

# Prosody of Intonation and Focus in Malayalam English with Acoustic Experimental Evidences

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## ABSTRACT

This paper concerns itself with focus and givenness in the varieties of English namely Malayalam English (Dravidian). Here the study mainly presents analysis on prosody of narrow focus and givenness in declarative sentences through a production experiment in the form of an anima test (this experimental task compares the expression of different focus types induced by different questions (following Dik 1981, 1997). In narrow focus, the study mainly focuses on informational, confirmation, selection and correction aspects of focus. All intended answers were in canonical SVO word order. Wh-questions have been used for information, yes or no questions for confirmation and selection focus in the following way. The answers are spontaneous.

For example: In front of the garden, is a girl hitting a tree?

In front of the garden, yes a girl is hitting a tree.

Some questions are framed for subject focus and some are for the object focus. Here the study is analyzing acoustic correlates such as pitch (minimum, maximum and mean), amplitude (min, max and mean) and duration of Focused and Given information. Preliminary findings show focused nominal (when subject is focused) is getting more pitch than the Given. But in the case of object focus higher pitch is not playing a significant role. In most of the utterances irrespective of focus on subject/object initial constituent is getting more pitch. There is a final slight pitch-rise at the end of object when it is focused (need an elaborate study here). Amplitude is slightly more in subject position irrespective of the focus in subject or object. Loudness is more in subject in all the utterances (Perception). Focused part is getting more duration than the Given. The result is same in both varieties of English. There is falling intonational pattern in declarative sentences of both the varieties, irrespective of the focus on subject or the object (figure 1). The data for narrow focused utterances and broad focus utterances are yet to be analyzed in detail.

**Keywords:** Prosody, Acoustics, Focus, Intonation, Malayalam English

## I. INTRODUCTION

This paper demonstrates an experimental study on prosody of intonation and information structure in Malayalam English. Human speech always carries prosodic features such as stress and intonation. It reflects in the form of frequency and amplitude. We perceive this in the form of pitch and loudness. This work search answers for following questions.

- a) What are of Prosodic correlates narrow Focus and Givenness in varieties of Malayalam English?
- b) How does the intonation pattern changes in normal and focused utterances of Malayalam English?.

This works divided into following sections such as background, Experimental method, results for Malayalam English, Discussion and conclusion..

## II. Background

The basic idea of this study develops from the notions of information structure such as Given and Focus. For example, when we hear information like “Meera loves Manu”, it is a new information for us. After knowing this information, if somebody asks the question,” Whom does Meera love?”. Since we know this background, we will answer by giving focus to Manu. (Meera loves MANU). In this information, Meera is the Topic and loves Manu is Comment and Manu is the Focus. This idea is illustrated in following table.

Focus/background
Given/new
Meera loves Manu

- a) Whom does Meera love?

background	/focus
John	/drinks /BEER
topic	/ comment
old	old new

Focus is defines as the part of a sentence eliciting a set of alternatives relevant for the interpretation of discourse. Several kinds of focus are distinguished.

There are different kinds of focus such as a) information focus, produces as an answer to wh-question; b) confirmation focus, produces as a result of an yes or no question to confirm an answer to a question; c) correction focus, produces to correction for an yes/no alternative question. Givenness characterizes the constituents which have been mentioned in the question, and are repeated in the answer. This paper demonstrates how does prosody realises in new and focused information.

It shows Do focused constituents have prosodic features which distinguish them clearly from the given constituents in verities of Malayalam English. This study follows previous studies in Delhi Indian English variety ( Fery and Pandey, 2012).

Earlier studies shows focus has been claimed to have three prosodic effects (see Harnsberger1994, 1999, Moore 1965, Dyrud 2001, among others). First, the rising pitch pattern may show a higher excursion, a greater intensity and longer duration. Second, after the focused element, a phrase break may occur. Third, post-focally the pitch range may be compressed or even completely flat and deaccented (Harnsberger and Judge 1996), although rising pitch accents are still realized in compressed pitch range. In English and German: the

focus is signalled by a higher F0 on the pitch accent, and reduction of the F0 occurs in the post-focal region.

