PHONEMIC INSTABILITY: A BUTTERFLY EFFECT

PAROMA SANYAL
REENA ASHEM
Indian Institute of Technology-Delhi, India

1 Introduction

Can an imperceptibly tiny change in the relative ranking of a markedness constraint lead to phonemic instability and ultimately sound change in a language? In this paper we predict that this could indeed be the case when the phonological processes that take place within a certain morpho-phonological domain result in a particular phoneme being reinterpreted as marked by new learners of the language.

According to McCarthy and Prince (1994), *The Emergence of the Unmarked* is a generalization about markedness constraints that are otherwise invisible in a language becoming visible in certain marked domains. While a markedness constraint C 'in the language as a whole, may be roundly violated, but in a particular domain it is obeyed exactly.' Now imagine the scenario where a markedness constraint C is ranked so low in the language that it is invisible for all practical purposes. However, when the satisfaction of a complex set of well-formedness constraints within a marked domain coincides with a systematic violation of C, it is possible for new learners of the language to re-rank C higher in the language. Thus the surface realization of phonological well-formedness conditions, if coincidentally localized to particular phonemes, rather than being distributed over a range of environments, could trigger phonemic instability and eventual sound change in the language.

The Tibeto-Burman language Meiteilon, spoken in the state of Manipur in India, we claim, has a similar reanalysis taking place in its current phonological grammar. Meiteilon, like most other Tibeto-Burman languages of the region has rich inflectional morphology that attaches as suffixes to monosyllabic nominal or verbal roots. The second section of this paper is devoted to the discussion of a range of morpho-phonological processes that appear to be restricted to the domain of inflectional morphology in Meiteilon. A potential poster child for Strict Cyclicity

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(Kiparsky 1982), these sandhi rules apply cyclically with each layer of affixation, between the phonemes at the morphological boundary. Unlike the textbook example case of English lexical morphology, these are inflectional morphemes adding TAM information onto verbal roots. Our initial research which sets out to explore the phonological markedness constraints triggering these allomorphic alternations, eventually led us to linking it with the quite well-recorded but hitherto unrelated factor of free variation between the sonorants /n/ and /l/ in the language.

Analysis of the phonological environments, in the third section of the paper, reveals that the grammar of Meiteilon has a strong preference that the roots ending in stops be followed by stops and the roots ending in continuent consonants, by continuents. In the framework of Optimality Theory (Prince and Smolensky 1993), this translates into the satisfaction of the markedness constraint Agree [continuency]. This constraint, once suitably parameterized to block potential overapplication and underapplication, serves as a perfect descriptive device to characterize the morpho-phonologically triggered allomorphy in the language.

This is the point at which the story of Meiteilon deviates from the set narrative of phonological analysis of morpho-phonological processes in a language. Compared to the number of stops, both oral and nasal, the language has very few continuent consonants. It has a couple of fricatives, /s/ and /h/, glides /j/ and /w/ and a single lateral /l/. Of these the lateral happens to be the only continuent that appears in the inflectional boundary with the root. Consequently, the suffix-initial laterals systematically fail to surface in a large section of the vocabulary. The fourth section of the paper discusses the potential implications of singling out a phoneme for phonologically motivated allomorphy.

Independent of these morpho-phonological contexts that we examine, the existing literature on Meiteilon (Bhat and Ningomba, 1997; Chelliah, 1997; Y.Singh, 2000; Takhellambam, 2015) describe at least two phonological contexts where the lateral fails to surface in the output.

a. The lateral /l/ is in free variation with the nasal /n/ in coda position
b. The rhotic /r/ is in complementary distribution with the lateral /l/ intervocalically.

In this paper we contend that these contexts which exhibit a clear dispreference for the lateral phoneme are linked to the accidental isolation of the /l/ in morpho-phonological contexts.

