Face|Resection

by Matt Barbier

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Rage Thormbones Publication

This project exists because of the help, patience, and inspiration of many people. Primarily Nicholas Deyoe, Clint McCallum, Ian Carroll, Weston Olencki, New Music USA, and, most importantly, DanRae Wilson. This project is dedicated to y'all.

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Introduction

This publication is the result of an obsession that started during my time as a student at CalArts and has continued to grow both in the practice room and through composer-performer relationships. This edition focuses primarily on two solo trombone pieces entitled *facesplitter*, by Nicholas Deyoe, and *Bowel Resection,* by Clint McCallum. Both of these works existed before they arrived in my possession, but had never been performed. Both also involved extensive split-tone components [beyond just producing a basic diad] that were completely new to me and quite beyond what I was capable of producing.

Given that the compositions already existed, I went into the practice room and began experimenting with various methods to attempt to produce these new ideas. I tried different tongue positions and syllables to search for a way to double tongue split-tones reliably; as well as a variety of experiments to find an effective solution for the challenge set by Clint- how to circular breath a split-tone for six and half minutes. During this process I tried to keep close notes of what I was doing and made myself little exercises to solidify concepts. I'd often work with a method only to find that after a few weeks it was not going to work. Because of this drawn out process, I started keeping notes to remind myself of what worked and what failed so I could avoid going down the same road twice.

As I found success with these methods, and some of them became "comfortable," I began experimenting with Nicholas and Clint. During the experimentation process I often came across new sounds [while searching for a different one] that would appear for a moment, get recorded on my phone, texted to the Nicholas, and then end up in the piece. Then the other technique I was

originally working on would stabilize and this new sound would disappear. I would then start this process over to attempt to build a relationship with a sound that had been a fleeting accident.

This process was most extensive with Nicholas given the fact that Clint's piece, while complex and full of difficulties, is ultimately one sound, so the issue is "what is the best way to make that one sound work?" Given that the question was fairly straightforward, most of the work on *BR* was [and still is] about a search of stability and formal clarity, rather than a collaborative exploration of how far an idea could be stretched.

Often these conversations would bring up a question about what would happen if I could do 'x'? Sometimes Nicholas or Clint asked the questions, but often I did as well and they showed immense patience while I disappeared to attempt to make an idea exist. Sometimes the idea would work immediately, but more often than not the resulting response was "let me get back to you on that." From there practice would ensue with the idea of sound and little else for direction. Sometimes this worked and sometimes it was a dismal failure, but I kept taking notes to keep my bearings. Because of this open conversation with Nicholas and Clint, we were able to take these two solos and push them well beyond the original conception and our thoughts of possibility.

This course ended with what are, to me, two incredibly special and personal works of art made with two people I care about very deeply. However, they are damned difficult works of art that are not very friendly to a player that does not have a knowledge of how we got there. I really believe in the work of these two people and want their music to be heard and performed by other musicians. Given this fact, at a certain point it became apparent to me that the best way to ensure that this would happen would be to share the most coherent parts of this process.

I hope that this text can help players approach this fantastic and flexible technique. It is also my hope that the descriptions of how to learn and develop this technique, its various applications [both by way of modification and in the repertoire], and the charts included will also prove to be a useful resource for composers. Hopefully it can help demonstrate some possible applications of split-tones while also grounding it in the physical processes and demands that make it possible.

Additionally, I hope that while the recording of *face|resection* provides an example of what these sounds can be, this text can ground that in the years of experimentation and failure to get there. That is to say, these techniques often take an extended period to develop and even longer to control and develop a healthy relationship with. I avoid the word master because this process frequently feels like dealing with a stray animal that needs help but doesn't quite trust you enough to care for it. The sound cannot be forced under your control, but instead a relationship must be developed where the sounds like to live. And, on their terms, you try to find a mode to coax some form of regularity out of them- studying their habits to find a pattern and simply move with their needs while finding ways to corral them in the direction the music demands. I do not mean this to sound dark or discouraging, but instead to remind players to take a patient approach and find the experiments that are right for them.