Previous studies of prosodic correlates in varieties of Indian English shows **Fery and Pandey (2012) shows following characteristics in the acoustic correlates of focus.**

- a) F0 or fundamental frequency: In an sentence, the subject shows no effect of focus whatsoever. The object was again lower when it was given, but this effect is not significant.

b)

- b) Intensity: The subject is always louder than the object (both dB max and dBmean), this effect is significant. No significant effect of focus. Object is significantly longer than subject (final lengthening?).

- c) **Duration:** There is also an effect of focus but only for the subject: the subject is longer when it is in focus than when it is given. No corresponding effect for object

- d) **Phrasing:** Nuclear accent in Indian English is rising when non-final. Enclitization of the article in Indian English .

### III. Experimental method

This study conducts and experiments to find the role of prosody in Information focus, confirmation focus and correction focus. This experiment is based on a task of Anima test elicited with the questionnaire developed in QUIS of the SFB 632 in Potsdam (Vol 4, 2006).

#### a) The Procedure

Four pictures presenting simple actions (involving an agent and a patient) are presented to the informant. The informant is instructed to observe the stimuli and memorize the details of the figures and the presented events. When s/he is ready, the stimuli are taken away. The informant replies to four questions relating to the presented stimuli. S/he is instructed to give full answers.

#### Example



**Figure 1:** In the picture female is named as Priya (Agent) and male is named as Ravi (patient).

In this experiment, there are two factors for focus constituents such agent and patient. Agent (Priya, female here) is the one doing the action and patient (Ravi, male here) is the one experience the action of agent. The main focus types are new information focus (IS), selective (S) or corrective focus (C) . These focus types are derived through asymmetries of the focus type and/or asymmetries of the focus domain i.e word order and/or prosodic properties.

In figure (1) Stimulus in Picture ; “Priya is hitting Ravi”

**Condition IS: In front of the blue sky: Who is hitting (Ravi)?**

#### b) Datasets

Small datasets obtained by 4 Malayalam native speakers, for the present study. This study gave a slight modification in the Anima experiment by giving name to the characters, instead of using girl and boy in the original experiment. This is to get disyllabic subjects and objects rather than monosyllabic “girl or boy” It will help to get a clear realization of syllable prominence in Focused and Given constituents.

#### c) Method

For the analysis, this study uses 4 Malayalam speakers, the data has recorded in a studio room in using Soni digital recorder, in a sampling frequency of 44 Hz 16 bit

**Data:** Data has been organized into group. Total of 32 utterances were used for analysis for Malayalam English.

**a) Confirmation subject (CS) 4 speakers**

**b) Confirmation object (CO) 4 speakers**

**c) Information subject (IS) 4 speakers**

**d) Information object (IO) 4 speakers**

The sentences of the experiment were cut and labeled in Praat . All subjects and all objects were separated by boundaries. Tone for each utterance is marked based on Pierrehumbert (1980) to describe the phonology of intonation .

## IV. Analysis and Discussion

### Word Order

All answers were uttered in the SVO order.

