Loanword Adaptation at Suprasegmental Level in MP-Monolinguals

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Abstract

This article accounts for stress assignment in the loanwords from English among MP Monolingual speakers (ML). The current study attempts to analyse the stress patterns in monomorphemic words in MP loanwords in the light of parameters of Metrical Stress System (MST) (Hayes, 1995). In addition, this paper establishes that loanword adaptation patterns can be easily modelled through a set of well-known metrical constraints within the framework of Optimality theory (OT) (Prince & Smolensky, 1993/2004) and thus proposes a correct constraint ranking hierarchy which reflects that due to less exposure and usage of source language (i.e. English), ML speakers stick to the native stress rules. This paper is particularly important as it is first of its kind. No previous study has focused on the adaptation patterns at prosodic level in MP loanwords from the perspective of ML.

Keywords: Stress, Metrical Stress Theory, Optimality Theory (OT hereafter), Syllable Weight, Constraints

1. Background

Lexical (or word) stress is defined as the increased prominence in a certain syllable or syllables in a prosodic domain (Everett & Everett, 1984; Davis, 1988). In contact language phenomenon, loanword adaptation patterns of stress system are stricter in the maintenance of their native stress rules than the tone languages (Kang, 2010). The repair strategies which are used to make an input permissible on their native phonology can be at the segmental level, via deletion, alteration or vowel lengthening. For example, when a Spanish loanword enters the basilect of Huave (cf. Davidson & Noyer, 1997; Broselow, 2009), stress is maintained on the same syllable as in the input by deletion of segments, for instance, /garaˈbato/$_{\textit{Spanish}}$ '*hook*' changes into [garaˈbat] $_{\textit{Huave}}$; this is needed because in Huave stress is related to syllable weight which is dependent on the presence or absence of a coda consonant rather than vowel length. Kang (2010) also explains that if loanwords in the borrowing language

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(native) show faithful preservation of the stress position of the source language (SL) without any segmental alteration or importation, it may be because the input language (native) has more direct contact with the SL(see Kubozono, 2006 for English into Japanese; Lee, 2005 for English into South Kyungsang Korean). However, it is interesting to see in this paper that in case of less exposure to the source language, whether the monolingual speakers preserve the stress rules of native language (in this context MP) or show the variation by allowing stress rules of source language (i.e. English).

Cross linguistically, stress has been analysed by using the concept borrowed from metrical phonology. For instance, Frid (2001) presents a lexical word stress in Swedish by analysing within metrical phonology and optimality theory. In the same way, the current study analyses the lexical stress patterns by using the modern phonological theory, i.e. metrical stress theory (Hayes, 1995) which will provide the typological outlook of MP Stress system and adaptation patterns of English loanwords in *ML*. The main research question posed in this paper is: does the native stress rules explain the loanword adaptation patterns or another grammar require to account for the stress system of loanwords in *ML*.

Indo-Aryan languages like Punjabi which is mainly spoken in subcontinent (India and Pakistan) rely entirely on syllable weight in the determination of the placement of stress (Dhillon, 2010; Masica, 1991). More recently, Khan (2012) has re-investigated the lexical stress of Poonch dialect (a dialect spoken in Azad Jammu and Kashmir) and he claims that Pahari is a quantity-sensitive language. Apart from these academic endeavours at suprasegmental level according to my review of academic literature, no other substantial work has been done so far on the dialects of Pahari and more specifically, on MP at suprasegmental level and no work has done from the phonological point of view which captures the stress patterns of English loanwords among *ML* speakers.

Mirpur Pahari (MP) is widely spoken in Mirpur which is located in Azad Jammu & Kashmir (AJ&K)-Pakistan administered Kashmir. MP is also referred to as ‘Mirpuri’ or ‘Pahari’ only. Grierson, (1917) classified Pahari in a group called ‘Lahnda’ which refers to Western Punjabi belongs to Indo-Aryan family. Similarly, other scholars (Gordon, 2005; Hammarström et al., 2016) also categorize MP under the Western Punjabi language group. According to Shafi (2017), MP has a quantity-sensitive stress system. It has a three-way syllable weight distinction, i.e., light (CV), heavy (CVC, CVV) and superheavy (CVVC, CVCC). Superheavy syllables are restricted to word-final position only.

