Cascading Harmonics for Classical Guitarists

The technique of cascading harmonics (or harp harmonics) is a very unique harmonic technique seldom heard in classical guitar playing. Steel-string players use them more frequently. Cascading harmonics have been used very effectively by guitarists such as Chet Atkins, Lenny Breau, and Tommy Emmanuel.

Watch Tommy.

Tommy Emmanuel describes cascading harmonics as a "waterfalling sound"—the notes trickle down in a stream of sound. In its basic form, it is a sequence (usually fast) of a right-hand harmonic plucked by the thumb followed by a non-harmonic note plucked with the "a" finger. They are most effective when the left hand holds some form of a lush 9th, 13th, diminished, or augmented chord. The basic right-hand sequence may be extended with slurs (hammer-ons and pull-offs), artificial harmonics, and other techniques, all of which I will describe and demonstrate for you in this tech tip.

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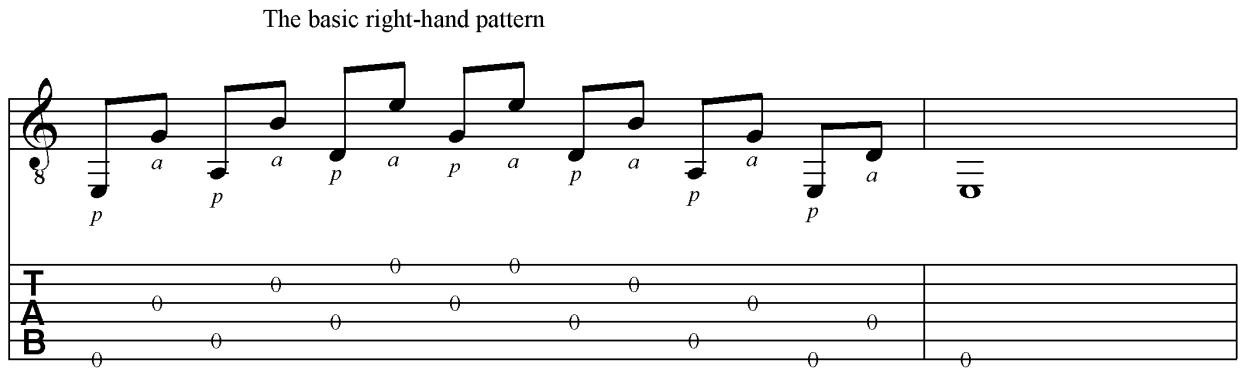
Watch this overview of the basic sequence on an E dominant 9th chord: (Video clip #1)

Example #1 shows the right-hand pattern on open strings:

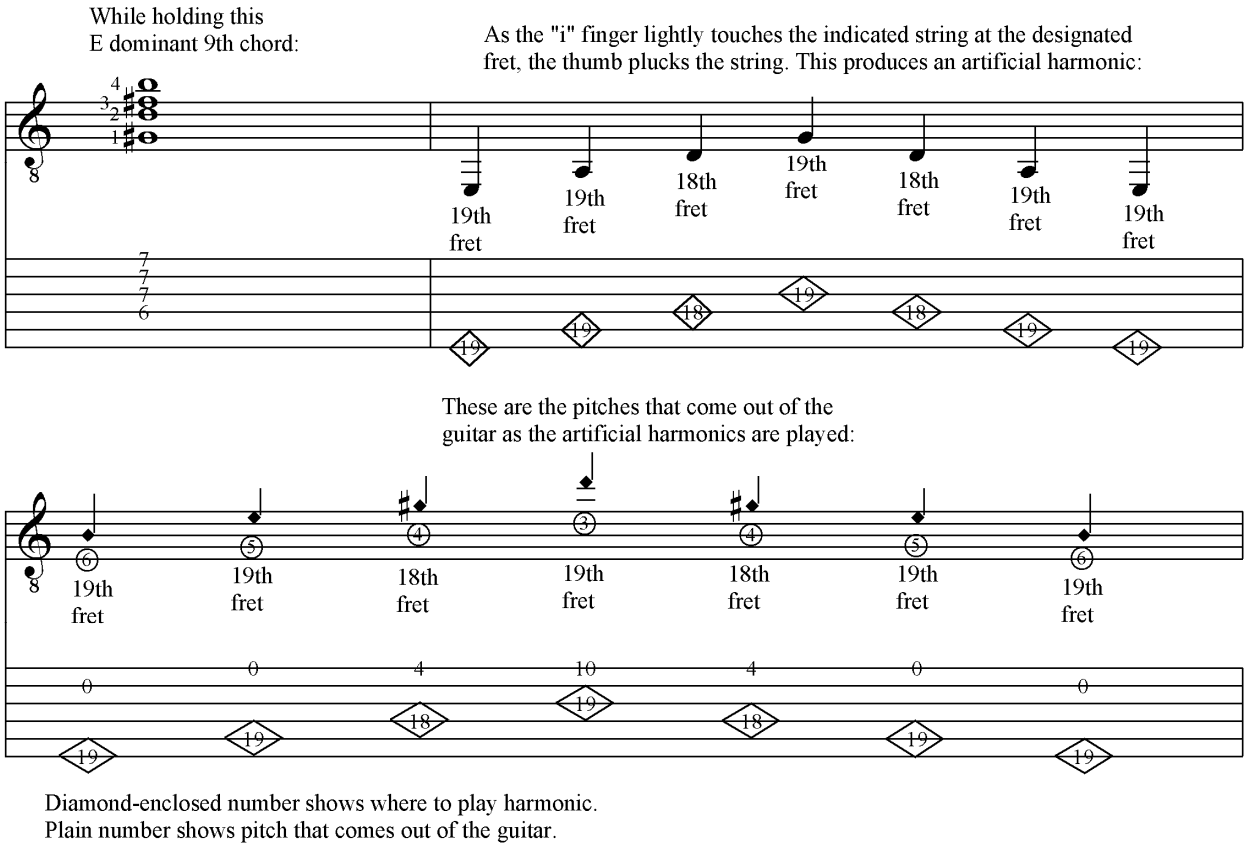
Example #1



Watch the video of this basic pattern. (Video #2)

Here in example #2 is the chord I was holding in the overview and the right-hand artificial harmonics I played:

Example #2

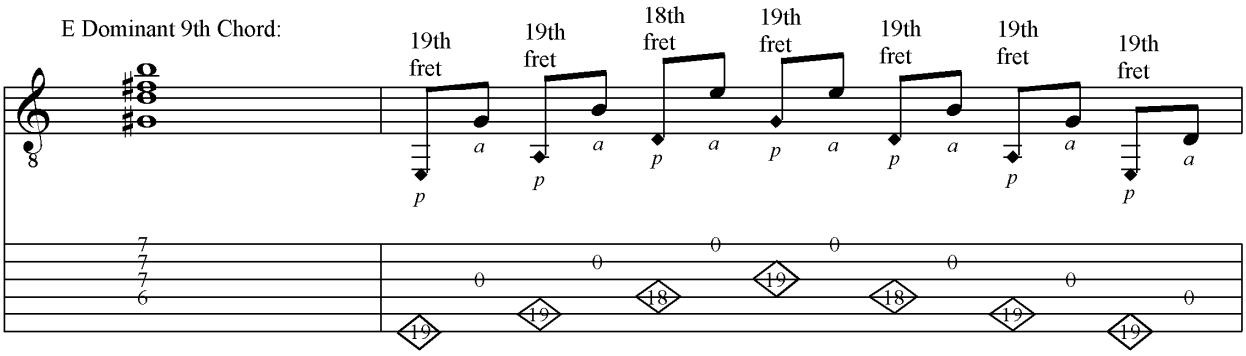


Watch my video #3.