2 Morpho-phonological Processes in Meiteilon

Meiteilon has a large number of aspect, mood, negation, and directionality marking morphemes that suffix onto the monosyllabic verb root. Similarly, nominal roots can also carry suffixes for information structure, possessive, demonstrative and associative. However, unlike the verbal roots which are bound morphemes and cannot surface without affixes, the nominal roots are free morphemes. Table (1) shows the list of verbal and nominal inflections in Meiteilon.

(1) List of Inflectional morphemes

Verbal Inflection					Nominal Inflection	
/l/ initial morpheme		non-/l/ morpheme				
-li	Progressive marker	-kəni	Volitional		-tu	Demonstrative
-li[1]	Indicative mood	-te	Negation		-kə	Associative
-lə	Deictic (towards)	-nu	Prohibition		-pə	Nominalizer
-lo	Imperative marker	-k^{h}i	Temporal Marker		-ki	Genitive
-lu	Deictic (outwards)	-ni	Copula		-ti	Topic
-ləm	Evidential marker	-nə	Adverbial		-pu	Focus
-le	Perfective marker				-ne	Associative
-loy	Negation (future)				-si	Demonstrative
-lək	Deictic (away)					

This list highlights two phonologically notable points:

- All these inflectional morphemes are consonant initial
- A large proportion of the verbal inflections begin with the lateral phoneme /l/

For a language that allows both CV and CVC verb roots, suffixation of V-initial inflections would produce a context for hiatus resolution. Having C-initial affixes optimizes the inflectional paradigm in order to side-step the context of hiatus resolution altogether (Ashem and Sanyal 2016).

The consonants occurring at the beginning of C-initial suffixes can be phonologically divided into two categories, obstruents and sonorants, based on the manner of articulation. The Obstruent consonants are all plosives, and each one of them (except the aspirated plosive of the temporal marker) shows voicing alternation. The sonorant consonants on the other hand show a predominance of /l/ with an occasional /n/. Since the obstruents are all plosives, the distinction can be further extended between Stop consonants characterized by the feature [-continuent] and the rest. In this re-characterization, Nasals will get clubbed in with the Stop consonants, leaving the lateral, /l/ as the only consonantal phoneme in the [+continuent] list.

Similar to these, the coda consonant of the CVC verb root can contain either a lateral/nasal or voiceless plosive. The phonemic distinction between /n/ and /l/ is lost in the coda position. Therefore these have been argued to be in a 'free variation' in literature (Bhat and Ningomba, 1997; Chelliah, 1997; Y.Singh, 2000; Takhellambam, 2015).

(2) /l/ ~/n/ alternation at coda position

a. Onset: Phonemically distinct			b. Coda: Free Variation	
lɑ	'banana leave'		lɑ**n**	'war'
nɑ	'ear'		lɑ**l**	
ləŋ	'thread'		li**n**	'snake'
nəŋ	'you'		li**l**	

[1] The previous works take /i/ to be the form of indicative mood marker (Bhat and Ningomba, 1997; Chelliah, 1997; Y. Singh, 2000). However, Ashem and Sanyal (2016) presenting a paradigm uniformity account argues that CV is the underlying skeleton of all inflectional morphemes. Thus, they treat /li/ to be the underlying form of the indicative mood.

So, in the coda of verb roots too, we would expect the lateral and nasal to be in free variation. However, since verb roots are bound morphemes, the surface form will always be colored by the phonological characteristics of the following suffixal morpheme. When followed by a nasal or lateral, it surfaces as a nasal or lateral respectively.