1a. final superheavy	**1b.penult heavy syllable**	**1c. Lengthen penult syllable**
[pə.ˈsə nd] choice	[ˈd ər.zən] seamstress	[ˈtʃaː.vəl] rice
[ˈə ɡ.raː] tease	[ˈχʰəs.ra] measles	[ˈsoː.ti] cane
[sə.ˈbuːn] soap	[ˈtʃaː.vəl] rice	[tʃəpˈɽaː.si] gofer
[dər.ˈbaːr] shrine	[bə.ˈrad .rɪ] caste	[d ə.ˈraː.ti] sickle

Based on the generalisations drawn from the above data (1a-1c) stress rules in MP can be described in *2a-c*:

2a.Assign stress to a final superheavy syllable (as shown in *1a*).

2b. In the absence of *2a* (i.e. superheavy final syllable), assign stress to a penult heavy syllable (as shown in 1b) OR

2c. Lengthen the short vowel in an open stressed (penult) syllable as shown in *1c* (e.g. /so.ti/→[ˈsoː.ti] 'stick') to conform with *2b*.

1.1 Metrical Stress Theory in MP

Lexical word stress has been analysed within OT using concepts adopted from metrical phonology, e.g. feet and syllable weight (Frid, 2001). I will use Hayes' (199A) Metrical Stress Theory (MST) to explain the parameters involved in the stress system of MP (and MP loanwords). The central notion in MST is that stress is a relational property which can be represented in terms of a hierarchy (Hayes 1980, 1995). In MST, the role of constituents (such as moras, syllables, feet, and words) in showing the prominence relations (i.e. stress) has been described in terms of a prosodic hierarchy. In this hierarchy, the mora is the smallest unit of weight within a syllable. The syllables which bear stress are organised into constituents called feet. As a constituent, a foot can be analysed in terms of syllables (or moras). This means that a foot can contain two syllables where one syllable (in a foot) is designated as a 'head' and bears the main stress; the other syllable is a non-head and bears no main stress (it may bear secondary stress or no stress). Here the human perceptual bias underpinning the basic foot types is defined under the Iambic-Trochaic law (Hayes 1985, 1987) as in (3):

(3) The Iambic-Trochic law:

a) Elements contrasting in intensity naturally form groupings with initial prominence, i.e. trochee.

b) Elements contrasting in duration naturally form groupings with final prominence, i.e. iambic.

Assuming MST, MP has moraic trochees (that is, left headed feet containing at least two moras). Feet are constructed from right-to-left. Moreover, degenerate feet are strictly prohibited, and this prevents open light syllables from bearing stress (cf. the Degenerate Foot Parameter (Hayes, 1995) or the Minimal Structure Parameter of Crowhurst, 1998). Following Hayes (1995), the following metrical parameters are used to account for MP stress assignment:

(4) Metrical parameters for MP Stress

a) Consonant Extrametricality: $C \rightarrow \langle C \rangle\ ]_{\text{word}}$
b) Foot Construction: Moraic trochees from right to left in non-iterative form. Degenerate feet are banned.
c) Word layer Construction: End Rule Right.

In *4a*, consonant extrametricality is motivated by metrical theory whereby the weight of a syllable depends on whether it has a long bimoraic vowel or whether the coda of a closed syllable contributes a mora to the syllable. This suggests that the foot should be binary at the moraic level, which in case of MP equates to CVV or CVC (i.e. heavy syllable) only. However, in *1a*, it is shown that in MP stress falls on a superheavy final syllable which is trimoraic, which appears to violate the foot condition (i.e., having more than two moras). This puzzle can be resolved, if we consider this as a case of consonant extrametricality, which reduces the superheavy syllable CVVC or CVCC to heavy CVV or CVC via consonant extrametricality which is shown with an angled bracket '<>' around the extrametrical consonant. Thus, MP constructs a foot which is maximally bimoraic, and stress is assigned to the final syllable. This also shows that the foot is constructed from right-to-left direction. Stress falls on the initial syllable within the foot, therefore the foot type in MP is the moraic trochee. Also note that in *1c*, light syllables do not receive any stress showing that they are unable to construct feet in MP. Therefore, to assign stress, vowel lengthening takes place in light open syllables. However, unstressed light syllables remain unparsed in conjunction with Hayes (1995) observation that parsing does not need to be exhaustive. The extrametricality in the MP word [dər.ˈbaːr] 'shrine': in MP stress falls on a final superheavy syllable which can be derived by designating the final consonant of the superheavy syllable (here CVVC) as extrametrical and results in forming a binary, left-headed foot. The metrical stress theory (Hayes, 1995) provides the typological outlook of *Stress* system in MP in general and in loanwords in particular.