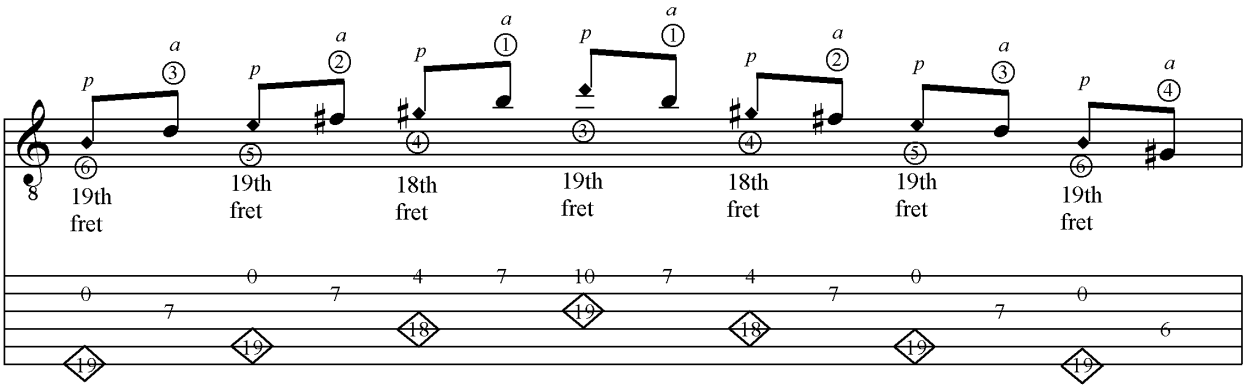
Next, the non-harmonic notes are inserted between each harmonic note:

Example #3

While still holding the E dominant 9th chord with the left hand and plucking the artificial harmonics with the thumb, the non-harmonic notes are inserted, plucked by the "a" finger:



These are the actual pitches heard while holding the E dominant 9th chord and playing the strings indicated in the example above:



Diamond-enclosed number shows where to play harmonic.
Plain number shows pitch that comes out of the guitar.

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Watch me demonstrate in video clip #4.

Cascading harmonics are very difficult to execute well. Tommy Emmanuel, a master of the technique, says “it takes years to get this sounding right, i.e., with the right balance between open note and harmonic”.

Unfortunately, they are far more difficult to execute on the classical guitar with its high action than on a steel string guitar with its low action. And, the harmonics don't ring as clearly when plucked with the thumbnail on nylon strings as they do when plucked with a thumbpick on steel strings.

So, we classical guitarists have our work cut out for us. Let's get started.

WARNING: Do not proceed with this technique if you have not watched my previous video tech tips on natural harmonics and right-hand harmonics. It is essential that you know and have mastered the detailed information in those videos before attempting cascading harmonics. I am assuming you have all that information under your fingers. In this article, I will mention very little of the underlying techniques required to play these cascading harmonics.

Mastering the Right Hand Alone

I recommend learning to play cascading harmonics at the 19th fret. Many books and videos demonstrate them at the 12th fret. For the classical guitarist, practicing at the 12th fret tends to produce right shoulder and arm tension. Practicing at the 19th fret lessens the tendency to tense the right shoulder and keeps the right arm in a fairly normal position.

This is important because you will need to practice endless repetitions of these exercises over a period of months. You do not want to practice and develop a habit of tensing up when you play these harmonics. Plus, you will be able to practice the exercises in a single practice session for a longer period of time with no discomfort if you practice them at the 19th fret.

Watch video clip #5 on practicing at the 19th fret.

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The Ascending Cascade

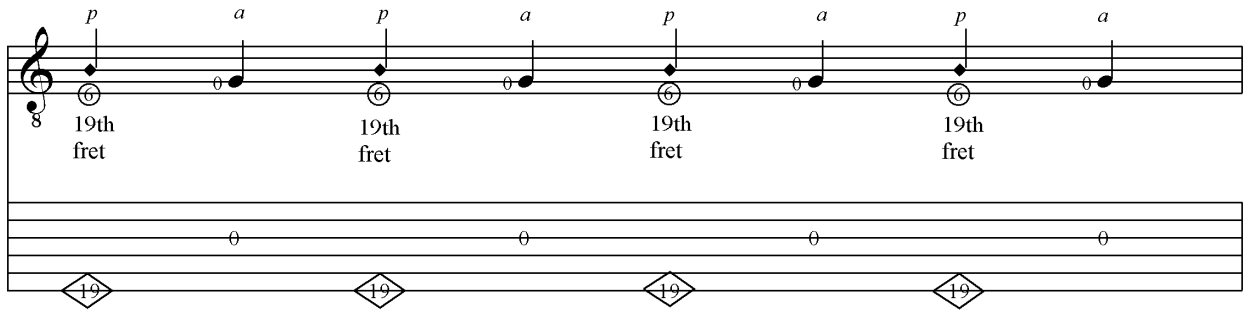
In the following video, I demonstrate how to put together the ascending section of a harmonic cascade. I also repeat the importance of practicing your beginning exercises at the 19th fret.

Watch the video first to get an idea of what you are trying to accomplish. Video Clip #6.

Now, follow the detailed instructions that follow.

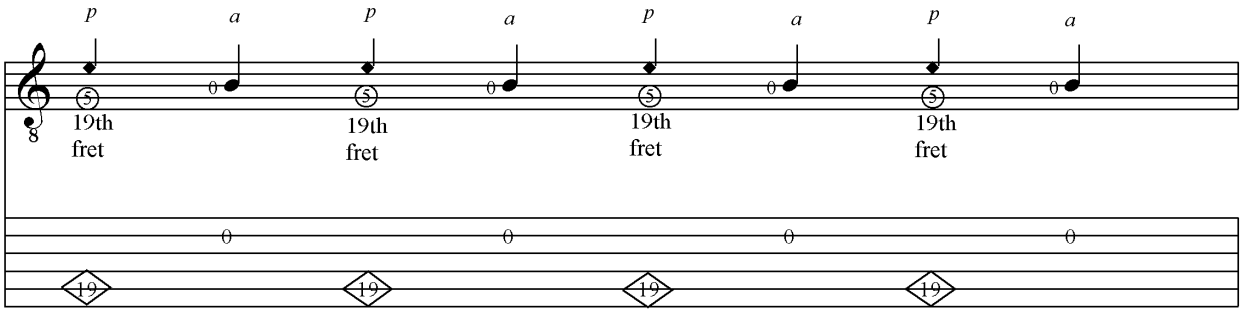
We begin by practicing with just the right-hand thumb plucking the 6th string harmonic at the 19th fret followed by the “a” finger playing the open third string (Example #4):

Example #4



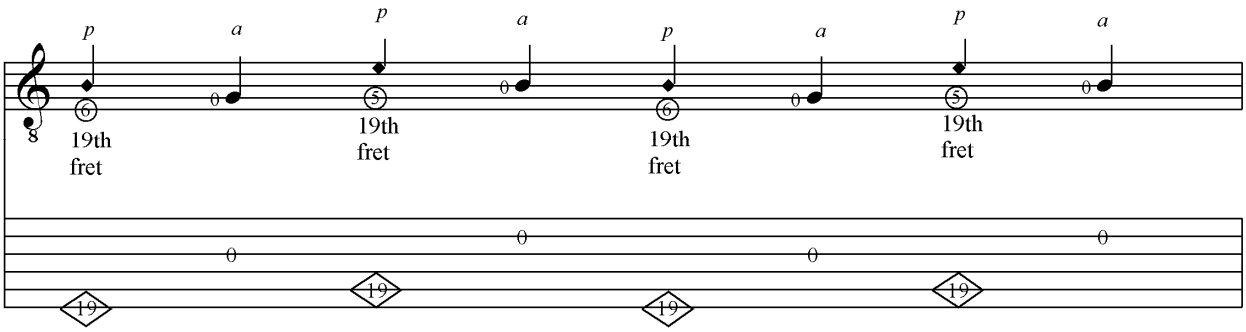
Then, practice the right-hand thumb plucking the 5th string harmonic at the 19th fret followed by the “a” finger playing the open second string (Example #5):