(3) List of Morpho-Phonemic environments

ROOT	- $C_{[plosive]}$	-$C_{[nasal]}$	-$C_{[lateral]}$
$CVC_{[plosive]}$	$C_{[plosive]}$-$C_{[plosive]}$ Voicing assimilation	$C_{[plosive]}$-$C_{[nasal]}$	$C_{[plosive]}$-$C_{[lateral]}$ MORPHOPHONEMICS
$CVC_{[nasal]/ [lateral]}$	$C_{[nasal]}$-$C_{[plosive]}$ Voicing assimilation	$C_{[lateral]}$-$C_{[nasal]}$ Nasal assimilation	$C_{[nasal]}$-$C_{[lateral]}$ Lateral assimilation
CV	V-$C_{[plosive]}$ Voicing assimilation	V-$C_{[nasal]}$	V-$C_{[lateral]}$ Rhoticization

The unexpected part in table (3) is that the suffix-initial laterals, which are always in the onset position of a syllable, and therefore expected to show no free variation, show five different kinds of changes depending on the phonological features of the preceding phoneme.

- Complete assimilation of the lateral to the preceding consonant
- Lateral deletion
- No change
- Complete assimilation of preceding consonant to the lateral
- Rhoticization of the lateral

All these phonological processes are triggered by a common morpho-phonological environment, namely, a root consonant or vowel followed by a lateral-initial suffix. Yet they show different results. In order to analyze these further, we further categorize them as per place of articulation of the preceding consonant.

Coronal stops and nasals match with respect to place of articulation with the following lateral, and this environment exhibits no morpho-phonological change. The nasal coda of the root always surfaces as a lateral instead of a nasal when followed by a lateral-initial suffix.

(4) Non-alteration of /l/ with coronal stop and nasal

a. tombə iskul čət- -le ➔ čət-**le** /*čət-**e** /*čət-**te**
   Tomba school go- Perf
   'Tomba has started school.'
b. tombə yum hən- -li ➔ **həl-li** /* hən-i / *hən-ni
   Tomba house return Prog
   'Tomba is returning home.'

When preceded by labial stops, whether oral or nasal, the /l/ of the following suffix shows complete assimilation. In this case /l/, being a coronal consonant, does not match in either place or manner feature with the preceding labial phoneme.

(5) /l/ alteration with labial stop and nasal

a. tombə če nəp- -li ➔ nəp-**pi /* nəp-ni /* nəl-li**
Tomba paper stick Prog
'Tomba is sticking (the) paper.'

b. tombə če nəm- -li ➔nəm-**mi/ *nəm-ni/ *nəl-li**
Tomba paper print Prog
'Tomba is printing (the) paper.'

If the assimilation is triggered by a non-matching place and manner of articulation, all other things being equal, we would expect the velar stops, both oral and nasal, to show the same result of complete assimilation. With respect to Meiteilon, we find that while that is true of the velar nasal, there are other factors blocking the assimilation of the lateral to the velar stop.

(6) /l/ alternation with velar stop and nasal

a. tombə pʰi kək- li ➔ kək-**i** /*kək-**ki** /*kək-**li**
Tomba cloth cut-Prog
'Tomba is cutting (the) cloth.'

b. tombə če tʰɑŋ- -li ➔ **tʰɑŋ-ŋi**
Tomba paper carry Prog
'Tomba is carrying (the) paper.'

When preceded by a vowel the suffix-initial /l/ changes to the rhotic. This alternation is not restricted to inflectional domain. Also, this is the only phonological environment where the rhotic /r/ appears in Meiteilon. Due to this, /r/ and /l/ have been argued to be allophones in complementary distribution in previous work on the language (Bhat and Ningomba, 1997; Chelliah, 1997).

(7) Rhoticization of /l/ in intervocalic environment

a. tombə čɑk čɑ-le ➔ čɑ-**re**
tombə rice eat-Perf
'Tomba had meal.'

b. wɑ- + -li ➔ wɑ-ri 'story'
word string

A summary of the alternation pattern of lateral-initial suffixes shows that the preferred strategy in the language is assimilation to the preceding stop consonant.

