

SOLUTIONS in TUNING & INTONATION

an introduction to Function Chorales

by © Stephen Melillo, Composer IGNA 1980, 2nd & 3rd Millennium

Just yesterday, I was with the fine students of the Georgia District Nine Honor Band. In a matter of minutes, during our last rehearsal, a quantum leap happened. Music began its noble emergence. I looked around to see how many band directors were watching and hearing what had to be the most expedient and efficient realization of the idea that *“teaching a man how to fish... he eats for a lifetime!”* Unfortunately, all the directors were at a meeting.

We all want to hear Music rendered with purity and precision. When I go to guest conduct a piece I may have composed, I want to hear it as it was meant to be heard... in tune, and beautifully intoned. We ask kids... and professionals... to accomplish this all the time, and yet, *when* have we given our young Musicians a crystalline clear procedure, a crisply defined, well-articulated system to address **the** most crucial aspect of Music making?

To specifically address the challenges of tuning and intonation, I utilize a tool called **FUNCTION CHORALES**. They can be rendered with as little as 4 students, or delivered by the forces of the Mahler 8th Symphony. They can be played by *any* group, at *any* age, and in *any* key. I will more specifically explain what a *Function Chorale* is in Step Five.

Abraham Lincoln said, **“If I had 8 hours to cut a tree, I’d spend 6 sharpening the axe.”** By investing the Time to accurately teach and then reinforce the following concepts, hours upon hours of otherwise useless rehearsal will be saved and there will be noticeable improvement in all of the Music that comes after and during.

Step One: INSPIRATION

To motivate your students to first **want** to begin an exploration of precision in Tuning and Intonation, demonstrate 2 allegories. First pull a dime and nickel from your pocket. Ask the students to pretend that they are little children who do not yet understand the value of money. Ask them, *“Which coin would the child would choose?”* When they answer, *“the nickel”*, because it is bigger, suggest to the students that a piece of Music is like the nickel and that **Musicianship** is like the dime. Ask them to join you on a noble quest into a discovery of

the *dime*. With a ruler, go to the blackboard. “An architect asks a builder to go up precisely six feet with a certain material, then proceed to the right at a 90 degree angle for exactly 1 foot and then up again for six feet at another 90 degrees. (I use a pocket ruler and ask the students to imagine the proportions). Now, what would happen, if the builder, instead of going up 6 feet went up 5.99 feet? What would happen, if then, instead of a 90 degree angle, he proceeded at a 90.11 angle? Instead of 1 foot, he or she moves 1.01 feet and then up again at an 89.97 degree angle... and so on? If these small, insignificant (you might think at first) differences were added up, say over the distance of the Empire State Building, what kind of a structure would we have?” Now, the kids are ready to hear an often unspoken truth: Musical language is a **specifically designed** architecture over Time.

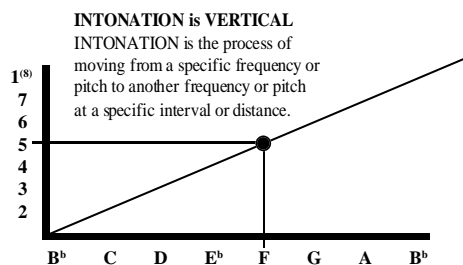
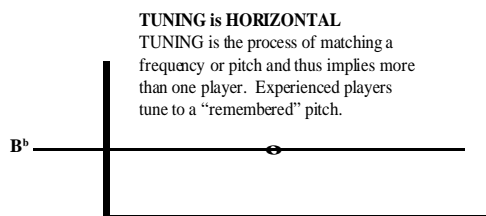
Step Two: DEFINITIONS

First, let us clearly define the difference between **TUNING** and **INTONATION**, as often these words are misused. **Words are important.** By example, if one wishes to comment on “tone quality”, one should not use the term “intonation”. One should use the term “tone quality”.

(All Charts and Examples are excerpted from FUNCTION CHORALES © Stephen Melillo IGNA 1980)

Differences between TUNING & INTONATION (Chart A from FUNCTION CHORALES... by © Stephen Melillo IGNA 1980)

The more correctly you, as a musician, approach the initial exercises provided by the conductor, the more ready you will be to meet the architectural challenges of the horizontal and vertical process of Music.



(To the Student) Your **GOAL** is to learn and improve: **Your ability to SEE where a Pitch will Sound, INTONATION, Ensemble Listening, TUNING, Vertical Hearing, Knowledge of Function & Transposition, Knowledge of Progression & Harmony, Knowledge of Interval, & Knowledge of Inharmonic Devices such as Suspension, Retardation and Passing Tone.**








S	A	T	B
Piccolo (Flute Double)	Flute 2	Clarinet 3	Bass Clarinet
Eb Clarinet	Clarinet 2	Alto Clarinet	Bassoon
Oboe	Alto Sax 1	Alto Sax 2	Baritone Sax
Flute 1	Trumpet 2	Tenor Sax 2	Contra Bass Clarinet
Clarinet 1	Horn 2	Trumpet 3	Baritone
Trumpet 1	Trombone 1	Trombone 2 - 3	Euphonium
Horn 1	Tenor Sax 1	Horn 3 - 4	Tuba
Vibraphone (Soft Mallets)	Violin 3	Marimba (Soft Mallets)	PAD Bass
Violin 1-2	Viola	Cello	String Bass
			Harp
			Timpani

Waveless TUNING Process

(Chart B from FUNCTION CHORALES by © Stephen Melillo IGWA 1980)

Individual Responsibility. Achieve a still, waveless **tuned** sound.

