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Thinking through the guitar : the sound-cell-texture chain

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Chapter 13 Buzzing String Sounds

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Chapter 13 Buzzing String Sounds

Buzzing string sounds emerge when the guitarist plucks a string that is pulled off the neck, or plucks two crossed strings. This chapter shows ways in which the composer can handle the characteristics of the buzzing string sound, use it to build horizontal as well as vertical cells, and finally, how these cells can be creatively combined to form musical textures playable on the guitar.

13.1 Sound

There are two types of buzzing string sounds: buzzing string sounds created by pulling the string off the neck, and those created by crossing two strings.

13.1.1 Pitch range

Figure 13.1 String off neck range

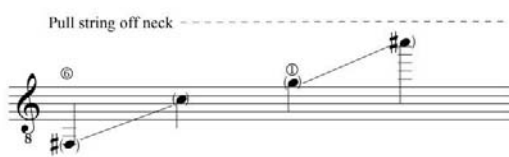
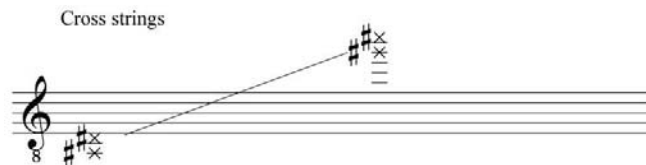


Figure 13.2 Crossed strings range

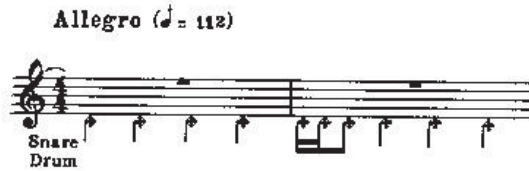


The range of buzzing string sounds that are created by pulling the string off the neck is displayed in Figure 13.1. The range of buzzing string sounds created by crossing two strings is displayed in Figure 13.2. The pitches displayed in both figures are approximate pitches, as the exact pitch created by pulling the strings off the neck or crossing them is not perfectly in tune; it depends on the degree to which the string is moved from its original position. When scoring buzzing string sounds by crossing the third and second string, the interval is approximately a major third instead of a fourth, as this is the interval between the third and second string. Buzzing string sounds created by pulling the string off the neck are performed by pulling the first or the sixth string off the neck, plucking or striking the string in inward or outward movement, and by moving the left hand finger in the off-the-neck area according to the prescribed left hand position. Buzzing string sounds created by crossing two strings are performed by moving one string over the other, stopping the crossing point on the fretboard, and moving the finger that holds the crossing point up and down the neck, thus moving the crossing point.

There is no standardized notation for either type of buzzing string sound; Kampela uses parentheses for sounds that are pulled off the neck, as the notation used in Figure 13.1, while for cross-string buzzing, percussive noteheads are often used, due to its similarity in sound to a snare drum. These ways of

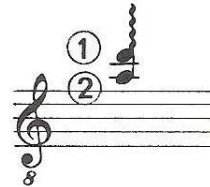
notating buzzing string sounds are all acceptable, as long as they are properly explained in a legend or performance note.

Figure 13.3 Crossed strings notation



(FANTASY, ARNOLD)

Figure 13.4 Crossed strings notation



(TRES CANTIGAS NEGRAS, CORDERO)

In the case of cross-string buzzing, composers sometimes only prescribe the crossing of the string, without specifying the pitch (Figure 13.3), or prescribe the position in which the strings are to be crossed without specifying the sounding pitch (Figure 13.4). It is recommended that for buzzing sounds created by pulling the string off the neck, notes are scored in parentheses at the pitch of the stopping position in which they are pulled off the neck accompanied by a verbal instruction. For the scoring of cross-string buzzing, composers should use percussive noteheads scored at the pitch of the stopping position accompanied by a verbal instruction.

13.1.2 Timbre possibilities

Attack

Buzzing string sounds are a mixture of two different sounds: the noise created by the vibration of the string against the frets or another string, which constitutes the percussive element of the sound, mixed with a sympathetic ringing of a pitch or pitches created by stopping the string in a position on the fretboard or off the neck. The crossed strings, or the string that is pulled off the neck, can be attacked by plucking, strumming or outward rasgueado; the rasgueado is the most percussive and powerful attack of the three, while plucking is the least percussive and softest attack.