Example #5



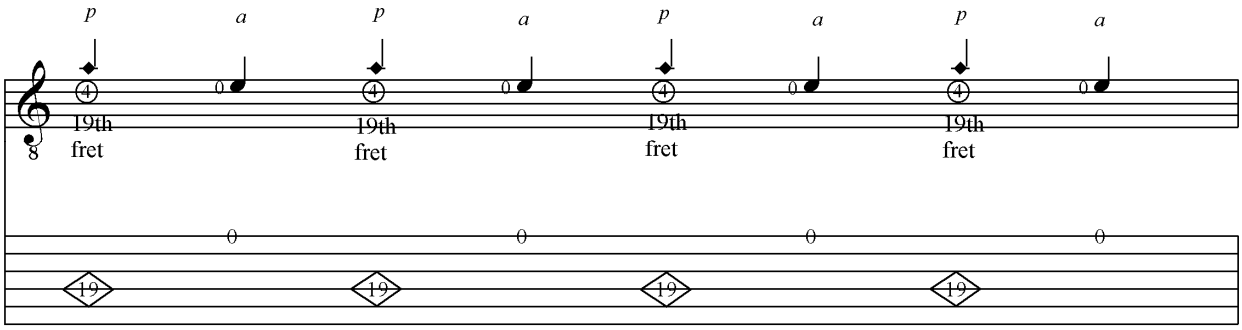
Then, combine those two steps (Example #6):

Example #6



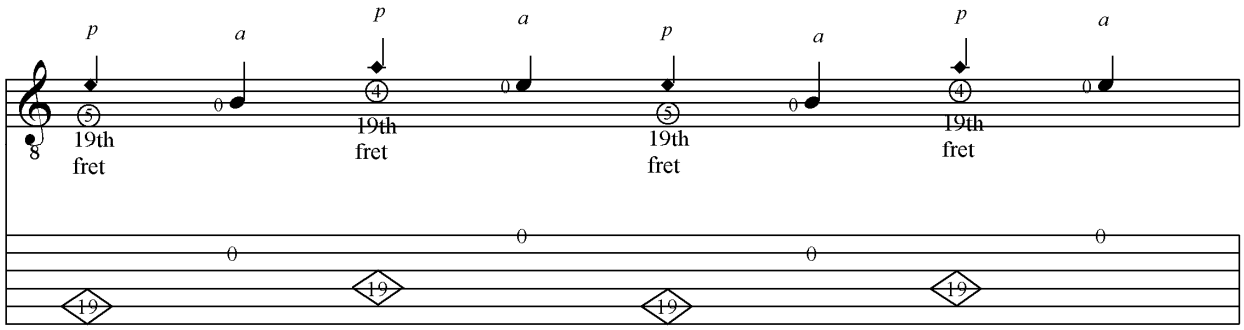
Next, practice the right-hand plucking the 4th string harmonic at the 19th fret followed by the "a" finger playing the open first string (Example #7):

Example #7



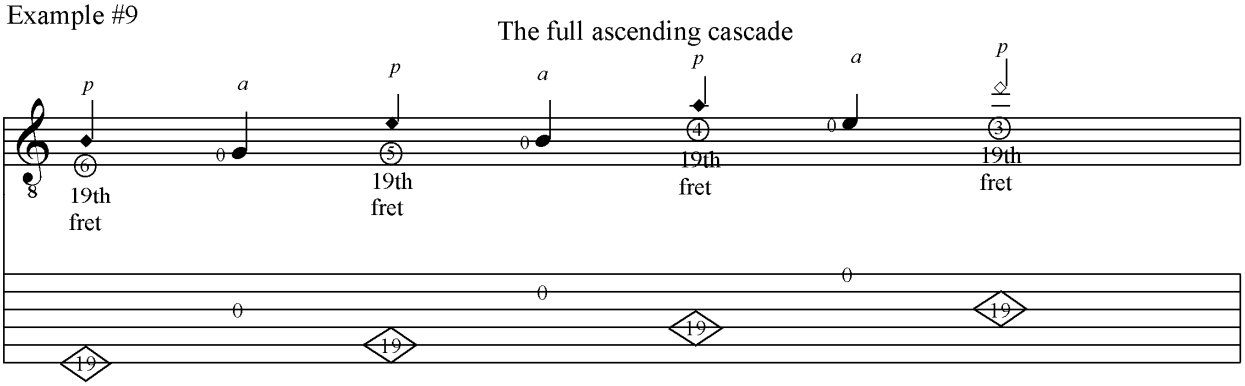
Then, combine those two steps (Example #8):

Example #8



Finally, combine all the steps into a full ascending cascade (Example #9):

Example #9



Do not be concerned with speed until you have mastered the clarity of the harmonics and can balance the volume between the harmonic notes and the non-harmonic notes.

When it's time to work for speed, begin again with the basic combinations illustrated above. Start each one slowly and then speed up as fast as you can without losing control.

Note in the video that a wide space is maintained between the index finger "shooting" the harmonic, and the thumb plucking the string. Also note the importance of keeping the "a" finger in position very close to the 3rd string.

One of our major goals is to match the volume of the harmonic and non-harmonic notes. The one thing most people get wrong is this: they try to play the harmonic louder to match the volume of the non-harmonic note. It should be the other way around. ***Pluck the harmonic with just enough force to make it ring clearly without a percussive thud and play the non-harmonic note with the "a" finger very quietly to match the harmonic. They should sound almost exactly equal.***

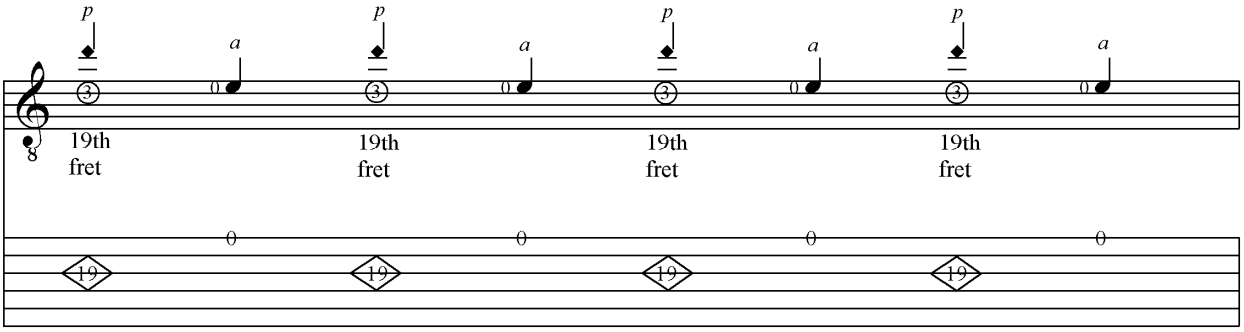
The Descending Cascade

Watch all the steps on learning the descending cascade and combining the ascending and descending into a full cascade in video clip #7.

Now, follow these detailed instructions.

Begin the descent of the cascade by plucking the third string harmonic at the 19th fret with the thumb followed by the "a" finger plucking the open first string (Example #10):

