

# High-toned Mora Insertion between Onsetless Morphemes in Cilungu

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Cilungu is a Bantu language spoken in parts of the Northern Province of Zambia and southern Tanzania. All the data in this paper were elicited by the author from Alfred & Godwill Sikazwe (brothers).<sup>1</sup> In this paper I will provide a description of a phonological process, which to the best of my knowledge, is not attested elsewhere in Bantu. This process inserts a H-toned mora at the beginning of vowel-initial verb stems when they are immediately preceded by an onsetless Subject Marker. I will show that in this particular context the language does not employ any of the otherwise productive processes which resolve vowel hiatus — a sequence of successive vowels. I then offer suggestions on what might motivate this mora insertion.

The morphological structure of the finite verb (similar to that of many other Bantu languages) is given below.<sup>2</sup>

(1) Morphological structure of finite verbs

[SM NEG TAM [<sub>MACROSTEM</sub> OM [<sub>STEM</sub> Root Extension(s) TAM FV]

In this paper I wish to focus on verbs from the three tense/aspect/moods (TAMs) which have no overt TAM prefix. The first of these is the Narrative Past, of which three examples are given below. Underlying representations are given on the right.

- (2) a. à-mù-sùkílíl-á /a-mu-sukilil-a +H/  
1p-3s-accompany-FV  
'and then he/she accompanied him/her'
- b. tú-mú-sùkílíl-á /tú-mu-sukilil-a +H/  
1p-3s-accompany-FV  
'and then we accompanied him/her'
- c. tú-sù<sup>1</sup>kílíl-á /tú-sukilil-a +H/  
1p-accompany-FV  
'and then we accompanied'

In each example the first element in the verb is the Subject Marker. This is followed in (2a-b) by the 3 singular Object Marker, and in each case the verb ends with the root and Final Vowel. With regard to the tonology of these forms, Cilungu is one of many Bantu languages in which certain TAMs

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<sup>1</sup> With regard to the characters used in the Cilungu presented here, all have their standard phonetic values, except that <sh> = [ʃ], <c> = [č], <j> = [j], [ny] = [ñ], and <ng'> = [ŋ]. An acute accent indicates High tone, a grave accent indicates Low tone, and a raised exclamation point indicates downstep. The <+H> found in underlying representations indicates a "Melodic High" tone, defined below. For additional examples exemplifying the various rules mentioned herein, see Bickmore (forthcoming).

<sup>2</sup> Abbreviations are as follows: 1p first person plural, 3s third person singular, Ap applicative extension, C consonant, C# class number, FV Final Vowel, H High, NEG negative, OCP Obligatory Contour Principle, OM object marker, SM subject marker, TAM tense/aspect/mood, TBU tone bearing unit, V vowel.

exhibit a Melodic High tone (also known as a “suffixal High” or “grammatical High”). This is a High tone (whose presence/insertion is determined by the TAM) which then docks onto some subset of free tone bearing units (TBUs) in the verb. In the case of the Narrative Past, this Melodic High docks onto the second and subsequent TBUs of the stem. This accounts for the string of stem High tones in (2a-c) on all but the first TBU of the stem (which as noted in (1) begins with the verb root).<sup>3</sup> The only other tonal difference in the three forms is directly due to the underlying tone of the Subject Marker. The generalization in Cilungu is that in this TAM (and in most others where a Melodic High is present), Subject Markers which are onsetless do not bear a High underlyingly, whereas those which have an onset do. The High sponsored by the SM in (2b-c) will undergo a very productive process of bounded spreading. As seen in (2c), this H will undergo bounded spreading even though this will cause an OCP violation with the following H. I follow Odden (1986) in assuming that these derived OCP violations (where adjacent TBUs are linked to distinct H’s) are realized phonetically as downsteps.

Next, let us consider what happens in general when the morphology creates a VV sequence. As seen in the examples below, when this occurs, the vowel hiatus is resolved. If the first vowel is high (i.e. /i/ or /u/), then it will glide, whereas if it is low (i.e. /a/), it will delete.<sup>4</sup>

- (3) a. *tw-éélé<sup>1</sup>k-él -á* /tú-elek-il-a +H/  
 1p-cook-Ap-FV  
 ‘and then we cooked for’
- b. *vy-éélé<sup>1</sup>k-él -á* /ví-elek-il-a +H/  
 C8-cook-Ap-FV  
 ‘and then they (C8) cooked for’
- c. *y-éélé<sup>1</sup>k-él-á* /yá-elek-il-a +H/  
 3p-cook-Ap-FV  
 ‘and then they cooked for’
- d. *tú-y-éélé<sup>1</sup>k-él-á* /tú-yá-elek-il-a +H/  
 1p-3p-cook-Ap-FV  
 ‘and then we cooked for them’