M1 CS : Yes Latha is hitting Ravi

Malayalam English (ME): Confirmation Subject CS

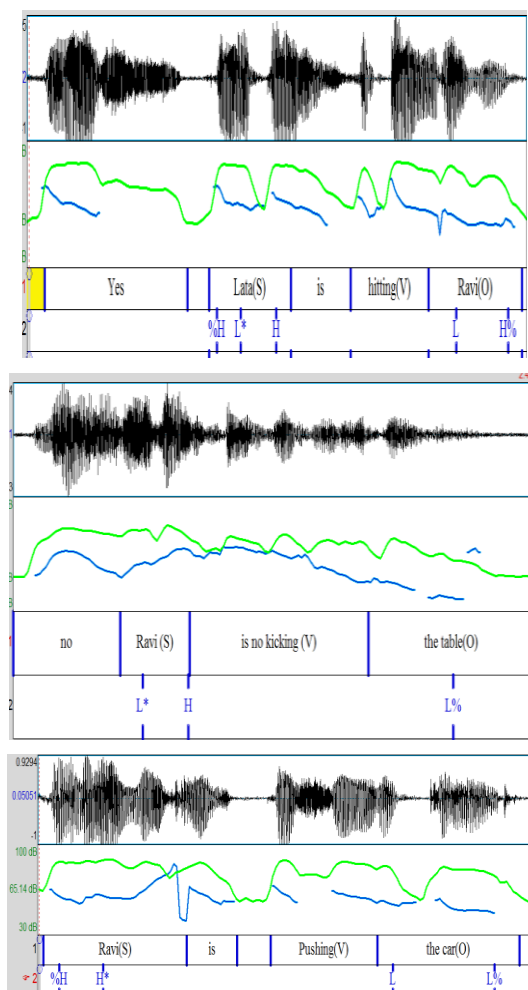
All answers were uttered in the SVO order.

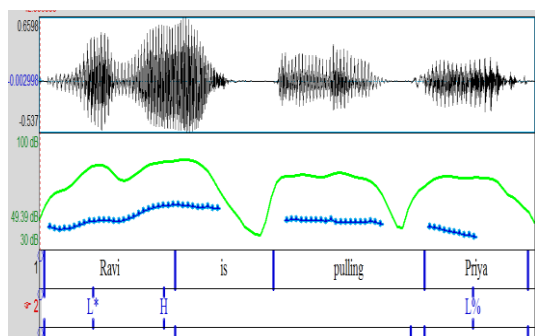
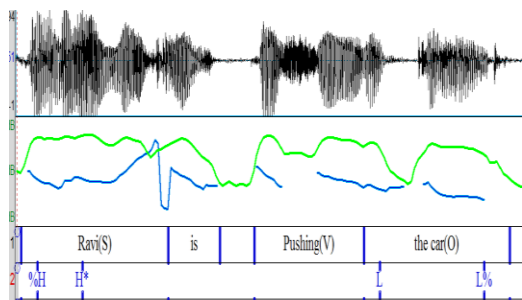
Male 1:

Confirmation Subject: Yes Latha is hitting Ravi

Malayalam English (ME): **Confirmation Subject (CS)**

**Analysis on Confirmation Subject: Graphs Wave from, Pitch (blue) and Intensity, Word order, tonal pattern.**





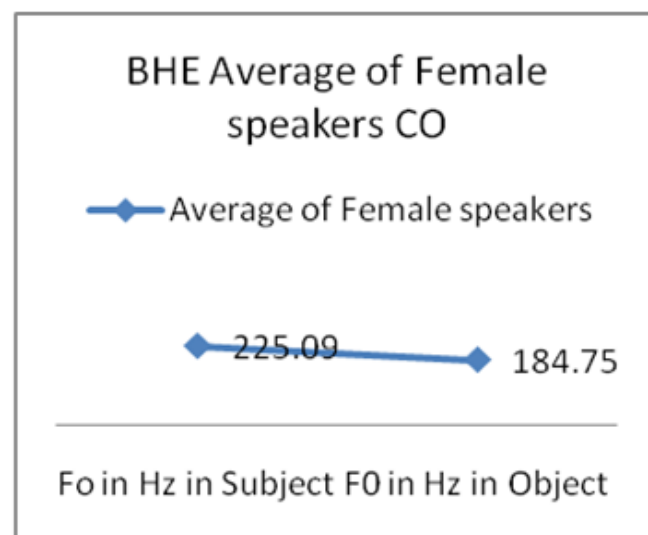
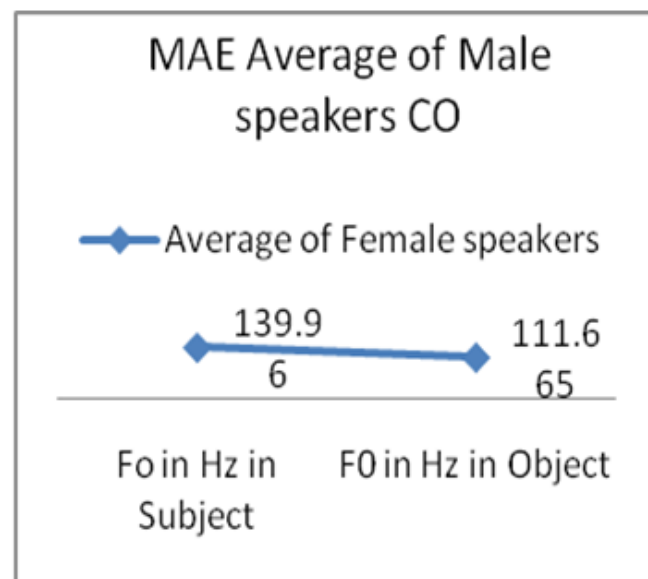
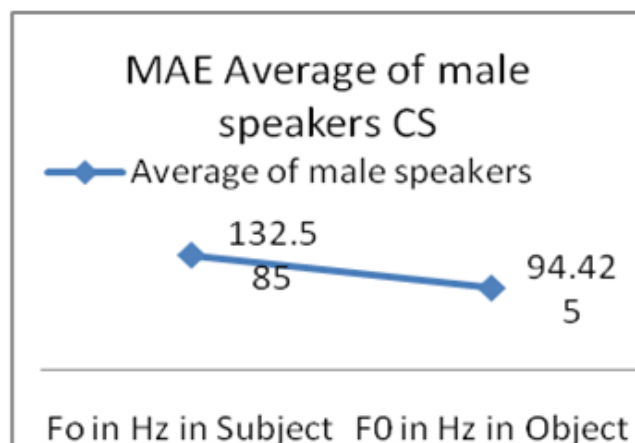
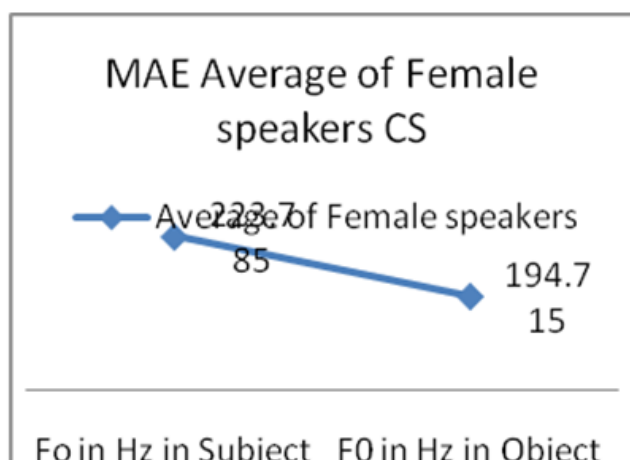
#### 4.1 Result $F_0$

**Observation on  $F_0$ :**  $F_0$  or pitch accent is not playing a significant Role: Focused or Given / All Subjects tends to have more pitch: The  $F_0$  on the focused subject is higher than the  $F_0$  in the unfocused subject.

