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# Analysis of frication noise modulation from a physical model

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A physical model, built to investigate the aeroacoustic properties of voiced fricative speech, was used to study the amplitude modulation of the turbulence noise it generated. The amplitude and fundamental frequency of glottal vibration, relative positions of the constriction and obstacle, and the flow rate were varied. Measurements were made from pressure taps in the duct wall and the sound pressure at the open end. The high-pass filtered sound pressure was analyzed in terms of the magnitude and phase of the turbulence noise envelope. The magnitude and phase of the observed modulation was related to the upstream pressure. The effects of moving the obstacle with respect to the constriction are reported (representative of the teeth and the tongue in a sibilant fricative respectively). These results contribute to the development of a parametric model of the aeroacoustic interaction of voicing with turbulence noise generation in speech.