Enduring nature of epiphenomenal non-pulmonic sound production under disguise – a preliminary study

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In a series of studies of German read speech (Simpson 2001, 2007a, b; Simpson and Grawunder 2008), non-pulmonic sound production has been shown to be a systematic and consistent feature, albeit unobtrusive, of spoken German. The production and acoustic characteristics of epiphenomenal clicks, ejectives and percussives make them of particular interest in a forensic context. First, the spectral characteristics of the transients in these sound types make them relatively insensitive to the bandwidth of the line of transmission. Second, it is reasonable to expect that the epiphenomenal nature of their production might make them an enduring feature of different types of disguise. Not only can these sounds be seen as a by-product of a particular synchronisation of adjacent phonological elements, but the airstream mechanisms fuelling their production should be impervious to the most radical changes in voice pitch or quality.

In this preliminary study, using data from two female speakers collected from an earlier study examining air pressure changes (Simpson and Grawunder 2008), we show how velarically fuelled ingressive and egressive stop releases are maintained during both normally phonated as well as whispered speech. Indeed, due to the loss of the intensity of vocal fold vibration in the whispered speech, ingressive and egressive clicks become a much more apparent feature. The figure shows the velarically fuelled release (see arrows) of the nasal stop from two tokens of the expression “Wir sind am Kartenhaus vorbeigefahren”. The normally phonated version is on the left, the whispered on the right.

References