

Abstract Submitted
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Role of jet asymmetry in glottal flow aerodynamics¹ JOEL PELTIER, MICHAEL KRANE, RICHARD MEDVITZ, Penn State University — Finite element computations of flow through a constriction are used to illuminate the role of the Coanda effect in glottal flow and voice production. Steady-state computations were performed for a series of constriction openings. One set of simulations enforced transverse flow symmetry, while the other allowed the flow to develop naturally. Comparisons of measures relevant to vocal fold vibration and sound production are presented. These comparisons show that the Coanda effect primarily affects the differential transverse force on the vocal fold walls, while the axial force differs little from the symmetric case. These results suggest strongly that the primary role of the Coanda effect in speech is to drive asymmetric vocal fold vibration patterns, and that glottal jet instability contributes to voice perturbations and fluctuations.

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