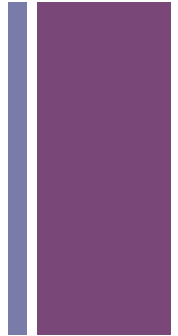


# Intonation Tendencies of Band Instruments

Whitney Brainard  
MUS 461  
Winter 2011

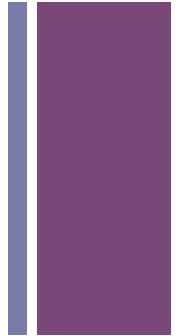
# + Daily tuning

- In band, make sure you warm up BEFORE tuning.
- If you are waiting to perform (ex. Festival), have students blow warm air through instruments (WITHOUT making a sound) to keep them warmed up.
- Bb Concert- Clarinet or Tuba [all play]
- F Concert-Tuba, Euphonium, Trombone [build from bottom up]
- A Concert –Clarinet, Oboe [double reeds, saxes, flutes, clarinets]
- No vibrato when tuning.



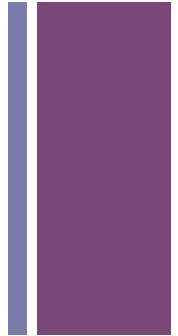
# + Basic methods to adjust pitch

- Pull out or push in (head joint, barrel, mouthpiece, tuning slide).
- “Lip” notes up or down by adjusting oral cavity (tongue position), jaw, etc.
- Alternate fingerings
  - Use SPARINGLY (mostly for sustained notes or releases).
  - Make sure they don’t hinder technique.
  - Students need to learn how to play in tune with standard fingerings.
- Alter air stream.
- Use a different reed.



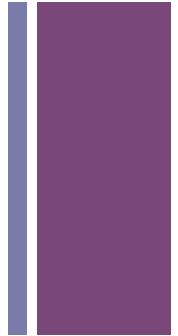
# + Flute

- Head joint pulled out = flatter, pushed in = sharper
- Temperature: cold = flat, hot = sharp
- Extreme range: GENERALLY altissimo = sharp, low = flat
- Dynamic level: loud = sharp, soft = flat (watch on releases or sustained notes)
- More than any other factor, air direction affects intonation. A raised air stream will raise pitch, and a lowered air stream will lower pitch. Jaw movement (embouchure manipulation) should be used to control pitch, but it can be done by raising or lowering the head.
- **Never teach "roll in/roll out."** The contact point of the flute to the lip should not be disturbed, nor should the hands be encumbered with unnecessary movement.
- The crown assembly in the head joint of the flute must be set at the proper place for good intonation. Cleaning/tuning rods have a mark on them which should appear in the center of the blow hole when the rod is inserted into the head joint. Students should be warned against moving the crown of the flute.



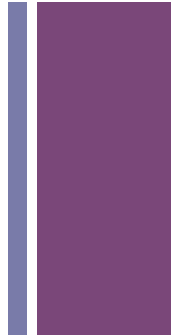
# + Oboe

- The reed is extremely influential on oboe intonation.
- Reed pulled out = flatter, pushed in = sharper
- Good oboists make their own reeds to play at  $A = 440$  with the reed pushed all the way in. It harms response to pull the reed out because of the "bubble" created in the receiving tube.
- Temperature: cold = flat, hot = sharp
- Reed strength: hard reed = sharp, soft reed = flat
- Older reeds that have been played for an extended period of time tend to go sharp because they begin to close.
- Embouchure: (sometimes directly related to reed strength) loose embouchure = flat, pinched embouchure = sharp
- Range: Generally lower register tends toward flatness, but the upper register can go either way depending on the reed and player. An experienced player tends toward sharpness in the upper register.
- Dynamic level: Loud = flat, soft = sharp **but not as predictable in this factor as clarinet/sax. It depends mostly on the reed, more so than single reed instruments.**



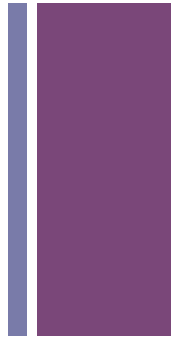
# + Bassoon

- Bocals come in three common lengths, with 2 being standard, 1 being shorter (sharper) and 3 being longer (flatter). There are also the rarer sizes of the longer 4 and the shorter 0 and 00. It harms response to pull the bocal out because of the "bubble" created in the receiving tube.
- Temperature: cold = flat, hot = sharp
- Reed strength: hard reed = sharp, soft reed = flat
- Embouchure: (usually directly related to reed strength) loose embouchure = flat, pinched embouchure = sharp
- Range: lower notes are sharp on many bassoons, but the bass joint can be pulled a little from the boot, because there is not bridge key between those two joints. High range depends on too many factors too generalize.
- Dynamic range: Varies by player. Experienced players flatten in extremely loud dynamics. Softer dynamics are harder to generalize. Young players usually do not have a wide dynamic range, and the problem of flattening in a diminuendo is really caused by reed, air and embouchure.



