Epiphenomenal ejectives and the production of 'true' ejectives?

Adrian P. Simpson
Institute of German Linguistics, University of Jena

The temporal overlap of the phonetic correlates of adjacent phonological elements can give rise to sounds which are acoustically and, in many cases, audibly discernible from the phonetic correlates generally associated with the phonological elements they have emerged from.

Non-pulmonic epiphenomenal sound production is of particular interest, not least in relation to processes of sound change. Ohala (e.g. 1995, 1997) has described and exemplified possible mechanisms behind some types of epiphenomenal clicks and ejectives, and studies since Marchal (1987) have shown that such emergent sound production is a widespread feature of a number of languages not generally associated with non-pulmonic sound production in their phonologies.

While Ohala's work has uncovered possible mechanisms behind many types of epiphenomenal sounds, some details of the patterns we find cannot be adequately accounted for in the terms he proposes. Epiphenomenal ejectives in German are an example of this. The overlap of a final plosive and junctural glottalisation in a vowel-initial syllable in German, e.g. [veːtʔaɪn] *weht ein,* can give rise to a plosive release having the auditory and acoustic characteristics of an ejective. One account which has been offered for this (Ohala 1997) is articulatory movement occurring once the double oral and glottal closure has been made. So, for instance, any vowel-vowel movements flanking the plosive will change the volume of the supraglottal cavity with a subsequent increase or decrease in intraoral pressure. The subsequent release of the plosive will therefore be fuelled by an ingressive/egressive glottalic air stream. However, the strength of many glottalically fuelled plosive releases suggests that such volume changes might not be sufficient to give rise to the required change in pressure. An alternative account is that strong glottalically fuelled releases are not epiphenomenal, but are rather the result of an active upward movement of the larynx. However, there is another epiphenomenal account. Although the glottis is closed or predisposed for creak on release of the plosive, the necessary build up of pressure during the closure phase of the plosive can be accomplished with a pulmonic air stream. The plosive release is then strictly speaking fuelled by pulmonic air, but furnished with the auditory and acoustic quality of an ejective and, most importantly, no change in supraglottal cavity volume is required.

While providing a possible explanation of epiphenomenal ejective bursts in a language like German, this account raises the possibility of a similar mechanism lying behind at least some of the phonological ejectives in the world's languages. The role played by larynx movement in providing adequate pressure change has been drawn into question (e.g. Kingston 1985 for Tigrinya). Furthermore, a pulmonic component has been attributed to 'voiced ejectives', seen to rather be a sequence of voiced pulmonic plosive followed by a regular ejective, i.e. [dtʼ] (Snyman 1970, 1975).

Using acoustic data from both epiphenomenal ejectives in German and phonological ejectives in Georgian together with acoustic and EGG data of final ejectives in Suffolk English the plausibility of pulmonically fuelled ejective releases is discussed.