The Disyllabic Trochee in Bangla, Punjabi and Tamil: Variations on a Theme

K.G. Vijayakrishnan, CIEFL

0. Introduction

In this paper we examine the requirement that the minimal word be a disyllabic trochee encoded as the constraint Disyllabic Trochee partially or fully satisfied in different ways in three unrelated languages spoken in India namely, Punjabi, Bangla and Tamil. In the framework of Optimality Theory, like all constraints, the constraint Disyllabic Trochee too is violable, though minimally, in two of these languages. Whereas in Bangla it is ranked high and hence always satisfied, in Punjabi and Tamil, it is not surface true. In Punjabi, a higher ranked constraint renders the constraint Disyllabic Trochee violable resulting in a few subminimal bimoraic lexical words and in Tamil, the disyllabic requirement is freely violated as disyllables are in free variation with monosyllables which we attribute to specific ranking strategies adopted by the grammar of Tamil. In Bangla which does not have a phonemic vowel length distinction and where closed syllables count as bimoraic and heavy attracting prominence, monosyllables whether closed or open invariably have a long vowel. We argue that the monosyllabic lengthening is due to a catalectic syllable making these minimal words ‘virtual’ disyllables. Punjabi has a three-way distinction in syllable weight, a monomoraic light syllable, a bimoraic heavy syllable and a trimoraic superheavy syllable. Following the assumption in the literature, we assume that trimoraic syllables are virtual disyllables. We find that, by and large, monosyllables are trimoraic with a geminate final consonant augmenting the monosyllable to a superheavy status satisfying the disyllabic requirement. Finally, we examine an intriguing pattern of optional, final epenthesis in monosyllables in Tamil, once again arguing for a disyllabic word minimum. Between the three languages, we observe that the disyllabic minimality requirement is met in different ways, exhausting the three logical possibilities of stem augmentation namely, vowel lengthening (in Bangla), consonant gemination (in Punjabi) and both consonant gemination and vowel epenthesis (in Tamil).

It is well known in current literature that languages generally require lexical categories to meet certain minimal length requirements namely, ‘words’ should be either bimoraic or disyllabic depending on the prosodic typology of the language. This minimal word requirement is derived from the prosodic hierarchy (Selkirk 1980, McCarthy and Prince 1986, 1993 etc) given below in (1).

1) Prosodic Hierarchy

<table>
<thead>
<tr>
<th>Pr WD</th>
<th>Prosodic Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT</td>
<td>Foot</td>
</tr>
<tr>
<td>σ</td>
<td>Syllable</td>
</tr>
<tr>
<td>μ</td>
<td>Mora</td>
</tr>
</tbody>
</table>
The units of prosody being the mora (a unit of syllable weight) (Prince 1980, van der Hulst 1998, Hyman 1985, McCarthy and Prince 1986, Hayes 1989, Itô 1989 etc) with light syllables dominating a single mora and heavy syllables dominating two moras, the syllable, the foot and the prosodic word. Lexical categories being prosodic words (capable of receiving stress), must contain a foot minimally. And the foot, universally, must be a binary branching structure. Depending on the prosodic typology of the language, the foot could be disyllabic or bimoraic. English prosody, for instance, is sensitive to syllable weight and therefore the foot in English must be minimally bimoraic.

It follows automatically that the minimal word in English must also be bimoraic e.g., pit, tea etc but *pi. On the other hand, in Diyari, an Australian language (Austin 1981, McCarthy and Prince 1986, Poser 1989) which is quantity insensitive, where the foot must dominate two syllables, the word minimum is also a disyllable.

In this paper, we look at three unrelated languages spoken in India namely, Bangla, Punjabi and Tamil where, we argue, the minimal word requirement is also disyllabic. However, we show that the minimality requirement is met much more indirectly than in Diyari where all lexical words are overt disyllables. Using the framework of Optimality Theory (henceforth OT) as outlined in Prince and Smolensky (1993), McCarthy and Prince (1993) and subsequent literature, we argue that the minimal disyllabic requirement is met in subtler ways in these three languages and to varying degrees of success. We take the case of Bangla, Punjabi and Tamil in sections 1., 2., and 3. respectively and sum up our finding in the concluding section.