I always find it useful to remember the words of Jake the Dog: "Sucking at something is the first step to becoming sorta good at something."

Chapter 1: Split-tone Basics

Section 1A: What is a split-tone?

A split-tone is a type of lip multiphonic achieved by splitting the embouchure between two adjacent partials, creating a dyad-based multiple sonority on a brass instrument. Lip multiphonics differ from voice multiphonics in that they are multiple sonority created entirely by the player's lips- as opposed to the more common voice multiphonics, which is a combination of singing and playing. This book focused primarily on split-tones as they are main technique utilized in the works that this writing focuses on.

Section 1B. Lip slur and over focus:

A split-tone is essentially achieved by reducing the resonance on an individual tone, but over focusing on the center of this pitch. One then takes this over centered note and bends it down slightly to find the point where the note breaks to go down one partial. Instead of going down to the lower tone, the trombonist holds the note at the break point, which results in a dyad-based sonority. However, the lower tone of the dyad sounds higher than it normally would given that the player is not bending to a point where it can resonate exactly. Over time the player essentially develops a feel for the center of the split-tone and it becomes something that s/he can go it into with an expectation of stable and predictable results.

In this text, split-tones have been refereed to as "dyad-based." What is meant by this is

that, since a split-tone is made by splitting between to adjacent partials in the overtone series, its primary pitch content is comprised of those two tones. However, given that split-tones are created by using interference patterns in the instrument [much like woodwind multiphonics], the result is a complex sonority that is only primarily based in those two tones .

The following exercises are intended to help introduce a player to the fundamentals of how to create a split-tone, associate them with standard playing modes, develop control in their use, and learn to manipulate them for a variety of practical uses.

The first exercise is to simply start on a comfortable and flexible note [middle F in the written exercise] and alternate between the traditional 'o' phenom and an exaggerated, overly centered 'e' phoneme. The purpose is to do nothing more than to get comfortable going between the two sonorities and really learning where is other sound is. Make sure to do this focus inside of the mouthpiece- try to avoid exaggerated physical changes outside the very center of one's embouchure. When focusing in onto the 'e' really strive to cut out as much of one's resonance as possible- create a highly focused tone with as little extra sonic information as possible. Then simply increase the speed of transition between the two, as this lays the fundamentals for quickly splitting a tone. Make sure to get all the way back to a full, healthy tone- no favors are done by training oneself to play regularly with a pinched embouchure.

The purpose of the next exercise is to associate each individual split tone with both the notes being split and the stable center of the note one is splitting from. Strive to make as exaggerated a difference as possible between the standard open 'o' in traditional brass playing and an overly centered 'e' phoneme. Use this over focused 'e' tone to pivot into the split tone. A slight pivot of the actual horn can help- some people will find pivoting down the most helpful, but sometimes a slight pivot up is what the tone needs. Don't be afraid to experiment with different motions to try and find the point where one's sound splits, but remember that the distance one needs to pivot is quite small.

It can also be useful to "keep it in the mouthpiece" by making the pivot with the lip instead of the horn, generally by rolling the lower lip out slightly. Bending from the lip draws one's attention to the center of the embouchure and can be a useful way of developing a clear mental connection with the over-focus concept. One may find that the most effective method is to simply experiment with both varieties of pivot processes to find the mental and physical over lap between them and the center that is most comfortable for the individual player.

Do not leave out the lip slurs, they can be an incredibly helpful way to keep the two pitches one is striving for in the ear. Like all brass playing- the better one can hear the sound, the better one will play it.

This exercise is written for the 3:2 split tone but it is a concept that can be applied as the basis for any expansion up the overtone series.

Once a split tone can be reliably achieved the next major hurdle in finding stability. Associating one's split tones with lip slurs is a reliable way to improve the mental side of the technique by making them intrinsically tied into one of the most fundamentally stabilizing aspects

of trombone playing. On the physical side, attempting to maintain a focused embouchure once the split tone has been achieved is invaluable. If one can focus in on maintaining the 'e' phoneme while playing a split tone, the performer can develop a habit of remaining in the center of the sound while the sound created is battling both the acoustics of the instrument and the traditional embouchure the trombonist has training into his/her natural functioning. Like any technique, new or old, the most effective way to solidify it is through consistent, focused, and considered practice.