Example #10



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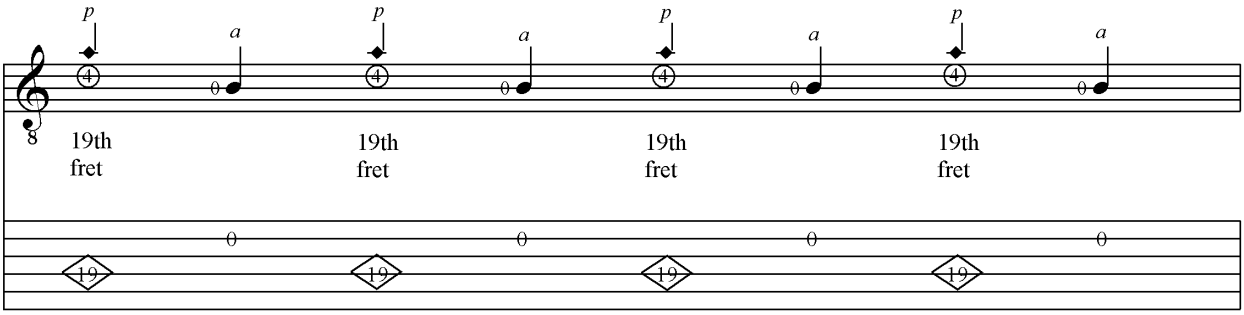
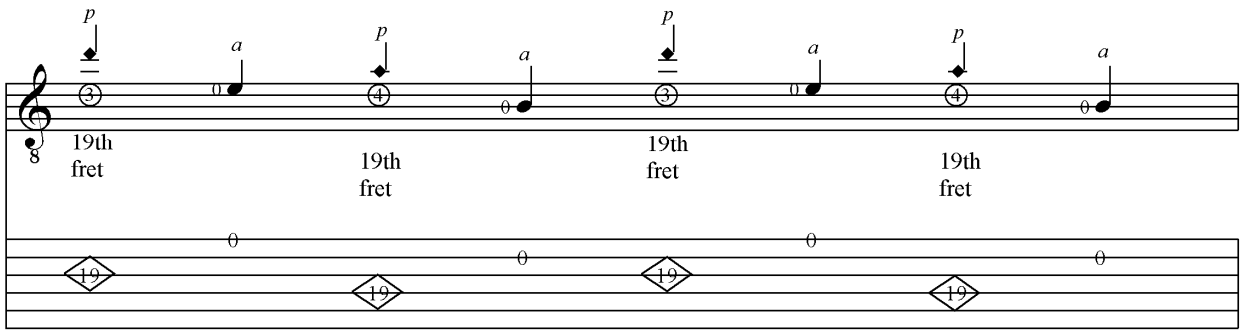
Next, pluck the fourth string harmonic at the 19th fret with the thumb followed by the “a” finger plucking the open second string (Example #11):

Example #11



Then, combine those two steps (Example #12):

Example #12



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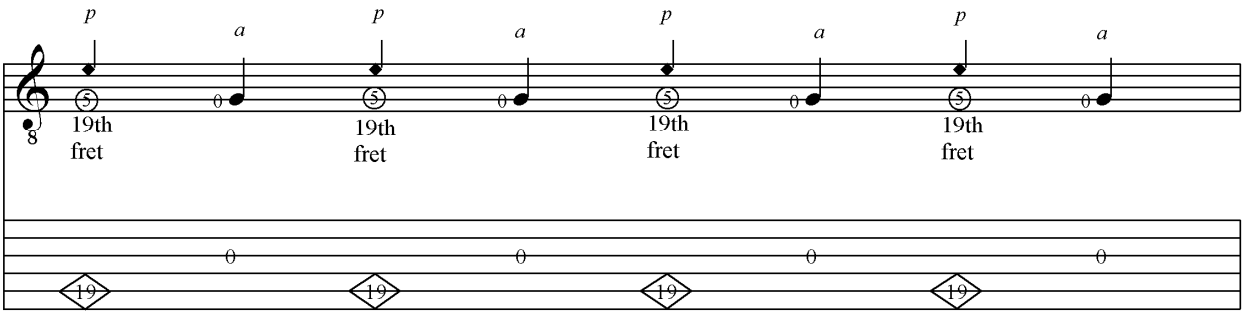
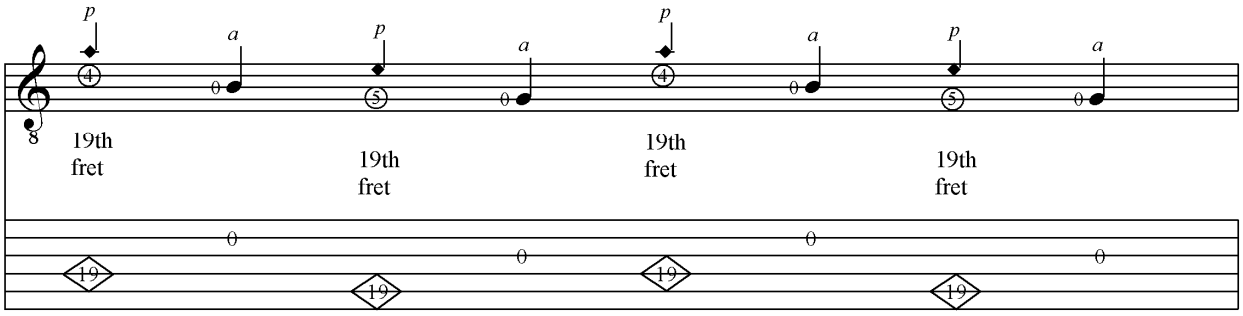
Move onto the next combination. Pluck the fifth string harmonic at the 19th fret with the thumb followed by the “a” finger plucking the open third string (Example #13):

Example #13



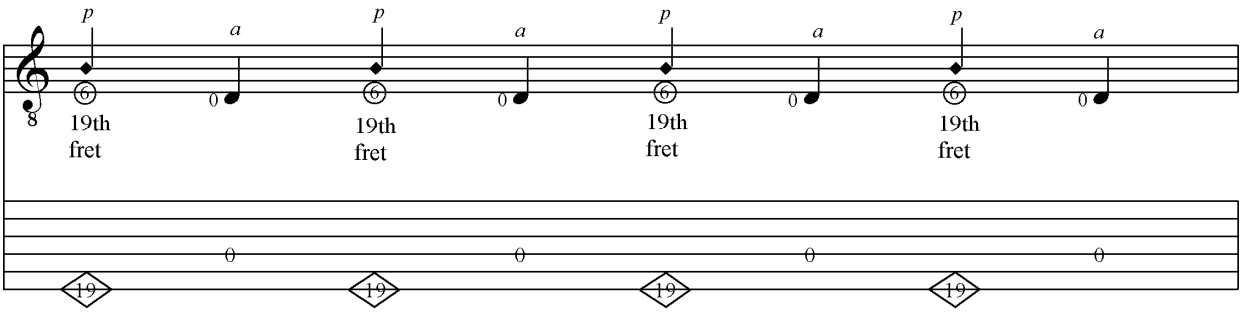
Now, combine those two steps (Example #14):

Example #14



The final combination is to pluck the sixth string harmonic at the 19th fret with the thumb followed by the “a” finger plucking the open fourth string (Example #15):

Example #15



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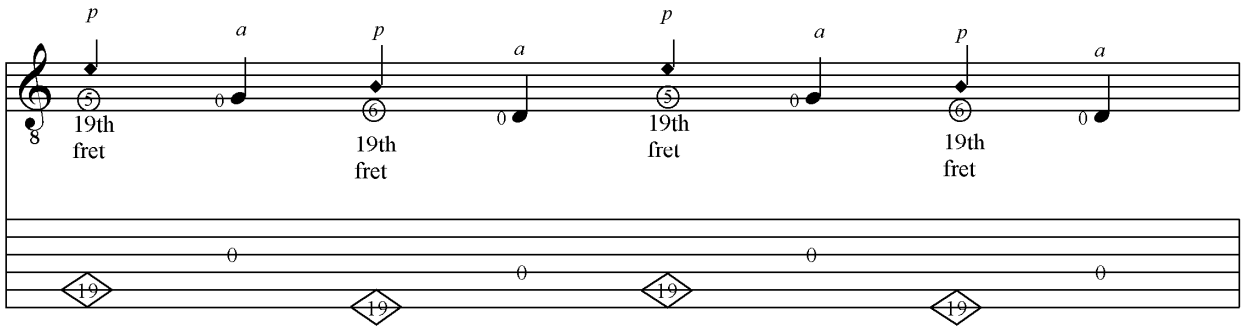
You may notice that the “a” finger plucking the open fourth string makes a scratchy sound. That is the fingernail scraping across the windings of the string. You won’t be able to eliminate the noise entirely. Thankfully, when the full cascade is played, the scraping sound is less noticeable.

