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Indian Languages and the Concept of Segmental Speech- A Glimpse

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ABSTRACT

The human brain develops an understanding of language early on in development, understanding the importance of segmental phonology in language acquisition that occurs in infancy. However, segmentation isn't the only thing that helps infants learn their first language; rhythm also plays a key role in understanding and acquiring a complex vocabulary.

Keywords:- interpret, Deliver, Courage, Knowledge, Strength.

Introduction

Why is there a predominance of certain phonological features and units in world languages as compared to others? Why does there exist the primacy of certain phonological features in language acquisition? Why are certain features and units found to persist in languages in the context of historical development? Why is the fact that certain features and units in human languages are less prone to impairment as compared to others? These are some concerns of great relevance which can be explored m the backdrop of findings relating to phonological strength. These queries, I think, can lead to further research questions such as, how we can distinguish between inherent strength versus strength within a system. These research findings will provide an insight to correlate the notion of phonological strength with Optimality Theory (Prince and Smolensky, 1993). OTis usually considered a development of generative grammar, which shares its focus on the investigation of universal principles, linguistic typology and language acquisition. In Optimality Theory, for instance, certain constraints dominant in language X may not be dominant in language Y. According to Optimality Theory languages choose the phonetic form of a word that best satisfies a list of constraints which are ordered by importance: a lower ranked constraint can be violated when this is necessary in order to satisfy a higher ranked constraint. Hence, it is imperative to ask whether ranking is subject to universally non violable constraint hierarchy. The findings can also throw ample light upon the embedded segmental properties that design the distribution of a segment in a phonological string within the framework of Element theory (Beckley and Kuniya, 2006), a sub branch of Government phonology (Kaye,Lowenstamm and Verganaud, 1990) and the head dependent asymmetry as explicated in Dependency phonology (Anderson and Durand, 1987). The correlation existing between positional privilege and prosodic strength is an issue which can directly or indirectly reflect upon the notion of phonological strength in an explicit canvas. It is in debate whether the notion of strength should be characterized as a phonetic or a phonological property (Barnes, 2006). Strength asymmetries can be observed in different phonological processes ranging from aspiration to voicing. A segment can be differentiated from each other in terms of perceptual prominence characterized by pitch, loudness and 1 quality if strength is perceived from phonetic perspective. The phonetic prominence IS evidenced by many different physical cues, such as increased duration or amplitude, pitches extreme, released burst etc (Kingston 1985, 1990; Steriade 1993c, 1995 and Kirchner 1996). Pierrehumbert and Talkin (1992) in their phonetic study observed that consonants in weak positions are strongly reduced in duration. In phonological perspective strength can be attributed to certain word positions or prosodic environment. Lavoie (200 I) claims that the environment is important for the study of lenition, a claim supported by other studies (e.g. Hooper 1976, Escure 1977, Foley 1977). As for instance, word initial strengthening (Hock 1992) can be mentioned. In the same way the initial position is found to be stronger than the medial position (Beckman 1998; Steriade 1993a, Hooper 1976). In addition, in response to phonological patterning of segments the phenomena which deserve mention include positional maintenance of contrasts which are neutralized elsewhere, positional triggering of phonological processes and positional resistance to processes which apply elsewhere.

Literature Review on Strength Relations in Phonology

All language speakers are endowed with the intuitive or subconscious knowledge about strength asymmetries in their sound patterns as there is no language in the world which does not show the pattern of lenition or fortition of one kind or another, either diachronic or synchronic (Backley and Kuniya 2006). A great deal of effort has been spent in the domain of phonological literature to capture the notion of phonological strength in a non arbitrary way. The notion has been addressed both from phonetic as well as phonological perspectives such as positional faithfulness model, positional augmentation model, perceptual cue based approach etc

Approaches to Strength relations

Although the issue of strength is a topic that has been recently addressed in phonological literature yet the notion of asymmetric organization of segments and their representation in a phonological string can be analysed in the backdrop of various theories, the notable amongst which are Natural phonology, Government phonology, Optimality theory, Dependency phonology, Metrical phonology, the theory of Feature Geometry, theories of Positional Neutralization. In this chapter I try to address the main issues of the above phonological theories that I have mentioned above taking in to consideration the notion of phonological strength.