1. The Minimal Word in Bangla

Unlike Diyari, Bangla exhibits partial sensitivity to syllable weight. Though vowel length is not distinctive in Bangla, closed syllables count as heavy attracting prominence. Primary prominence in Bangla is always on the first or the second syllable.\(^1\) Examine the data in (2) below. The analysis offered here is based on Mitra (in preparation).

2) Bangla Prominence

i. ’pɔtaka ‘flag’ ii. ’jilipi ‘kind of sweet’ iii. ’bujruki ‘bluff’
iv. a ’nondo ‘happiness’ v. bi ’ʃɔrjon ‘immersion’ vi. ’pori,man ‘quantity’

Normally, primary prominence is on the first syllable. However, if the second syllable is closed and the first is not, then prominence is on the second syllable. This clearly argues for a quantity sensitive trochaic system.\(^2\) Also notice that in trisyllables, the final syllable has secondary prominence only if it is a closed syllable and is not adjacent to a stressed syllable e.g., (2 vi). So both primary and secondary prominence are quantity sensitive where closed syllables count as heavy i.e., bimoraic with the coda consonant contributing a mora to the syllable. Turning to minimal words in Bangla, the lengthening of the vowel in all monosyllables with or without a coda is a remarkably striking

---

\(^1\) The correlate of primary prominence in Bangla is a rising pitch on the initial syllable if it is prominent or a high pitch on the second syllable if that is prominent (Balusu et al (work in progress)).

\(^2\) The shifting of the predominantly initial stress to the second syllable if it is closed has been noticed in earlier literature too e.g., Chatterjee (1928).
phenomenon (Ghosh (1996), Mitra (in preparation)). Under suffixation, this lengthening disappears. This monosyllabic lengthening is illustrated in the data in (3) below:

3) **Lengthening in Monosyllables in Bangla**
   i. di:n ~ diner ‘day/genitive’
   ii. gh:i: ~ gh:i:er ‘clarified butter/genitive’

The questions to ask are the following:
   a) Why do vowels lengthen in monosyllables?
   b) How is this lengthening to be represented?

The simplest answer is to assume that codas are not moraic and that monosyllabic lengthening is the consequence of the minimality requirement and that the minimal word must be made bimoraic by lengthening the vowel. This, in fact, is the analysis offered by Ghosh (1996). But we have just shown that codas are moraic in Bangla and therefore this analysis is suspect. We could salvage the analysis by saying that the final consonant is extrametrical. But this explanation again would not be satisfactory since we just saw that the final closed syllable could be prominent if it is not adjacent to a stressed syllable. If final codas are extrametrical, then how could they make the syllables in which they occur heavy and consequently attracting stress? Therefore, it is clear that codas are always moraic in Bangla and we must look elsewhere for an explanation for monosyllabic lengthening. The additional problem that we encounter now is a representational one. If codas are moraic, and the vowel in a closed syllable lengthens, how do we represent this lengthening, since the syllable would be already bimoraic?

Before we attempt a solution to this problem let us note that lengthening is observed not only in closed monosyllables but also in stressed final syllables. For example, the final vowel in "'ṣadhārɔn/ ‘ordinary’ is distinctly longer than the last vowel in /po’ rissrɔm/ ‘labour’ though the vowel is the same in both. Turning back to the earlier discussion of the inter-relatedness of the prosodic typology and the word minimum in 1., we had said that, in the normal case, there is direct correlation between quantity sensitivity and the size of the minimal word. That is, in a language where heavy syllables attract prominence, the word minimum would be two moras e.g., English and in a language where quantity insensitive feet are constructed, the word minimum would be disyllables e.g., Diyari. However, cases more complicated than these do exist. Take for instance the case of Ono, an Australian language Phinnemore (1985) discussed in Kager (1995). This language has a quantity insensitive trochaic system with initial stress and secondary stress on alternating odd numbered syllables. It would seem that this language should have a disyllabic word minimum like Diyari since it exemplifies a quantity insensitive trochaic system. However, unlike Diyari and contrary to our expectation, this language allows monosyllabic lexical words and, most significantly, allows secondary stress on final syllables in words with odd number of syllables. Kiparsky(1991) and Kager (1995) argue that such systems are classical examples of ‘catalexis’ -the logical opposite of ‘extrametricality’. In other words, we may assume that such systems have a final ‘invisible’ syllable which is fully visible for prosodic structure-building operations. They argue that such systems may allow an extra, ‘empty’ syllable at the right edge in words with odd number of syllables. The major advantage of a catalectic solution is that such systems would no longer exhibit degenerate non-branching feet. Being quantity insensitive, they would construct bisyllabic feet and monosyllables and final stressed
syllables would no longer have a degenerate, non-branching foot as there would be a catalectic syllable present in both cases satisfying the foot binarity condition. Kager (1995) examining a large number of languages demonstrates the correctness of the catalectic approach to the problem.