The /u/ of the Subject Marker /tu-/ in (3a) and the /i/ of the Subject Marker /vi-/ in (3b) have glided, while the /a/ of the Subject Marker /ya-/ (3c) and the Object Marker /ya-/ (3d) have deleted. In each case compensatory lengthening follows. The forms in (3) exhibit several interesting tonal processes. Let us first consider the form in (3a). The application of bounded spreading on the Subject Marker High generates the intermediate form *tw-éé<sup>1</sup>lék-él-á*. It turns out, however, that *C<sup>1</sup>v<sup>1</sup>C<sup>1</sup>* is not a licit surface tonal structure in Cilungu and when such is created it is always repaired. In forms such as the ones in (3) this is done by a rule of Downstep Shift, which shifts the downstep one TBU to the right. Finally, as illustrated in (3d), when two H tones are adjacent underlyingly, there is no downstep on the surface between them (as there is when one H spreads up to another H as in (2c)). This can be accounted for by a process which fuses underlyingly adjacent H’s. This fused H in (3d) then undergoes bounded spreading, after which Downstep Shift applies, accounting for the correct surface pattern.

Let us now examine the forms below, which are part of the focus of this paper. In each case, an onsetless Subject Marker is immediately followed by a root-initial vowel.

<sup>3</sup> Since only High tones are “active” in Cilungu in the sense of having rules which insert, delete and spread them, I assume an underlying tonal contrast of H vs. Ø. Furthermore, I assume that the tone bearing unit in the language is the mora.

<sup>4</sup> It is very rare to find a word-internal VV sequence where the first V is a mid vowel, since nearly all morphemes in Cilungu end in either a C or a non-mid V. The few cases where the first V is a mid V (generally CV verb roots followed by a FV), /e/ will delete (e.g. /te-a/ > [ta] ‘release’), while /o/ will glide (e.g. /mo-a/ > [mwa] ‘drink’).

## (4) Narrative Past: onsetless SM, and toneless V-initial root

a.	à-éélé <sup>1</sup> k-él-á	‘and then he/she cooked for’	/a-elek-il-a +H/
b.	à-éélé <sup>1</sup> éngány-á	‘and then he/she considered’	/a-elengany-a +H/
c.	ì-úúm-í <sup>1</sup> l-á	‘and then it (C9) beat for’	/i-um-il-a +H/
d.	ì-úúm-í <sup>1</sup> l-á	‘and then they (C4) beat for’	/i-um-il-a +H/

Each of the forms in (4) exhibits two interesting characteristics not predicted by any of the rules discussed up to this point. First, since the SM in each case is onsetless, it is underlyingly toneless. In forms with toneless roots, we expect all TBUs from the word-initial one up to and including the root-initial one to be toneless, exactly as was the case in (2a). Yet, in (4) we find that only the SM surfaces as Low. It is immediately followed in each case by a series of H-toned TBUs. Second, the root-initial vowels of all the verbs in (4) surface as long. This is surprising as they are underlyingly short, as demonstrated by the imperative forms below.

## (5) Imperative forms of toneless V-initial roots.

a.	èlék-él-á	‘cook for!’	/elek-il-a +H/
b.	èlééngány-á	‘consider!’	/elengany-a +H/
c.	ùm-íl-á	‘beat for!’	/um-il-a +H/

One can account for the actual tonal pattern as well as the length of the root-initial V in each of the forms in (4) if one assumes that in this particular environment the language inserts a H-toned mora after an onsetless SM which gets associated to the initial mora of an immediately following onsetless verb root. This is formalized below.

## (6) Pre-root H-toned Mora Insertion

$$\emptyset \rightarrow \acute{\mu} / [_{SM}V [_{R} \_ V$$

That the productive rules of the language will then generate the correct form can be seen in the derivation below.

## (7) Derivation of (4a)

a-elek-el-a	Input
H	
a-elek-el-a	Melodic High Docking (V2-FV)
\   / H	
a-eelek-el-a	Pre-root H-toned Mora Insertion
\   / H H	
a-eelek-el-a	Binary Spreading
\ \   / H H	
a- eelek-el-a	Downstep Shift
\ / \ / H H	

This rule of Pre-root H-toned Mora Insertion also applies when the verb root is H-toned, as seen in the examples below.