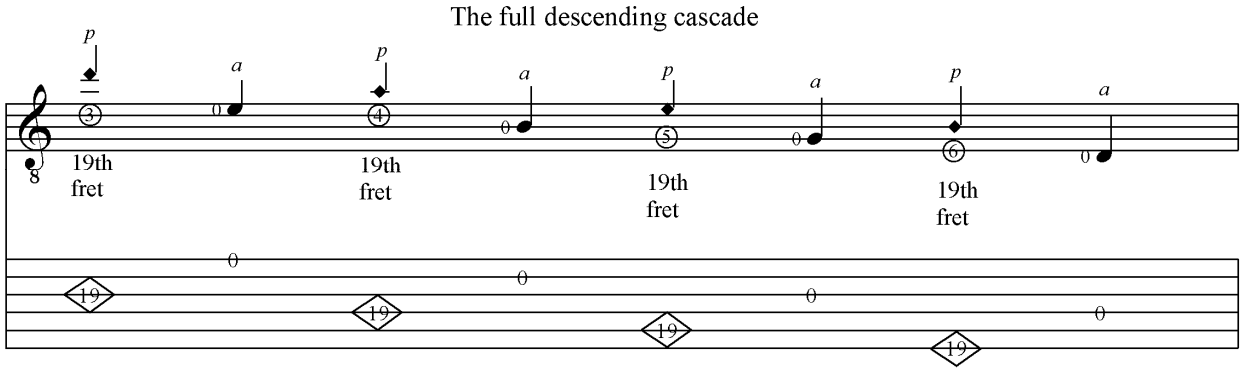
Now, combine this combination with the previous one (Example #16):

Example #16



Now, you can practice the entire descending cascade (Example #17):

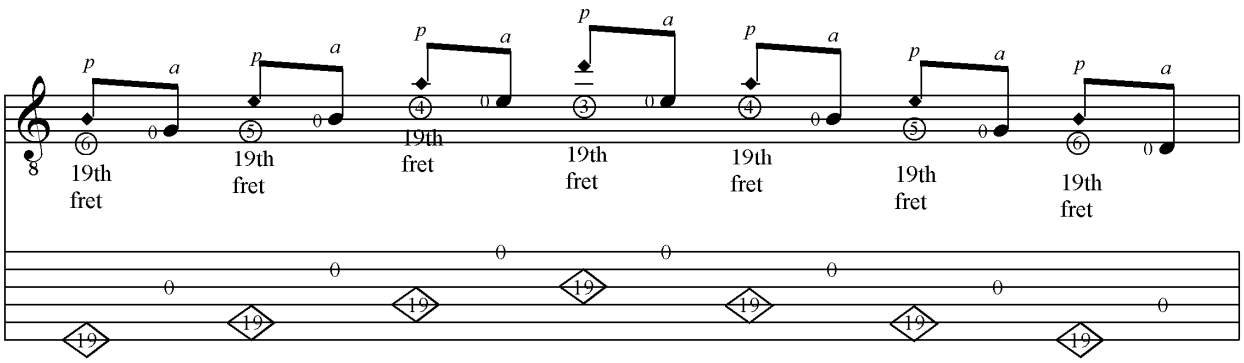
Example #17



Next, combine the ascending and descending cascades into a complete cascade (Example #18):

Example #18

The complete harmonic cascade



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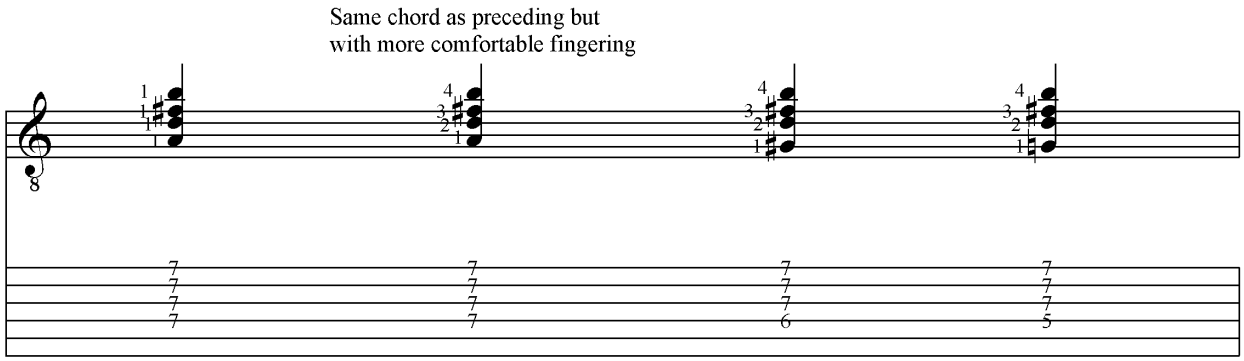
Adding the Left hand

In the next video clip, I demonstrate the step of stringing several cascades together.

Then, I introduce using the left hand to hold chords while executing the basic harmonic cascade pattern. The chords I use in this video clip are (Example #19):

Example #19



Watch the video demonstration in Video Clip #8.

Adapting the right hand technique to the chord held by the left hand. How to practice.

In the next video clip, I demonstrate how the right-hand pattern changes according to what chord you hold with the left hand. I also show in detail how to practice these changes.

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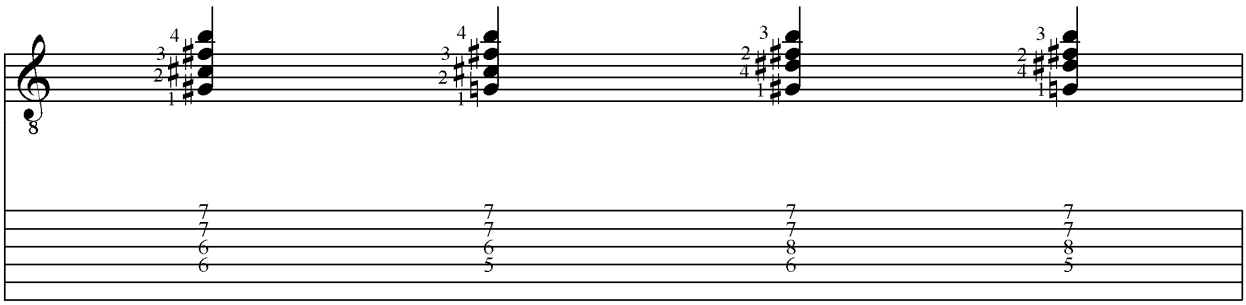
Here are the chords I'm using (Example #20):

Example #20



Watch how to do this in Video Clip #9.

Extensions of the Cascade

Sometimes you may want to extend the duration of a cascade. This can be done in several ways.

Watch this video as I demonstrate the first two methods of extending a cascade: the three-note roll and the addition of artificial harmonics at the end.

Three-note roll

This is the notation for a three-note roll of the bass string. This is added before the first harmonic is plucked (Example #21):

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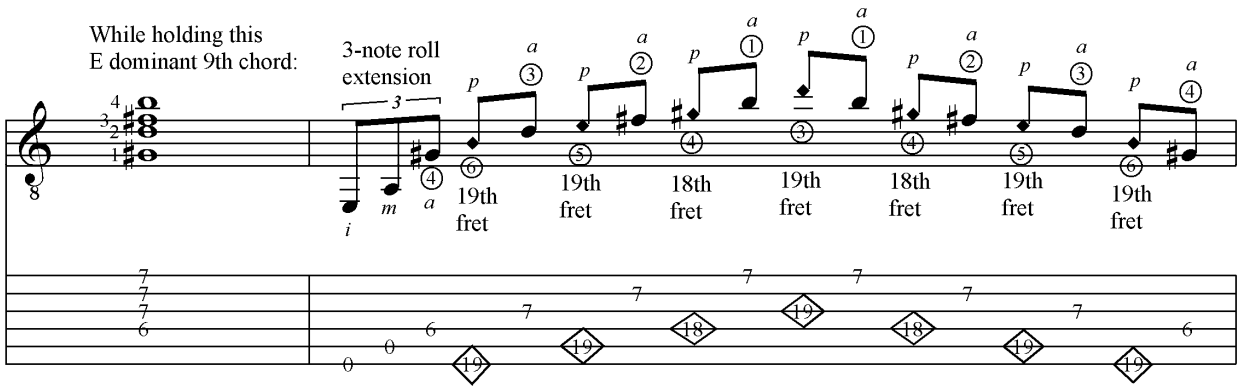
Example #21