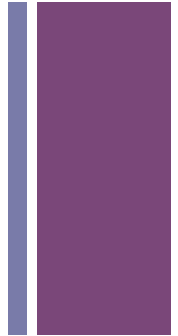
# + Clarinet

- Pulling barrel (then middle joint) = flatter, pushing in = sharper. Bell may also be pulled if C in the staff is still sharp after pulling at the middle joint. Pulling too much at the middle will cause throat tones to go flat.
- Barrel length: Shorter and longer barrels are available (not recommended for High School students).
- Range: Throat tones are sharp on almost every instrument, especially the A and B-flat. Altissimo register = sharp in more experienced players, though young players will often be a little flat when learning these notes. Use alternate fingerings, especially when these notes are sustained (see handout).
- Embouchure: biting or pinching = sharp, loose = flat
- Temperature: cold = flat, hot = sharp
- Dynamic level: loud = flat, soft = sharp (**note that this is OPPOSITE of flute**)
- Reed strength: soft reed = flat, hard reed = sharp
- Instrument mouthpiece: held too far out = flat, held too close = sharp
- Lay of the mouthpiece: closed = sharp, open = flat



# + Saxophone

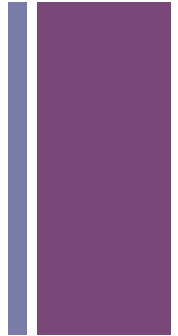
- Mouthpiece pulled out from neck = flat, pushed in = sharp
- Temperature: cold = flat, hot = sharp
- Dynamic level: loud = flat, soft = sharp (unless air is weak)
- Reed strength: soft reed = flat, hard reed = sharp
- Embouchure: biting or pinching = sharp, loose = flat
- Instrument Angle: held too far out = flat, held too close = sharp
- Lay of the mouthpiece: closed = sharp, open = flat
- Range: Low range is usually flat, high register is usually sharp, unless air or embouchure is weak.





# + Brass

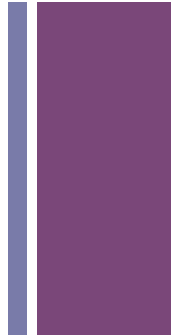
- Slides pulled out = flatter, pushed in = sharper
- Temperature: cold = flat, hot = sharp
- Extreme range: high = sharp, low can go either way depending on player's experience level.
- Dynamic level: loud = sharp, soft = flat
- Mutes: straight and harmon = sharp (pull out tuning slide when using), cup = flat
- Embouchure and voicing: pinching = sharp, loose = flat. The voicing that takes place inside the oral cavity (tongue position) can also move the pitch up or down.
- Mouthpiece design: shallow cup = sharp, deep cup = flat
- Trombone players often misplace slide positions.



# + Brass

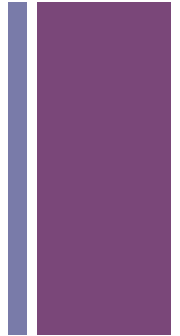
## ■ Valve combination tendencies:

- Open: in tune
- 2<sup>nd</sup>: in tune
- 1<sup>st</sup> : in tune
- 1st, 2<sup>nd</sup>: little sharp (3rd valve as substitute = little flat)
- 2nd, 3<sup>rd</sup>: little flat
- 1st, 3<sup>rd</sup>: sharp (trumpets MUST "kick" 3rd valve slide)
- 1st, 2nd, 3<sup>rd</sup>: very sharp (trumpets must kick 3rd valve slide)



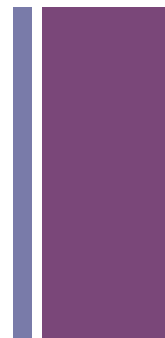
# + Brass

- Overtone series/Partial tendencies:
  - 1 in tune (1 not available on trumpet)
  - 2 in tune
  - 3 slightly sharp (2 vibrations per second)
  - 4 in tune
  - 5 slightly flat (some can be lipped, many players use alternate fingerings)
  - 6 sharp
  - 7 very flat
  - 8 in tune



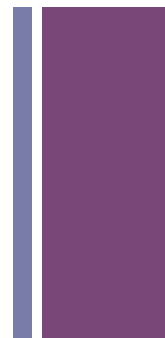
## + Percussion

- Mallet instruments will sound sharp in cold weather.
- Be aware of timpani that have pitch gauges on the side—they aren't always accurate!
- Vibes are often tuned to  $A=442$ .



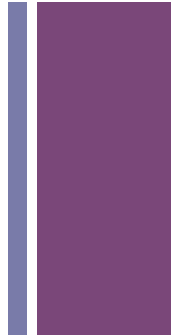
# + Piano

- Cannot adjust pitch during a performance.
- Have pitch-giving instrument tune to the piano before playing.
- Try to keep the piano in tune (easier said than done!).



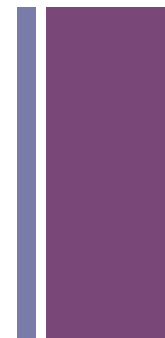
## + Harp

- Player is responsible for keeping own instrument in tune (this is a large part of harp lessons).
- Like piano, they can't adjust pitch easily during a performance or rehearsal.



