THE SOCIOPHONETIC VARIATION OF /j/ AND /ɻ/ IN MALAPPURAM MALAYALAM

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ABSTRACT

Malappuram Malayalam is a variety known for its use of /j/ as a variant of the post-alveolar approximant /ɻ/ found in most varieties of Malayalam and unique for its proto-Dravidian ancestry and intriguing phonetic-phonological features. This study investigates the sociophonetic factors that condition the /j/and /ɻ/ variation in Malappuram Malayalam amidst recent reports of dialect levelling. 615 tokens were collected from seven female and seven male participants in their early twenties via a reading task and picture-promoted conversations. Early results show the presence of three variants- /j/, /ɻ/ and a null variant, distributions of which reveal the effects of education, gender and surrounding vowel environments. Acoustically, /j/ shows a higher F2 and F3 compared to /ɻ/. The shared palatalisation feature of /j/ and /ɻ/, and the presence of a null variant surrounding /i/, also strengthen the case for the significance of secondary articulation in the phonetics-phonology interface of Malayalam.

Keywords: Sociophonetics, Variation, Approximants, Malappuram Malayalam.

1. INTRODUCTION

The variety of Malayalam spoken mainly by the Muslims in the Northern district of Malappuram is interesting for two reasons: Socially, it is a minority variety spoken by a historically oppressed and socioeconomically disadvantaged community. Linguistically, it is one of the handful of varieties of Malayalam that has an alternate-/j/- for the otherwise stable postalveolar approximant /ɻ/ the latter tracing its origin to the Proto-Dravidian sound inventory and existing presently only in Malayalam and a few Tamil varieties. For example, [maɻa] 'rain' in other varieties of Malayalam including the standard becomes [maja] in Malappuram Malayalam. The use of /j/ where other varieties have a /ɻ/ is one of the most salient features of this variety. Phonotactically, /ɻ/ occurs only intervocalically in Malayalam; /j/ occurs both initially and medially; and the two sounds are not lexically contrastive in Malayalam. Interestingly, in all the other Dravidian languages, /ɻ/ has merged with a range of different sounds (/ɭ,ɳ,ɖ,ɽ/) [3] and its

alternation with /j/ appears to be unique to the Malappuram Malayalam variety and a handful of others spoken in Northern Kerala.

A recent study claims that the variety is undergoing dialect levelling which is characterised by the decline in the use of /j/ by younger speakers in favour of /ɻ/, among other features [2]. In [2], however, the researcher is an outsider to the community, a speaker of the standard variety and the only social variables of interest considered are age and gender. The general role of formal education in the adoption of an urban, mainstream, standard variety and its consequent effects on the use of a regional /non-standard one is well attested in the sociolinguistic literature. In the case of the Malappuram Muslim community, however, it is important to note that it has historically been and at present continues to be one of the most educationally deprived communities in Kerala. Nevertheless, increased outward migration over the last thirty years and greater exposure to the standard and other non-standard varieties via media and internet could all have consequences for the local speech variety.

2. PRESENT STUDY

The present study has the following objectives:
   i)   Examine the phonetic characteristics of the /j/-/ɻ/ variation among the young Malappuram Malayalam speakers and
   ii) Investigate the effects of gender and education levels on the varying productions of /j/ and /ɻ/.

In contrast to previous work [2], the positionality of the main researcher in this study is that of a part insider-part outsider: She is a L1 speaker of the local variety spoken in Malappuram which is the subject of this study which results in the part-insider perception. She is also a highly educated female in a community in which the educational attainment level of females is low and visits to the field revealed that this contributes to a part-outsider perception.

3. METHODS

Seven male and seven female participants between 18-22 years of age having two different educational attainment levels [see table 1 below] were recorded

using ZOOM H1n recorder and atr3350xis Audio Technica microphone. A total of six hundred and fifteen tokens were collected via two types of tasks- reading task and picture-prompted conversations. The data was analysed auditorily and also acoustically using PRAAT [1]. Formant frequencies, F1, F2 and F3 of the /j/, /ɻ/ tokens as well as of the surrounding vowels were extracted at mid-point. The data set consisted of five different vowel contexts- -/a_a/, /o_i/, /a_i/, /u_u/ and /e_a/.

