

# **TONE AND ASPIRATION CORRELATION IN PUNJABI: AN ANALYSIS USING HARMONIC SERIALISM**

## **ABSTRACT**

Punjabi is an Indo-Aryan language and unlike other Indo-Aryan languages, it is a tonal language. In Punjabi, the presence of tone has been widely correlated with voiced aspirated plosives and glottal fricative /h/. Many researchers have presented a diachronic viewpoint that the voiced aspirated plosives were historically present and with the loss of this series, tonogenesis has happened (Singh P. P., 2014) (Sandhu B. S., 1968) (Gill & Gleason, 1969), leading to the merger of voiced aspirated plosives series with the voiceless plosive series and with the voiced plosives series. Yet, there are others who presented a synchronic viewpoint that these voiced aspirates are underlyingly present and fail to surface (Eliezer, 1984), and the emergence of tone has a correlation with these underlying voiced aspirates. Also, the emergence of high tone has been related to the deletion of glottal fricative /h/ (Sadanand & Vijaykrishnan, 1998) (Singh H. , 1968). Previous researches have shown that tone in Punjabi is a lexical tone and is unpredictable. This research has taken the synchronic perspective forward and has tried to investigate the predictability of tone in Punjabi.

This thesis claims that the consonantal laryngeal feature [spread glottis], gets transferred to a vocalic segment as [tone] through delinking and relinking of laryngeal node. In the process of verifying this hypothesis, this thesis aims to:

a) explore how many tones there are in Punjabi, as there are conflicting claims in the past about the number of tones, from two-tone system (K.G.Vijaykrishnan, 2003) (Singh H. , 1968) (Eliezer, 1984) to three-tone system (Sandhu B. S., 1968) (Gill & Gleason, 1969) (Joshi, 1973) to four-tone system (Smirnov U. , 1973);

- b) explain how to characterize the tone in Punjabi typologically and explore its predictability;
- c) investigate what the correlation between voiced aspirated plosives and tone is, as well as what the correlation between glottal fricative [h] and tone is;
- d) understand whether these voiced aspirates are distinct phonemes/tonemes in the phonemic inventory of Punjabi;
- e) explore what the correlation between tone and stress in Punjabi is; and
- f) theoretically establish all of the above correlations through the framework of Harmonic Serialism (McCarthy, 2000).

The thesis is structured in five chapters. Chapter-1 introduces Punjabi as a tonal language with the literature review of the previous researches, and an introduction to the phonology of plosives and phonemic inventory of plosives in Punjabi. It also introduces the correlation between consonantal features and the suprasegmental features. This thesis proposes that there are two Tone Inducing Consonants (TIC) in Punjabi which induce tone. Both of these are the consonants with [spread glottis] feature. The feature [spread glottis] gets transferred to a vocalic segment, i.e., TBU (Tone Bearing Unit) as [tone] through delinking and relinking of laryngeal node. Chapter-1 introduces the idea that there are two types of Tone Inducing Consonants (TIC) in Punjabi:

- i) Voiced Aspirated Plosive VAP- TIC
- ii) Glottal Fricative [h]- TIC

Chapter-2 discusses the correlation between VAP-TIC, TBU and tone. First of all, through empirical data analysis, the correlation between VAP-TIC, TBU and tone is established. The number of tones is identified through acoustic analysis of data. The correlation between stress and TIC is also investigated. In Punjabi, stress conditions the placement of tone. Chapter-2 presents a

detailed empirical and acoustic analysis of data, thus verifying the hypotheses taken in this thesis. To verify the hypotheses further, the results of the nonce word elicitation experiment, conducted on speakers of Malwai dialect of Punjabi, are discussed in this chapter. TTTC (TIC TBU Tone Correlation) is developed and presented to show the predictability of tonal variations in Punjabi. Chapter-3 proposes a detailed theoretical analysis of data using framework of Harmonic Serialism. The step-by-step constraint interaction between faithfulness and markedness constraints is presented in HS tableaux, to theoretically draw three correlations: a) Stress and TIC correlation, b) TIC-TBU and Tone correlation, and c) TIC and voicing specification correlation. Chapter-4 presents the distribution of [h]-TIC and its correlation with TBU and tone. Through empirical and acoustic data analysis, the hypothesis is verified for [h]-TIC as well. Both the TICs have [spread glottis] laryngeal specification and both the TICs lead to triggering of tone on TBU, but they differ in their state of final output. Aspiration in TIC gets transferred to TBU in both the cases. Chapter-4 also presents the theoretical analysis for [h]-TIC using Harmonic Serialism framework. Chapter-5 presents the summary, conclusion, further thoughts and the future research possibilities. Chapter-5 concludes the thesis by verifying the hypothesis and stating the findings: a) the consonantal laryngeal feature ‘aspiration’, gets transferred to a vocalic segment as suprasegmental feature ‘tone’ through delinking and relinking of laryngeal node; b) The lexical tone in Punjabi is a ‘floating tone’ that emerges after delinking of laryngeal node and the tonal variations are predictable.

This thesis contributes to the field of phonology by giving TTTC (TIC TBU Tone Correlation) to predict the tonal variation in Punjabi.

Keywords: Tone, Aspiration, Punjabi, Harmonic Serialism, Voiced Aspirated Plosives, Glottal fricative /h/, Tone Inducing Consonant (TIC), Tone Bearing Unit (TBU)