

INTONATION PATTERNS IN MANIPURI – KANNADA BILINGUALS

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ABSTRACT

Intonation refers to the movement of pitch in a sentence/phrase. Manipuri is a tonal language having a lexically significant, contrastive, relative pitch on each syllable while Kannada is a non-tonal language with typical patterns of intonation for different types of sentences. Philip, Maheshwari and Savithri (2008) indicated a carryover of tonal patterns from Manipuri to English in Manipuri-English bilinguals. However, insignificant efforts have been attempted to investigate intonation patterns of tonal language speaker speaking non-tonal language. Hence, the present study compared the intonation patterns in native Kannada speakers and bilingual Manipuri- Kannada speakers speaking Kannada. Two groups of subjects participated in the study. Group I included five native Kannada speakers and Group II had five Manipuri- Kannada late bilingual speakers. Subjects imitated four standard Kannada sentences depicting question, statement, surprise and sarcasm. The recorded sentences were analysed for intonation contours, tone height and tone duration using Praat software. Results of the study indicated decreased F_0 range and 100% correct F_0 contours for statements in group II subjects.

Keywords: Manipuri, Kannada, Intonation patterns, F_0 range, F_0 contour.

INTRODUCTION

All languages use intonation to express emphasis, emotions but not every language uses tone to distinguish meaning. When this occurs, tones are equally important as phonemes and they are referred to as “tonemes”. Languages that make use of tonemes are called as “tonal languages”. Thus in tonal languages, the meaning of the verbal structure can be modified by the intonation patterns observed. Among Indian languages, Manipuri, Punjabi, Lahanda, Rabinian and Western Pahari are tonal.

In non-tonal languages, it is usually the terminal F_0 pattern which varies across the different sentence types (Mathew & Bhat, 2010). For example, a typical pattern of rising contour distinguishes Yes- No questions from statements where a falling F_0 contour is seen (Fonagy & Magdics, 1963; Manjula, 1997). But, these intonation patterns are not strictly universal. Exclamatory sentences had a raising pattern in Kannada and Konkani (Mathew & Bhat, 2010), which is a similar finding reported for English (Bolinger, 1972), whereas, a falling pattern was seen for exclamatory sentences in Tulu. This is in accordance to the study done by Bassano and Mendes (1994) and Raithel and Hielscher (2004), in this type of sentence in French and German, respectively.

The pattern for the interrogative sentences in Tulu and Konkani were the same, a raising pattern (Patil, 2007; Mathew & Bhat, 2010). Similar results are reported for French and German languages (Bassano & Mendes, 1994; Raithel & Hielscher, 2004). In Kannada, this raising pattern was seen for females but not for males (Mathew & Bhat, 2010). This finding is contrary to that of an earlier study by Suma and Manjula (2007), who reported that there was no significant difference, in the extent of rise (steep/ shallow) to mark a statement effectively as a question.

Manjula (1979) reported that sentences in Kannada with emotions are expressed with a final fall in the intonation pattern. Nataraja (1981) reported common intonation contour in four Indian languages- Kannada, Tamil, Gujarati and Hindi in five emotional conditions. Nandini (1985) found that neutral, jealousy, hesitation, request are the types of sentences that have shown a final fall (either a gradual or steep) and other sentence (question, anger + question, frustration, accusation) have a final rise.

Studies on expression of emotions of anger, frustration, grief, joy, jealousy, neutral, surprise and worry were done in Tamil, Malayalam, Telugu and Bengali languages. In Tamil, most of the emotions were characterised by final fall F_0 pattern and fear was characterised by final rise pattern (Varshini & Nataraja, 2000), while in Malayalam and Telugu languages all types of emotions were characterised by final fall patterns (Mini & Nataraja, 2000; Sandhya & Nataraja, 2000). In Bengali, all emotions had terminal falling F_0 patterns except those expressing fear and surprise (Saha & Nataraja, 1999).

Another study in Punjabi done on emotions of anger, happiness, sadness and neutral revealed that emotions with more excitement were spoken with raising F_0 patterns, whereas the less excited emotion was spoken with falling contour (Dawood, Shahid & Touqeer, 2004). Also, happy and sad intonation contours ended at low and angry ended at high pitch level.