(8) Alternation pattern of lateral-initial suffix

		Plosive	Nasal	alternation type
a	Labial	p-p	m-m	complete assimilation
b	Velar	k- ɸ	ŋ-ŋ	deletion / complete assimilation
c	Coronal	t-l	l-l	no alteration/ alteration of root coda

However, in the specific case of the velar plosive, coronal plosive and nasal, this assimilation seems to be blocked. After failing to assimilate to the preceding stop, each of these cases ends up using a different strategy to satisfy the morpho-syntactic requirement to assimilate. In the following section we present a unified analysis for each of these cases.

3 Analysis of Morpho-phonological Processes

In the preceding section we showed that the morpho-phonemic assimilation takes place between sounds which do not match with each other with respect to the feature [continuency]. Plosives and Nasals being stop consonants are [-continuents] while laterals are [+continuents]. Thus the markedness constraint that triggers allomorphy is something that requires the adjacent segments to have the same value for the feature [continuency].

(9) Agree [continuency]: This constraint incurs a violation each time adjacent segments do not match for the feature [continuency].

(10) Factoral typology of Agree [continuency] in the context of a stop followed by a lateral

	$C_{[-cont, -son]}$-$C_{[+cont, +son]}$	Agree[cont]	Ident [son]	Ident [cont]
a	$C_{[-cont, -son]}$-$C_{[+cont, +son]}$	*!		
b☞	$C_{[-cont, -son]}$-$C_{[-cont, +son]}$			*
c	$C_{[-cont, -son]}$-$C_{[-cont, -son]}$		*	*
d☞	$C_{[+cont, -son]}$-$C_{[+cont, +son]}$			*
e	$C_{[+cont, +son]}$-$C_{[+cont, +son]}$		*	*

When a stop consonant (-continuent, -sonorant) is followed by a lateral (+continuent, +sonorant), the factoral typology suggests that the optimal way to satisfy the markedness constraint Agree [continuency] would be to either convert the lateral to a nasal (-continuent, +sonorant) as in (b) or spirantantize the stop to a fricative (+continuent, -sonorant) as in (d). In both these cases, the output candidates (b) and (d) incur just one violation of the faithfulness constraints, as opposed to candidates (c) and (e) that incur two violations each. Further, given purely phonological motivations like positional faithfulness of prosodic positions like onset, we would expect (d) as the optimal candidate rather than (b) as regressive assimilation is argued to be universally unmarked (Lombardi 1999). However, as per the Meiteilon data discussed in the preceding section we find neither spirantization, nor laterals changing to nasals. This suggests that there are other influential constraints in the mix, apart from Agree [continuency],

determining the output candidates. The following subsections discuss the reason for including two such constraints, Anti-Ident and Root Faith.

3.1 Anti-homophony

Ashem and Sanyal (2016) adopt the formalism of Anti-Ident constraint proposed in Crosswhite (1999) to show how homophonous outputs are blocked in the inflectional paradigm of verbs in Meiteilon.

(11) Anti-Ident Constraint

For two forms, S1 and S2, S1 ≠ S2,

$\exists\alpha, \alpha \in$ S1, such that $\alpha \neq \Re(\alpha)$ (Crosswhite, 1999; 8)

In other words, since Meiteilon already has nasal initial suffixes in the verbal paradigm, the presence of these prevents laterals from changing into nasals. In fact, not just the nasal /n/, we also show that the presence of k-initial and t-initial suffixes blocks complete assimilation of the suffix initial lateral to root final /k/ and /t/ sounds as well.

(12) Anti-homophony blocking in Meiteilon

Input	lɑk-le lɑk-ke lɑk-ne	Anti-Ident	Agree[cont]	Ident [cont]	Ident [son]
a	lɑk-le lɑk-ke lɑk-ne		*!		
b	lɑk-ke lɑk-ke lɑk-ne	*! *!		*	*
c	lɑk-ne lɑk-ke lɑk-ne	*! *!		*	
d☞	lɑk-e lɑk-ke lɑk-ne			*	*
e💣	lɑl-le lɑk-ke lɑk-ne			*	*

The candidate outputs in both (b) and (c) violate the morphologically motivated anti-homophony constraint anti-ident, since in both cases two of the output candidates are identical. Candidates in (d) emerge as optimal since they manage to satisfy both the markedness constraint Agree [cont] as well the anti-homophony constraint. Candidates in (e) incur equal violations as (d) and given our set of constraints should also surface. In the following section we discuss the constraint Root Faith that rules out the candidate (e).

