

The Perception of Harmonic/Formant Interactions in Evaluating the Male Passaggio

Current pedagogic wisdom suggests that a stable larynx position (vocal tract length) is a necessary condition for effective range development and passaggio training for male western classical vocal timbre. A stable tube length and shape results in a characteristic harmonic/formant interaction, in which the second harmonic of the voice source passes through the first formant of the vocal tract of given vowels at predictable locations. This acoustic interaction—H2 passing through F1—has been identified (Miller 2008, Bozeman 2007, 2008) with what pedagogic literature calls “turning over” or vocal “cover.” If this is the case, this event should be 1) perceivable to trained listeners (singers and voice teachers), 2) predictable in location by vowel and 3) identifiable by them as characteristic of favorable passaggio management. An initial pilot project was undertaken to test perception of the H2/F1 crossing locations with a group of undergraduate vocal pedagogy students and voice teachers, using the Madde voice synthesizer and formant settings characteristic of a bass baritone. The modal judgments of where the vocal “turnings” occurred were 1 to 4 semitones above the H2=F1 frequency match, a variance that may be a result of F1 bandwidth. Two subsequent tutorial classes have enabled further refinements of the training and testing procedures, the results of which will be presented.