Section 2: Lip Bend

Another way of finding split tones is by [carefully] destabilizing one's embouchure. The most effective way of doing this is to do slow, downward lip slurs paying careful attention to the breaking point where, to use the included example, the F breaks and falls down to the Bb. Repeat this a number of times, trying to memorize where the break is. Try to stop the slur at the breaking point, hold the tone there, and crescendo into the break. Often this exercise is most effective when done in the opposite manner to the 'over focus' ones- play it quite loudly, without the previous careful approach.

This controlled destabilization can further deviate from the previous exercises in the fact that it can be aided by external motion. Puffing the cheeks and allowing some air in between the lips and the teeth can help achieve the needed instability. This is a fairly strong deviation from the standard 'over-focus' approach to achieving split tones and [puffing the cheeks] should not be overly relied upon to achieve split tones. Puffing does have some very particular applications in aiding with extremely loud attacks, finding 2:1 split tones [which are covered in a later section], and preparations for circular breathing.

Another function of a puff based split tone is that it tends to produce a much more complex, extremely loud, noise based sound, as opposed to the more clear and controlled dyad based sound of a centered split tones. So while a properly centered split tone offers a sound with more reliable control and stability, the split achieved by the destabilization of the embouchure has its applications.

It can be helpful, similar to legato practice, to try and 'play into' the space between the notes. It is written as a crescendo in the exercises, but this can also be thought of as simply putting emphasis on the space in between. Another helpful trick can be to slur to the halfway pitch and then to the bottom pitch. Much like a lip slur helping guide one's ear, hearing a middle point can help guide a player to the breaking point of the slur.

Since this exercise involves loud destabilization of the embouchure it is recommended that the user be intelligently cautious with its application. Make sure to take time after to play a few simple lip slurs and long tones to make sure one's face is put back in order and an unintentional split tone doesn't make its way into other playing.

Chapter 2: Advanced Applications

On the whole, the following exercises are based off of 3:2 split-tones [tones split from the 3rd partial down to the 2nd]. This is because they can often be a solid base when exploring various manipulations of the split-tone. 3:2 provide a reliable groundwork for two primary reasons.

First, given that the 3:2 split-tone is the lowest traditional split-tone, there is nowhere for the split to fall if pushed out of focus and lost when exploring these extensions. With higher split-tones, there is a solid chance of falling down partials, but with a 3:2 the only note a player could fall to is still part of the split-tone.

Second, the second and third partials tend to be quite stable while also maintaining a very reliable malleability. Which is to say that the notes of those partials require a lower level of physical intensity to center and maintain, which allow the player more leeway when manipulating his/her playing in the following exercises. This is ideal because it allows the player modify his/her embouchure as needed without causing superfluous tension in the process. Ideally these exercises can be done in a way that is comfortable and does not have a negative effect on the day's playing work.

In this section, it may feel like the exercises have jumped from step 1 to step 50, given that the drills go from the fundamentals of production to fair advanced manipulations. Steps 2-49 are just simply dedicated work on the basics of producing split-tones and a consistent and comfortable relationship which their production. There is no special trick that separates a basic split-tone from these advance manipulations- like all work on the trombone it is just a question of diligent practice and patience with the time one's body needs to develop a skill.

Section 1: Circular breathing

Circular breathing split-tones is an essential element in both the works that are the focal point of these exercises. Given that the technique has, relatively speaking, a common use and an availability of quality instructional resources already existing; this text will not cover the basics of how to circular breathe. Instead it is written with the understanding that the reader already has this skill in his/her toolkit.

Relatively speaking, circular breathing split-tones is a fairly simple combination of techniques if the player already has a strong relationship with both individually. Circular breathing a split-tone does not require any form of significant alteration to either technique. The primary challenge is to maintain the focus of the split-tone embouchure while changing the tension in one's cheeks [i.e. puffing out and flattening them]. Once the trombonist can maintain a stable split-tone while puffing out and flattering his/her cheeks the inclusion of circular breathing is essentially the same as with standard playing. Therefore, in the following circular breathing exercise focus entirely on changing cheek tension.