Sound color and playing position

Figure 13.5 String in off-the-neck playing position

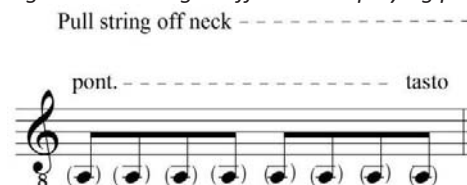
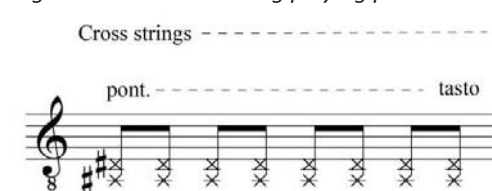


Figure 13.6 Crossed string playing position



The degree to which buzzing occurs in both types of string buzzing can be varied by changing the plucking position (Figure 13.5 and Figure 13.6). When the attack is performed close the fretboard, the buzzing increases.

Stopping position

The stopping position of crossed string sounds can be changed; as is the case with regular plucked notes, playing a note from the middle or high range in a high position on a low string changes its timbre. The composer should specify fingerings if she wishes a note to be performed on a particular string.

Etouffé

The timbre of buzzing string sounds can be changed by muffling. Etouffé buzzing string sounds are performed by attacking a note and simultaneously slightly damping it with the side of the right hand. Sounds scored etouffé have a reduced resonance and dynamic range.

13.1.3 Dynamic range

Figure 13.7 String off-the-neck dynamics

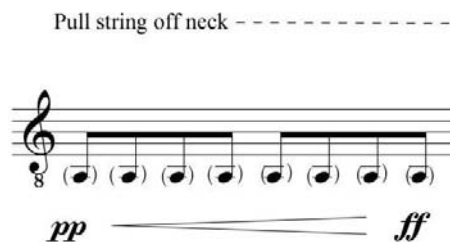
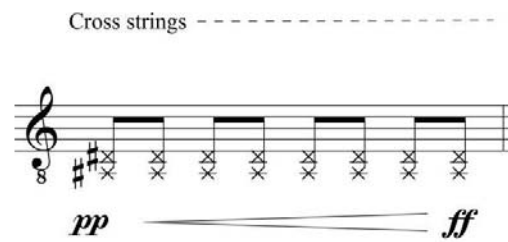


Figure 13.8 Crossed strings dynamics



The dynamic range of buzzing string sounds is moderate (Figure 13.7 and Figure 13.8). Buzzing string sounds can be scored from *pp* to about *mf*; when scoring *ff* for buzzing string sounds, it is similar to *mf* for rasgueado chords, for instance (see also Appendix C). The potential to reach a high dynamic level is higher on the metal-wound strings than on the nylon strings, and higher for crossed string sounds than for sounds created by pulling the string off the neck. The highest dynamic levels can be reached by using a rasgueado to attack the strings.

13.1.4 Vibrato

Scoring vibrato on buzzing string sounds is not very effective, as it harbors the danger that the string slides back to its normal position, or that the crossing point is released. Moreover, vibrato on buzzing string sound is not very audible.

13.1.5 Pitch bends and microtones

Pitch bends for crossed string buzzing sounds should be prescribed in the same manner as for regular plucked notes. Microtones should also be prescribed in the same manner: they can be attained through a microtonal scordatura or through bending the string. For buzzing string sounds created by pulling the string off the neck, microtones can be prescribed; they are attained by changing the off-the-fret stopping position.

13.2 Vertical cells

Vertical cells of buzzing string sounds are only possible when combined with non-buzzing sounds.

13.2.1 Combinations with other sounds

Figure 13.9 Vertical combinations with off-the-neck buzzing string sounds

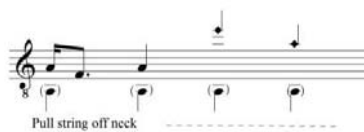
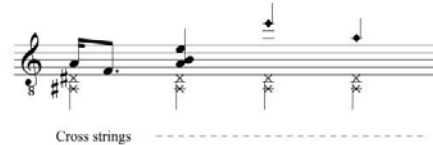


Figure 13.10 Vertical combinations with crossed-string buzzing



Buzzing string sounds can be combined with plucked sounds, natural and artificial harmonics (Figure 13.9 and Figure 13.10), strummed sounds and rasgueado sounds. In order to see which note combinations are possible, refer to Appendix A. When creating vertical plucked cells on top of or below buzzing string sounds, up to three notes can be used. When creating vertical strummed or rasgueado cells on top of or below buzzing string sounds, up to five notes can be used. The most effective combinations of strummed and rasgueado vertical cells combined with buzzing string noises are those scored over adjacent strings.