1.2 Stress Constraints in MP: OT Analysis

The OT constraints which are used to analyse stress patterns in MP will be used to analyse English loanwords. Regarding stress assignment, I will repeat the relevant generalisations (as shown in *2a-c*) in below:

5) Generalisations regarding stress assignment in MP:
  a) Stress a final superheavy syllable (i.e. CCVCC or CVVC).
  b) In the absence of (*5a*), the primary stress falls on a penultimate heavy syllables (penult) as an elsewhere condition. (We know that heavy penult syllable in MP are CVV, CVC, and VC.)
  c) No stress on open light (penult) syllable.

The generalisation in *5c* is that in MP stress never falls on an open/light CV syllable. We ascribe this to a markedness constraint based on the Stress-to-Weight principle (SWP) as shown in (*6a*). This constraint forces all stressed syllables in MP to be heavy.

6a) Stress-to-Weight (SWP): If stressed, then heavy (Crosswhite, 1998).

6b) Implementation: Assign one violation mark to any stressed light syllable in the output. There does not appear to be any secondary stress in MP, and light syllables never receive any stress. As a result, we assume that only a single metrical foot is built in monomorphemic words which in some cases (disyllables or trisyllabic words) may result in violation of the markedness constraint Parse-σ in MP (as shown in *7a*):

7a) Parse-σ: All σ must be parsed by feet. (Kager, 1999).

7b) Implementation: Award one violation mark to any un-footed syllable.

We also know that in MP the foot is a bimoraic trochee which is built from right to left, as main stress falls on a superheavy final syllable in the word if present. Thus, a single metrical foot is aligned under the markedness constraint Align R in MP as shown below in *8a*.

> 8a) Align R (WORD, HEAD FOOT): The right-edge of the word must match the right edge of the head foot (McCarthy and Prince, 1993).
> 8b) Implementation: Assign one violation mark to any foot which is not right aligned in the word.

However, we also know that the foot in MP is bimoraic because stress falls on heavy syllables which contain two moras. In other words, stress is assigned to the leftmost mora in a foot of two morae under the foot condition, i.e. Foot Binarity as described in 9a:

> 9a) Ft-Bin: Feet are binary under moraic analysis (McCarthy & Prince 1995; Prince, 1983)
> 9b) Implementation: Assign one violation mark to a foot that does not contain two moras.

We know that stress is only ever realised on heavy syllables in MP. We allow in the analysis for the possibility that, to maintain stress on the penult, an input vowel may be lengthened (see 1c) in violation of the constraint, i.e. IDENT $_{\text{[long-v]}}$ (as shown in 10 below).

> 10a) IDENT $_{\text{[long-V]}}$: an input vowel and its output correspondent have the same value for [long] (Prince, & Smolensky, 1993, 2004).
> 10b) Implementation: Assign one violation mark for every vowel in the output which has a different length from its corresponding vowel in the input.

The data on stress in MP illustrated in 1a-c includes examples which appear to violate the Ft-Bin constraint by allowing stress to fall on superheavy syllable types CVCC as in [t ə.ˈrə nd] ‘group’ or CVVC as in [sə.ˈbuːn] ‘soap’, both of which are trimoraic syllables by weight. However, this issue can be resolved by including a Non-Finality constraint proposed by Hyde (2003, 2007, 2011, and 2012) in the current stress analysis (as shown in 11). This constraint is used here to analyse consonant extrametricality in MP.

> 11a) Non-Finality$_{\text{[C, w]}}$: No mora-level grid mark occurs over the final consonant of a prosodic word (Hyde, 2003, 2007, 2011, 2012).
> 11b) Implementation: Assign one violation mark to any word-final foot that includes a word-final consonant.