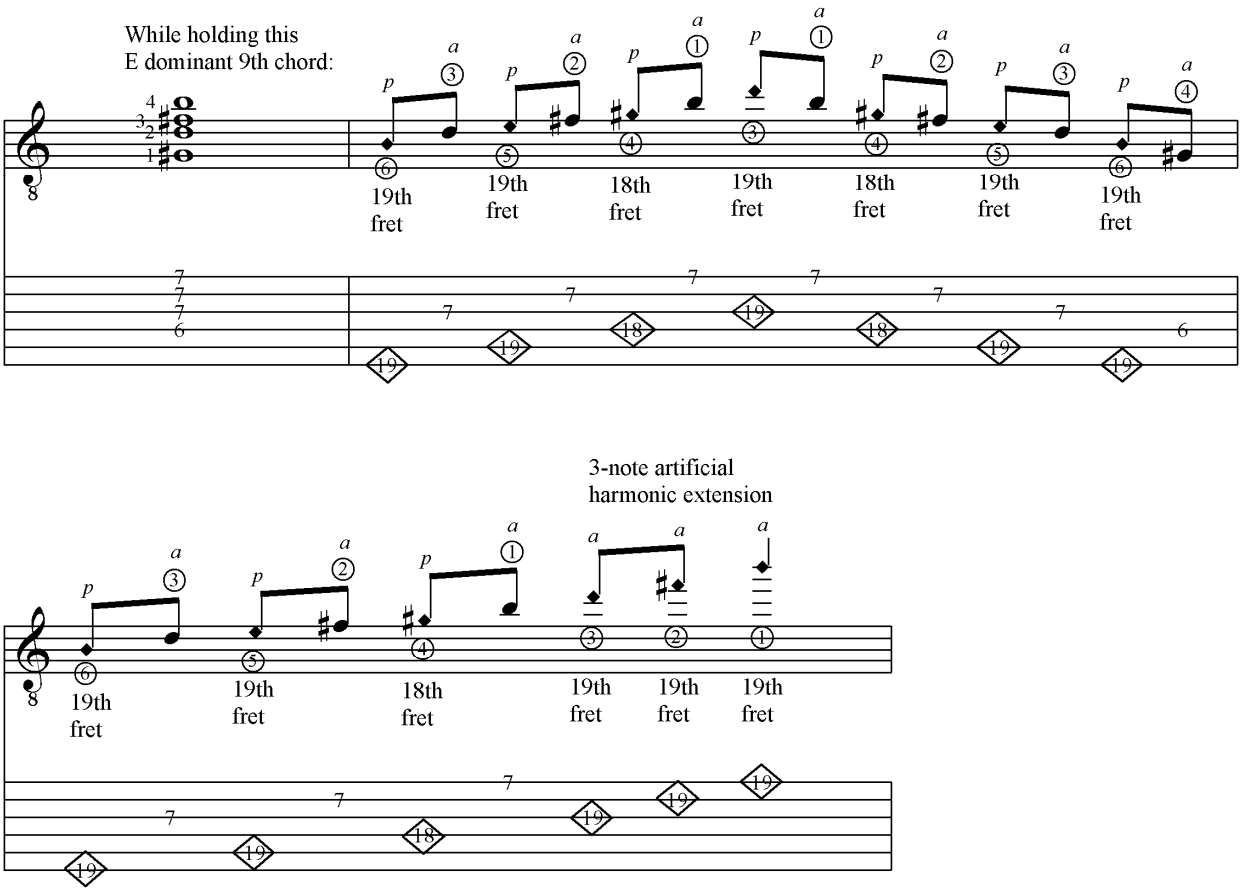


Adding Artificial Harmonics at the end

Here is another video view of this technique.

This is the notation for an extension of three artificial harmonics. This is added at the end of the ascent of a harmonic cascade (Example #22):

Example #22



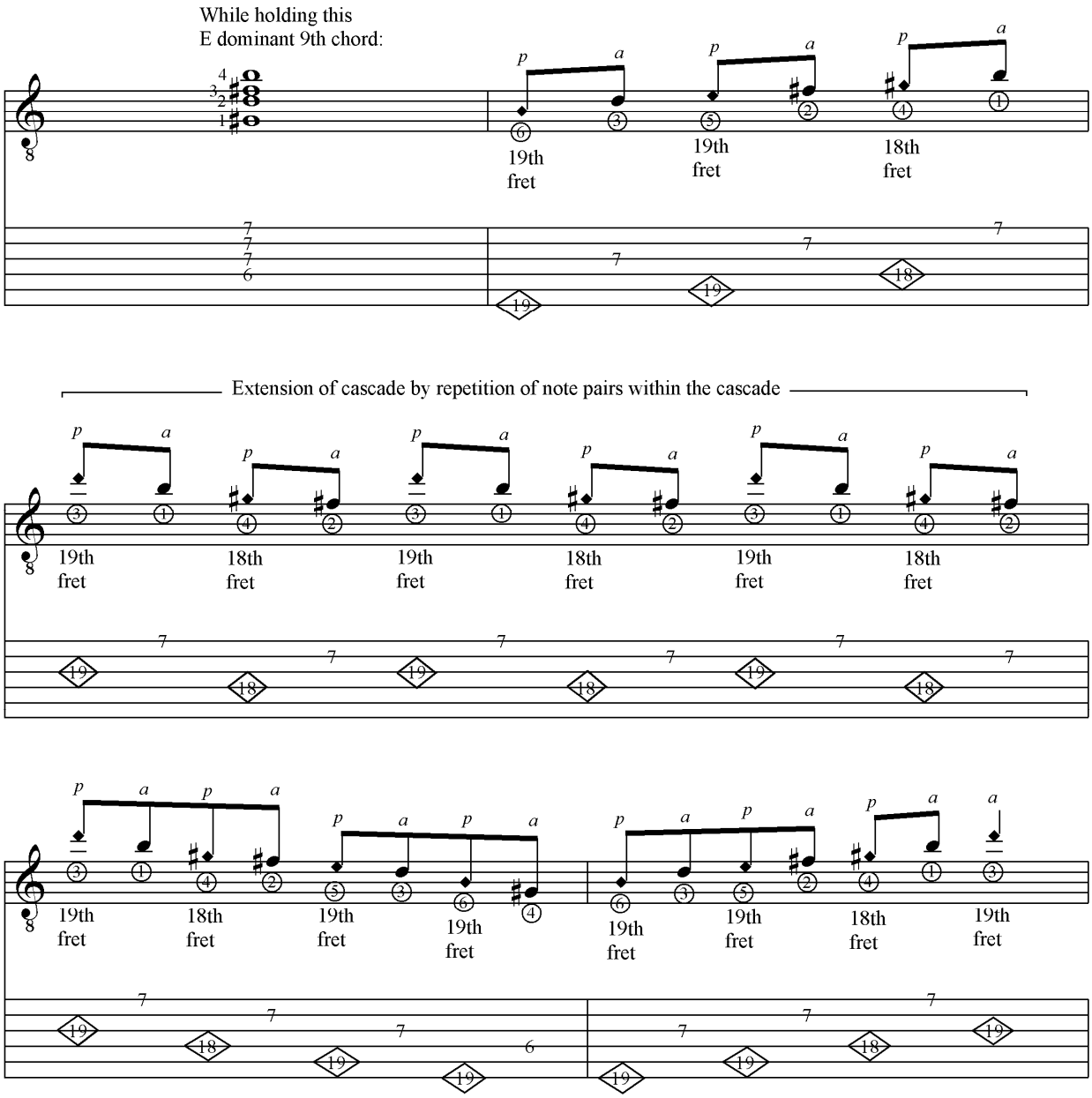
Repetition of note pairs

A cascade can be easily extended by repetition of note pairs within the cascade.

Watch me demonstrate this very effective technique in Video Clip #12.