As the present study is interested in assessing the effects of gender and education on the /j/, /ɻ/ productions by participants as manifested in their formant patterns, a Multivariate Analysis of Variance (MANOVA) was conducted. Results are reported in 4.2.

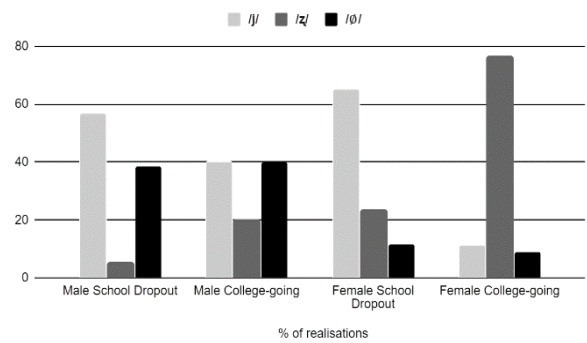| Participants	Male	Female
School Dropouts	3	3
College-going	4	4
Total	7	7

Table 1: Social features of the participants

# 4. RESULTS

4.1. Auditory Analysis

Overall, the male speakers, irrespective of their education levels, produced most of the total tokens as either [j] or a [ø], the latter indicating a null variant or a deletion of the approximant altogether. Female participants' productions exhibited a higher degree of variation. Both education levels among the female participants used more [ɻ] than their corresponding male counterparts. A small proportion of tokens were realised as a tap-approximant by college- going participants. Tap-approximants are tap-like sounds characterised by a continuous formant structure (similar to approximants) and a reduced waveform, i.e., a decrease in waveform amplitude. In the present study, this variant is restricted to only one lexical item, /uɻuɳɳə/, in the u_u context, which is an uncommon vowel context for /ɻ/ in this variety and therefore was not further analysed for this paper.
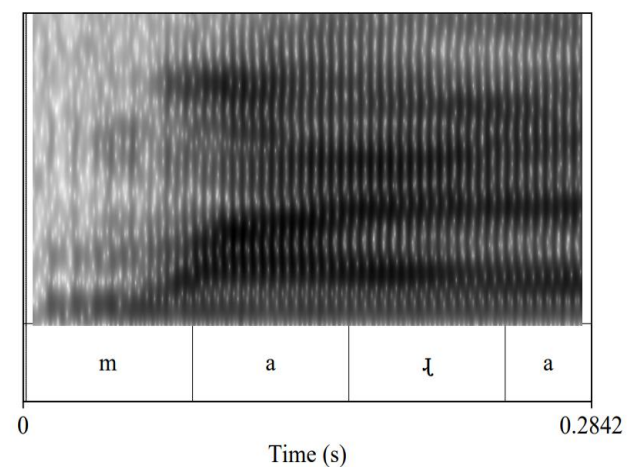

Figure 1: % of different variants produced by male and female school dropout and college-going participants
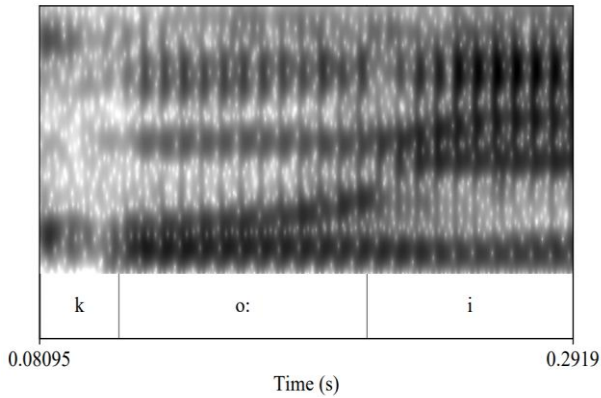
Among the two education levels, college-going female participants realised the majority of the target tokens as [ɻ] compared to their male and female school dropouts and college-going males.
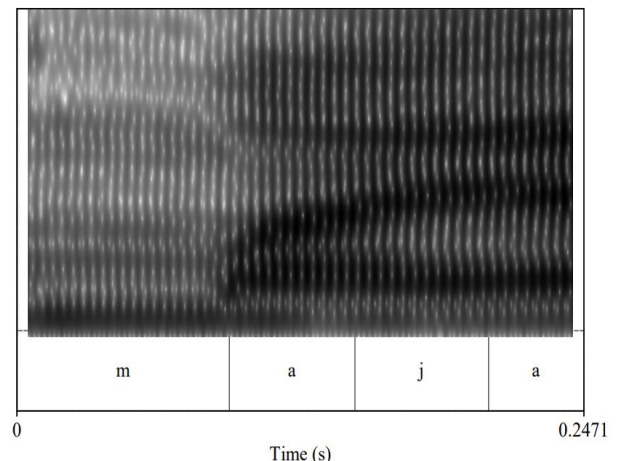
Figure 2: Spectrogram of /maɻa/ produced as [maja]