1.3 Stress Assignment in MP: OT analysis

In this section arguments for various sub-rankings are made to show an overall constraint ranking operating in MP. To start, the following tableau (12 & 13) will show only the stress related constraint ranking in MP.

(12) {Ft Bin, SWP, NonFinC}>> {AlignR, IDENT [long-v], Parse-σ}

/tʃaː.vəl/	FtBin	SWP	NonFin$_C$	AlignR	IDENT$_{[long-v]}$	Parse-σ
a.→ (ˈtʃaː).vəl				*		*
b. (tʃaː).(ˈvəl)			*W	L		L
c. (tʃaː).(ˈvə)	*W	*W		L		L
d. (tʃaː).(ˈvaːl)	*W		*W	L	*	L

In tableau (12), the winning candidate *12a* violates Align Rand Parse-σ. The losing candidate *12b* and *12c* obey the low-ranked constraint Align Rand Parse-σ but at the expense of high-ranked constraint NonFin$_C$ (in *12b* only) and FtBin, SWP (in *12c* only) respectively. Candidate *12d* demonstrates the ranking of FtBin and NonFin$_C$ over Align Rand Parse-σ. The non-grammaticality of candidate *12c* indicates that only one foot is formed in MP. However, this tableau still does not tell us a ranking argument for IDENT $_{[long-v],}$ so we need one more tableau to show the final constraint ranking.

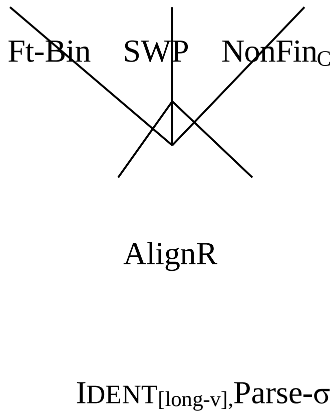
(13) {FtBin, SWP, NonFin$_C$}>> AlignR>>{ IDENT $_{[long-v],}$ Parse-σ}

/d ʊ.kan/	FtBin	SWP	NonFin$_C$	AlignR	IDENT$_{[long-v]}$	Parse-σ
a.→ də.(ˈkaː)<n>					*	*
b.(ˈd ə).(kaː)<n>	*W	*W		*W	L	L
c. (d ə).(ˈkan)	*W		*W		L	L

In tableau (13), the winning candidate *13a* violates IDENT $_{[long-v]}$ and Parse-σ. The losing candidate *13b* obeys the low-ranked constraint IDENT $_{[long-v]}$ and Parse-σ but at the expense of high-ranked constraint FtBin, SWP and AlignR. Similarly, candidate *13c* obey low ranked constraints (IDENT $_{[long-v]}$, Parse-σ) but violates the high ranked constraints FtBin and NonFin$_C$. The tableau (13) shows that Align R>>IDENT $_{[long-v]}$, Parse-σ.

We can now show the full constraint ranking for stress assignment in MP words in a Hasse diagram in (*14).*

(14) Hasse diagram: Stress constraints in MP



The Hasse diagram in (14) illustrates that there is no constraint interaction among FtBin, SWP, NonFin$_C$, thus these constraints are equally ranked with respect to each other, but all outrank AlignR, IDENT $_{[long-v]}$ and Parse-σ. Likewise, Align R ranks higher than IDENT $_{[long-v]}$ and Parse-σ.

As the central notion of the paper is to examine the lexical stress pattern in monomorphic loanwords in *ML* speakers. The stress patterns in loanwords will be analysed in the same manner as shown in MP by using the concepts borrowed from the modern phonological theory, i.e. metrical stress theory (Hayes, 1995).In addition, how stress patterns are analysed within the theoretical framework of Optimality Theory (Prince and Smolensky 1993/2004) and thus provides a constraint ranking hierarchy which will be compared with to native MP stress. This will answer our main research question, i.e. whether the adaptation patterns of stress patterns conform to the native (MP) phonology or whether we need another grammar to account for these adaptation patterns

To find out the answer, a corpus of 869 loanwords was collected. The primary informant of the data is native-speaker informants participated through a picture-naming task to clarify the opaque diversity in the realization of stress positions. In addition, to gain a transparent picture of the phonology of the target variety, a deliberate attempt has been made to follow the patterns of the populations rather than individuals.

