Morphological Focus Marking in Standard Colloquial Assamese

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ABSTRACT

The current paper investigates how morphologically marked focus is prosodically realised in Standard Colloquial Assamese (SCA), the standard variety of Assamese. It apart from demonstrating the distribution of morphological focus markers (MFMs) in SCA, highlights their relationship with their host, and their intonational behaviour. Further, the MFM marked focus has been compared with the contrastive focus (CF) realisation. We propose in this study that MFM induced focus is phonologically different from CF realisation.

1 Introduction

Assamese belongs to the Eastern Indo-Aryan language area of the Indo European language family (Goswami 1982, Goswami and Tamuli 2003). Standard Colloquial Assamese (henceforth SCA) is mostly spoken in the eastern districts of Assam: Tinsukia, Dibrugarh, Lakhimpur, Dhemaji, Sibsagar, Jorhat, Golaghat and Sonitpur (Moral 1992). In the present study, we have investigated the prosodic aspect of morphologically marked focus (henceforth MF). SCA obeys a hierarchically arranged prosodic structure, where the top most node is designated as Intonational phrase (henceforth IP), which normally matches up with a sentence (Twaha and Mahanta 2016). An IP is a construct of phonological phrases (henceforth P-phrase), which are tonally specified at two points – first syllable is associated with the pitch accent (L*) of the phrase and the final syllable materialises the P-phrase demarcating high boundary tone (H_P). Further, P-phrases must contain at least one prosodic word (henceforth P-word), which prosodically maps a syntactic word. P-words lack tonal specifications unless they form P-phrases i.e. P-words in SCA are attributed with tones only at the post-lexical level when they constitute or contribute to P-phrases.

The final P-phrase in a declarative SCA utterance is marked by low a pitch accent (L*) which is followed by a high tone (H_P) associated with the boundary of the P-phrase. Non-final P-phrases are designated with L* pitch accent and H_P boundary tone. As far as tonal configuration is concerned, the final P-phrase is not different from non-final P-phrases.

When a constituent receives contrastive focus (henceforth CF), it bears the IP final pitch accent and is demarcated by a focus high boundary tone fH_P[1], and forms a phonological domain where phonetically motivated assimilation processes such as /r/ deletion are allowed. CF exercises pitch compressing impact on the string following focus, as a consequence all the P-phrases undergo deaccenting (see Twaha and Mahanta (2016) for details). Besides this prosodic marking of focus, SCA employs morphological focus clitics or markers (henceforth MFMs) in order to highlight a particular information.

Assamese demonstrates the presence of MFMs such as question emphatic clitic =*nɛ*, inclusive emphatic particle =*o* 'also' and restrictive emphatic particles such as =*hɛ* 'only', =*to* 'stresses the host', etc. (Dutta Baruah 2007); in this paper, however, we will only consider =*hɛ*. These particles always attract post-lexical prominence and ascribe prosodic prominence to the constituent hosting them. Assamese MFMs, like Bengali *emphatic clitics*[2] are comparable to English focusing adverbs (henceforth EFA) which are similar in meaning like =*o* 'also' and =*hɛ* 'only' etc. Like EFAs, MFMs also phonetically highlight the prominence of their argument. However, unlike MFMs, an EFA 'does not refer directly to focus semantic values' rather it is the context which fixes the 'domain of quantification' (Rooth 1997).

This paper has been organised into the following sections. While §2 deals with the distribution of MFMs in SCA, §3 illustrates how MFM marked focus is materialised in SCA. Here the methodology adopted while collecting data for the present study has also been elaborated. In §4, findings of our previous studies on WF and CF realisation have been discussed. In the next section (§5), the outcomes of the present study

[1] The 'f' diacritic used here to denote the focus induced high tone was originally used by Khan (2008).
[2] See Lahiri and Fitzpatrick-Cole (1999)

have been argued. After a brief discussion comparing the findings of the previous and the present study in §6, the paper concludes with closing remarks.

