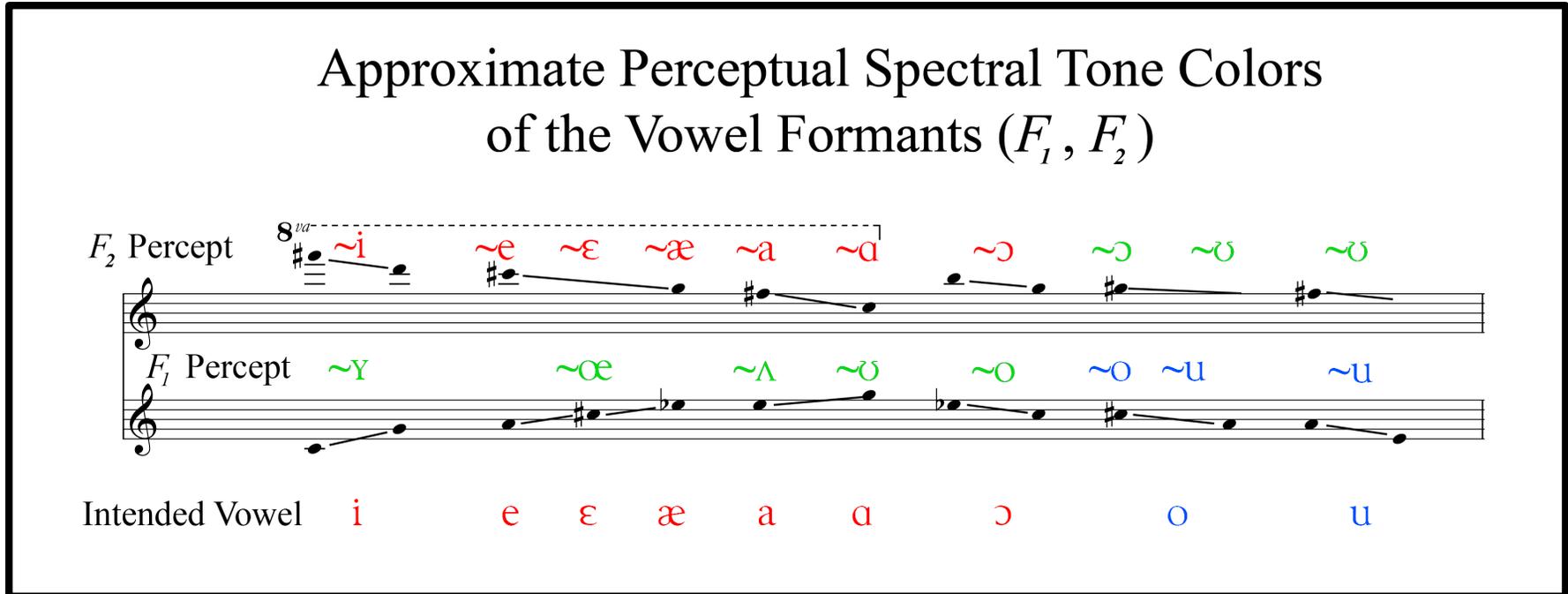


# Perception of Absolute Spectral Tone Colors and Vowel Formants



(From Bozeman, Kenneth. *Kinesthetic Voice Pedagogy: Motivating Acoustic Efficiency*. Inside View Press, 2017)

- Vocal tone is comprised of the tone colors of the harmonics being featured by the resonances (formants) of the vocal tract.
- There are essentially three such resonance areas:
  - The first two formants form our vowel percept by the blending of two vowel colors.
  - Higher formants cluster to add ring via harmonics with an [i]-like spectral tone color.
- The lower first formant ( $F_1$ ) forms a kind of “**under vowel**” percept. It defines /u/ and /o/ and otherwise adds depth, warmth, and roundness. It is helpful to locate its warmer percept high & to the front.
- The higher second formant ( $F_2$ ) forms a kind of “**over vowel**” percept, defining /ɔ/ through /i/ and adding clarity and brightness. It is helpful to locate its brighter percept in the pharyngeal column.
- The under vowel ( $F_1$ ) of the front to mid vowels is perceived as a mixed vowel.
- For pitches below  $F_1$  these percepts are passively present in well-formed vowels without active modification.