Analysis of Intonation-the State of Art

K. Manjula
Clinical Lecturer,
Dept. *of Speech Pathology,*
AH India Institute of *Speech* **and** *Hearing, Mysore-570* **006**

Analysis of Intonation in different languages has ceased to be of sole interest to an elocutionist. More and more professionals like the linguists and phoneticians are involved in this task. Study of structures and functions of intonation features from the I inguistic and acoustic point of view has gained momentum in the recent past. Intonation in different languages and its variations in different contexts are being critically evaluated by various authorities; principally, the linguistis and phoneticians (Bolinger, 1972; Hadding-Koch & Studdart-Kennedy, 1964; Lehiste & Peterson, 1979;) who have made their valuable contribution towards an understanding of the intonation features. The knowledge contributed by the these various authorities in identifying the intonation features and rules of a particular language are of great help when one attempts to identify and describe the "unusual" or "deviated" intonation features of an individual or group of individuals with defective speech in that language,

Intonation refers to the changes in the pitch patterns of the utterances. Based on the linguistic function of the pitch, languages are generally divided into 3 types - (1) Tone accent languages (2) Intonation languages or stress-accent languages (3) Pitch accent languages (Cruttenden, 1986). In tone languages, changes in pitch occur over a syllable or morpheme or words,

Words uttered with two different pitch patterns indicate two different meanings in a tone language, e.g. Chinese and Thai languages. In Intonation languages, therecurring pitch patterns occuron a word or phrase or sentence of varying length e.g. English and Kannada. To date, the distinctions between Intonation languages and Pitch accent languages are not very clear. The accented syllable (syllables assuming prominence in an utterance) may occur in any position of an utterance depending on factors such as the intent of the speaker and the word that has to be emphasized in an Intonation language, On the other hand, in Pitch accent language such as Japanese, the accepted syllables of the words are usually uttered with a high pitch followed by a low pitch on the following syllable. Thus, the pitch of the unaccented syllable in a pitch accent language is predictable by rule. These accents which follow certain rules cannot be reversed by intonation as is possible in intonation languages.

English, as an intonation language has been extensively studied. The description of English intonation (both British and American) is so extensive that often one cannot help but depend more and more on these while attempting to analyze the intonation features of any other languages.

The Intonation system of English as described by the various American and British

phoneticians and linguists has varied over the years. Following are some notable studies.

Pike, 1945; - described 4 levels of intonation variation, 2 degrees of stress, 2 types of pauses and one primary contour symbol.

Trager & Smith, 1951; - describe 4 stress, 4 junctures and 4 levels.

Kingdon, 1958; - describes 6 tones, the variants of each tone is described as high/low, normal/emphatic. 3 types of unstressed syllables are also unidenti fied.

Bolinger, 1958;- identified 3 main accents. The first type is divided into two-
(i) failing sentence-final intonation,
(ii) rising sentence-final intonation, the second and third accents are identified as high rising and low rising respectively.

O'Connor and Arnold, I960;- identify 6 nuclear tones, 3 types of head, and 2 types of pre-head.

Halliday, 1967; -described 4 phonological units; each one being subdivided into several categories. 7 types of primary tone and 9 types of secondary system at pre-head.

Crystal, 1969; - distinguishes 3 simple tones, 4 complex tones, 5 composite tones 5 values of simple pitch range, 3 values of complex pitch range, 8 types of head, 4 types of pre-head, 3 types of onset, 3 values of simple tempo, 2 of complex tempo and 6 types of stress.

It is important to note that these classification systems are further subclassified by these investigators, making the matter more complicated and perplexing.

If this is the case with the description of Intonation systems of English, the transcriptions used for "marking" the intonation features are no less complex. The symbols/notations as used by various authors also vary from each other. The following are typical styles

1. The notations used by Halliday (1987) for tones of English are-

Symbol
//   tone group boundary
/   foot boundary
    tonic syllable
    silent ictus
    pause

2. Cruttenden, (1986) has cited the use of following notations while analyzing British English

/   intonation group boundary.
\   fall from high to low (high fall)
    fall from mid to low (low fall)
I   for a rise ending high (high rise)
/   for a rise ending mid (low rise)
v   fall rise,
    rise fall.
>   for a mid level.
'   for a high pre-nuclear accent.

In an attempt to summarize these facts, Jassem and Demenko, 1986; state - "A comparison of the different systems proposed for standard English, British or American would require separate monographic treatment, but some of the salient divergencies may be identified". the salient features identified by them are as follows.

1. The intonation curve discussed as a whole or in fragments. Nuclear/Prenuclear, Tonic/Pretonic, Head/Prehead.

2. The intonation curve discussed in terms of levels or configurations . While Pike (1945);, assigns 4 levels (low, mid, high, and extra high) to the intonation curve, Many British investigators indicate the configuration of the curve as falling, rising, falling-rising, etc,.

3. The types and number of functionally distinct categories within the intonation

curves, e.g. Are level tones, or rising-falling tones etc., functionally distinct or are they allotones?

