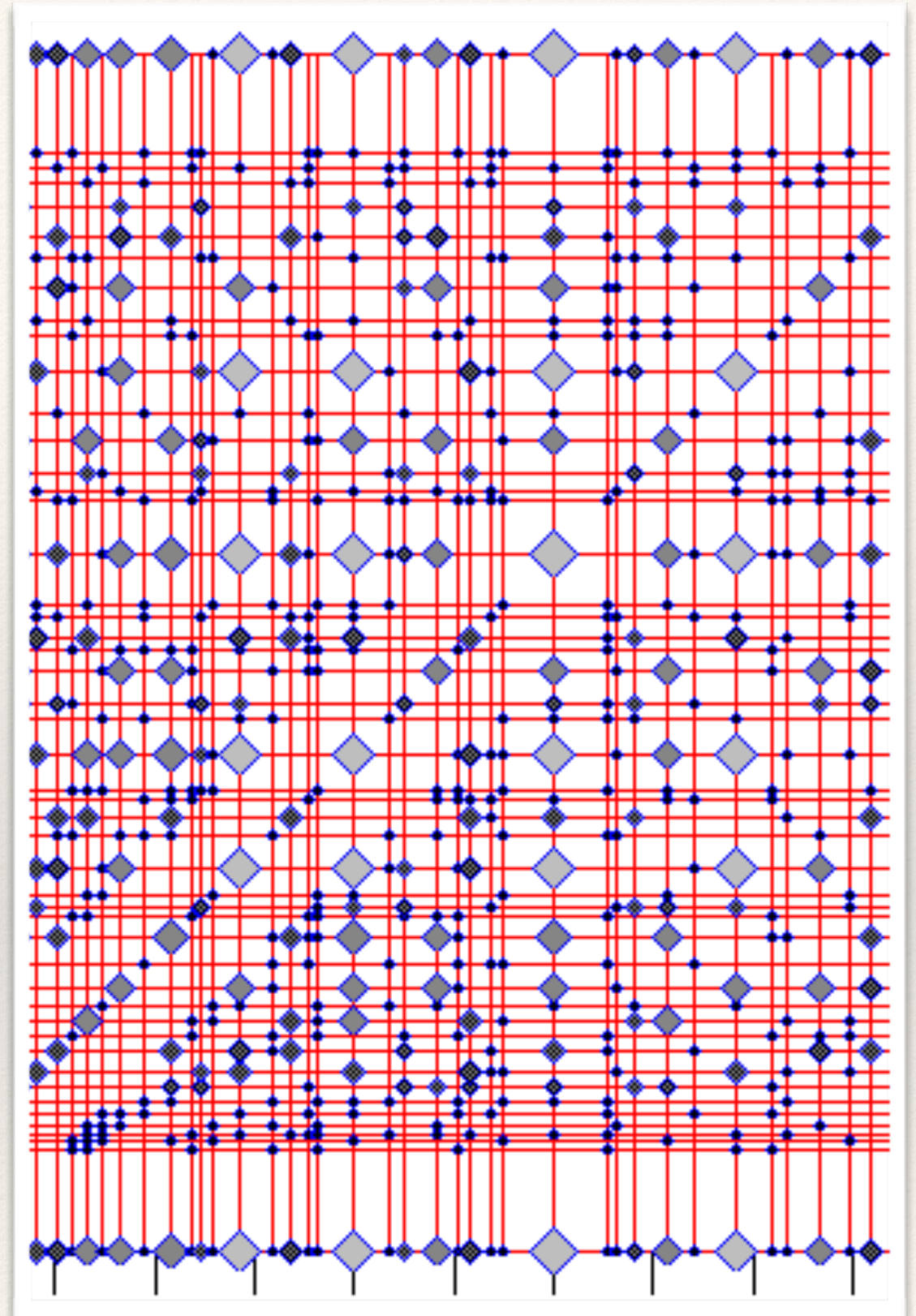


How PURE is Your Ensemble's Intonation?

Introducing the Yamaha Harmony Director

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Fulton County Public Schools
Conn-Selmer Corporation

Dr. Charles Laux
Alpharetta High School
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D'Addario Bowed Strings



Tuning Systems

- ❖ Equal Temperament
- ❖ Just Tuning
- ❖ Pythagorean tuning

Equal Temperament

- ❖ Our ears have become desensitized due to training with ET
- ❖ ET dominates and is heard in almost all popular music



Was that supposed to be Ab or G#?
Geez, make up your mind, Dad.