Figure 3: Spectrogram of /maɻa/ produced as [maɻa]

Figure 4: Spectrogram of /ko:ɻi / produced as [ko:i]

Figure 5: F2-F3 distribution of [ɻ]&[j] in college-going vs school dropout male speakers

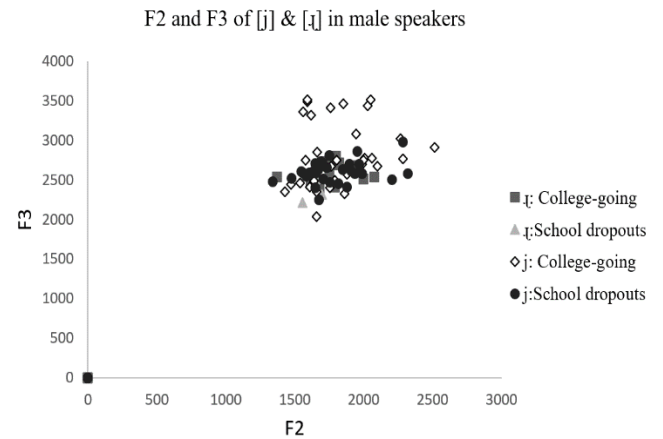**Figure 6:** F2-F3 distribution of [ɻ]&[j] in college-going vs school dropout female speakers

[j] and its surrounding vowels sound fronter and more raised than [ɻ] and its surrounding vowels. In the case of the male and female participants, fronter vowel environments were found to promote a [j] realisation whereas backer vowel environments were found to promote a [ɻ] realisation. A surrounding /i/ vowel was also found to promote a null variant ([ø]), especially in male participants, i.e., the deletion of the approximant altogether in 10% of such tokens among female participants and 39.2% of such tokens among male participants.

4.2. Acoustic Analysis

As shown in fig. 6, the F2-F3 frequencies of [ɻ] realisations among female college-going speakers and those of [j] realisations among female school drop-outs show a wide distribution.

For male speakers, the F2-F3 frequencies of [j] realisations among college-going speakers have the widest distribution followed by those of [j] realisations among school dropouts (fig. 5). Some degree of overlap notwithstanding, in terms of the formant characteristics of [ɻ] and [j], the latter shows overall higher F2 and higher F3 values compared to the former among female speakers. The [ɻ] and [j] realisations of college-going female speakers show considerable degree of overlap in their F2-F3 values while those of the school dropouts are more clearly distinguished. Among the male group, interestingly, the college-going speakers produce their [j] realisations with overall higher F3 values than their school dropout counterparts.

The statistical analysis (MANOVA) was carried out using the statistics software jamovi (version 2.3) [6]. The dependent variables are the F1, F2, and F3 values of different realizations of the approximant. The independent variables are education and gender of the participants and vowel context.
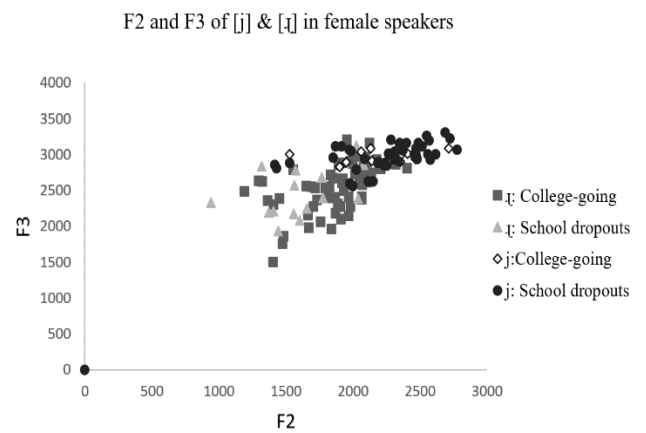
The findings revealed that there are statistically significant interactions between gender and vowel context, $F_{(12,127)} = 5.967$, $p<.001$, Wilk's Lambda=0.307. Interaction between gender and education, gender, education and vowel contexts were not found to be statistically significant.