1. Tune to the line you see playing.
2. Tune to the line you see playing.
3. Cross reference this tuning to the lowest instrument playing during any given passage.
4. Cross reference this tuning with INTONATION, the process of moving to the correct interval.

<p>1</p> <p>Pick a direction, either <i>unmistakably</i> flat and under, or sharp and above.</p> 	<p>2</p> <p><i>Listen</i> for waves.</p> 	<p>3</p> <p>Make adjustment with the barrel, mouthpiece or slide. (<i>Try to move in one direction, like a professional photographer</i>)</p> 	<p>4</p> <p>As waves get slower, continue to move in this direction until all waves are eliminated.</p> 
<p>5</p> <p>If you move beyond the point of Tuned, waving will speed up again. This means you have gone beyond and must move in the other direction. (<i>Like Easter-Egg Hunt</i>)</p> 	<p>6</p> <p>If you find yourself <i>pinching</i> your embouchure to eliminate the waving, the instrument is too long and must be <i>shortened</i>.</p> 	<p>7</p> <p>If you find yourself <i>relaxing</i> your embouchure to eliminate waving, your instrument is too short and must be <i>lengthened</i>.</p> 	<p>8</p> <p>When you and the ensemble play the same pitch, on normal embouchures, and you can only hear one absolutely still, waveless sound, you are in tune.</p>


Step Three: TUNING


An 8-step process, inspired so many years ago by Mr. Edward Lisk, and graphically represented in the *Function Chorale* text, should be taught and then reinforced at each and every rehearsal, whether in sectionals, lessons or ensemble.

The goal of this process, which I suggest demonstrating by playing along with a student, is to achieve the “**only straight line**” in Music.

GETTING STARTED

Using the **OVERTONE SERIES**, have the students play **8-5-1** in: Concert B^b-A-A^b-G-G^b-F-E. The rhythmic pattern will be half-note, half-note, whole-note. Trombone players will be using **1-2-3-4-5-6-7** slide positions, while 3-valve brass players use **0-2-1-12-23-13-123**. Horn players can either play at the 4th, which is what I do, or they can start the series on the 1st finger. Woodwinds may play only the **TONIC**, or play **8-5-1**, or what is printed below as they become thoroughly familiar. You can place a fermata on each whole note before proceeding to the next in sequence practicing air support, breath control and contour. Below, is the **OVERTONE SERIES Warm-Up** which I use.

 Bb Brass will play this pattern using 0-2-1-12-23-13-123
The Horns will play this as well, sounding at the 4th

 Bass Clef Brass will play this pattern using 0-2-1-12-23-13-123
or Slide Positions 1-2-3-4-5-6-7

C woodwinds, in comfortable octaves



Bb woodwinds, in comfortable octaves



Eb woodwinds, in comfortable octaves



Step Four: INTONING the INTERVALS

Just as one **sees** a target before aiming at it and then firing upon it, so must the musician “**hear**” where a note is going to sound *before* it is played. To begin this process, I will warm up the ensemble with **THE OVERTONE SERIES WARM-UP**. One goal of this warm-up is **HEAR** and become abundantly familiar with the **PERFECT 5th**, holding it in Unison with the Ensemble, and moving it, from **ONE** and to **ONE**, in the interval which is “perfectly” a Perfect 5th. I would suggest a constant reinforcement of the use of correct wording, and the constant encouragement to attain the “only straight line” in Music. The tuned 5th will also produce a waveless, “still” sound.

Once **8,5** and **1** are established, you will initiate a process whereby each **NUMBER** of the **MAJOR SCALE** is introduced, learned, rehearsed, tuned, and approached with good intonation. *The following process may take days of investment... although with a well focused group, you will achieve extremely noticeable results in a matter of minutes! Strive for perfection. Make each step in the process a perfect one!* Also, please note that I am trying to describe an auditory process with words.