4. The dependence of the curve on asemantic, semantic and pragmatic criterion.

Studies of the intonation system of other languages such as French, Danish, Russian, Spanish and others are also in abundance. Indian languages, however, have not been studied to the same extent. Of the few Indian languages that are subjected to analysis of intonation features, Punjabi (Sethi, 1971) and Tamil languages (Ravisankar 1987) supercede the list. Very few attempts have been made to identify the intonation features of Kannada language, (Manjula. 1979; Nataraja, 1981; Rathna, et al., 1982; Nandini, 1985), but these attempts have remained fragented and hence do not give a comprehensive view.

Reviewing the available literature on intonation languages, one notices that the 'pitch curve' or the 'fundamental frequency[1] curve has always remained in the foreground of any intonation study inthe intonation languages. Another factor which is highlighted in all these systems is that the syllable is considered as a basic functional perceptual unit of pitch variation in speech and each syllable is represented as having a level, falling, rising, rising-failing, failing-rising pitch etc;. While the earlier studies relied on perceptual judgement for the analysis of the pitch curves recent studies have resorted to instrumental analysis.

Some of the drawbacks of the studies based on perceptual judgement, such as the inter & intra judgement errors, speaker variability, contextual differences and segmental variability can be overcome in an instrumental analysis. The advent of new and sophisticated instruments for the analysis of the pitch curve has made the task of analysis of intonation features easy. Some of the instruments available for analysis of intonation are; the PM 100, PM 300, Visipitch, Spectrographs, fundamental frequency meters, and the various sortware packages used with computers. Using these, the manual task and the time factor have been drastically reduced. It has also enabled one to solve some of the unsolved issues of the era of the perceptual judgement techniques. At the same time, it has also given rise to new problems. These problems include, the poor accountability for the mismatch between perceptual and instrumental results, and inadequate control over contextual, speaker and lingustic effects.

Rossi, etal; (1981)areof the opinion that as in perceptual analysis, certain factors should be considered if the results of the analysis of the pitch curves obtained through instrumental analysis are to be interpreted as valid. These factors are given below:
- the speakers attitude
- the quantity of information carried by the different parts of the utterance.
- the reliazation of lexical and morphological stress.
- the speakers personal voice features.
- the socio cultural characteristic and regional speech traits.
- the age and sex of the speaker.
- the nature of the segmental units which constitute the signal.

in India, very little information is available intonation systems of different languages. Study of these by linguists, phoneticians and Speech pathologists is warranted to form an adequate database for further research and clinical applications. Keeping in mind the benefits and drawbacks of both the approaches i.e., instrumental and perceptual, one can reap maximum benefit by

exploiting the advantages of both the approaches. Instrumental analysis and its results checked against the perceptual test results and vice versa would prove to be lot more effective than taking up a puristic viewpoint.

REFERENCES :

Bolinger, D.L., 1958., "A theory of pitch accent in English", word, Vol 14, P 109-149.

Bolinger, D.L., 1972., "Intonation", Penguin pub Inc., Middlesex, UK.

Cruttendan, A., 1986., "Intonation", Cambridge uni. press., Cambridge.

Crystal, O., 1969., "Prosodic systems and intonation in English"., Cambridge uni. press., Cambridge.

Hadding-Koch, K & Studdert-Kennedy, M., 1964., "An experimental study of some intonation contours", Phonetica, Vol 11, P 175-185.

Jassem, W & Demenko, 1986 "Extracting linguistic information Fo traces" in "Intonation in from discourse"'(Ed) Johns, C, -Lewis., 1986. P-l-17., College hill press., San Diego.

Kingdom, R., 1958., the ground work of English intonation"., Longman, Green &Co., London., New York & Toronto.

Lehiste, I., & Peterson, G.E., "Investigation of prosodic features in Acoustic Phonetics", Ed. Fry, D.B., Cambridge uni. press., Cambridge., P 428-35.

Manjula, R., 1979., "Intonation in kannada Some aspects", Unpublished dissertation, Mysore Uni.

Nandini, H.M., 1965., "Some Prosodic aspects in Kannada" Unpublished dissertation, Mysore Uni.

Nataraja, N.P., 1981., "Intonation in 4 Indian languages under 5 emotional conditions", Jnl of A.I.I.S.H., Vol 12, P22-27.

Pike, K.L., 1945., "the Intonation of American English Uni., of Michigan, Ann Arbor, Mich.

Rathna, N., Nataraja, N.P.,,Subramanyaiah N.G. 1982., "A study of prosodic aspects of kannada language" Jnl of A.I.I.S.H., vol 12, p 1-6

Ravishankar. S 1987 "Intonation of tamil" - unpublished Ph.D dissertation Annamalai University, Madras.

Rossi, et., al., "Intonation in discourse" (ed) Johns, C, Lewis 1986, p-215-227.

Sethi, J., 1971., "Intonation in statements & questions in Punjabi". Monograph 6, C.I.E.F.L. pub., India.

Trager, G.L., & Smith, H.L., 1951., Outline of English structure", Studies in Linguistics, No., 3, Battenburg, Norman, Okla.