3.2 Root Faith

The anti-homophony condition explains why the laterals do not change to nasals, but fails to explain why the plosives do not change to [+continuent] in order to satisfy Agree [cont]. The explanation for this lies in an independent phenomena that prefers lexical roots to be invariant wherever possible. The non-alternation of verb roots has been accounted for by (Ashem, 2016) through the proposal of incorporating a constraint Root Faith in addition to other faithfulness constraints in the language.

(13) Root Faith: This constraint incurs a violation each time the input and output representations do not match.

(14) Ranking of Root faith in Meiteilon

Input	lɑk-le lɑk-ke lɑk-ne	Anti-Ident	Agree[cont]	Root Faith	Ident [cont]	Ident [son]
a	lɑk-le lɑk-ke lɑk-ne		*!			
b	lɑk-ke lɑk-ke lɑk-ne	*! *!			*	*
c	lɑk-ne lɑk-ke lɑk-ne	*! *!			*	
d☞	lɑk-e lɑk-ke lɑk-ne				*	*
e.	lɑl-le lɑk-ke lɑk-ne			*	*	*!

While the co-ranking or even lower ranking of Root Faith with respect to other faithfulness constraints will suffice to block (e) from surfacing as the optimal candidate set, in effect the constraint Root Faith performs a more important function. It prevents underived words from undergoing assimilation triggered by Agree [continuency]. Therefore, Root Faith need to at least be co-ranked with Agree [continuency].

(15) Blocking continuency assimilation in underived roots

ləm 'land'		IdentRoot	Agree[cont]	Ident [cont]	Ident [son]
a☞	ləm		*		
b	ləl	*		*!	

At this point in our analysis we have three constraints, Agree [continuency], Anti-Ident and Root Faith that interact with other general faithfulness constraints to give us the result where the suffix-initial lateral deletes when preceded by a velar plosive. The puzzle now is to find why the lateral does not delete when preceded by a coronal plosive.

3.3 Agree [place]

The phoneme /t/ differs from the labial and velar plosives in having the same place of articulation as the lateral /l/. This means the velar and labial consonants would be incurring an additional violation of the markedness constraint Agree [place], which the coronal stops would not be incurring.

(16) Agree [place]: This constraint incurs a violation each time adjacent segments do not match for the place feature.

(17) Ranking of Agree [place] in Meiteilon

	čət-le čət-te	Anti-Ident	Root Faith	Agree[cont] &Agree [place]	Ident [cont]	Ident [son]
a ☞	čət-le čət-te					
b	čət-te čət-te	*! *!			*	*
c	čəl-le čət-te		*!		*	
d	čət-e čət-te				*	*!

If the markedness constraint Agree [cont] is conjoined with the markedness constraint Agree [place], using constraint conjunction (Bakovic, 1999), then the resulting conjoined constraint incurs a violation if and only if both its constituent constraints are violated at the same time. This means neither of these markedness constraints individually rank high in the language, however if the two segments do not match in place feature, then they need to match in continuency.

3.4 Underapplication and Overapplication of Agree [continuency]

Underapplication is the scenario where a particular process fails to apply even though the environment triggering it is present. Given our formulation of the markedness constraint Agree [continuency], it should apply not just between consonants, but also between CV roots and stop-initial suffixes. These are also potential scenarios that violate both Agree [continuency] and Agree [place] simultaneously.