In this exercise 'F' stands for 'flat' [one's normal playing position]. The 'P' stands for 'puff' [holding air in the cheeks in preparation for circular breathing]. The primary challenge, and focus, for this operation is to maintain stability inside the mouthpiece while the outside portion of one's embouchure is shifting dramatically. Focus in towards the center of the embouchure and try to keep it resilient and centered while doing one's best to avoid any more tension than is necessary to produce a stable sound.

Once the player feels comfortable maintaining a split while altering his/her cheeks, simply begin to add small breaths where useful in the above exercise. It's recommended that quick, frequent breaths be relied upon as opposed to a slower, more relaxed style of breathing. The less time one has with his/her split-tone being supported by the cheek muscles, the more stable and predictable it will remain.

Losing the center, and therefore the split-tone, is the primary pitfall of circular breathing with this technique. If one can maintain a focused center on the multi-phonic without developing undue tension, then circular breathing split-tones is relatively simple.

Section 2: Articulations

Another integral modification of the split-tone that both of the works hinge on is being able to double and triple tongue while executing split-tones[1]. Similarly to circular breathing, it is a technique that finds its primary difficulty in locating a method to implement one technique without interfering with the other.

Split-tones require a great deal of air, so the need for efficiency of tongue placement and use is paramount. Given the volume of air moved while executing a potentially unstable technique, it is incredibly important to keep the tongue as low as possible and articulate with as much economy of motion as possible. Considering the delicate balance that needs to be found, it can be helpful to approach this technique from the same standpoint one would when first learning multiple articulations. It's advisable to simply take one's time. Try to develop each tongue stroke on it's own and experiment to find the best balance and tongue position that works efficiently for the individual. Additionally, it is helpful to keep the notes long- think tenuto on every split-tone one articulates. They rely on air and vibration to maintain their focus, so it's essential to give each note as much of those things as possible.

For the 'T' or 'D' stroke, the physical use is virtually [if not actually] identical to a normal articulation, but the trick is to approach it much like legato tonguing at first. Start by articulating too little and focus on not damaging the stability of the split-tone. Just get comfortable with moving one's tongue while not stopping the simultaneous technique. As one's comfort level

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1   It is recommended, for triple tonguing, to use a TKT KTK approach [essentially double tonguing] to help maintain an efficient split-tone center. Often a rapid, repetitive stroke [TTK] can lead to a larger interruption of air and a break in the split-tone.

grows, slowly increase the amount of articulation until a clear 'T' or 'D' can be consistently produced.

The 'K' or 'G' stroke is slightly more complicated, but only because of position. It can be helpful to aim one's backstroke slightly higher than in normal playing. It is recommended to take the same approach as developing the front stroke to help spread comfortability to the backstroke. Take it slowly and deliberately add articulation without compromising the split-tone. Focus on maintaining a centered sound that a small, efficient motion does not disrupt.

The simple example below is a way to work on reliable attacks:
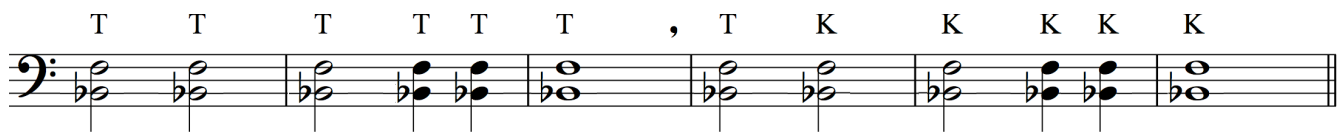
It is the same as any basic double tonguing exercise that is intended to focus on a reliable attack and uniformity between the two strokes. The backstroke part of the exercise begins with a 'T' articulation simply to help establish a clear split-tone. The reason for including such a common exercise concept is to help make a connection between normal double tonguing and double tonguing a split-tone. One should approach the technique in the same way one approached double tonguing when it was first added to his/her toolkit. Take it slow and keep it simple and it will find stability.