2 Distribution of MFMs

In Assamese, MFMs are clitics which morphologically mark the focused status of a constituent. In traditional grammar a clitic has been described as a "little" word that lacks independent accent; Zwicky (1977) categorised clitics as "bound unaccented morphemes that sometimes are in construction with affixes". This view, however, has been challenged by Anderson (2005) as problematic. According to him (Anderson 2011), a clitic is a phonological form that is not lexically assigned the status of a P-word. Earlier, Klavans (1995) also demonstrated occurrences of stress or accent assigned to clitics with reference to languages like Greek and Hixkaryana. According to her, clitics may be assigned stress by 1) phonological word rules, 2) intonational rules, or 3) semantic rules; clitics do not always lack stress. Lahiri and Fitzpatrick-Cole (1999) demonstrated how MFMs (they used the term *emphatic clitics*) are associated with prominence in Bengali. They attributed MFMs with an inherent lexical tone, which marks its existence in the prosodic phrasing at the post-lexical level with an H*.

In the data collected for the present study on morphological focus marking, we see MFMs receiving prosodic prominence in terms of higher pitch value. However, before going into an elaborate discussion on the post-lexical assignment of accent to MFMs, it is worthwhile to gather some idea about how clitics are distributed in SCA.

In Assamese, similar to Bengali (Bayer and Lahiri 1990, Lahiri and Fitzpatrick-Cole 1999), MFMs adjoin nouns, verbs, adjectives and postpositions. In SCA, although an MFM may be attached to different classes of words (noun, verb, etc.), its host must qualify first as a P-word. For example in (1), we see MFM *=hɛ* can be attached to both inflected (1.c) and uninflected (1.b) nouns, since both the types of noun qualify as P-words.

(1) a) ((rɔmɛn) *Stem*) *P-word* → Ramen 'proper noun'
b) (((rɔmɛn) *Stem*) *P-word* =hɛ) *P-phrase* → Ramen=only
c) ((((rɔmɛn) *Stem*) *P-word* -ɔk) *P-word* =hɛ) *P-phrase* → Ramen-OBJ=only
d) *((((rɔmɛn) *Stem*) *P-word* =hɛ) *P-phrase* -ɔk) *P-word* → Ramen=only-OBJ

While MFMs may follow noun stems, they cannot be followed by inflectional suffixes. We get ungrammatical expressions like (1.d) when the MFM *=hɛ* is placed between noun stem *rɔmɛn* and affix *-ɔk*.

Unlike nouns, verb roots do not constitute P-words; in order to form a P-word, a verb root/stem must be followed by an inflectional suffix. It is only after an inflectional suffix is added to the verb root/stem and a P-word is formed, that an MFM can be added to it. This process has been instantiated in (2), where the focus marker *=hɛ* does not get attached to the verb root *kɔr* 'do' directly as the latter is not self-sufficient to constitute a P-word. It is only after the inflectional suffix *-i* adjoins the root that it qualifies as a P-word, and subsequently focus marker *=hɛ* 'only' gets attached to it.

(2) a) kɔr → do
b) ((kɔr -i) *Stem*) *P-word* → do-PFV
c) (((kɔr -i) *Stem*) *P-word* =hɛ) *P-phrase* → do-PFV=only
d) *((kɔr =he) *P-phrase* → do =only

When MFMs are attached directly to verb roots, we get ungrammatical outputs like (2.d), where the verb root *kɔr* is followed by the MFM *=hɛ*. In SCA, while an MFM can follow an affix, the former is never followed by the latter, and the P-word + MFM combination is obligatorily dominated by P-phrase node in the prosodic hierarchy.

3. SCA morphological focus

Superficially, the pitch contour of MFM marked focused constituents may look similar to that of constituents with CF; both the types of focus marking show rising pitch trend with the lowest point aligning with the first syllable and the pitch peak with the final syllable of the focused constituent. However, a

careful auditory and pitch track inspection calls for a different phonological explanation for MFM focus marking to that of CF. In the former case, the pitch peak realised on the final syllable, which is also the only syllable of MFM, exhibits an extra high, obligatorily blocking the IP internal downstep. In CF, although there is a pitch increase on the final syllable of the focused constituent (compared to its WF occurrence), this increase does not necessarily block downstepping. It is this exceptional rise on the focus particle that has motivated us to postulate that in MFM focus marking, it is not the leftmost syllable of the focused constituent that receives pitch accent, rather it is the focus particle that post-lexically qualifies as the most prominent syllable in the focused phrase. In CF condition, the focused constituent demonstrates L*fH$_P$ pitch pattern where the first syllable receives L* pitch accent and the final syllable bears focus high boundary tone fH$_P$. When a constituent is focus marked with an MFM, the focused constituent plus MFM combination exhibit LfH* pitch contour with low (L) tone realised on the initial syllable and the focus high pitch accent (fH*) on the final syllable of the combination. Here we claim that in SCA, MFMs are pre-specified with a high morpho-lexical pitch accent which, besides morphologically highlighting their host P-words, mark their prosodic prominence by receiving the focus pitch accent fH*. MFMs in SCA are comparable to Bengali emphatic clitics (Lahiri and Fitzpatrick-Cole 1999); however, in Bengali, emphatic clitic induced P-phrases are assigned two pitch accents (L*H*).