(18) čɑ- + -te ➔ čɑ-**d**e / ***cɑ-se** ‘didn’t eat’
eat Neg

In Meiteilon, the constraint Agree [continuency] enforces assimilation to consonantal segments across a morpho-phonological boundary within the domain of the prosodic word. It

doesn't apply to vowel followed by stop sequences across morphological boundaries. However, during such interactions, voicing assimilation does apply. Therefore, this shows that Agree [voice] which incurs a violation each time the voice feature does not agree. Nevertheless, our constraint hierarchy from (16) would indeed predict spirantization in this context.

(19) Non-spirantization

	čɑ-te	Root Faith	Agree[cont]&Agree [place]	Agree [voice]	Ident [cont]	Ident [son]
a	čɑ-te		*	*!		
b	čɑ-de		*			
b	čɑt-te	*!			*	*
c💣	čɑ-se				*	

Here the candidate (a) incurs a violation of the conjoint constraint since the vowel and the coronal plosive neither match in continuency nor place. Additionally, candidate (a) also violates the markedness Agree [voice] constraint. Similar to candidate (a), candidate (b) also violates the conjoint constraint; it satisfies the Agree [voice] constraint. In Meiteilon, the candidate (b) surfaces as the optimal candidate in these cases. This means the conjoint constraint comes into reckoning only when both the segments are consonantal. In terms of OT formalism, this means that only if both segments match with respect to the feature [consonantal] would they need to satisfy the conjoined constraint.

(20) *Agree [consonantal]: This constraint incurs a violation if adjacent segments match with respect to the feature [consonantal]

This dissimilation constraint incurs violation for both CC and VV sequences. Independent of this context, such a constraint might be crucially ranked in a language like Meiteilon that disallows both consonant clusters as well as vowel hiatus. The only contexts where a C follows another C are the morpho-phonological contexts under discussion here.

(21) Restricting the application of Agree constraints to CC sequences

	čɑ-te	Root Faith	*Agree [cons] & Agree [place& cont]	Agree[voice]	Ident [cont]	Ident [son]
a	čɑ-te			*		
b☞	čɑ-de					
b	čɑt-te	*!			*	*
c	čɑ-se				*!	

If the Agree constraints apply only between consonant sequences that have different places of articulation, they should not be applicable when a coronal plosive /n/ is followed by a lateral /l/. Similar to the case of /t/ and /l/ in (16) we should expect no change. However, the Agree constraint overapplies, changing both consonants to lateral /l/. This stems from an independent

well-formedness restriction in the language that states that if two adjacent consonantal segments match with each other with respect to [place] and [sonorancy] features, they should match for [continuency] as well. In OT formalism this would again entail two layers of constraint conjunction.

(22) *Agree [place & son]: This constraint incurs a violation iff both its constituent constraints *Agree [place] and *Agree [son] are simultaneously violated. Each of these constraints is violated iff the adjacent segments match for the features [place] and [sonorancy] respectively.

(23) *Agree [place & son] & Agree [cont]: This constraint incurs a violation iff both its contituent constraints *Agree [place & son] and Agree [cont] are simultaneously violated.

(24) Assmilation with a /n/ final stem

	nən-le nən-ne	Anti-Ident	*Agree[son & place] & Agree [cont]	Root Faith	Ident [cont]	Ident [son]
a	nən-le nən-ne		*!			
b	nən-ne nən-ne	*! *!			*	*
c ☞	nəl-le nən-ne			*	*	

(25) Assimilation with a /l/ final stem

	nəl-le nəl-ne	Anti-Ident	*Agree[son & place] & Agree [cont]	Root Faith	Ident [cont]	Ident [son]
a	nəl-le nəl-ne		*!			
b	nəl-le nəl-le	*! *!			*	*
c ☞	nəl-le nən-ne			*	*	

Unlike the previous cases, this complex well-formedness constraint is ranked higher than the faithfulness constraint Root-faith. The result is that the /n/ final and /l/ final stems will give the exact same outputs when followed by /l/-initial or /n/-initial suffixes. Thus in morphologically inflected environments, the phonemes /l/ and /n/ lose their distinction in root final position. In contrast the suffix initial /l/ and /n/ retain their distinction due to the higher ranking of the Anti-Ident constraint.