Though standard Bangla does not fit the bill perfectly for a catalectic solution since it is partially quantity sensitive (with codas contributing to syllable weight), Mitra (in preparation) argues convincingly for a catalectic solution. Firstly, in OT, it is no longer assumed that quantity sensitivity is a ‘parametre’ which is turned ‘on’ or ‘off’ for a given language and that languages could exhibit varying degrees of quantity sensitivity (cf. Alber (1997) and see discussion of Tamil below in 3). Secondly, though vowel length is not distinctive in Bangla, the grammar must be able to account for the systematic alternation of vowel length in the language. From the representational point of view, catalexis is the ideal solution to account for the observed vowel length alternations in the language. Consider the representations in (4) below (the catalectic syllable is enclosed in square brackets).

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
4) & Representation of Closed Syllable Lengthening in Bangla & \\
\hline
4 a) & F & b) & F & c) & F & F & \\
\hline
\hline
σ [σ] & σ [σ] & σ σ & σ [σ] & \\
\hline
\hline
g^{h}i & d i n & p ori & m a n & \\
\hline
\end{tabular}
\end{table}

Adopting a catalectic approach allows us to explain the facts of vowel lengthening without giving up the basic insight that codas in Bangla come with a mora. It also shows how lengthening must be attributed to the Disyllabic Trochee which ensures a disyllabic word minimum. Thus we see that Bangla has an inviolable disyllabic requirement that forces all feet to be binary branching at the level of the syllable. Thus ‘real’ monosyllables and final stressed syllables augmented with a catalectic syllable satisfy the disyllabic requirement and also account for the observed vowel lengthening. An Optimality theoretic analysis of monosyllabic lengthening implementing a catalectic solution as worked out in Mitra is briefly summarized below. The structures in (4a and b) above are obtained if the constraint Disyllabic Trochee is inviolable in the language. This constraint is satisfied at the cost of constructing extra structure a catalectic mora and a syllable blatantly violating the constraint *Structure (Prince and Smolensky 1993) which requires that minimal structure be built on the input string. Since the phonetic correlate of catalexis is vowel length, we can make sure that the catalectic syllable has a mora minimally which is fully licensed by being linked to a segmental melody. The constraint License Prosodic Units i.e., “every prosodic unit must be directly or indirectly linked to segmental specification to be overtly realised” makes sure that an open monosyllable like the word /g^{h}i/ has the structure in (4 a) above. The ranking is Disyllabic Trochee, License Prosodic Units >> *Structure. Turning to the case of closed monosyllables, *Structure would be violated minimally if we assign the mora dominating the vowel to the first syllable and the mora of the coda to the catalectic syllable. But that would not get us the optimal output where the vowel is long. We can account for vowel lengthening in
closed monosyllables by invoking another constraint Peak/Margin Harmony (as in Prince and Smolensky (1993)) which is spelt out as “vowel Peak > consonant Peak; consonant Margin > consonant Peak” accounting for the fact that Bangla does not have syllabic consonants. The high ranking Peak/Margin Harmony forces monosyllables like /din/ to have the structure as in (5) below.