13.3 Horizontal cells

Buzzing string sounds can be scored into single line horizontal cells. In this section, single line horizontal cells of buzzing string sounds are discussed.

13.3.1 Single line buzzing

Design

A single line horizontal cell of buzzing string sounds is a succession of single buzzing sounds or cross-string sounds.

Resonance

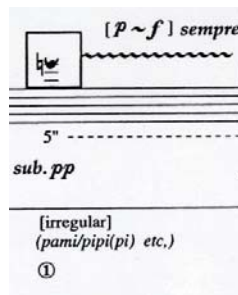
Single line horizontal cells of buzzing sounds do not ring on after their notated value; as soon as the previous note is abandoned its resonance ends.

Harmonic possibilities

The harmonic possibilities of single line horizontal cells of buzzing sounds are limited; the choices are constrained by the limited options the pitch range offers, and the speed constraints on changing strings (see following section). Composers usually use buzzing sounds as a percussive sound without taking into consideration the pitches that ring during the performance of the buzzing (Figure 13.3), or limit their use of pitches to those reachable on one string (see Kampela examples later in the chapter).

Speed

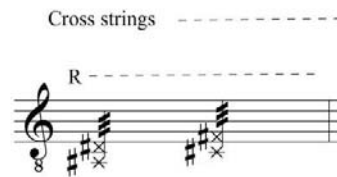
Figure 13.11 Single line horizontal cell of off-the-neck buzzing sound with tremolo



(PERCUSSION STUDY NO. 1, KAMPELA)

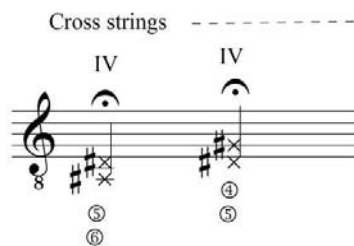
Single line horizontal cells of off-the-neck buzzing sounds can be performed at high speeds when performed with rasgueado or tremolo and when performed on one string (Figure 13.11). Changing pitches on the string is most effectively done by moving one finger in a glissando manner from one note to the next. It is risky to change from one left hand stopping finger to another while playing off the neck, as this might easily inadvertently release the string back to its normal position. Changing from the first string to the sixth string is possible, but requires time as the performer first has to pull the string off the neck.

Figure 13.12 Single line horizontal cell of crossed strings buzzing sound with rasgueado



Single line horizontal cells of crossed string buzzing sounds can be performed at high speeds when performed with rasgueado and when performed on one string (Figure 13.12). As is the case for single line horizontal cells of off-the-neck buzzing sounds, changing pitches is done most effectively with a one-finger glissando. It is risky to change the stopping finger while playing crossed string notes, as the strings might accidentally snap back to their normal position.

Figure 13.13 Crossed strings string change



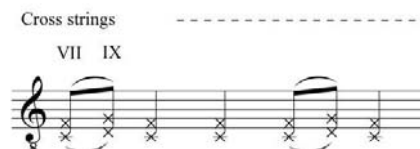
Changing from the first string to the sixth string is possible, but requires quite some time as the performer first has to cross a new pair of strings (Figure 13.13).

Articulation

Single line horizontal cells of buzzing sounds can be scored with a variety of articulations, including slurs, legato, accents, staccato and glissando.

Slurs

Figure 13.14 Crossed string slurs



Slurs can be scored for single line horizontal cells of off-the-neck buzzing sounds and of crossed string buzzing sounds. In the case of off-the-neck buzzing sounds on the first string and crossed string buzzing

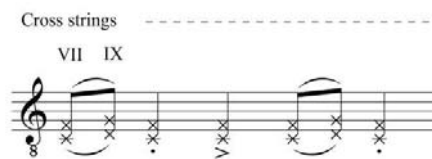
sounds in all ranges, slurs work well from position VII; in lower positions there is a danger that the string is released to the normal position because of the tension on the string. Slurs can only be scored within a minor third range, as in larger slurs there is the risk the string is released to its normal position.

Legato

Legato should only be scored for crossed string sounds in positions higher than position VII, using intervals within a minor third range; in all other cases, glissando is to be used instead.