2. Stress Assignment: MP loanwords in *ML*

The data presented below (in *15*) is based on the corpus data for *ML*.

15a. Pattern A			15b. Pattern B		
‘refuse’	/rɪ.ˈfjuːz/	[rəf.ˈjuːz]	‘reply’	/rɪ.ˈplaɪ/	[ˈrəp.laɪ]
‘public’	/ˈpʌb.lɪk/	[ˈpəb.lək]	‘stadium’	/ˈsteɪ.dɪəm/	[sə.teː.ˈdɪəm]
‘crockery’	/ˈkrɒ.kri/	[kə.ˈrɑk.ri]	‘cylinder’	/ˈsɪ.lɪn.də/	[sə.ˈl n.dər]
‘appendix’	/ə.ˈpɛn.dɪks/	[ˈp n.dəs]	‘glucose’	/ˈgluː.kəʊs/	[gəl.ˈkoːz]
‘decision’	/dɪ.ˈsɪ.ʒən/	[də.ˈsiː.ʒən]	‘vaccine’	/ˈv k.siːn/	[vək.ˈsiːn]
‘lettuce’	/ˈlɛ.tɪs/	[ˈl ː.təs]	‘hospital’	/ˈhɒs.pɪ.təl/	[həs.pə.ˈt aːl]
‘trolley’	/ˈtrɒ.li/	[tə.ˈraː.li]	‘shampoo’	/ʃ m.ˈpuː/	[ˈʃæm.pu]

Data in *15* shows that there are two types of stress patterns (i.e.*15a-b*) in the loanword data of *ML*. The first stress pattern ‘A’ shows that there is no conflict between where the stress falls in the source input (i.e. English) and where the stress falls in the output in the MP loanword, because stress position in the source word already meets the rules of native MP phonology. However, the second stress pattern ‘B’ in the loanwords works opposite to the pattern ‘A’. In pattern ‘B’ stress falls on the syllable in the output which conforms to the native MP phonology but as a result moves the stress away from the position it held in the source form (English).

Based on the data in pattern A and B in *15*, the stress patterns for MP loanwords in *ML* can be summarised as in (16):

16) Generalisations on stress assignment in *ML*

a) Stress the super-heavy final syllable.
b) In the absence of *16a*, stress the penult heavy syllable
c) Stress is not assigned on open penult syllable (CV).

The generalisations outlined in *16a-16c* are reflected in both Pattern ‘A’ and ‘B’. These stress patterns (A&B) show that *ML* remain faithful to the native MP stress rules and do not show any variation in stress assignment in loanwords. This suggests that the stress assignment patterns of the native grammar are displayed in MP loanwords produced by *ML*. In terms of OT analysis, I will use the same constraints used for MPfor stress patterns in *ML*.

2.1 Stress Pattern A&B in ML: OT Analysis

The stress adaptation patterns ‘A’ & ‘B’ (as shown in *15*) can be analysed using the native MP constraint ranking, as shown below in tableaux (17-18).Pattern ‘A’ is where stress in the input (in English) is already on the final superheavy or penult heavy syllables (see 15a), therefore, it does not violate the native (MP) stress rules and remains in the same position in the word in the output in *ML*. Pattern ‘A’ is shown through tableau (17).

(17) FtBin, SWP, NonFin$_{C}$, IDENT $_{\text{[long]}}$>>AlignR, IDENT $_{\text{[long-v]}}$, Parse-σ

/ˈlɛ.tɪs/	FtBin	SWP	NonFin$_{C}$	AlignR	IDENT$_{\text{[long-v]}}$	Parse-σ
a. → (ˈl ː).təs				*	*	*
b. (ˈlɛ.tɪ)<s>		W		L	L	L
c. (lɛ.ˈtɪs)	W*		W*	L	L	L
d. (l ː).(ˈtə)<s>	W*	W		L	L	L