5) Catalexis in Closed Monosyllables

\[
\sigma \sigma \\
\mu \mu \mu \\
\sqrt{\text{d i n}}
\]

Notice that the structure in (5) is different from the one in (4 b). Whereas the latter has a bimoraic first syllable and a virtual, monomoraic second syllable, the former has a real monomoraic syllable and a bimoraic virtual second syllable. We have argued that this structure is driven by the Harmony constraint which forces a vowel nucleus for the second syllable thereby lengthening the vowel. Thus we see that in Bangla, the domination of Disyllabic Trochee, License Prosodic Units, Peak/Margin Harmony >> *Structure makes the minimal disyllabic requirement inviolable and forces vowel lengthening in monosyllables.  

3. The Minimal Word in Punjabi

In this section we look at the disyllabic requirement in Punjabi which differs from Bangla in three respects. Firstly, it is not inviolable i.e., there are lexical words which do not meet this requirement for valid reasons. Secondly, though like Bangla, Punjabi also creates a virtual disyllable, unlike Bangla, Punjabi does not invoke catalexis for this purpose. Thirdly, unlike Bangla, foot construction is totally quantity insensitive. The strategy Punjabi adopts is consonant gemination to create super-heavy syllables.

Punjabi has a three-way distinction in syllable weight with a monomoraic light syllable (L), a bimoraic heavy syllable (H) and a trimoraic super-heavy syllable (S) like Hindi (Hayes 1995, Pandey 1990), Saami (Bye 1997), Estonian (Prince (1980) and Arabic (Hayes 1995) to mention a few. Following the current assumption that trimoraic syllables are universally prohibited, we adopt the compound analysis of the super-heavy syllable in Bye (modified version of (10 b) of Bye 1997, p 69) given below. It is clear that a super-heavy syllable, given the representation in (6), will satisfy the disyllabicity requirement.

6) Representation of the Super-heavy Syllable

\[
\sigma (\sigma) \\
\wedge \\
\mu \mu \mu
\]

If we look at the ‘real’ monosyllables in the language, we find that they fall into three clear types. Firstly, an open syllable with a long vowel as in (7 a) below, secondly, a

---

3 See Mitra (in preparation) for an account of lengthening in final stressed, closed syllables.
syllable with a short vowel followed by the closing consonant /ᵣ/ or /ɬ/ as in (7 b) below and thirdly, a syllable with a short vowel followed by two consonants or a long vowel and a single consonant as in (7 c) below. Among the three types, (7 c) a super-heavy syllable is the one attested most frequently.

7) Types of Minimal Words in Punjabi
   a) CV:          b) CV{ᵣ, ɬ}        c) CV:C/CVCC
   la:    ‘bring’   pᵣr      ‘wing’   sᵣcc  ‘truth’
   kā:    ‘crow’    uᵣl      ‘fly’     gilj   ‘eagle’
          giːt      ‘song’

Whereas types (7 a) and (7 b) are bimoraic, type (7 c) is trimoraic and disyllabic (from the representational point view). Since type (7 c) is the most widely attested type, the large majority of real monosyllables in Punjabi are virtual disyllables satisfying the disyllabic requirement. Vijayakrishnan (2000) observes that

"Contrary to Eliezer (1995) who states that final consonant gemination in monosyllables is distinctive, Kamlesh Sadanand (p.c) asserts that, in fact, all the lexical words cited in Eliezer as examples of a final non-geminate consonant, in fact, do have a geminate in normal pronunciation. Sadanand goes even further and asserts that she cannot come up with a word of the shape CVC where the final consonant is not either /ᵣ/ or /ɬ/ and it is not geminated. Thus we see that a large majority of CVC words are subject to final gemination resulting in an S syllable."

Given the OT framework, a constraint, in this case ‘the Disyllabic Trochee’ is violable under duress. In this case, the prohibition on over-long vowels and the prohibition on doubling the segments /ᵣ and ɬ/ over-rule the requirement that feet should be disyllabic and hence the exceptionality of types (7 a and b). Now, both these dominant constraints mentioned above namely, the prohibition on over-long vowels and the prohibition on doubling /ᵣ and ɬ/ are constraints which are operative in a large number of languages and hence need no special argumentation.