Accents

Figure 13.15 Crossed string articulation



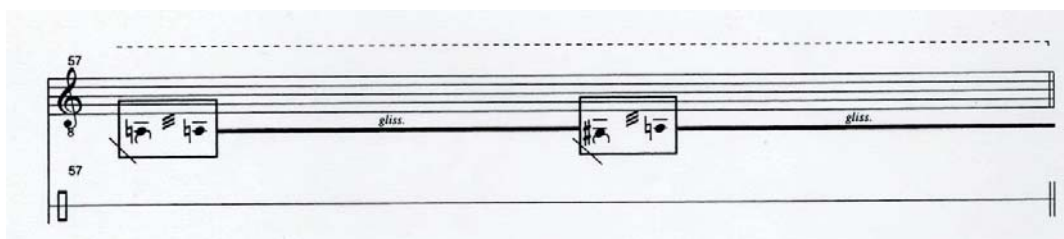
Because of the relatively wide dynamic range of buzzing sounds, single line horizontal cells of buzzing sounds can be scored with accents (Figure 13.15). The accent is created by playing the buzzing sound with more dynamic emphasis.

Staccato

Single line horizontal cells of buzzing sounds can also be scored with staccato articulation (Figure 13.15). The guitarist performs the staccato by damping the string with the left or right hand.

Glissando

Figure 13.16 Buzzy string glissando

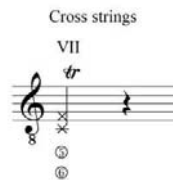


(PERCUSSION STUDY NO. 1, KAMPELA)

Glissando can be used to connect notes in a single line, and is the standard way of connecting buzzing notes (Figure 13.16). The composer can use literal glissando or a tuning key glissando.

Embellishment

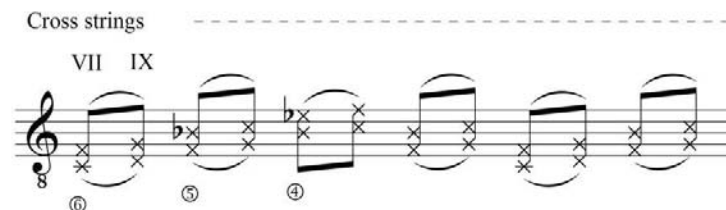
Figure 13.17 Crossed string trill



Embellishments can be employed in single line horizontal cells of buzzing sounds by attaching a left hand trill to a note in the sequence. While the trill is performed, the right hand can simultaneously engage in the production of other sounds.

Non-functional writing

Figure 13.18 Non-functional writing



Examples of non-functional writing for single line horizontal cells of buzzing string sounds:

- Rapid string changes when scoring for crossed strings (Figure 13.18)
- Legato scoring when using intervals larger than a minor third
- Non-glissando note changes in positions lower than VII
- Rapid pitch changes

Combinations with other sounds

Single line horizontal cells of buzzing string sounds can be combined with other sounds. In this section, literature examples are discussed.

Rasgueado buzzing sounds combined with regular string *rasgueado*

Kampela creates a sound combination in which the right hand performs a *rasgueado* over two adjacent strings, in which the bottom note is a buzzing off-the-neck sound on the sixth string, while the top note is a regular open string note (Figure 13.16). These two sounds can be performed simultaneously, as the regular plucked note is not stopped and is easy to strike along with the sixth string.

Tremolo buzzing sounds combined with regular plucked sounds

Figure 13.19 Combination with regular plucked sounds

Pull E (treble) off the neck arpeggiating it
continuously and asymmetrically]

[*p* ~ *f*] sempre

5" -----]

sub. *pp* *ff*

[irregular]
(pami/pipi(pi) etc.)

① ② 1

(PERCUSSION STUDY NO. 1, KAMPELA)

In the same composition, Kampela creates a sound combination in which the right hand performs a tremolo attack on a buzzing off-the-neck sound on the first string, while the thumb performs regular plucked notes on the lower adjacent string (Figure 13.19). The two sounds can be connected at high speeds, as the plucked notes are performed with another finger of the right hand and both notes are stopped within the hand span of the left hand.

Buzzing string sounds combined with harmonics

Figure 13.20 Buzzing string sounds combined with harmonics

Lento e delicato

⑥ ⑤ ④ ③

arm.5 arm.7 arm.5 arm.7 arm5 arm.7

perdendosi rit.

(TRES CANTIGAS NEGRAS, CORDERO)

Cordero creates a sound combination in which a single line horizontal cell of crossed string buzzing sounds is combined with harmonics sounds (Figure 13.20). The two sounds can be played simultaneously, as the crossed strings are stopped within the hand span of the natural harmonics.