3.1. Methodology

We have collected and analysed data on how focus is realised when MFMs are attached to a constituent in SCA. The findings are then compared with the findings of our previous study on prosodic realisation of CF (Twaha and Mahanta 2016). In the present set of data, focus is explicitly marked by attaching MFMs to the right edge of the constituent focused. MF is initiated when speakers rectify a deliberate mistake committed by the recordist in relation to a particular constituent by highlighting the constituent with the MFM *=hɛ*. First, WF version of the sentences was recorded which was uttered by speakers in response to the question *ki hol?* 'What happened?'; this version would provide us with a baseline against which we could compare any departure with respect to the intonational contour and prosodic phrasing of the utterances produced in CF context with the help of MFMs. In response to WF renderings by the speakers, the recordist produces the same utterance as an echo question with a mistake in respect of a constituent. Subsequently, the speaker makes the necessary correction by uttering the original sentence once again, but this time with the MFM *=hɛ* attached to the rectified constituent. Given below is an example, representative of the schema adopted for data recording. The speaker first produces the sentence *nɔgɛnɛ nɔjɔnɔk mala k^{h}uzilɛ* 'Nagen asked Nayan for a garland' as an answer to the question *ki hol?*. Next, in response to the recordist's echo question asked by replacing *mala* 'garland' by *k^{h}jɔma* 'forgiveness', the speaker reproduces the sentence by marking the rectified constituent with MFM: *mala=hɛ* 'garland only'.

Question:	[ki	hol] ?				
	what	happen-PST				
	What did happen?					
Speaker:	[[nɔgɛnɛ]$_P$	[nɔjɔnɔk]$_P$	[mala]$_P$	k^{h}uzilɛ]$_I$		← **WF**
	Nagen-SUB	Nayan-OBJ$_I$	garland-OBJ$_D$	ask-PST.3		
	Nagen asked Nayan for a garland.					
Question:	[nɔgɛnɛ	nɔjɔnɔk	k^{h}jɔma	k^{h}uzilɛ]?		
	Nagen-SUB	Nayan-OBJ$_I$	forgiveness-OBJ$_D$	ask-PST.3		
	Nagen asked Nayan for forgiveness?					
Speaker:	[nai nai]	[[nɔgɛnɛ]$_P$	[nɔjɔnɔk]$_P$	**mala=hɛ**	k^{h}uzilɛ]]$_I$	← **MF**
	No no	Nagen-SUB	Nayan-OBJ$_I$	garland-OBJ$_D$=only	ask-PST.3	
	No no, Nagen asked Nayan only for a garland.					

3.1.1 Subjects

For the data, 3 (three) male and 2 (two) female speakers (20 to 30 years old) from Sivasagar District of Assam were recorded in the recording booth of the Phonetics and Phonology Lab, Indian Institute of

Technology Guwahati. The recording was done using a Tascam, D-100 PCM recorder in wav format at the sampling rate of 44 KHz with 16bit resolution with the help of a Shure SM10A head-worn microphone. Care was taken so that the recorded utterances were produced at a normal speech rate.

3.1.2 Data analysis

All the constituents from the compared clauses are measured for their pitch and duration values at P-word level using PRAAT (Boersma and Weenink 2015). Pitch values are measured at two points in each of the constituent P-words: pitch minimum (F_0 min) and maximum (F_0 max) were measured on the first and the last syllable of each constituent respectively (Motivation: L/ L* and H_P/ fH* are realised on the first and last syllable of P-phrase respectively). In order to tackle the inter-speaker variation, the extracted values are normalised using z-score normalisation method (Disner 1980) (Rose 1987, 1991) before running the statistical tests as per the following formula:

$$F_{0\,norm} = (F_{0i} - F_{0\,aver})/s$$

Where
- F_{0i} = F_0 value of an individual point
- $F_{0\,aver}$ = average of all the F_0 values in a P-phrase
- s = standard deviation of all F_0 values in a P-phrase

By taking the z-score normalised pitch values as dependent variable and focused status as fixed factor, a one-way ANOVA test was conducted using StataMP13 (StataCorp 2013). A sum total of [5(expressions) x 5(speakers) x 4(focus conditions) x3 (iterations)] 300 utterances comprise the current data size.

