

New Technique for Averaging Voice Fundamental Frequency
Responses to Pitch-Shifted Feedback
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The present study describes a new technique for the analysis of vocal responses to auditory feedback pitch perturbations in which individual responses are first sorted according to their direction and then separately averaged in groups of upward or downward directions. Subjects were tested in three blocks of trials where for the first two, the stimulus direction was predictable (block1 +100 and block2 -100 cents), and in block3, the pitch shift stimulus direction was randomized (upward or downward). Results showed there were slightly more opposing than following responses for predictable PSS direction, but randomized stimulus directions led to significantly more opposing than “following” responses. Results also show that in the older analysis methods, the averaging of opposing and following responses frequently led to very small responses because of the cancelation of oppositely directed responses. By averaging responses that only change in one direction, e.g., upwards, the average response magnitudes are much larger than previously reported. Utilization of this new averaging technique should lead to a reduction in response variability between subjects, which should improve the value of this technique for the analysis of voice control in people with voice disorders.