One of the most common examples of this technique repeats the 3rd string harmonic-1st string non-harmonic and 4th string harmonic-2nd string non-harmonic pairs (Example #23):

Example #23


While holding this
E dominant 9th chord:
19th fret
19th fret
18th fret
Extension of cascade by repetition of note pairs within the cascade

Adding Slurs (hammer-ons and pull-offs)

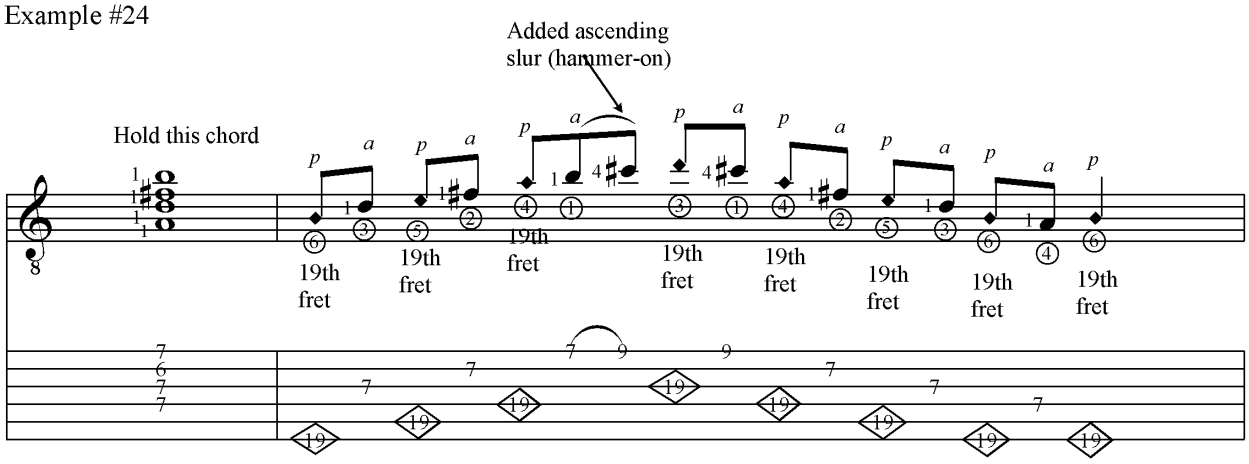
The harmonic cascade can also be extended by the use of slurs (hammer-ons or pull-offs).

Watch me demonstrate in Video Clip #13 how to use slurs to extend a cascade.

Next, follow these detailed written examples and try them out!

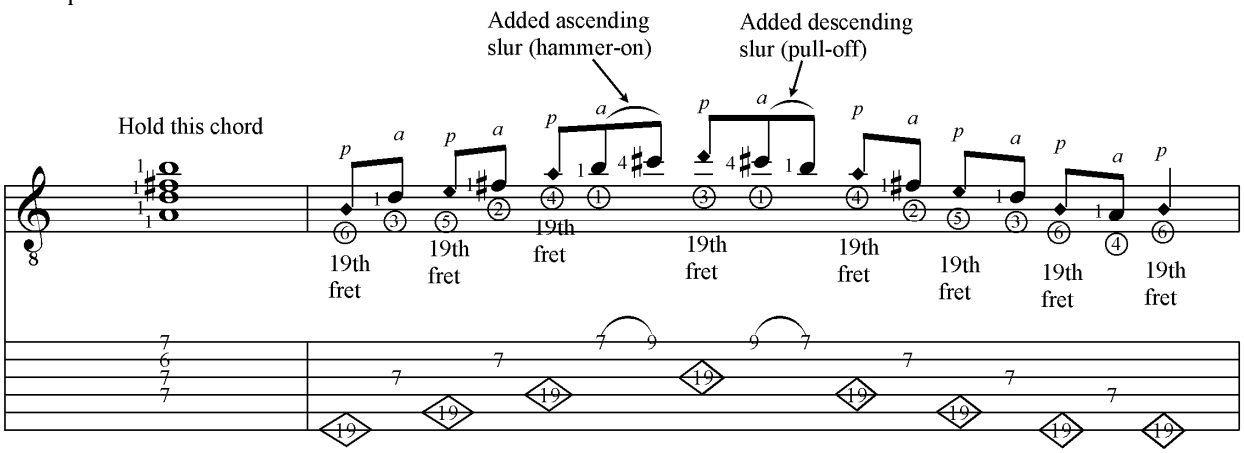
In example #24, I add an ascending slur (hammer-on):

Example #24



In example #25, I keep the ascending slur (hammer-on) and add a descending slur (pull-off):

Example #25



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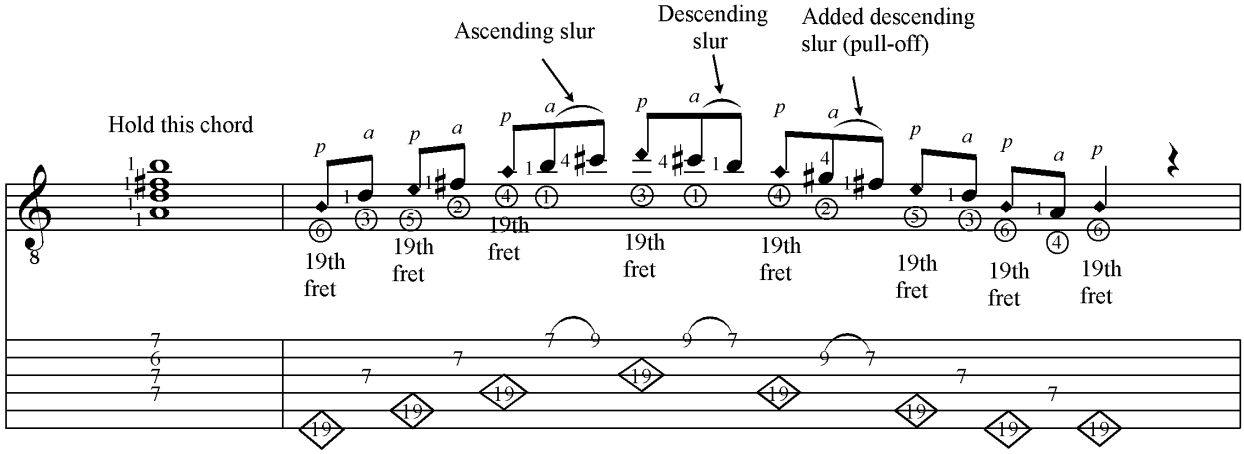
Or, in example #26, I keep the ascending and descending slurs, plus add a second descending slur:

Example #26



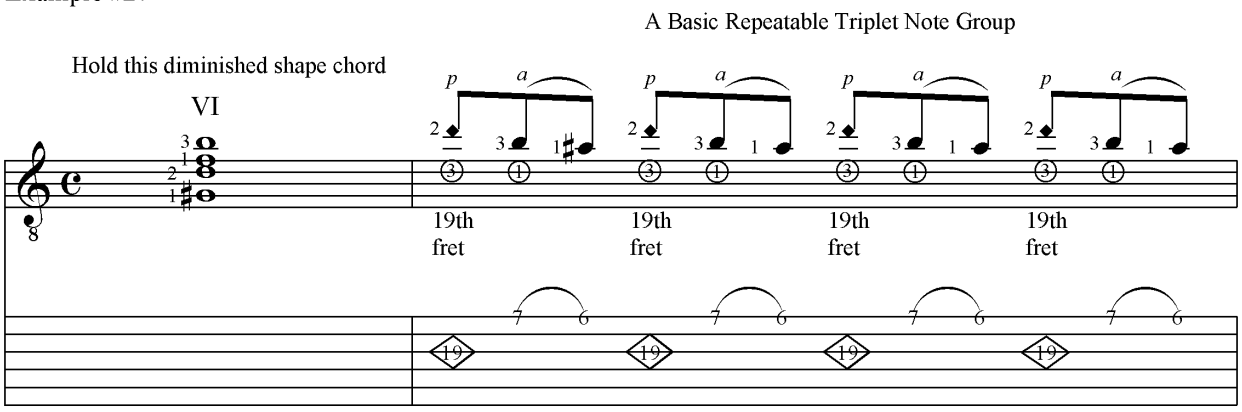
Adding repeatable triplet note groups

A little trickier extension of a harmonic cascade can be made with triplet note groups, often repeated several times in a row. The triplet note group consists of a harmonic plucked by the thumb, then a non-harmonic note plucked by the “a” finger, followed by a descending slur (pull-off).