To summarize our discussion in this section, we have shown that the morphophonemic alternation in the inflectional paradigm of verbs is restricted to the phonological environment of lateral-initial suffixes. This is the result of two different well-formedness restrictions in the

language involving the constraint Agree [cont]. The constraint Agree [cont] becomes visible in the language while fulfilling the following two restrictions.

- If two adjacent segments match with respect to their value of the feature [consonantal], then they should either match in place of articulation or match in their value of the feature [continuency].
- If two adjacent segments match with respect to their value of the feature [place] and [sonorancy], then they should also match with respect to the feature [continuency].

The effect of these phonological well-formedness conditions is that in a large part of the vocabulary of Meiteilon the input lateral phoneme fails to correspond to a lateral output. While language learners would most probably posit an underlying lateral in those contexts, since they might prefer to keep the mental representation morphemes homogenous, they will also begin to associate higher degree of markedness with the lateral.

4 The Markedness of the Lateral

If the proposal of the theory of *The Emergence of the Unmarked* (McCarthy and Prince, 1994) is a universal principle of language, language learners would interpret phonemes that emerge in marked domains after phonotactic processes as unmarked. Similarly, they might also interpret phonemes that fail to emerge in marked domains as more marked than others in the language. By this re-interpretation it is possible that the phoneme /l/ which was hitherto like any other phoneme is the language, has eventually come to gain the distinction of being more marked than others. Thus destabilized, certain speakers might posit a markedness constraint *Lateral in the phonological grammar. Thus the lateral transforms from being the affected consonant to the morpho-phonological triggering environment. Each one of the processes in section (3) could then be simply motivated by using a constraint *Lateral.

(26) Re-analysis of labial stop final stems using *Lateral

	nəp-le nəp-ne	Anti-Ident	*Lat	Ident [cont]	Ident [son]
a	nəp-le nəp-ne		*!		
b	nəp-ne nəp-ne	*! *!		*	*
c☞	nəp-pe nəp-ne			*	
d	nəp-e nəp-ne			*	*!

(27) Re-analysis of velar stop final stems using *Lateral

Input	lɑk-le lɑk-ke lɑk-ne	Anti-Ident	*Lat	Ident [cont]	Ident [son]
a	lɑk-le lɑk-ke lɑk-ne		*!		
b	lɑk-ke lɑk-ke lɑk-ne	*! *!		*	*
c	lɑk-ne lɑk-ke lɑk-ne	*! *!		*	
d☞	lɑk-e lɑk-ke lɑk-ne			*	*
e.	lɑl-le lɑk-ke lɑk-ne		**!	*	*

Unlike the velar and labial stops, the coronal stops in Meiteilon are the only environment that allow the lateral to surface. This means the constraint *Lateral will also be conditionally ranked high in conjunction with the markedness constraint Agree [place]. Only if a sequence of consonantal segments violates Agree [place] and *Lateral simultaneously would such an output be blocked.

(28) Re-analysis of Coronal stop final stem using *Lateral

	čət-le čət-te	Anti-Ident	Root Faith	Agree [place] & *Lat	Ident [cont]	Ident [son]
a ☞	čət-le čət-te					
b	čət-te čət-te	*! *!			*	*
c	čəl-le čət-te		*!		*	
d	čət-e čət-te				*	*!