Representationally, doubling is a case of spreading the featural specification of a segment onto another prosodic constituent. It is achieved in OT by the low ranking of the negative constraint prohibiting featural spreading *Spread. Since vowels never lengthen to accommodate the trimoraic requirement in Punjabi and only consonants (except /ᵣ and ɬ/) do, the required ranking is the one given below:

8) Partial Ranking for Punjabi
   *Spread Vowel, *Spread /ᵣ and ɬ/
   >>
   Disyllabic Trochee
   >>
   *Spread Consonant
The strict ranking of *Spread Vowel and *Spread /r and \(\_\) over Disyllabic Trochee makes sure that the latter can be violated at the cost of not violating the higher ranked constraints. Similarly, Disyllabic Trochee may be satisfied at the cost of violating *Spread Consonant (except /r and \(\_\)) leading to wide spread final consonant gemination as observed by Sadanand. Till now we had taken the disyllabic requirement as given. We now present the stress facts of Punjabi and an argument in support of the claim that the foot in Punjabi is indeed disyllabic.

9) Types of Feet in Punjabi

<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (LH)</td>
<td>(gila:)</td>
<td>'grievance'</td>
</tr>
<tr>
<td>b. (HH)</td>
<td>(a:di:)</td>
<td>'wedding'</td>
</tr>
<tr>
<td>c. (S) = (HL)</td>
<td>(la:f)</td>
<td>'pillowcase'</td>
</tr>
<tr>
<td>i a.</td>
<td>(hir(\partial)n)</td>
<td>'deer'</td>
</tr>
<tr>
<td>i b.</td>
<td>(ti:r(\partial)t)</td>
<td>'pilgrimage'</td>
</tr>
<tr>
<td>ii c.</td>
<td>(rust)</td>
<td>'correct'</td>
</tr>
<tr>
<td>ii a.</td>
<td>(gulis)</td>
<td>'garden'</td>
</tr>
<tr>
<td>ii b.</td>
<td>(ha:ga:)</td>
<td>'leveller'</td>
</tr>
<tr>
<td>ii c.</td>
<td>(ti:l)</td>
<td>'pan'</td>
</tr>
<tr>
<td>iii a.</td>
<td>(agg(\partial))</td>
<td>'a surname'</td>
</tr>
<tr>
<td>iii b.</td>
<td>(Va:l)</td>
<td>'fat of meat'</td>
</tr>
<tr>
<td>iii c.</td>
<td>(sa:g)</td>
<td>'teak'</td>
</tr>
</tbody>
</table>

In the data, above feet are enclosed in parenthesis. Characterizing the distribution of stress is maximally simple if stated in terms of quantity insensitive, disyllabic, left-headed feet. Construct disyllabic left-headed feet from the right edge. Neither a single light syllable nor a single heavy syllable can be footed violating the disyllabic requirement. But a super-heavy syllable will satisfy the disyllabic requirement being a virtual disyllable. However, if we allow bimoraic feet in Punjabi, then we would have to attribute the non-parsing of the left adjacent heavy syllable as in (9 iii b) and the medial heavy syllable in (9 iv b) to *Clash- the constraint which militates against stressing of adjacent syllables. But a syllable bound interpretation of *Clash is not pertinent to Punjabi as adjacent S’s can be stressed (9 v c). More seriously, constructing moraic feet implies quantity sensitivity, which is not at all the case in Punjabi.4

An additional argument in favour of the disyllabic trochee in Punjabi comes from the phonology of verbs. Non-derived verbs are maximally disyllabic in Punjabi. They may be of the following shapes:

10) Shapes of Non-derived Verbs in Punjabi

<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Real Monosyllable</td>
<td>Heavy</td>
<td>/ga:/ ‘sing’</td>
</tr>
<tr>
<td>ii. Virtual Disyllable</td>
<td>Super-heavy</td>
<td>/bi:j/ ‘sow’</td>
</tr>
<tr>
<td>iii. Real Disyllable</td>
<td>LH</td>
<td>/pio:/ ‘drink’</td>
</tr>
</tbody>
</table>

4 See Vijayakrishnan (2000) for further arguments for the disyllabic foot. For some reason not clear, Punjabi altogether lacks the LL trochaic foot said to be the most harmonious of trochaic feet (see Kager 1999 and the references there).
Surely, the fact that non-derived verbs in Punjabi have an upper limit of two, real syllables is not unrelated to the prosodic typology of the language which requires feet to dominate two syllables. The preferred shape of a non-derived verb is a minimal prosodic word with a marginal left adjunction of a light or a heavy syllable.