(8) Narrative Past: H-toned V-initial root

a.	à-íimb-á	‘and then he/she sang’	/a-ímb-a +H/
b.	à-íimil-íl-á	‘and then he/she stood’	/a-íimil-il-a +H /
c.	à-íimik-á	‘and then he/she stopped’	/a-íimik-a +H/
d.	ì-éél-él-á	‘and then they (C4) fished for’	/i-él-il-a +H /

In each case the H-toned mora which is inserted by rule will fuse with the root-initial H-toned mora, which in turn fuses with the Melodic High, yielding a stem where all the morae are H-toned.

Before attempting to further evaluate the possible motivation for this rule of Pre-root H-toned Mora Insertion, it should be emphasized that this process is not confined to a single SM, or single root, or single TAM, but will apply whenever its structural description is met. The examples in (4) show that the process applies in forms with a variety of different SMs and roots. What is crucial in the triggering of this rule is that the SM be onsetless and that the root be vowel-initial. In terms of the TAM, there are three TAMs in Cilungu which contain a null TAM prefix, allowing a SM to immediately precede a verb root. Beside the Narrative Past, illustrated in the forms above, this is true of the Perfect and the Subjunctive.

As seen in (9), the Perfect is characterized by a null TAM prefix and /-il-e/ following the root.<sup>5</sup>

(9) Perfect

a.	à-mù-füz-íl-è	‘he/she has washed him/her’	/a-mu-ful-il-e +H/
b.	tú-mú-füz-íl-é	‘we have washed him’	/yá-mu-ful-il-e +H/
c.	tw-éélé <sup>1</sup> s-íl-é	‘we have put’	/tú-elek-il-e +H/

If, however, a Perfect form has an onsetless SM followed by a vowel-initial root, then there is again evidence of a H-toned mora being inserted immediately before the root.

(10) Perfect: Onsetless SM, toneless V-initial root

a.	à-íís-í <sup>1</sup> l-é	‘he/she has come down’	/a-ik-il-e +H/
b.	à-óómv-í <sup>1</sup> l-é	‘he/she has clapped’	/a-omb-il-e +H/
c.	ì-úúm-í <sup>1</sup> l-é	‘it (C9) has beaten’	/i-um-il-e +H/
d.	à-íík-í <sup>1</sup> l-è	‘he/she has come down onto’	/a-ik-il-il-e +H/
e.	à-éélé <sup>1</sup> k-í-íl-é	‘he/she has cooked for’	/a-elek-il-il-e +H/

(11) Perfect: Onsetless SM, H-toned V-initial root

a.	ì-áám-íl-è	‘it (C9) has called’	/i-ám-il-e +H/
b.	à-íimv-íl-è	‘he/she has sung’	/a-ímb-il-e +H/
c.	à-íimil-ííl-è	‘he/she is standing’ (lit. has stood)	/a-íimil-il-il-e +H/
d.	à-íík-ííl-è	‘he/she has put for’	/a-ík-il-il-e +H/

As can be seen, the forms in (10) and (11) all exhibit the effects of the Pre-root H-toned Mora Insertion, parallel to those we saw in (4) and (8).

The Subjunctive is characterized by a null TAM prefix and the FV /-e/, as illustrated in the forms below.

<sup>5</sup> In 3 singular Perfect forms the Melodic High docks onto the second and subsequent TBUs up to the penult (instead of the final). This accounts for the Low-toned FV in (9a), (10d,e), and (11). (The H-toned FV in (10a-c) is the result of Downstep Shift). Also, the /-il-e/ ending often induces a mutation of the preceding consonant, accounting for the l > z, and k > s changes in the examples here.

## (12) Subjunctive

a.	á-fúl-il-é	‘that he/she wash for’	/á-ful-il-é/
b.	í-fú <sup>1</sup> -l-w-é	‘that it (C9) be washed’	/í-ful-u-é/
c.	tú-fúl-il-é	‘that we wash for’	/tú-ful-il-é/
d.	tw-élék-il-é	‘that we cook for’	/tú-elek-il-é/

Tonally, the Subjunctive is different in two different respects from the Narrative Past and the Perfect. First, in the Subjunctive all SMs are H-toned, even those that are onsetless (12a-b). Second, in the Subjunctive (when no OM is present) the Melodic High docks onto the FV only (and not on the second and subsequent stem TBUs, as it did in the Narrative Past and Perfect).

As seen below, when an onsetless SM is immediately followed by a vowel-initial root, then Pre-root H-toned mora insertion will again apply.