The segmental effect is conditioned by gender such that the /a_i/ vowel context had a significant effect on female versus male productions of the approximant. Within each of the two gender groups, /i/ in the following vowel context was found to have a significant effect on productions compared to a following /a/ context.

5. DISCUSSION

The auditory and acoustic analysis both show the significant effects of gender on the realisations of approximants in Malappuram Malayalam. Previous work [2] reported a widespread dialect levelling in the variety with a majority of the younger age group participants, irrespective of gender, producing the standard variant [ɻ] instead of the local variant [j]. In the present study, we find that young participants,

except for the college-going female group, produced around 80% of their total approximant tokens as [j]. The female college-going participants have the opposite pattern to the other three groups- male and female school drop outs and male college-going participants, in that they produce the majority of their tokens as [ɻ].

It is a well-established pattern in the sociolinguistic literature that young women lead non-stigmatised linguistic change. It appears to be the same for Malappuram Malayalam since it is the college-going female speakers who use the [ɻ] variant the most. Nevertheless, the increased use of [ɻ] among the college-going women do not appear to be causing a linguistic change among the other female and male groups in favour of the non-stigmatized variety. The focus group discussions and participant observations made during the field visits also suggest that the participants (including the educated female group) were overtly critical of people who shifted their speech towards the standard variety.

Moreover, other reasons why young women may not lead linguistic change in this community could also be to attributed to the low educational attainment levels of Muslim women in Malappuram. This is due to several factors internal and external to the community such as early marriage, religious beliefs, gender bias, poor infrastructure, fewer number of higher educational institutions, etc. Also, the nature of the tasks reported in the present study were reading task and the picture-prompted conversations, both of which were relatively on the formal side of the style continuum, the former more than the latter. Therefore, it must also be taken into account that even in tasks that are not the most spontaneous, only the female college-going group produces most tokens as standard variant, [ɻ].

As part of a larger study in progress, qualitative ethnographic methods like focus group discussions and participant observations were also conducted with a different group of male and female participants and although not directly comparable with the results of the data presented here, it is worth mentioning that qualitative research methods could significantly contribute to a more comprehensive understanding of the relationship between variation, both intra- and inter-speaker, and social meaning.

The statistical analysis of the formant measurements, did not show a significant effect of education. We speculate that this could be due to a relatively small data set and possibly also that formant frequency measures alone do not capture the all the significant aspects of the [j]-[ɻ] phonetic distinction.

Acoustically, [j] and [ɻ] are characterised by differences in F2 and F3, higher in the former compared to the latter. In the present study, vowel context was also found to have a significant effect on the nature of approximant realisation in the variety. Of the various vowel contexts, the following /i/ context was found to result in several null variants across speakers. This combined with the acoustic characteristics of /j/ and /ɻ/ are interesting in the context of Malayalam. Previous work on the phonetic characteristics of several contrasts in Malayalam have shown that clear vs dark differences as perceptual correlates of secondary articulation differences are a common distinguishing feature underlying several contrasts in the language- the singleton-geminate contrast, the dental-alveolar contrast and the five member liquid contrasts [for more on this point, see [4]]. This raises important questions regarding the presence of [j] as a variant in Malappuram Malayalam, unlike any of the variants in other languages that has led to the loss of [ɻ] in those languages. The shared palatalisation feature between [j] and [ɻ] makes the former an ideal candidate for a variant without risking the use of relative clear-dark distinction between [ɻ] and the other four liquids in Malayalam as a contrast maintenance strategy. As suggested in [4], future work must examine the role of resonance as an integral aspect of the phonology of Malayalam.

6. CONCLUSION

Auditory and acoustic analyses have shown that there are significant effects of gender and surrounding vowel context on the realisations of [j] and [ɻ] in Malappuram Malayalam, a minority variety characterised by the [j] variant as salient marker and which has recently been reported to be undergoing widespread dialect levelling. Although a larger data set would yield more robust results, the patterns observed in the present study suggest that the phonetic differences between [j] and [ɻ] and the shared palatalisation feature between the two mirror several phonemic contrasts in Malayalam in which relative resonance differences serve to maintain a crowded phonological sound system.

7. REFERENCES

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