

A Sociophonetic study of Stop Consonants in Nepali

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The present study accounts for the fundamental frequency (f_0) perturbations of stop types in Nepali. Nepali is an Indic language spoken in Nepal and in the north-eastern states of India. The study examines the stop consonants of Nepali spoken in the Maram region of Manipur, India. Nepali exhibits a 4-way laryngeal contrast; voiceless stops (VLS), voiceless aspirated stops (VLAS), voiced stops (VS) and voiced aspirated stops (VAS). The study examines the social factors: age, gender, level of proficiency, intra-inter-lingual contact and change due to extensive language contact with Meitei, a tonal language. Cross linguistically, voiced obstruents have been found to lower f_0 in the following vowel (House and Fairbanks 1953, Hombert 1979, Clements

2002 and Christovich 1969). This lowering has been attributed to physiological and phonetic factors by few (Stevens 2000, Atkinson 1978, and Honda 2004), while some argue that f_0 lowering following voiced obstruents serves to maintain a phonological contrast between voiced and voiceless obstruents (Ohde 1984, Kingston & Diehl 1994, and Svantesson & House 2006).

The results indicate that Nepali speakers maintain the f_0 perturbation patterns expected in 4-way laryngeal contrast, despite being in contact with Meitei for a very long time. Our findings lend support to the claim that while physiological and phonetic factors explain the expected f_0 perturbation, however, long standing contact with tonal languages fail to provide any significant interaction on the speakers' f_0 . Following an extensive language background questionnaire, Nepali speakers were divided into four levels of proficiency in Meitei; Very High, High, Medium and Low. Three repetitions of each word in a frame sentence were recorded under focal and non-focal conditions and analyzed using Praat. Time-normalized f_0 contours were measured for 10 intervals into the vowel and these measures were subjected to z-score normalization to reduce subject effects. A linear mixed effects model was used to analyze the data with R (R Development Core Team 2009). In our model the fixed effects included laryngeal setting (VS and VAS) and level of proficiency (LoP), and item and subjects acted as random effects. Likelihood ratio tests were performed to compare the fixed effects model with the random effects null models. Our results indicate that f_0 perturbation patterns follow universal claims, in that VAS lowers f_0 more than VS. However, despite sociophonetic conditions like very high level of contact and proficiency in a tonal language fail to impact the regular f_0 pattern following VS and VAS of Nepali speakers. These findings lend support to the claim that physiological and phonetic factors determine f_0 perturbation in the following vowel but sociophonetic conditions, such as high level of proficiency fail to provide any significant effect on the diasporic Nepali speakers' f_0 with regard to the two stop type (VS and VAS) in the present context.

Keywords: f_0 , sociophonetic, tone,

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