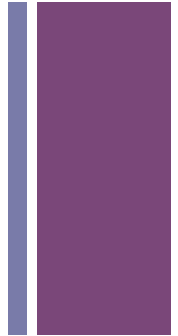
## + Playing with a Soloist

- In sections where members of the band play with the soloist, the soloist sets the reference pitch.



# + Things to Remember

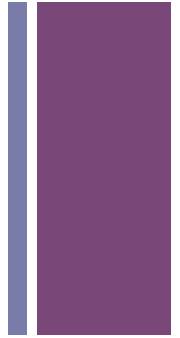
- No wind instrument is built to be in tune with itself.
- Any pitch on any instrument can be adjusted.
- Tuning is a **CONSTANT PROCESS**: just because you are in tune with the tuning note doesn't mean you will be in tune for the rest of rehearsal (stress this point to students: we tune **ALL THE TIME**).
- Pitch is always a compromise.
- Don't be afraid to use a tuner—just don't rely on it to tune each individual every day.
- Realize that band intonation generally drifts sharp throughout the duration of a rehearsal.





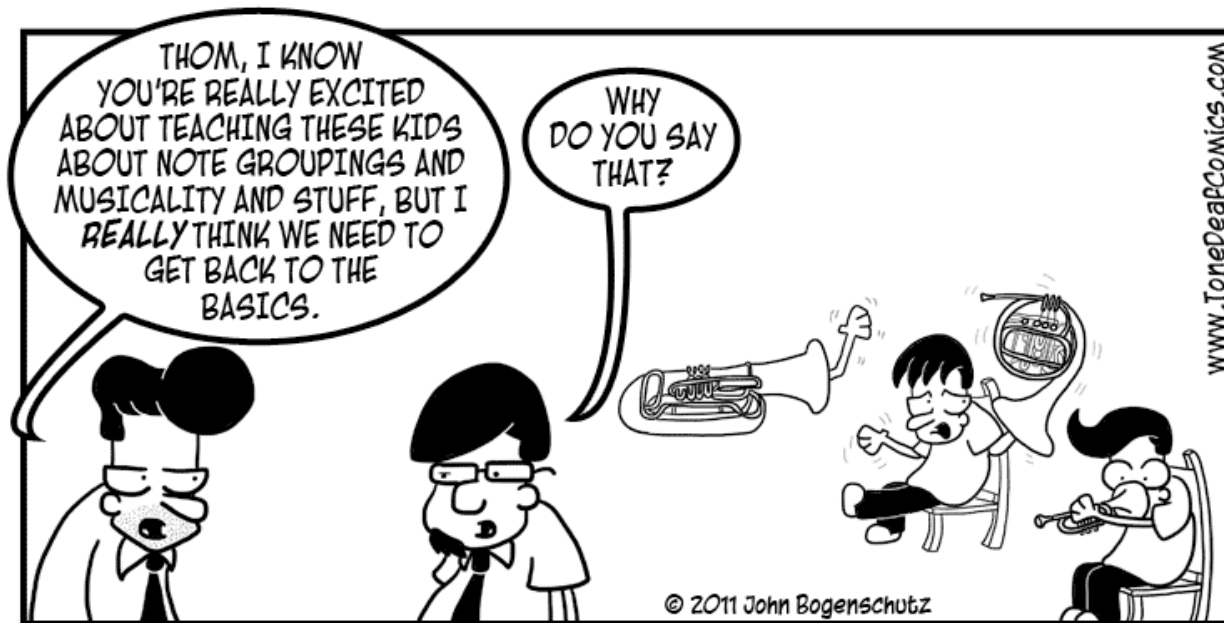
## + More things to remember

- Although intonation tendencies are mostly constant for each instrument, they will vary by individual player.
- Have students mark out of tune notes with arrows so they know how to adjust accordingly.
- If you can't play in TONE, you will have difficulty playing in TUNE.



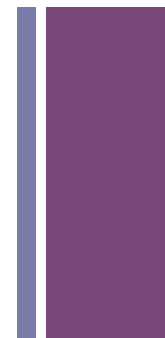
# + Don't forget the basics!

- One of the best things YOU can do for your band's intonation is constantly reinforce playing with good air, posture, embouchure, tone, equipment, etc. These basics DO affect intonation, and many are easy fixes.



# + Test yourself (and your students!)

- [http://www.schools.manatee.k12.fl.us/181DJACOBS/181djacobs1\\_1/wind\\_instrument\\_intonation\\_quizzes-\\_created\\_by\\_dave\\_jacobs\\_\\_manatee\\_high.html](http://www.schools.manatee.k12.fl.us/181DJACOBS/181djacobs1_1/wind_instrument_intonation_quizzes-_created_by_dave_jacobs__manatee_high.html)



# + Resources

- [http://www.tsmp.org/band/band/allen\\_intone\\_brassperc.html](http://www.tsmp.org/band/band/allen_intone_brassperc.html)
- <http://harpherald.wordpress.com/tag/harp-regulation/>
- Dr. James South, Southwestern Oklahoma State University: *Band and Orchestra Intonation: Teaching an Ensemble Skill* (2006 Midwest Clinic).