Tonal languages, however, have a different system in itself. They signal a difference in meaning with tone. For example, Manipuri (a tonal language spoken in North- eastern part of India) has three simple tones (rising, falling and level), two complex tones (rising- falling, falling- rising) and one compound tone (rising- falling- rising) (Radhakrishnan et al. 2005). It has been found that when intonational patterns in bilingual Manipuri/ English speakers were compared, a carryover of intonational patterns from Manipuri to English was observed which was not seen in bilingual Malayalam/ English speakers (Philip, Maheshwari & Savithri, 2008).

However, the intonation patterns used by a native speaker of a tonal language speaking a non- tonal language has not been well documented. In this context, the present study compared the intonational patterns of native Kannada¹ speakers and Manipuri²- Kannada speakers speaking Kannada.

METHOD

Participants: There were two groups of participants. Group I included five native female Kannada speakers. Five native female Manipuri speakers who have learnt Kannada formed Group II. Their years of exposure to Kannada varied from 2 to 4 years. They had learnt Kannada as a part of their curriculum in College.

Stimuli: Four sentences depicting four emotions- question, statement, surprise and sarcasm formed the stimuli.

Procedure: Each sentence was spoken by a native Kannada speaker in a quiet environment which was audio- recorded. The sample was given for perceptual rating and was confirmed to have expressed the intended emotion. Subjects were seated comfortably in a quiet room and were tested individually. They were instructed to listen to the audio sample provided and imitate the production as closely and naturally as possible thrice. Subjects were allowed to practise before recording. A digital recorder was held at a constant distance of 10 cm and the speech samples were audio- recorded.

Perceptual analysis: The audio samples were given for perceptual evaluation to two experienced Speech- Language Pathologists. They were instructed to make a forced four- choice and were asked to classify the sentences heard into the four chosen emotions. Only those sentences which were classified as depicting the intended emotions were considered for further analysis.

Acoustic Analysis: Intonation contours were analysed using Praat software (Version 5.2.01, Boersma & Weenink, 1999) and highest and lowest F_0 in each sentence was noted to calculate F_0 range and type of F_0 contour for each sentence was noted.

RESULTS

Perceptual analysis: All speech samples of group I were judged to depict the intended emotions. The interrogative sentences spoken by Group II participants were judged accurately 60 % of the time and as statements 40 % of the time. All statements were judged to depict the intended emotion. Of the sentences depicting surprise, 20 % were judged to depict surprise, 40 % as question, 20 % as statement and 20 % as sarcasm. Of the sentences depicting sarcasm, 40 % were judged to depict sarcasm and 60 % as statements. Table 1 shows the results of perceptual evaluations in both groups.

¹Kannada is a Dravidian language predominantly spoken in Karnataka. It is one of the 30 most spoken languages in the world. It is spoken by roughly 50 million people (Census, 2001). It is the official and administrative language of the state of Karnataka. ² Manipuri is a tonal language belonging to Sino- Tibetan language family and is the official language of Manipur. It is also spoken in Bangladesh, Burma and other parts of Northeast India. It has 1. 4 million native speakers. (Source: Wikipedia, 2011)

Group I				
Emotions	Interrogatives	Statements	Surprise	Sarcasm
Interrogatives	100	0	0	0
Statements	0	100	0	0
Surprise	0	0	100	0
Sarcasm	0	0	0	100
Group II				
Interrogatives	60	40	0	0
Statements	0	100	0	0
Surprise	40	20	20	20
Sarcasm	0	60	0	40

Table 1: Results of perceptual evaluation.

- a) **Acoustic analysis:** F_0 range was highest in sentences with surprise and lowest in sentences with sarcasm in both groups. Also, the F_0 range was lower in group II compared to group I except for statements. Tables 2 and 3 show the F_0 range for four emotions in both groups.

	S1(Hz)	S2(Hz)	S3(Hz)	S4(Hz)	S5(Hz)	Average(Hz)
Question	186	97	281	185	121	174
Statement	132	109	162	154	143	140
Surprise	384	195	236	264	240	264
Sarcasm	172	101	104	160	147	137

Table 2: Showing the F_0 range in native Kannada speakers (Group I).

	S1(Hz)	S2(Hz)	S3(Hz)	S4(Hz)	S5(Hz)	Average(Hz)
Question	195	143	138	80	111	133
Statement	160	187	158	89	133	145
Surprise	242	183	202	259	150	207
Sarcasm	100	145	119	173	104	128

Table 3: Showing the F_0 range of native Manipuri speakers (Group II).