This second exercise falls within the same domain as the first.

The approach is the same as when double tonguing a normal tone. Strive to match both strokes in both sound and stability. It can be helpful to slightly accent the backstroke to match the clarity of the front stroke. Much like in normal double tonguing, look to avoid the pitfall of relying too strongly on the articulation and not letting the meat of the note sound. If one articulates too hard and reduces the vibration of the lips, the split will break. As one begins to combine the front and back stroke, work to maintain efficiency and note length to keep a full and healthy sound. The fullness of sound and length of note is essential to maintaining a split-tone while rapidly articulating.

Once a basic and comfortable relationship has been established with this approach, one can begin to simply apply it to his/her basic double and triple tonguing routine. It is recommended to apply one's routine to a consist overtone set. That is to say focus on consecutive 3:2 split-tones and then focus on 4:3 split-tones and so on. This is given to the fact that the different partials of split-tones frequently have different blows to them, so dividing by partial can help solidify each type. The below is example is one possible approach and is a useful exercise to assist in approaching Clint McCallum's *Bowel Resection.* Given that his piece is a essentially a long glissando, it is a practical way to focus on each individual slide position and search for consistent stability on each one.

Like preceding exercises, this one starts and ends with a slur to outline the split-tone and help enforce a relaxed and supple approach. Also, like previous exercises, strive for a focus and relaxed core to the splits- try to stay in the middle of one's playing and end the exercise as calmly as possible. Breathe as often as is necessary and play at a relaxed dynamic.

Another precarious use of this technique appears in Nicholas Deyoe's *facesplitter*. The particular challenge is that one must start split-tones with rapid articulations, as opposed to articulating one that is already sounding[2]. This presents a dangerous situation because often the least stable moment of a split-tone is the initial attack. To accurately execute this technique one needs to be able to achieve a maximum amount of vibration on the very front of the articulation. One approach for this concept is to repeat a single split-tone multiple times. Begin by sustaining it and slowly shorten the sustain. Once on is able to still achieve an acceptable staccato split-tone, begin to add second note on the tongue's backstroke. As this method stabilizes one can slowly lengthen the articulated line. An example of this approach is below:

Practice this exercise very deliberately, with a metronome, taking care to breath exactly in time and have rhythmic releases. Use the rhythm as momentum to create the sensation of playing on a line rather than a cold start. Start at a comfortable tempo, but quick enough to have a clear feeling of momentum. Try to keep each split-tone equal in resonance regardless of the length of sustain. It can be helpful to play this exercise at an assertive dynamic level with a feeling of forward momentum.

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2   Examples found in bars: 18, 21 ,28, 30, 51-53, and 76

With all of these articulation concepts it is important to focus on staying in the center on the trombone seesaw. One must find a balance between an aggressively assertive attack while simultaneously maintaining a centered and calm control. One should not play at such a forceful volume as to force his/her embouchure open and lose the split. However, it is important to throw caution to the wind to a certain degree as being too conservative in one's approach can lead to tension and a reduction in vibration. Experiment to find a balance that is correct for the individual and allows maximum results with the least strain possible.

Section 3: 2:1 split tones

A unique timbre can be achieved by splitting between the 2nd and 1st partial. Given the width of the interval [an octave] and the low frequency involved, the 2:1 split-tone has a rather singular sound in which the interference pattern tends to be more prominent than the pitches being played. The process involved in producing a 2:1 split-tone is derived from the basic split-tone approach with some slight modifications.

The primary challenge is presented by the fact that the two partials being split require fairly divergent production methods and the player must find a way to balance the demands of these partials in order to create a stable multiphonic.