5 Implications of the Promotion of *Lateral

In Section (3), we have shown that it follows from the constraint hierarchy of the Meiteilon that the root final /l/ and /n/ distinction might be getting neutralized in morpho-phonologically derived environments where they are followed by suffixes that begin with either /n/ or /l/. However, these phonemes are expected to be distinct elsewhere in the language. A strong evidence for the *Lateral re-analysis hypothesis comes from the fact that this /n/~/l/ neutralization is no longer restricted to the morpho-phonologically derived domain, but also manifests as free variation between /l/ and /n/ in both verbal and nominal roots.

(29) /l/~/n/ free variation

	Nominal Roots	Verbal Roots
a	lɑn/lɑl ‘war’	nən-/ nəl- ‘weigh’
b	lin/ lil ‘snake’	nɑn-/ nɑl- ‘rub’

The faithfulness constraint Root Faith incurs a violation each time the root undergoes any modification in its segments. Therefore, the free variation between /l/ and /n/ in the coda position would involve violation of Root Faith as well as the faithfulness constraint Ident [continuency] that distinguishes between /l/ and /n/. The markedness constraint *Lat should be prominent enough to allow /l/ to vary in spite of incurring these violations.

The prosodic position of Coda is universally marked. Languages that allow coda consonants, like Meiteilon, have the markedness constraint *Coda ranked low in the language. However, when this markedness constraint is conjoined with another markedness constraint *Lat, the resultant conjoint constraint is ranked higher than either of the constituent constraints. In simple words, if having a lateral consonant is marked, then having a lateral consonant in the coda position is worse.

(30) *Lat & *Coda unranked with respect to Ident Root

lɑl 'war'	*Lat & *Coda	IdentRoot	*Lat	Ident [cont]	...	*Coda
a☞ lɑl	*		**			*
b nɑl	*	*!	*	*		*
c☞ lɑn		*	*	*		*
d nɑn		**!		**		*

This constraint hierarchy gives us the additional prediction that by richness of base, if we assume the input for the word 'war' to be /lɑn/ then the output will be /lɑn/ and not /lɑl/.

(31) No variation when input has nasal in the coda

lɑn	'war'	*Lat & *Coda	IdentRoot	*Lat	Ident [cont]	...	*Coda
a	lɑl	*	*!	**	*		*
b	nɑl	*	*!	*	*		*
c☞	lɑn			*			*
d	nɑn		**!		**		*

This is borne out by the preference of the many native speakers who prefer to use a /n/ rather than /l/ in the coda position. This preference is prominently visible in the use of English loan words that have a /l/ in the coda position.

(32) Replacement of /l/ with /n/in English loans

a. /bin/ 'bill'
b. /tebən/ 'table'
c. /ikjɑmpən/ 'example'

6 Conclusion

When a certain sound is in contrastive distribution with other sounds, occurs in marked environments like inflectional suffixes, and is found in both onset and coda positions in a language, it is strange to think of such a phoneme as marked. Such is the case with the lateral phoneme /l/ in Meiteilon. To begin with, we knew that all the morpho-phonological processes in the language could be explained away easily if we assumed that the lateral phoneme was marked and the language was actively trying to avoid it from surfacing. However, such a conclusion was at complete odds with the distributional environments of /l/ in Meiteilon which suggested that the phoneme was unmarked.

This paper unravels the diachronic story behind this puzzle by showing that a host of well-formedness constraints that were enforcing phonological well-formedness at the marked boundary between two morphemes, inadvertently, ended up targeting the lateral /l/ as it happened to be the only [+continuent] consonant which occurred suffix initially. Eventually, later generations of Meiteilon speakers would have associated the vanishing lateral with lateral markedness. Once analyzed as marked, the markedness of the phoneme would not be restricted to the specific morphological environments where it originated, but would potentially spread to other parts of the lexicon as well. This is exactly what we find in the case of /n/~/l/ free variation in Meiteilon.

The phonemic instability hypothesis appears to be a plausible explanation to the behavior of the lateral phoneme in Meiteilon. However, it remains to be confirmed by historical linguists whether the /n/~/l/ free variation is a relatively recent phenomenon in the language.

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