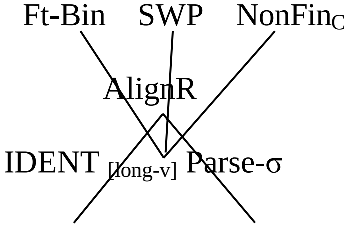
In tableau (17), the observed surface form in the corpus is the candidate (*17a*).To maintain stress on the penult, the vowel is lengthened and thus the winning candidate *17a* violates the constraints Align R, IDENT $_{\text{[long-v]}}$ and Parse-σ. Conversely, the losing candidates *17* (*c&d)* demonstrate the ranking of FtBin, SWP , NonFin$_{C}$ (in *17c* only) over AlignR, IDENT $_{\text{[long-v]}}$ and Parse-σ in loanwords, as was also found in native MP words; the losing candidate (*17b*) demonstrates the ranking of SWP over Align R, IDENT $_{\text{[long-v]}}$ and Parse-σ only. The tableau (17) does not yet provide a ranking argument among Align R, IDENT $_{\text{[long-v]}}$ and Parse-σ, therefore, we need another tableau (18) which will show the ranking among them.

(18) FtBin, SWP, NonFin$_C$>> AlignR>> {IDENT $_{\text{[long-v]}}$, Parse-σ}

/ˈgluː.kəʊz/	FtBin	SWP	NonFin$_C$	AlignR	IDENT$_{\text{[long-v]}}$	Parse-σ
a.→gəl.(ˈkoː)<z>						*
b.(ˈgəl).(koːz)	* W			W		L
c.(gəl).(ˈkoːz)			W			L
d.(ˈgə).(koːz)	* *W	W		W		L
e.(gə).(ˈkoː)<z>	* W	W				L

The tableau (18) shows that the optimal candidate *18a* satisfies all the high ranked constraints and violates the low ranked constraint IDENT $_{\text{[long-v]}}$ andParse-σ. The losing candidate *18b* obeys the low ranked constraints, i.e. IDENT $_{\text{[long-v]}}$ andParse-σ but it violates FtBin and Align R. We have already learned from tableau (17) that Align R is lower in rankingthan FtBin, SWP, NonFin$_C$. However, the losing candidate *18b* shows us that Align R is higher in constraint hierarchy than IDENT $_{\text{[long-v]}}$ andParse-σ. The losing candidates *18c* and *18d* obey IDENT $_{\text{[long-v]}}$ (only *18d*) andParse-σ but at the cost of high ranked markedness constraints NonFin$_C$ (in candidate *18c only*), FtBin, SWP and Align R in *18d*. Likewise, candidate *18e* satisfies Parse-σ but at the expense of high ranked constraints, i.e. FtBin and SWP. The constraint ranking in tableau 18is an example of stress pattern 'B'. This shows that *ML* resistskeeping stress in the position that it holds in the input (English) and thus strictly obeysthe MP native stress grammar by placing stress on superheavy final syllable and thus does not match the stress position of source word (English). Together tableaux 17-18 show that stress patterns 'A' and 'B' reflect the constraint ranking of native MP phonology in *ML*(i.e. {FtBin, SWP, NonFin$_C$}>>AlignR>>{ IDENT$_{\text{[long]}}$,Parse-σ}). This can be reflected in a Hasse diagram as in (19) below.

19) Hasse diagram of stress patterns ‘*A*’ and ‘*B*’ in *ML*



3. Conclusion

The constraint rankings in stress assignment (as shown in Hasse diagram *19)* in *ML*show strict adherence to the constraint hierarchy of native MP phonology, which is repeated here in *20.*

> *20)* Stress Assignment: MP = *ML*
> {FtBin, SWP, NonFin$_C$} >> AlignR>> {IDENT $_{[long-v]}$, Parse-σ}

By using the same constraints and the same ranking in their adaptation patterns(as illustrated in 20), *ML*show complete integrationof loanwords into the native MP phonological structure.The subsequent OT analysis provides an answer to the question posed earlier whether *ML*conform to native MP phonologyin their loanword adaptation patterns at the prosodic level or display a separate grammar, which is different from the native MP grammar. The answer is quite prevalent that *ML* due to lack of exposure to the source language strictly follow the native stress rules.

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