Watch me do it in Video Clip #14.

Here is an example of a basic repeatable triplet figure (Example #27):

Example #27



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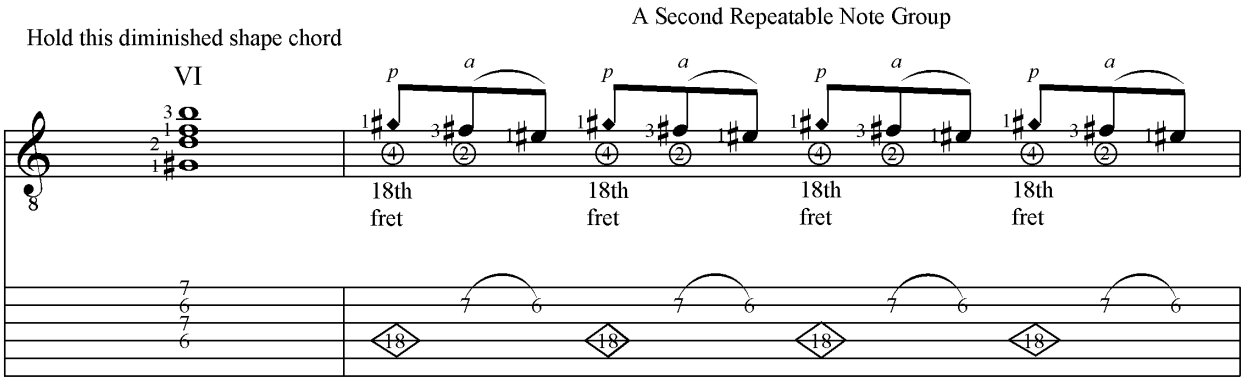
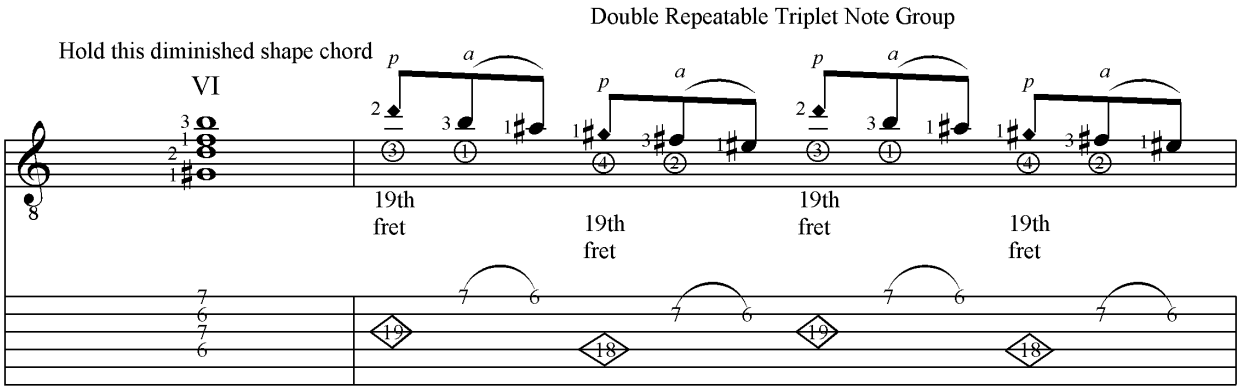
The same idea can be applied to a second note pair in the chord (Example #28):

Example #28



These two note groups can be combined into a double repeatable triplet note group (Example # 29):

Example #29



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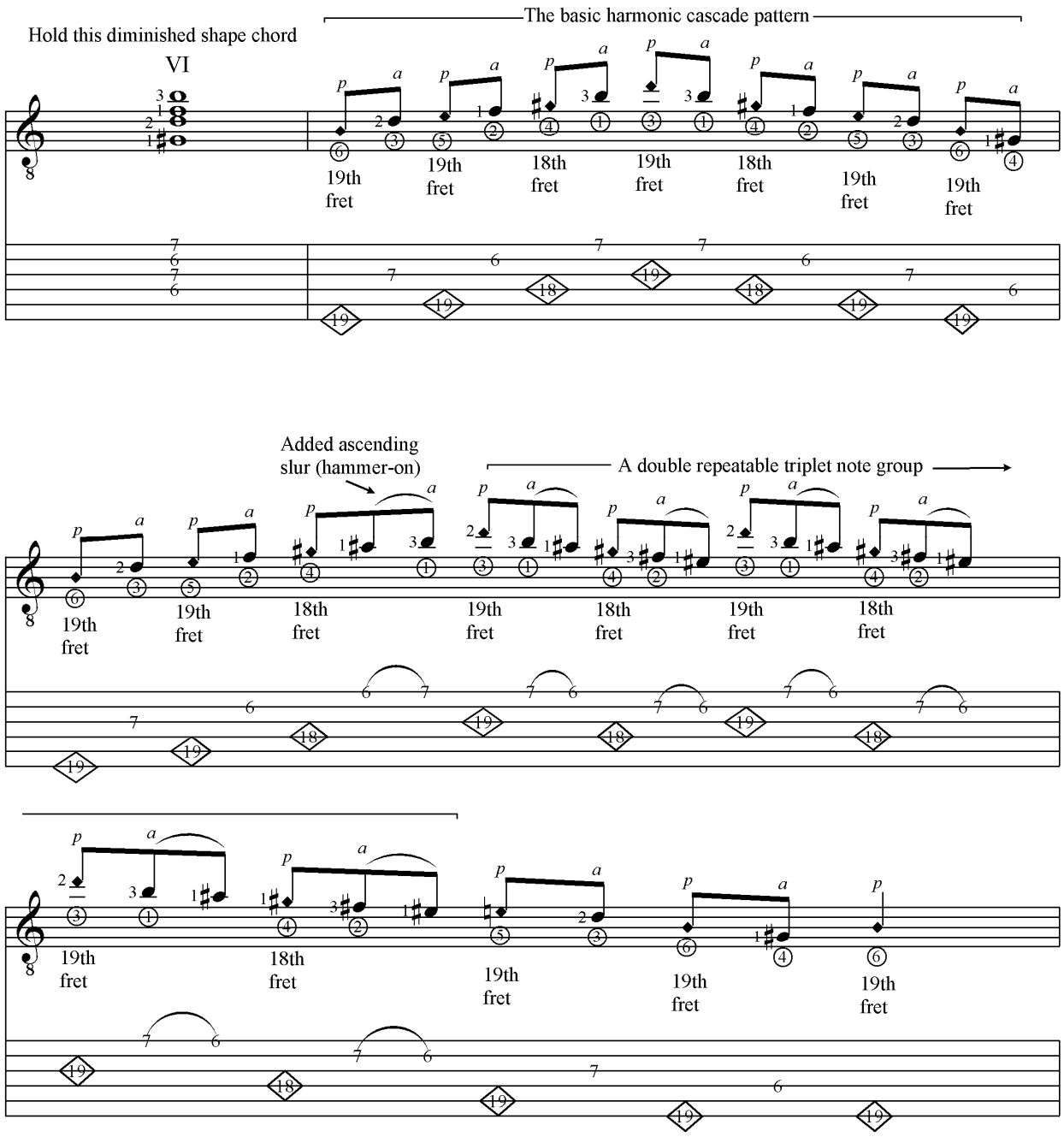
Here is an example of a cascade consisting of: the basic ascending and descending cascade, an added ascending slur, a repeated double triplet note group, and the final descent to the end (Example #30):

Example #30



Conclusion

Harmonic cascades are rarely used by classical guitarists. But it is a dazzling technique. With experimentation and imagination, harmonic cascades can be used very effectively in newer repertoire, and especially arrangements of popular music for the classical guitar. Although they are more difficult to execute on a classical guitar than a steel string guitar, they are very feasible. It just takes a ton of practice! So what else is new?

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