Crossed string buzzing sounds combined with single lines and vertical cells sequences of plucked sounds

Figure 13.21 Crossed string buzzing sounds combined with single lines and vertical cells sequences of plucked sounds

(FANTASY, ARNOLD)

Arnold creates sound combinations in which crossed strings buzzing sounds are combined with single lines and vertical cell sequences of plucked sounds (Figure 13.21). The two sounds can be played simultaneously, as the crossed strings are stopped within the hand span of the regular plucked sounds, and all other right hand fingers except the thumb are free to pluck the regular notes.

13.4 Textures

In the guitar repertoire, both continuations and combinations of horizontal cells containing buzzing string sounds are found. The following examples are presented primarily for the purpose of illustrating how textures in repertoire pieces have been put together.

13.4.1 Textures as continuations of horizontal cells

High buzz with interruptions texture

Figure 13.22 High buzz with interruptions texture

(PERCUSSION STUDY NO. 1, KAMPELA)

Kampela creates a texture in which high buzzing sounds are combined with plucked sounds and slurs on the second string (Figure 13.22). The effective counterpoint of noise and pitches is achieved here with relatively simple means: fingers a, m, i and p perform the buzzing sound on the first string, while finger p occasionally jumps to the second string to pluck the pitched note.

Buzzing bass texture

Figure 13.23 Buzzing bass texture

(FANTASY, ARNOLD)

Arnold continues his sound combinations in which a single line horizontal cell of crossed string buzzing sounds is combined with single lines and vertical cell sequences of plucked sounds for many measures, creating a buzzing bass texture (Figure 13.23). The combination of the crossed string sounds, imitating the snare drum, and the plucked vertical cells into the marching rhythm accomplishes a good imitation of a marching band. The composer must always take great care in selecting playable sequences of vertical cells, particularly when combining vertical cells with other sounds, and Arnold has indeed done so. In this score passage, the strings are crossed in the same position as the plucked vertical cells, allowing the guitarist to play both sounds simultaneously. No position changes are made, which reduces the risk of the crossed strings snapping out of their crossed position. Even when scoring the melody in a middle voice (starting from the fourth line, second measure), Arnold carefully manages to keep the left hand in the same stopping position.

13.4.2 Textures as combinations of horizontal cells

Texture of buzzing string sounds, percussion and Bartok pizzicato

Figure 13.24 Buzzing with percussion and Bartok pizzicato texture

The image shows a musical score for a guitar piece. The top part of the score is a diagrammatic representation of the guitar neck and string. It includes two boxes: one labeled "4-7\" approx." and another labeled "20\"-30\"". Below these boxes, there are musical notations for the E string, including a glissando line and a tremolo section. The dynamic markings are *sfz*, *mf*, *ppp*, and *f*. A text box explains: "Pull the E (bass) string off the neck and gliss. towards last possible fret (XIX) --- No articulation: ad lib". Below this, it says "(irregular and fast) (pamipipimi etc.)".

The bottom part of the score is a standard musical notation for the guitar. It starts at measure 141. The notation includes a glissando line, a tremolo section, and a percussive section. The dynamic markings are *ff-f-mf*, *fff*, *fp*, and *sfz*. A text box explains: "Pull the E string off the neck producing a buzz-like effect, and keep the tremolo with the A (fifth string) while making an ascending glissando. After a while interrupt playing at certain points (but let vibrate the A string), each turn increasing the amount of time that the string is not plucked. By the end of this glissando the E (bass) is the only string being played. In a sudden break to this movement, hit the string with the Left Hand while the Right performs a tremolo with the thumb and outstretched fingers (R.H.) playing across the bridge at the upper part of the soundboard".

Other annotations include "Pluck over soundhole!", "Mute!", "Only metallic (buzz-like) sound at the end of the neck's frets", and "Across bridge and upper soundboard".

(PERCUSSION STUDY NO. 1, KAMPELA)

Kampela creates a texture in which a buzzing string texture ends with percussion and a Bartok pizzicato (Figure 13.24). Kampela lays out a rich dynamic playing field, and demonstrates the wide dynamic range of the buzzing string sound. The crescendo of the buzzing string sound is sustained for over thirty seconds, while irregular dynamic undulations occur within this crescendo. The dynamic buildup is successfully completed with body percussion, and concluded with one of its loudest sounds: a heavily accented Bartok pizzicato. Kampela safeguards the playability of this passage by keeping all off-the-neck buzzing sounds on the same string. The pitch on the sixth string rises as the result of the upward glissando, which allows the guitarist to perform the off-the-neck buzzing sounds with one stopping finger, reducing the risk of the string snapping back to its normal position.