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Some acoustic cues in the detection of the Nepalese aspiration

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In terms of laryngeal setting, most languages have only two types of stops. In the Nepalese sound inventory there are four types of stops: voiceless unaspirated, voiced unaspirated, voiceless aspirated and voiced aspirated (or breathy voiced). The main objective of this paper is to present the prominent and consistent acoustic cues that differentiate the aspirated segments from their unaspirated counterparts of the Nepalese coronals - the dental-alveolar (t,th,d,dh), retroflex (T,Th,D,Dh) and affricates (ts,tsh,dz,dzh).

VOT (Voice Onset Time) (Lisker & Abramson 1964) is the familiar model used to characterize three of these phonation types - voiced, voiceless and aspiration stops. Some authors have pointed out that this method is not able to distinguish the plain voiced and voiced aspirated stops. An alternative segmentation model proposed by Mikuteit and Reetz (2007) is adopted here. Beside the analysis of the closure duration of segments, measuring the beginning of the burst or its release, we use other acoustic cues to characterize Nepalese aspiration such as F0 lowering, the structure of the lower harmonics and spectral tilt (Hanson 1997, Stevens 1998). This experimental work is based on the corpus based on four native speakers of Nepali.