4. Findings from the previous study

4.1 Wide focus IPs

In our previous study, it has been demonstrated how wide focus (henceforth WF) declarative IPs demonstrate rising pitch contour (L*H_P) on the immediately preverbal constituent; the non-final P-phrases are also marked by L*H_P pitch pattern (see Twaha and Mahanta (2016) for details). Time normalised contour of the utterances uttered in WF context has been displayed in Figure-1 which shows rising pitch patterns on each of the preverbal constituents.

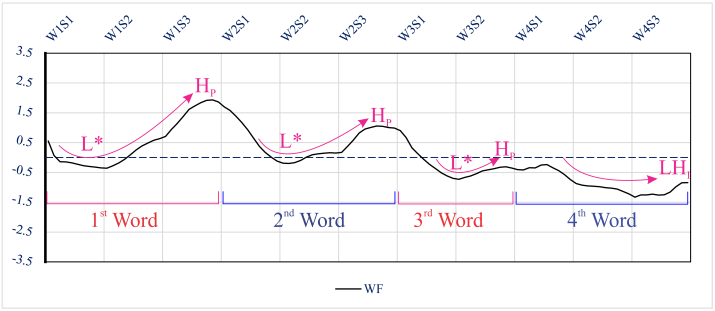

Figure 1 z-score normalised contour of WF declarative IPs with SOOV (Subject + $Object_I$ + $Object_D$ + Verb) construction, where all the words are trisyllabic except for the direct object, which is disyllabic.

The pitch peaks in declarative IPs are always in downstepping[3] order, as a consequence, the realisation of the boundary tone of the final pitch accent may not be very prominent. As can be seen in Figure-1, the rise on the third word is modestly realised. In most of the experimented sentences, the verb starts with the voiceless aspirated stop /k^h/, which initiates a local phonetic effect on the pitch contour just at the beginning of the fourth word. Therefore this local phonetic jump captured in the normalised contour displayed in Figure-1 has not been assigned any phonological tone.

4.2 Contrastive focus IPs

[3] In SCA each succeeding P-phrase in an IP maintains lower pitch rise in comparison with the previous P-phrase. In a sequence of two P-phrases, the rise in second phrase is downstepped.

In declarative IPs with CF, the focused constituent always bears the final accent of the IP. The said constituent is designated by L*fH$_P$ pitch pattern, which is associated with the focused constituent at two points: low pitch accent L* is assigned to the first syllable and focus high boundary tone fH$_P$ aligns with final syllable. The focused constituent bearing the IP final pitch accent is characterised by greater pitch range and increased duration value. Apart from initiating a phrasing effect on the focused constituent, CF also deaccents the post-focus P-phrases (if there are any). Post-focus deaccentuation is supported by the results of the phonetic experiments conducted and reported in Twaha and Mahanta (2016). CF is highlighted in three ways in SCA: it forms P-phrase, increases the pitch value of the focused constituent and it significantly shrivels the pitch value of the sequence following it.

Figure 2 and 3 demonstrate time normalised contours of IPs with CF on the third and first word respectively. As it can be seen in Figure 2, the constituent with CF shows greater pitch rise on the focused constituent. Though CF expands the pitch span of the focused word, the downstep relation among the P-phrases is maintained within the IP: pitch peak seen on the third word is lower than the rise on the second constituent (Figure 2).

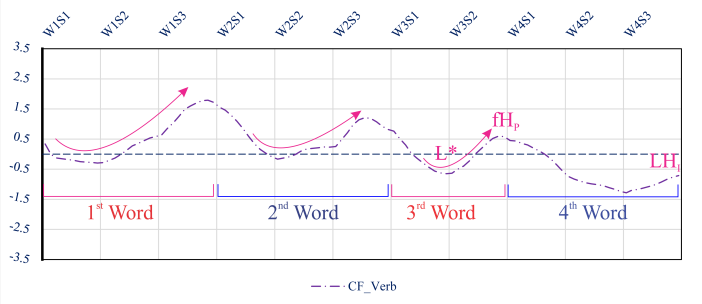

Figure 2 z-score normalised pitch contour of the IPs bearing CF on the third constituent. Compared to Figure-1, the third word here demonstrates robust pitch rise on the third word.