1. Play 8 (or 1)-5-1... hearing the perfect placement of the 5th as played in the Overtone Series Warm-Up.
2. Play 8-7-8-5-1... hearing **7** as the leading tone to **1** or **8**. The leading tone is a tuned minor 2nd. Reinforce listening for the $\frac{1}{2}$ step lead. I usually teach this by beginning at the top of the scale and moving downward, as this also improves the placement of the embouchure.
3. Play 8-7-**6**-5-1... hearing **6** as the passing tone to **5**, leaving **7** by a Major 2nd. (*Always have the students listen for the reference point, 1*)
4. Play 5-8, then 1-4... hearing a **Perfect 4th**, the inverse of a **Perfect 5th**, yielding an equally still, non-beating harmony.
5. Play 4-**3**-4-5-1... hearing **3** as the leading tone to **4**. The leading tone is the tuned minor 2nd rehearsed in item #2. You may also wish to point out the symmetry in the scale, the bottom 4 notes with **its** leading tone, the top 4 notes with **its** leading tone.
6. Play 8-7-8-7-6-5-1-5-4-3-4-5-1... hearing each note as it **FUNCTIONS**, listening for **INTONATION**... making “perfect” Major and minor 2nds which outline the Perfect 5ths and Perfect 4ths. Approach the 5ths and 4ths with “leading tones” **3** and **7**.
7. Play 1-4-3-**2**-1... hearing **2** as a passing tone from 3 to 1.
8. Play 8-7-6-5-4-3-2-1... hearing each note as it **FUNCTIONS**, listening for **INTONATION**... making “perfect” Major and minor 2nds which outline the Perfect 5ths and Perfect 4ths.
9. Play 8-7-6-5-4-3-2-1, then 1-2-3-4-5-6-7-8 ... in **ANY KEY**, improving knowledge of keys and the **CONCEPT of FUNCTION**.

*In the **FUNCTION CHORALE** text, this is further developed, but results will happen immediately, even with the limited information you will provide the students as printed above.*

Step Five: TRY A FUNCTION CHORALE

A *Function Chorale* is a 4-part chorale in which the pitches, normally represented by musical notation, are instead written numerically to illustrate as graphically as possible, the “function” of each pitch. Because numeric function is utilized rather than notes, each *Function Chorale* is key nonspecific and therefore playable in 15 keys.

Each chorale explores graduating examples of Harmony, intervals and sonorities. The ensemble, wind instruments, percussion and/or orchestra, is divided into 4 parts, Soprano, Alto, Tenor and Bass. Each **SATB** Chorale contains **functional** representations of the **vertical** and **horizontal** sounds normally implied by music notation. The **NUMBERS**, enhanced by your continued and reinforcing guidance, help the student identify each sound as an “**exact**” place or point in **SOUND-SPACE**.

Because the notation is numeric, students can be directed to switch parts, reading different lines and experiencing a different role in the musical architecture. At all times, students are encouraged to play in comfortable octaves. The game, challenge or skill which you will continually pose, teach, challenge and reinforce is one of **EXACTNESS**. By means of this exactness, an ever-improving intonation will reveal a more perfect and beautiful Music, a sound freed from phasing frequencies, the cause of **beating** and immature ensemble sound. This is the **LONG RANGE GOAL** of the **Function Chorales**.

The exercises should be conducted slowly, with great regard given to **Balancing**, (*a topic for another discussion*) **Tuning** and **Intoning**. As the students become familiar with the exactness of the pitches, you may then add dynamic swells, tempo changes, and fermati as felt.

Letters are used to draw distinction between the sections. This is because part of the **FUNCTION CHORALE** message is this: There is an **EQUAL** amount of responsibility and importance on **ALL** parts or voices. Often 2nd and 3rd players feel less important, while many times *they* are playing the **ROOT** of a chord, or a Suspension-Resolution, or the **THIRD** which defines the chord’s **QUALITY**.

Step Six: The TRANSITION

Here now, is a *real-to-life* scenario of how to utilize these **FUNCTION CHORALES**. Just yesterday, the Georgia Honor Band students played the first three function chorales. We rendered them in **Bb**. We talked about the **4-3** suspension in the bass voice in Chorale #2 which is provided in this article as an example. *Theory became practice*. We played different kinds of imbalancing games and created Music from the chorales. Then, because we were playing a piece with a lush chorale section in the key of **G**, I asked them to play Function Chorale #3 in **G**. This was preceded by recalibrating, or re- “key”-ing our thinking and intoning of the 8-7-6-5-4-3-2-1 in the new tonality.

Next, we moved to the Music, (*the nickel as it were*). The students were asked to “look” at the notes in a new way. The notes were simply a code for the “functions” they represented. The letter name of the note, the symbol on the page was the skin. The function beneath the symbol was the skeletal, architectural reality!

The **next** downbeat produced a result only attainable by a new and far-reaching insight. I wish that *all* band directors could have experienced this moment! This new **vision** of Music was bolstered by arming the students with specific tools and methods. When, in a matter of mere minutes, you are able to say something like, “... *second trombone, that’s a 4-3 suspension, and you’re not yet intoning 3 at a true half-step from 4*”, you have discovered a useful tool, worthy of the Time it takes to explain it.

One hundred and thirty high school students experienced something in and about Music which left them wide-eyed and silent. In that silence, I put to them this question. “*Look at what we’ve experienced in a matter of minutes. Minutes! What do you think would happen, if each and every day, you went deeper, ever perfecting and refining your listening skills? What would you sound like... say in 2 weeks? What would you sound like in a year? What would your high school program sound like in 2 years or three? That, my friends, I leave for you to discover.*”

And that, my friends, I leave for *you* to discover. Godspeed!

