exercise needs to be redone unless there’s some sort of meta-shortcut. I expect there actually will be such a shortcut, or mental breakthrough, that allows generalization without all this explicit intellectualization. That is, I hope the work proposed so far can help internalize some principles that should then be easier to apply in new contexts.
References


Figure 6: Some C and A Cadence Progressions. In A, we’re in trouble with c# so use e shape. Practice all positions.
Figure 7: Some G and E Cadence Progressions. More trouble with g# etc. Practice all positions.
Figure 8: Some D Cadence Progressions. Practice all positions.