# Vowel Modeling with the *Chiaroscuro* Whisper

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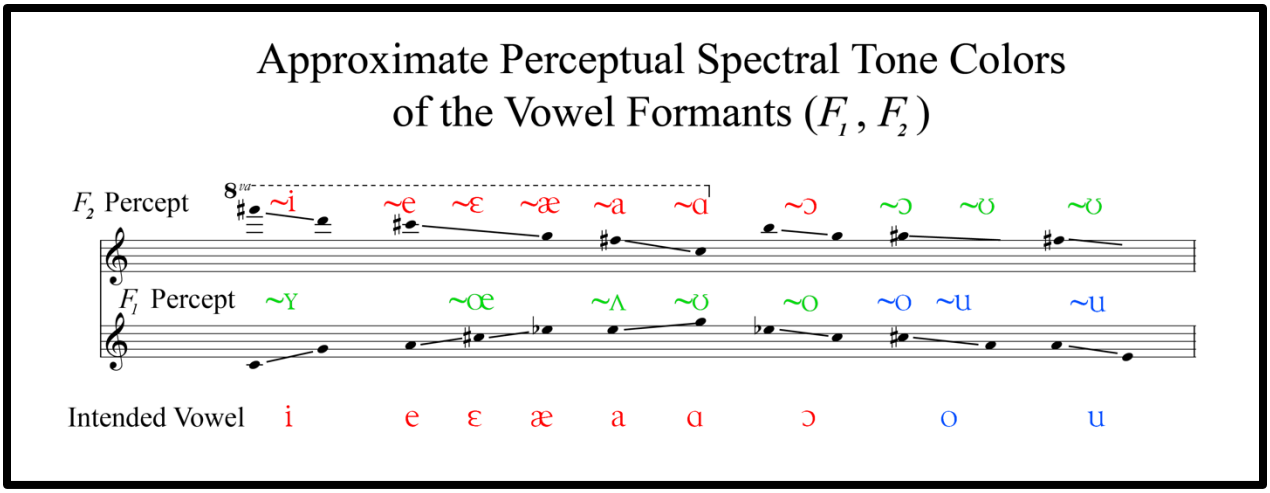
Vowels are composed of two vowel-like tone colors—the tone colors being featured by the first and second resonances of the vocal tract as the first and second formants. Playing with the percentages of those two colors and their perceived locations can lead to best resonance shaping as well as improved functional efficiency. Voicing is then motivated by the impulse to express a feeling, as well as the auditory targets made of these two vowel-like tone colors. In general, the target vowel guides vocal tract and mouth shaping, through which the complementary vowel is increasingly imagined with pitch ascent. Also, the brighter "over-vowel" is conceived as in the "back room" and the warmer "under-vowel" as out front. The over-vowel ($f_{R2}$ or $F_2$) pitch of vowels can be rehearsed using the *chiaroscuro* whisper. When well-tuned, its bandwidth is sufficiently narrow to yield the clear auditory pitch targets listed below.