To start, it is effective to slur between the two partials and try to find the center, like in the previous 'Lip Bend' exercises of section 2. Once one feels comfortable with the breaking point between the two partials, an effective method is to imagine creating a physical split between the

two divisions [the 1st and 2nd partial]. Do this by trying to keep the very center of the embouchure intensely focused, like with other split-tones. While maintaining this focus, attempt to bend from the 2nd partial down to the 1st partial, allowing everything but the center of the embouchure to relax into a comfortable pedal tone position. It can also be helpful to let the lower jaw come forward and make a slightly more exaggerated 'O' phoneme. The further one can move the corners of one's embouchure toward the pedal range while maintaining a focused center, the better chance one has of finding reliability. The 2:1 split-tone can often be found at the point where the 1st partial begins to intermittently sound and interfere with the 2nd partial.

Another challenge in this process is managing one's air stream. The predicament is to find a balance point of blowing slow, steady air, while maintaining a focused column that can blow through the middle of the embouchure and help maintain one's position at the breaking point between the two partials. There is no exact method to balance this other than conscious experimentation.

The exercise below is designed to focus in on the above steps in a simple way. One starts by playing a simple slur between the 2nd and 1st partial to help outline the involved pitches. Then one slowly bends down and up the octave to try and find the middle point where the lower tone just begins to start speaking, but the center can be maintained on the 2nd partial tone. Try and memorize the jaw position at this mid point. It is one of the most challenging parts of this techniques because it can often feel like one's jaw has no reference point and is floating in space. It is a bit like 5th position- there is not a great reference point, but consideration of one's body and taking the time to regularly check in lead to consistent results.

2:1
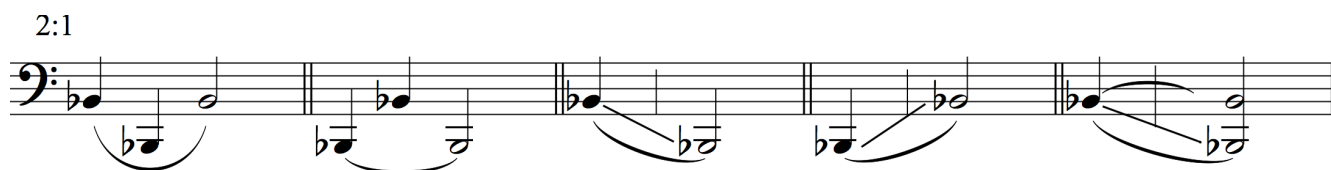
For some players, the 2:1 split-tone may come very quickly, but for the most part it is a fairly mailable sound produced by a loose embouchure so it can often take some time to consistently locate and call upon. A careful balance of patience, perseverance, and experimentation is important when working on this sound.

Section 4: common tones, valve transitions, and valve trills

While often utilized for their aggressive timbre and intense volume, split-tones are a dyad-based multiphonic and as such can also be used very effectively to create ideas of harmonic movement and chord progressions. One of the simplest ways to achieve this is by connecting multiple split-tones via common-tones. The except below is one possibility to demonstrate the concept.
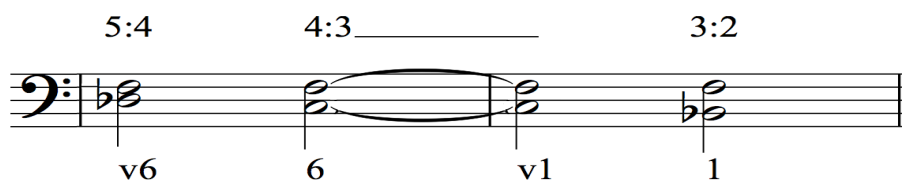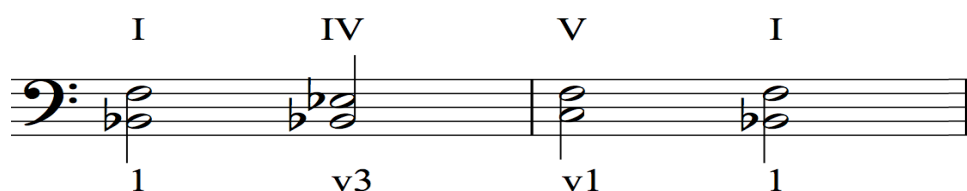

The numbers above the staff indicate the partials split and the numbers below the staff indicate slide positions [v indicates tenor-bass valve position].