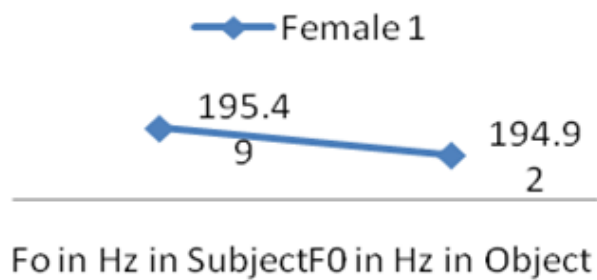
#### STATISTICAL EVIDENCE FOR $F_0$

##### MAE Average of Female speakers CS

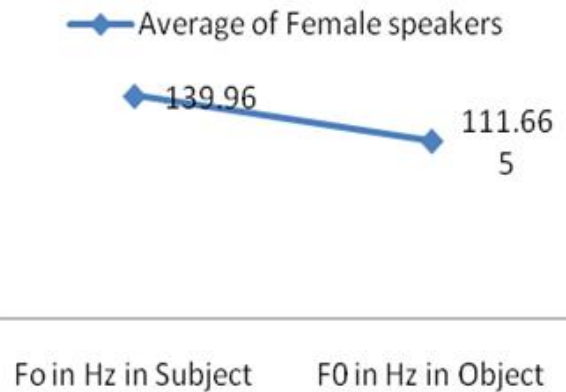
##### Graphs for statistical Analysis



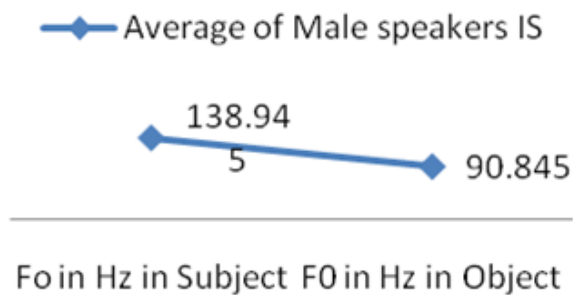
### MAE Average of Female speakers CO



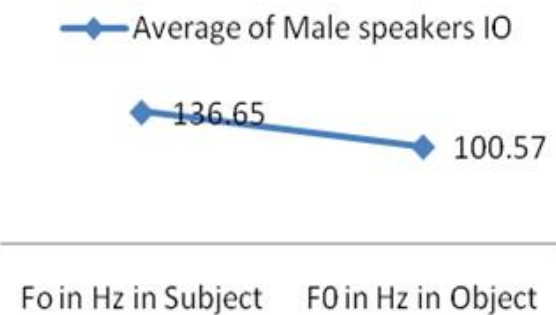
### MAE Average of Female speakers IO



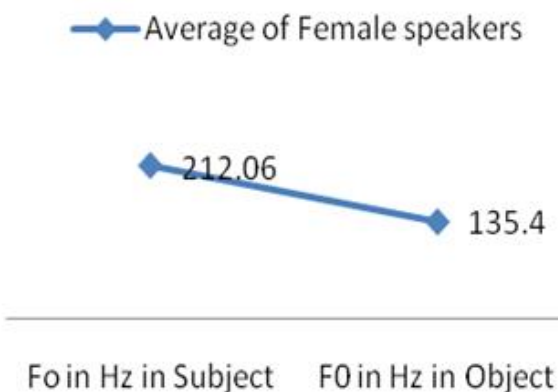
### MAE Average of Male speakers IS



### MAE Average of Male speakers IO

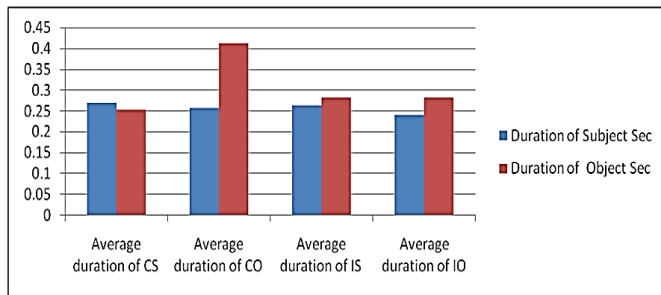


### MAE Average of Female speakers IS



#### a) Result- Duration

Objects tend to be longer and it may be due to final vowel lengthening. Some speakers subject is longer when is focused, Subject is longer in CS (subject is focused), Object is longer in CO (object is focused).



**Figure 4:** Average Duration in each focused utterance .

## V. Conclusion

This study concludes that F0, Intensity are not very significant. When Subject focused in confirmation subject, it is longer. When the object is focused for confirmation object, it is longer. All sentences are signified by Low (L%) boundary tone. Focused part forms a separate prosodic phrase.

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