The F_0 contour raised from low to high for question in both groups and for sarcasm in group I (70 %). For statement and surprise the F_0 contour dipped from high to low in both groups. It was 100 % for statement in both groups and 70 % for surprise in group II. Tables 4 and 5 show the F_0 contours of the four emotions of Group1 and 2 participants, respectively. Figure 1 shows the intonation patterns on 4 emotions in both groups.

	Most common	% LH	% HL
Question	LH	100	0
Statement	HL	0	100
Surprise	HL	0	100
Sarcasm	LH	70	30

Table 4: Showing the F_0 contours pattern of native Kannada speakers (Group 1).

LH- Low- High (Rising type); HL – High- Low (falling).

	Most common	% LH	% HL
Question	LH	60	40
Statement	HL	0	100
Surprise	HL	30	70
Sarcasm	HL	0	100

Table 5: Showing the F_0 contours pattern of native Manipuri speakers (Group II).

LH- Low- High (Rising type); HL – High- Low (falling).

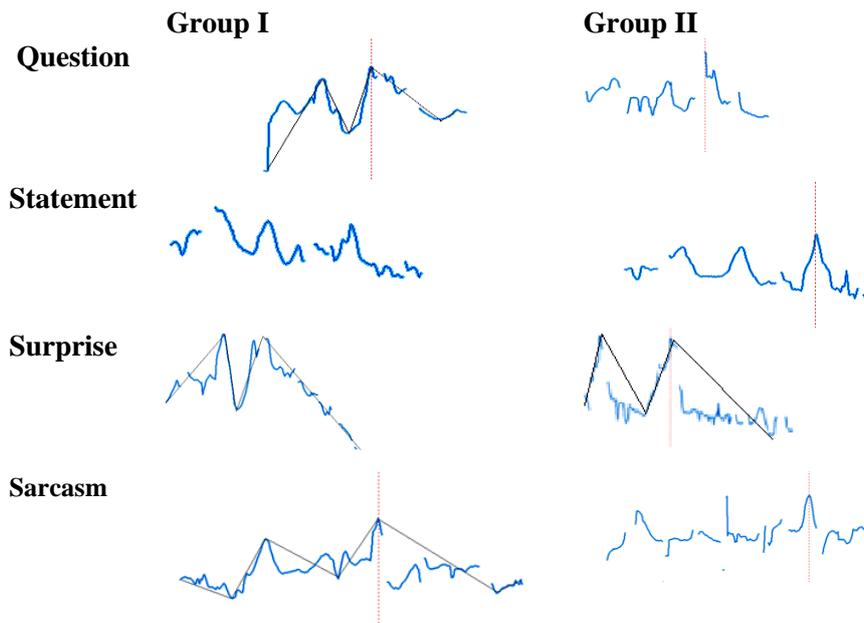


Figure 1: Intonation contours in both group of participants for 4 emotions.

DISCUSSION

The results yielded many points of interest. Firstly, the results of the perceptual analysis showed that all emotions were correctly depicted by native Kannada speakers. However, it was not so in Manipuri-Kannada speakers. Except statement, none of the other emotions were depicted 100 % of times. This may be due to the fact that (a) group II speakers might not have developed the F_0 contours depicting emotions in Kannada, (b) imitation ability in group II speakers might be poor, or, (c) group II speakers might have transferred the F_0 contours depicting these emotions in Manipuri to Kannada.

Second, lowest and highest F_0 range was observed on sarcasm and surprise, respectively in both groups. This indicates that Manipuri-Kannada speakers were able to follow the F_0 range of Kannada. Third, statements were 100 % produced with high low pattern by subjects in both groups. Manipuri-Kannada speakers were able to produce F_0 contours for question and surprise 60 % and 70 % of times, respectively. Statement has an universal intonation pattern and hence may be produced correctly by group II. However, the word on which question and surprise falls may not be well understood by group II.

Finally, the range of F_0 was lower in group II compared to group I. This may be attributed to the inconsistent understanding of emotions depicted in Kannada or transfer of intonation patterns of Manipuri to Kannada. The results of the present study have indicated the possibility of intonation transfer from native to the second language. This information will be very important for Speech-Language Pathologists in assessing and rehabilitating bilingual persons with communication disorders. Future research on intonation patterns depicting these emotions and F_0 range in sentences depicting these emotions in Manipuri is warranted.

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