By connecting successive split-tones by way of a common upper tone, one can maintain a stable drone while generating a motion beneath it. Given the utonal construction of the trombone [4:3 based pitch relationship between the open horn and the tenor-bass valve], the common-tones appear in order [3, 4, 5 in the example] and there for tend exist in simple harmonic relationships. Accordingly, this results in simple scalar movement of the lower pitch of the split-tone, allowing one to create subtle changes to a complex timbre.

In *Bowel Resection*, this technique had the practical application of allowing a smooth transition between a 3:2 and 4:3 [and back] split-tone, which allows for a more consistent level of volume. This application is covered more thoroughly in the *Bowel Resection* entry.

Another use of this concept is to use the valve and simple relationships to create harmonic shifts and chord progressions. By utilizing the tenor-bass valve one can switch between various overtone relationships without having a large shift in pitch, therefore being able to apply basic voice leading concepts to a solo melody instrument.   One possibility is below.

The numerals above the staff indicate chord numbers and the numbers below the staff indicate slide positions [v indicates tenor-bass valve position].

This concept can allow a player to outline chord progressions in his/her playing and also provides a useful practice method for consistency of sound.

Creating chord progressions with split-tones is a underutilized method that is effective on the trombone, but is significantly more effective on large bore valve instruments [such as the euphonium and tuba] given the ease of legato and conical timbre. These instruments are intensely capable of creating harmonic motions similar to those possible with bass clarinet or bari-sax multiphonics.

Creating a consistent timbre of split-tone across different overtone relations is difficult to achieve but can be highly effective in works like Iannis Xenakis's *Keren.* While the passage is effective without timbrel consistency, the ability to make an even line with consistent color and attack is a practical tool to have to allow for musical flexibility.

In practicing simple relations and common-tones, like the above examples, one can find a simple and concise method for finding the balance of needed for a consistent result that comes from the demands of inconsistent production. That is to say that, much like getting an even sound across disparate registers, one must use unequal effort to create an equal sound. Approaching this issue through simple relations in a comfortable register is a good starting place for approaching this delicate issue.

Another functional exploitation of common-tones and the tenor-bass valve is for their use in split-tone valve trills. The concept is to simply execute a valve trill while maintaining a split-tone. Given what is involved in functionally executing the concept, the highest success rate lends itself to valve trills that are executed between two common-tones. The below exercise focuses in on one of the more uncomplicated valve trills to execute.

v3   3
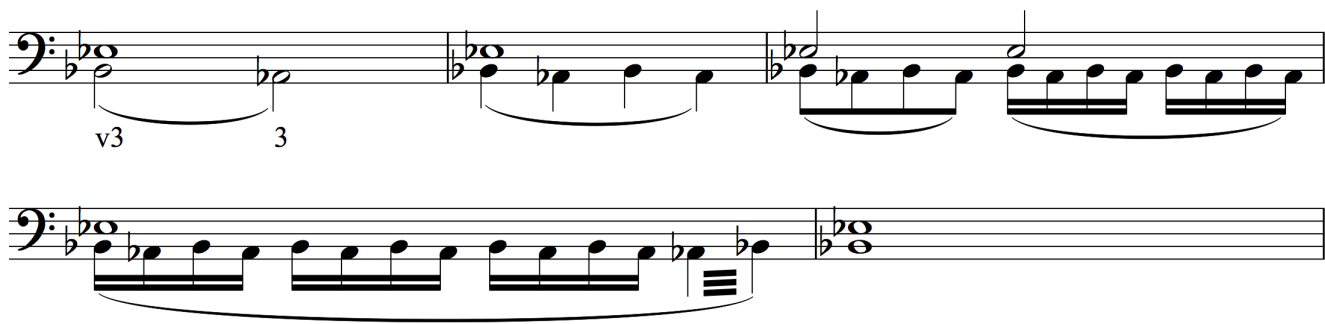
It can be useful to start on the high of the two split-tones [4:3] so that one's embouchure is starting from a place of higher focus. This way one can focus in on the diad with a higher tension and use that as a home base to help maintain a focused center. Like a standard valve trill, the challenge is to focus on blowing through the valve shift to maintain an even sound and help compensate for the difference in demands on one's air flow. It can be helpful to focus in on the lower notes, given that they are the moving pitches, while executing a valve trill to help instill stability.