We argued in this section that Punjabi has an inviolable, disyllabic word minimum. We also demonstrated that the preferred shape of the minimal word can be derived from the prosodic typology of the language which is a quantity insensitive disyllabic trochee.

4. The Optional Disyllabic Trochee in Tamil

In this section we examine data from Tamil and show that the language exhibits a marked preference for the minimal word to be a disyllable. Tamil attests a trochaic system sensitive to vowel quantity as shown in (11) below:

11) **Primary Prominence in Tamil**
i. ‘karaqi ‘bear’ ii. ‘kiḷiṇjAl ‘sea shell’
iii. pa’la: ‘jack fruit’ iv. kal’jaṇi ‘name of a raga’

In non-derived words, the first syllable is prominent if the second syllable has a short vowel. If the second syllable has a long vowel and the first does not, then the prominence shifts to the second syllable. Normally, coda consonants do not contribute to the weight of the syllable. However, codas can be moraic to satisfy a higher requirement that prefixes be minimal words (more of this a little later). Tamil, unlike Punjabi, is not totally averse to monosyllabic feet as (11 iii) illustrates.

Having established Tamil to be a trochaic system, let us now take a look at the phonotactics of the right edge of longer sequences in the language.

12) **Phonotactics of the Right Edge in Tamil**
i. maram ‘tree’ ii. vāran ‘boon’ iii. paraṇ ‘loft’
iv. viral ‘finger’ v. kāḻavuḷ ‘god’
vi. nagar ‘town’ vii. puḻiaẓ ‘fame’

Apart from vowels, Tamil allows only sonorant consonants finally. Therefore, when words are borrowed into the language, the strategy employed to satisfy this requirement is vowel epenthesis – insertion of the vowel /ɨ/. Consider the data below:

13) **Vowel Epenthesis in Loan Words**
i. calcium *[ɨ]* ii. caravan *[ɨ]* iii. loyal *[ɨ]*
iv. marriage [i]  v. latest [i]  vi. princess[i]

However, consider the pattern of optional vowel epenthesis in real monosyllables given in (14) below. The words in (12) above sound distinctly odd if pronounced with a final epenthetic vowel though the final consonants in (12) and (14) are the same.

14) Optional Epenthesis in Monosyllables
i. ra:m ~ ra:m[i]  ‘a name’ ii. ma:n ~ ma:n[i]  ‘deer’ iii. tu:η ~ tu:η [i]  ‘pillar’
iv. ua:l ~ ua:l[i]  ‘tail’ v. te:~ te:[i]  ‘scorpion’
vi. mo:r ~ mo:r[i]  ‘buttermilk’ vii. ku:Ω ~ ku:Ω[i]  ‘porridge’

The phenomenon of optional epenthesis in monosyllables cannot be explained without reference to a disyllabic requirement in Tamil. The requirement is an optional one though. In the OT framework, optionality can be construed as re-ranking of the relevant constraint so as to make it visible in the constraint hierarchy of the language. The constraint hierarchy which accounts for optional epenthesis in sonorant final monosyllables is given below:

15) Partial Constraint Hierarchy for Vowel Epentheis in Tamil
*Final Obstruent, (words cannot end in an obstruent)
Disyllabic Trochee
>>
Dep O-I [i]  (every instance of the vowel [i] found in the output is present in the input)

The constraints *Final Obstruent and Disyllabic Trochee are not ranked with respect to one another but they are higher ranked than the constraint Dep O-I which militates against epenthesis. The higher ranked constraints force epenthesis on obstruent final inputs and monosyllabic inputs. Since epenthesis is optional in sonorant final monosyllables, the optionality can be encoded in terms of re-ranking Disyllabic Trochee below Dep O-I so as to prevent epenthesis in the unepenthesized forms.5

In addition to the optional disyllabic requirement enforced by the constraint Disyllabic Trochee, Tamil has an inviolable minimal bimoraic requirement on stems and prefixes as the data in (16) illustrate.