Natural phonology and Strength relations

Natural honology is credited with providing for the first time the explanatory model of sound structure which assigned the central role to functional phonetic principles such as articulatory effort and perceptual distinctiveness (Dogil Grzegorz, 2007). These conflicting principles are operationalized in a procedural mechanism comprising of weakening processes (minimizing articulatory effort) and strengthening processes (maximizing perceptual distinctiveness).While the weakening processes are mostly categorical in nature, the formalization of the phonological strengthening has become a perennial subject of investigation for the procedural models of phonology. The theory of Natural Phonology, a theory of phonological structure, acquisition and change originated by David Stampe and developed by Stamped and Patricia Donegan, operates with phonological processes, which constitute natural responses of the human vocal and perceptual systems to the difficulties encountered in the production and perception of speech. For instance, it is more difficult purely on aerodynamic grounds to produce a voiced stop than a voiceless one, as well as a voiced velar stop than an alveolar one while a bilabial one is the easiest of the three. Thus Natural Phonology tries to establish a correlation between phonological process and phonetic motivation. Phonological processes are universal, since all humans exhibit the same potential to respond to difficulties of speech. A child learns to inhibit some of the natural responses in order to anive at a language specific phonology and thereby implying the notion that the universality of the processes does not mean that they apply in all languages, only that they are motivated in all speakers (Donegan, 2002). This notion has been addressed by ~p with special reference to the tension between two conflicting criteria (ease of production vs clarity of perception) and between paradigmatic (segmental) and syntagmatic (sequential) difficulty. Processes perform substitutions in order to adapt the speaker's phonological intentions to his/her phonetic capabilities as well as enable the listener to decode the intentions from the flow of speech. They are thus either context sensitive, assimilatory substitutions (lenition) or context free dissimulator ones (fortitions). Higher order prosodic processes map segmental material on rhythmic patterns prior to the operation of articulatorily and perceptually driven substitutions. In the framework ofNP, phonemes are treated as fully specified, pronounceable (trcepts. However, Stampe (1979) draws a line of demarcation between phonology and morphonology as in his words, morphological rules do not have any synchronic phonetic motivation and have to be learned by children inn language acquisition. A phoneme in NP is an underpaying intention shared by the speaker and the listener and this shared knowledge of intentions guarantees communication between the speaker and the listener within a given language, even if the actually pronounced forms diverge substantially from what is intended, for example in casual speech. The claim that phonemes are naturally pronounceable implies that they are derivable by means of phonological processes, which can manifest themselves in all types of phonological behavior of language users in normal performance, in child language, in second language acquisition, in aphasia and other types of disorders, in casual speech in emphatic speech, in slips, errors, language games, whispered and silent speech, as well as in the changing phonological behavior resulting in sound change. 14 Even the phenomenon of phonological substitution, a mental operation, is clearly motivated by the physical character of speech- its neuro-physiological, morphological, mechanical, temporal and acoustic properties. The fact that some phonological substitutions are more predominant in the speech of children bears ample testimony to the fact that they are ultimately motivated by the physical character of speech because substitutions are mental in occurrence, but are physical in teleology: their purpose is to maximize the perceptual characteristics of speech and to minimize its articulatory difficulties. From this perspective it can be claimed that phonological processes are mental operations performed on behalf of the physical systems involved in speech perception and production (Stampe 1979)

Summary of the Research Paper

It is generally assumed that all native speakers are endowed with the intuitive knowledge about the strength asymmetries of the speech sounds evident in their language system. There is a need to represent this strength relation responsible for the organization of the sounds in a non arbitrary way. This dissertation is an attempt at representing this underlying patterning of segments holding between units of representation in an explicit manner with rational as well as empirical evidence. This study drives home the point that the notion of phonological strength is instrumental in the phonological patterning of segmental asymmetry in addition to the hierarchical representation of phonological features. As seen in the preceding chapters, phonological strength relation has been interpreted in this study from various perspectives such as metrical phonology, feature geometry, dependency phonology and government phonology, positional faithfulness and positional augmentation approach, licensing by cue model, pure prominence model and Element theory etc. The findings of this thesis can be subsumed under two headings: phonological and phonetic. Although phonetic conditions can not be dissociated from phonological theorizing yet for convenience the findings of this study are divided in to two separate headings although the findings in general claim that positional asymmetry is not only phonologically patterned in a dynamic and distributional way but also phonetically authenticated. In other words, the onset coda asymmetry this study shows has some phonetic underpinnings. In other words, positional neutralization of the features suggest that features are licensed preferentially in those positions in which phonetic conditions make them maximally robust. And features are subject to alternation where they are phonetically weak, that is characterized by articulator less effort.

Phonetic findings:

The notion of strength bears phonetic underpinnings too, especially in relation to acoustic parameters. Strength is interpreted not only in terms of phonological theories but also subject to phonetic implications. As outlined the case of h-deletion in Hindi it is found that h in the word onset and h in the word coda position are characterized by different acoustic properties. The findings are listed below: i) The observation proves the assumption that there lies a correlation between specific articulatory states and gestures and specific acoustic cues. It further implies that phonetic and articulator gestures can not be studied without taking in to account the acoustic cues. Phonological features are licensed by both articulator and acoustic parameters.

ii) This study bears ample testimony to the fact that the defining acoustic attributes of a feature are a direct consequence of its articulator definition. The fact that onset coda asymmetry can have phonetic implications is shown in Chapter Seven with reference to h deletion in Hindi. With the help of PRAAT analyses it becomes quite evident that 'h' in onset position and 'h' in coda position in Hindi are characterized by asymmetric acoustic features. Word initial and word medial 'h' followed by 'a' display same acoustic features. The reason for this symmetry may lie in the fact that in both the positions (e.g in 'hathi' and 'suhana') the segment 'h' assumes the onset position. 'h' in these positions is characterized by acoustic properties which can easily distinguish themselves from surrounding vowels. It is also observed from the PRAA T analysis that 'h' loses its formants in the coda position which are present in word initial and onset position. In this position the acoustic properties pertaining to 'h' are lost. This position is characterized by less laryngeal noise.

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