Below are excerpts from Clint McCallum's *gnarphwhallanie* [for soprano, clarinet/bass clarinet, trombone, cello, and piano] that utilize valve trills. The first excerpt requires slide motion, which makes it decidedly more difficult than the second section, which is a pure valve trill.

Chapter 3: Repertoire Applications

In this section, the actual application of split tones in repertoire, both intended by the composer and intruded upon by the trombonist, is explored. The practical application of many of the proceeding exercises will be employed directly to *facesplitter* by Nicholas Deyoe and *Bowel Resection* by Clint McCallum.

Additionally, using the Bach Cello Suites as a starting point, the addition of split-tones to more standard repertoire will be explored as practice method for expanding the demands and standards of one's use of the technique. The choice of the Bach Cello Suites is due to their central place in the trombonist's practice room repertoire and the per-existing issues of how to handle double and triple stops, and is intended as a jumping off point for the application of a practice concept.

Section 1: Bach Cello Suites

Disclaimer: Although this section is utilizing the Bach cello suites for their effectiveness in learning to control lip-multiphonics, they are intended as a teaching and practice tool. This is meant to fit into the traditional use of Bach's cello suites in trombone pedagogy and is not intended to imply that the author is advocating their use in public performance. Aside from the debate on the value of performing the cello suites on trombone, many of the possible lip-multiphonics used will create distractingly extreme changes in timbre and therefore their use is for a more theoretical application than a directly musical one.

In an attempt to demonstrate the concept behind this, the majority of the 2nd Cello Suite has been included in this text with suggested split-tones and interpretations of various multiple sonorities included[3]. The complete movements of the *Allemande* and *Menuets* are intended to provide practice for quickly and accurately hitting split-tones as a quick direction change within a larger phrase. It is often difficult to incorporate split-tones into a cohesive phrase without their attack or release bogging down both the player and the music- these movements provide an excellent way to address this issue. Try to blow through the split-tones in the same way a cellist can integrate a double stop smoothly into a larger phrase and compliment his/her playing with it.

The inclusion of the *Preludé* and *Sarabande* come with some what loftier goals. Given the slower speed and style, these parts provide an opportunity for a player to strive for an integrated sound that is focused not just upon immediacy and accuracy, but also attempting to truly create a beautiful, harmonic sound with his/her split-tones. In the *Sarabande*, try to draw the split-tone out of a lush tone and focus on a timbre that matches one's monophonic sound. It can be helpful to play the split-tones with as much of an 'O' phoneme as possible. Often, the more open the phoneme one can play with while maintaining the center, one can achieve an unclouded split-tone that has more room to be perceived as a simple dyad. This type of music is an ideal situation to develop a gentler, more controlled and elegant touch with one's split-tones.

The included excerpt begins at the end of Prelude, where the first dyads appear.

3   The notes for the Bach suite is derived from: Bach, Johann Sebastian. *Suites for Violoncello Solo BMV 1007-1012*. Ed. Ulrich Leisinger. UT 50133 ed. Wien: Wiener Urtext Edition, 2000. 9-13. Print.

Mineut I

(voice)

tr

Mineut II

Menuet I da capo

Obviously, many of the split-tones written into this cello suite are more theoretical than practical and their production has the potential to be immensely unmusical. Their inclusion is intended to be a practice method to develop an immediate attack and remove the stationary feeling many players associate with the creation of split-tones. Try to approach it in this way while continuing to strive for the highest musical ideals in one's playing. Holding a technique to the highest possible standards, even if they may be unattainable, is a practical method for raising the bar both in one's own playing and one's definition of possible. This application is much like a player working to develop his/her high or low range well beyond what is required by the repertoire because of the security it adds to what is demanded on the job.