The z-score normalised contour displayed in Figure 3 represents the intonational contour of the recorded IPs produced with CF on the first constituent. Due to the assignment of CF on the first constituent, the entire post-focus sequence undergoes compression as an effect of post-focus deaccentuation.

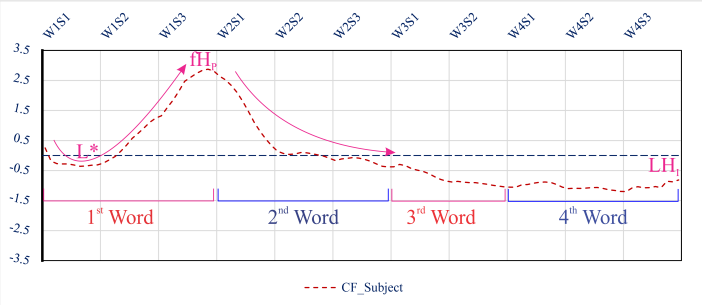

Figure 3 z-score normalised pitch contour of the IPs bearing CF on the first constituent. Besides the greater pitch rise on the first constituent, the entire post-focus region undergoes pitch compression as a result of post-focus deaccentuation.

The summary of the previous studies given in this section illustrates how a constituent with CF demonstrates expanded rising pitch contour caused by L*fH$_P$. In the next section, it will be shown how the focus marked with MFMs manifests itself intonationally.

5. Findings from the present study

The present study proposes that focused constituents hosting MFMs prosodically behave differently than when they receive CF. Superficially, the two focus types demonstrate rising contours, however at the

phonological level these rises have different motivations. In this study, it has been assumed that in contrast to L*fH$_P$ pitch contour on constituents receiving CF, in MF the pitch pattern is LfH*. The starred tone in both the patterns designates the most prominent syllable in the respective constituents; it is also the IP final accent of the respective IPs. As mentioned earlier, constituents with CF bear L* pitch accent on its first syllable and high focus boundary tone fH$_P$ on the final syllable; on the other hand in MF, MFMs have been proposed to bear focus high morpho-lexical pitch accent fH*(cf Bengali *emphatic clitics* (Lahiri and Fitzpatrick-Cole 1999)), which is preceded by a post-lexically assigned L tone realised on the first syllable of the host. The motivation behind assuming fH* pitch accent on MFMs comes from the intonational contour displayed on MFMs. Downstepping of P-phrases, a characteristic feature of SCA declarative IPs, is obligatorily blocked by the pitch peak realised on MFMs.

Figure 4 and 5 demonstrate z-score normalised contours of IPs, where the MFM *=hɛ* adjoins the third and first constituent respectively. As such, the constituents hosting *=hɛ* exhibit exalted pitch peak on the MFM. In Figure 4, an expansion in pitch rise is seen on the third constituent, which hosts the MFM *=hɛ* to its right. This rise on the said constituent is in sharp contrast with the rises seen in Figure 1 and 2 on the third constituent. In Figure 1 and 2, the downstep relation among P-phrases is maintained, whereas in Figure 4, the pitch peak on *=hɛ* is realised higher than the one seen on the second constituent. It is the difference in phrasing pattern seen in MF that blocks the downstep normally observed in SCA declarative IPs.

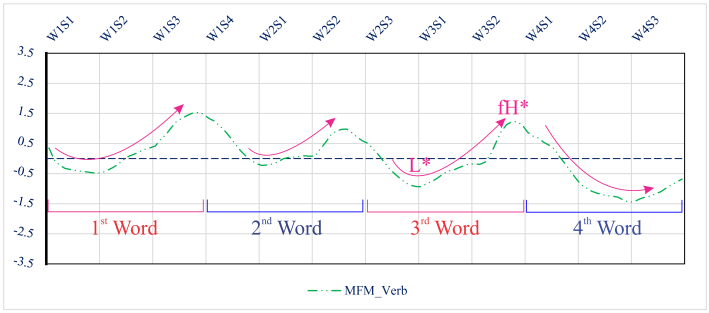

Figure 4 In this z-score normalised pitch contour, the third word hosts the MFM *=hɛ* to its right. The rise on the MFM blocks the downstep otherwise seen in SCA declarative IPs.