| **Intended Target Vowel** | **Probable pitch of $F_2$ "over-vowel"** | **Complementary Vowel (allowed, not shaped) as perceived in context** | **The Literal Complementary Tone Color** | **Affective Motive** |
|---|---|---|---|---|
| | | | | |
| **Over-vowel** as the bright target shape | **The pitch of F2 dominates the whisper** | **Under-vowel** as the co-present, passive, warm, modifying complementary color | If **isolated** or heard spectrally as a single harmonic | **Possible Helpful Affects** (there are other options) |
| Tune this in the "back room" | The clearer the sense of pitch, the better tuned the resonance | Imagine this sound high & out front *without* shaping it as if it were the target vowel | The literal tone color of the harmonic(s) being featured by the first resonance | These affects help one to avoid excessive orality and sense pharyngeal locus |
| **~** i | B6 | **~** ʏ | **~ u** | Skepticism |
| **~** e | A6 | **~** ø | **~ u-o** | (what?!) |
| **~** ɛ | G6 | **~** œ | **~ o** | possible acceptance |
| **~** æ | F#6 | **~** œ | **~ o** | (hmm…maybe) |
| **~** a | E6 | **~** ʌ | **~ o** | knowing agreement |
| **~** ɑ | D6 | **~** ʌ-ɔ-ʊ | **~ o** | (duh, I knew that) |
| **~** ɒ | C6 | **~** ʊ | **~ o** | Sweet empathy |
| **~** ɔ | B5 | **~** ʊ | **~ o** | (aw, cute puppies) |
| **Under-vowel** as target shape; warm, close, in front | | **Over-vowel** as passive, brightening complement; brightening, in "back room;" keep the "top corners" high with pharyngeal grin. | The literal tone color of the harmonic(s) being featured by the second resonance | |
| Make this shape in front and as close as feasible | | Imagine this brighter sound in a tall "back room," using affect to tune and tone the pharynx | | |
| **~** o | A5 | **~** ʊ | **~** ɔ | Amused agreement |
| **~ u** | G5 | **~** ʊ | **~** ɔ**-o** | Flirting tease, mischief |




**Chiaroscuro Whisper Description**

As a proponent of this training device, I can report that students have found it to be extremely helpful, both in freeing their production and in finding best resonance tuning, with the qualification that it needs to be done well, and takes some exploratory practice and judgment. When most useful, its characteristics include:

- a **low, clear, internalized pitched noise** for $F_2$, but without resorting to pulling down or laryngeal depression--it should actually seem the easiest way possible to get an effortless low-pitched noise, feels unarticulated, very soft or neutral in the neck.
- a **specific pitch** set per vowel: /i e ɛ ɑ ɔ o u/-- B6 A6 G6 D6 B5 A5 G5
- **minimal but sufficient articulation change** between vowels, almost like a ventriloquist, to achieve a bright, focused, pharyngeal orientation rather than a "spread" fore-mouth orientation
- then **fairly noisy** with generous, easy airflow, not hollowed at all, so it is a "brilliant" deepness, a bright low-pitched noise
- an **internalized turbulence sensation**, unlike in the typical whisper, which is more effortful, mouthier, and has a higher larynx
- use of some **internalizing affect** (naughty mischief; skepticism, disgust, empathy)
- **calming, soothing, sincere, internalized sensations**, as if reassuring yourself, not like you are broadcasting
- the more open the vowel type, the more you will notice the **complementary vowel color** as well as the target color. For example, when you go from /e to ɛ/, try to minimize opening the front of the mouth but continue to use expression. You will hear some passive (unshaped) /œ / warming the / ɛ/. And on /ɑ / you will notice some /ʌ-ʊ / mixed in with the /ɑ /, keeping it lower and internalized rather than "spreading" it into the mouth.

***Chiaroscuro* Whisper Youtube Demonstrations**

*Chiaroscuro* Whisper Explanation & Demonstration (6 minutes, 47 sec)
https://www.youtube.com/watch?v=wrAreeFauok

*Chiaroscuro* Whisper Use for Active Vowel Modification
https://youtu.be/9AO8XbgImCY

Unfiltered *Chiaroscuro* Whisper, by Ken Bozeman (Complete VV Whisper File; 9 sec)
https://www.youtube.com/watch?v=GAFSyjmR218

A *chiaroscuro* whisper filtered for the F1 "under-vowel" contribution, by Ken Bozeman (F1 filtered VV File; 9 sec)
https://www.youtube.com/watch?v=tSxmfDxPUlI

A *chiaroscuro* whisper filtered for the F2 "over-vowel" contribution, by Ken Bozeman (F2 filtered VV file; 9 sec)
https://www.youtube.com/watch?v=Df4NezmmdO8

Singer's formant cluster filtered from a *chiaroscuro* whisper, by Ken Bozeman (SFC filtered VV file; 9 sec)
https://www.youtube.com/watch?v=Uw1mIwpaNyk