Semitone practice in the Mozart household

Why do ensembles play out of tune?

- ❖ Students play out of tune because the teacher allow it!
- ❖ Establish a strong value for in tune playing
- ❖ A non-musician can still discriminate an out of tune performance!

Degrees of intonation

- ❖ In tune
- ❖ Very close (1-2 cents off)
- ❖ Out of tune
- ❖ Way out of tune
- ❖ Remember:
 - ❖ A little out of tune is **still** out of tune!
 - ❖ It only takes one person playing out of tune to make the entire ensemble sound bad!

Prerequisites for good intonation

- ❖ Good technique
 - ❖ Embouchure, hand position, etc.
- ❖ Good tone
- ❖ Good equipment
- ❖ Bad intonation is almost always a sign of poor technique.

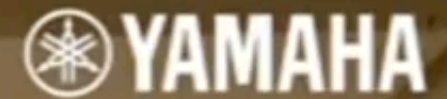
Cautions on using visual tuners...

- ❖ Students become visually shackled to a tuner and don't learn how to use their ears
- ❖ Tuners don't adjust to different tuning systems and only tune using Equal Temperament
- ❖ Tuners can be a fabulous teaching tool to develop an Aural image and how to physically manipulate pitch

About the Harmony Director

- ❖ Yamaha HD-200 Harmony Director
- ❖ Will play in Equal Temperament and Just Intonation
- ❖ Manual or Auto modes when in Just Intonation
- ❖ A unique tool and very practical
- ❖ Extremely customizable!
- ❖ Helps train the ears, not the eyes!

Unison Band Warm-Ups



The speaker is recommended to be put near the percussion especially the snare drum.

Effect of Timbre on Tuning

- ❖ Does timbre (tone color) impact the ability to tune accurately?
- ❖ Experiment with different timbres in your classroom
- ❖ Greer (1969) found that brass players tuned more accurately with like-timbre instruments and that timbres that lacked overtones (like an oscillator) posed problems with accurate tuning

What type of Intonation
should we teach ?

Diatonic Intervals
Chromatic Interval
Open Fifth
Basic Harmony

Demonstrating Harmony Basics

Handwritten notes on lined paper showing the G Major (GM) scale and its harmonic structure.

GM:

Scale Degree	Interval	Notes	Chord	Quality
I	Root	G	G	Tonic
II	3rd	B	G	
III	5th	D	G	
IV	7th	F#	G	
V	9th	A	G	
VI	11th	C	G	
VII	13th	E	G	

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A Balanced Major Chord

- ❖ In addition to tuning, balance is important!
- ❖ 50% tonic
 - ❖ (35% lower tonic, 15% higher tonic)
- ❖ 15% 3rd. (Color chord)
- ❖ 35% 5th

Resources

- ❖ Bravo Music “Basic Training for Concert Band” - Director’s Guide and Supplemental Exercises
- ❖ Garofalo - “Improving Intonation in Band and Orchestra Performance”
- ❖ Jagow - “Tuning for Wind Instruments”
- ❖ Fabrizio - “A Guide to the Understanding and Correction of Intonation Problems “

Tuning Apps

- ❖ Tonal Energy Tuner (iOS / Android)
 - ❖ Allows playing in Just Intonation
 - ❖ Attach compatible MIDI keyboard to iPad and play in Just Intonation
- ❖ ClearTune
- ❖ Peterson strobe tuner

References

- ❖ Duffin, R. W. (2008). How equal temperament ruined harmony (and why you should care). W. W. Norton.
- ❖ Greer, R. D. (1969). The effect of timbre on brass-wind intonation. University of Michigan).
- ❖ Laux, C. (2015). The effect of a tonic drone accompaniment on the pitch accuracy of scales played by beginner violin and viola students. (Electronic Dissertation). Retrieved from <https://etd.ohiolink.edu/>

Special Thanks

- ❖ Yamaha Corporation
- ❖ Conn-Selmer
- ❖ Hal Leonard Corporation
- ❖ D'Addario Orchestral Strings

Contact Us!

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Slides and more resources available at:

www.orchestrateacher.net