16) Minimal Bimoraic Requirement
A. Prefixed Forms
i. a na:]  [anna:]  ‘that day’ ii. a karai [akkarai]  ‘that shore’6
B. Monosyllables

5 As in Punjabi, vowel final forms do not allow vowel epenthesis in Tamil violating the disyllabic requirement e.g., [ta:] ‘give’. A full OT account would have to include other constraints like *Onset, *Over long vowels etc. For lack of space we are unable to go into details here.

6 The bimoraic requirement for prefixes is enforced even in English loans e.g., illegal [illi:gal], disallow [dissalau] etc.
i. kan~ kanh~ ‘eye’  ii. pal ~ pall~ ‘tooth’
iii. bass~ ‘bus’  iv. pen ~ penn~ ‘pen’

The syllables constituting the prefix and stem must be minimally bimoraic. Rather than lengthening the vowel, the following consonant in the case of the prefix and the final consonant of the stem are doubled and moraic status is enforced on the newly created coda. Moreover, in the prefixed forms, primary prominence shifts to the prefix. The fact that prefixes and stems must be bimoraic and that prefixes/stems must have prominence is best explained as a consequence of the prosodic hierarchy (1). The most suitable constraint for this purpose is Prefix/Stem = Prosodic Word, an inviolable constraint in the constraint hierarchy of Tamil. The revised constraint hierarchy given below can account for the range of facts discussed so far.

17) Revised Constraint Hierarchy for Tamil
Prefix/Stem = Prosodic Word,
*Spread V,
*Final Obstruent
>>
(Disyllabic Trochee)
>>
Dep O-I ñ,
*Spread Consonant

For the variety which prefers disyllables as minimal words, Disyllabic Trochee is ranked as shown above. This constraint is ranked lower (and becomes invisible) in the variety which does not insist on minimal disyllables. However, if it is active, it will enforce a violation of Dep O-I i.e., inducing epenthesis and also a violation of *Spread consonant doubling the appropriate consonant to satisfy the inviolable Prefix/Stem = Prosodic Word if the stem is subminimal.7 Thus we see that in Tamil both types of minimality are enforced, the inviolable Prefix/Stem=Prosodic Word which ensures minimal bimoraicity and the optional Disyllabic Trochee which prefers words to be minimally disyllabic.

5. Conclusion

In this paper, we took up the issue of the minimal word in Bangla, Punjabi and Tamil and showed how these languages met the disyllabic minimum requirement in different ways. While Punjabi prosody exhibits complete insensitivity to syllable quantity, Bangla lacks vowel length distinction rendering it a partially quantity insensitive language and Tamil does not accord moraic status to codas morpheme-internally, once again exhibiting partial quantity insensitivity. This total or partial quantity insensitivity correlates cross-linguistically well with a disyllabic word minimum (Kiparsky 1991, Kager 1995). In tune with the philosophy of OT, we explored the range of logically possible ways in which the disyllabicity requirement could be met across languages. On the one extreme we have a

---

7 It will be noticed that for the inviolable constraint Prefix/Stem=Prosodic Word the epenthetic vowel is not considered part of the morpheme. The stem would have to have two moras without including the epenthetic vowel.
language like Diyari which meets the requirement literally and on the other extreme we have a language like Ono which, apparently, is assumed to meet the requirement from a theory-internal perspective vis-a-vis catalexis. The range between the two extremes was explored in this paper. While Bangla provided the phonetic evidence of vowel lengthening for a catalectic explanation of the disyllabic word minimum, Punjabi attests the strategy of consonant gemination to create an extra virtual syllable. Finally, Tamil has two distinct minimality requirements namely, a stricter bimoraic requirement on prefixes and stems and an optional disyllabic word minimum requirement on words. Altogether, all the three languages examined here display a degree of quantity sensitivity in the sense that their phonologies attest processes that affect syllable quantity. We therefore conclude that it is not strictly necessary for the disyllabic word minimum to typologically signal total quantity insensitivity universally. This is in keeping with the philosophy of OT which predicts a wider range of typological variation across languages than the earlier parametric approach which allowed only two possibilities namely, a parametre to be switched ‘on’ or ‘off’ in a particular grammar.

References


Mitra, Monoshree. (in preparation). ‘Prominence in Bangla and Bangla English’. Ms. CIEFL.