In Figure 5, similar to Figure 3, the first constituent forms P-phrase and is designated by pitch rise. Following the pitch rise, the entire post-focus sequence undergoes deaccentuation, which leads to a gradual decline in the pitch contour through the sequence. Here the MFM, apart from being the most prominent syllable in the focused P-phrase, bears the final accent of the IP after which the pitch drops smoothly.

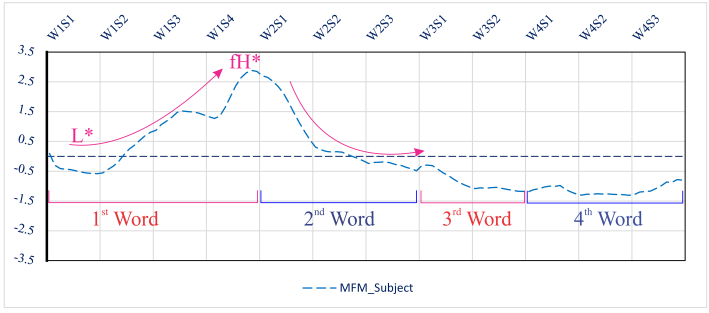

Figure 5 In this z-score normalised pitch contour, the first word hosts the MFM *=hɛ* to its right. MF realised on the first constituent removes all the pitch variations seen in Figure 1.

The results of statistical tests conducted to establish the phonetic difference between constituents in WF and MF conditions reveal that constituents hosting MFM show significantly expanded pitch range compared to their WF counterparts. Results displayed in Table 1 show that constituents hosting MFMs are characterised by significantly greater pitch span: F_0 min goes down and F_0 max goes up on the first and last syllable of the focused constituent respectively.

ITEMS ↓	VALUES ↓	WF		MF FOCUS		F ↓	*p-value* ↓
		Mean	*Sd*	*Mean*	*Sd*		
WORD-1	F_0 *max*	-.074	.84	1.23	.67	F(1, 148) = 111.64	0.00
	F_0 *min*	.43	1.07	-.37	1.09	F(1, 148) = 20.55	0.00
WORD-2	F_0 *max*	.11	.62	1.12	.53	F(1, 148) = 114.16	0.00
	F_0 *min*	.09	.71	-.95	.49	F(1, 148) = 107.68	0.00
WORD-3	F_0 *max*	-.10	.54	1.46	.50	F(1, 148) = 337.58	0.00
	F_0 *min*	.23	.89	-.40	.67	F(1, 148) = 23.69	0.00

Table 1 Comparison of F_0 min and max values on the first and last syllable of words respectively in three different positions under WF and MF conditions.

6. Discussion

In the above discussion comparing the outcomes of our previous study on CF (Twaha and Mahanta 2016, 2016) and those found in the present investigation, it can be seen that both CF and MF increase pitch values on the final syllable of the focused constituent. This pitch increase on the constituent with CF does not often block IP internal downstepping. Though the third constituent in Figure 2 undergoes pitch increase on the final syllable, it is lower than the peak realised on the second word. On the other hand, constituents manifesting MF always block IP internal downstep. In Figure 4, the pitch peak realised on the third word is realised higher than the one manifested on the second word. It has been assumed in this study that this kind of phonetic difference in pitch realisation on the focused constituent in CF and MF conditions is caused by the difference of phrasing (L*fH$_P$ and LfH* respectively), which these two types of focus initiate. We do not hypothesise focus high boundary tone (fH$_P$) on MFMs as it has been done by Khan (2008, 2014) for Bangladeshi Standard Bengali since the high tone on MFMs is always realised higher than it is on constituents with CF (compare Figure 2 and 4). We further assume that unlike EFAs in English, MFMs in SCA not only mark the prominence of its host morphologically by attaching with it, but also lends prosodic prominence to it by bearing the pitch accent of the focused phrase.

7. Conclusion

In this study, it has been discussed how constituents bearing MF behave differently to those with CF. The paper illustrates the way MFMs are distributed in SCA and how hosts and MFMs are organised in the variety. The focused constituent together with the MFM constitutes a P-phrase. Within this P-phrase, the MFM bears the pitch accent (fH*) since it is treated as the most prominent syllable of the phrase. MFMs post-lexically represent the prosodic prominence assigned to the host by bearing the final pitch accent of the IP.

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