## (13) Subjunctive: toneless V-initial root

a.	á-éél-èl-é	‘that he/she winnow for’	/á-el-il-é /
b.	á-éélék-èl-é	‘that he/she cook for’	/á-elek-il-é/
c.	á-éélèngàny-é	‘that he/she consider’	/á-elengany-é/
d.	í-úúm-il-é	‘that it (C9) beat for’	/í-um-il-é/

Now that we have formally described this process which inserts a High-toned mora, let us ask what might motivate such a rule. As was illustrated by the forms in (3), Cilungu is like many other languages in employing various strategies to avoid surface vowel hiatus. In general, when the morphology creates a VV sequence, the hiatus is repaired by an alteration of the first V in the sequence, viz. if it is high it will glide and if it is low it will delete (cf. (3)). It does not seem possible to restrict vowel deletion or gliding to some specific part of the verbal complex. That these processes productively apply in many different positions within the verb can be seen below.

## (14) VV resolved within stem

a.	yá-kú-zw-íil-à	‘they are bleeding for’	/yá-ku-zu-il-a/
b.	yá-à-fw-íil-é	‘they bled’	/yá-a-fú-il-e +H/
c.	yá-kú- <sup>1</sup> p-éél-à	‘they are giving’	/yá-ku-pé-il-a/

## (15) VV resolved across the stem

a.	y-úúm-í <sup>1</sup> lé	‘they have beaten’	/yá-um-ile +H/
b.	tú-kú- <sup>1</sup> y-éél-él-à	‘we are winnowing for them’	/tú-ku-yá-el-el-a/
c.	tù-t-íímv-il-é	‘we didn’t dig’	/tu-tá-imb-il-é/
d.	vy-úúm-í <sup>1</sup> lé	‘they (C8) have beaten’	/ví-um-ile +H/
e.	tú-kú- <sup>1</sup> vy-éél-él-à	‘we are winnowing for them (C8)’	/tú-ku-ví-el-el-a/

## (16) VV resolved preceding macrostem

a.	tw-áá-yá-fúz-il-é	‘we washed them’ (Yesterday)	/tú-á-yá-ful-il-é/
b.	vy-áá-fúz-il-w-é	‘they (C8) were washed (Yest)	/ví-á-ful-il-u-é/

In order to better understand what possible motivation there might be for our H-toned mora insertion rule, let us briefly review the two other cases in Cilungu where surface vowel hiatus is attested.

First, hiatus is found on the surface whenever the first V of the underlying V-V sequence is long. This is illustrated below (where in each case the morpheme with a long vowel is a TAM prefix).

- |      |    |                           |                              |                  |
|------|----|---------------------------|------------------------------|------------------|
| (17) | a. | tú-máá- <sup>1</sup> ík-à | ‘these days we put’          | /tú-ma-áa-ík-a/  |
|      | b. | tú-káá-ímb-à              | ‘we will continue to dig’    | /tú-ka-áa-imb-a/ |
|      | c. | tú-láá-ík-à               | ‘we will be going down’      | /tú-la-áa-ik-a/  |
|      | d. | tú-káá-ímb-à              | ‘we dig’                     | /tú-káa-imb-a/   |
|      | e. | tw-áá-ímb-à               | ‘and then we started to dig’ | /tu-áa-imb-a/    |
|      | f. | tw-áá-ímb-à               | ‘let us start digging’       | /tú-áa-imb-a/    |
|      | g. | tú-cí-lí-èng-à            | ‘we are still smelting’      | /tú-cí-lí-eng-a/ |

Thus, in Cilungu, both vowel deletion and gliding target only short vowels.

The second case where vowel hiatus is tolerated on the surface is when there is a consonant underlyingly between the two vowels which ultimately deletes.

- |      |    |                        |                        |                       |
|------|----|------------------------|------------------------|-----------------------|
| (18) | a. | ú-lú-òyá               | ‘bee-sting’            | /ú-lu-woyá/           |
|      | b. | í-m-bó <sup>1</sup> yá | ‘bee-stings’           | /í-m-woyá/            |
|      | c. | yá-kú-óómb-à           | ‘they are getting wet’ | /yá-ku-womb-a/        |
|      | d. | à-là-óómb-á            | ‘he/she will work’     | /a-la-wómb-a +H/      |
|      | e. | tú-máá-òòmb-à          | ‘we will now get wet’  | /tú-máa-womb-a/       |
|      | f. | à-làà-m-bóómb-él-á     | ‘he will work for me’  | /a-la-n-wómb-il-a +H/ |
|      | g. | tú-máá-òl-à            | ‘we will now rot’      | /tú-máa-gol-a/        |
|      | h. | ú-kú-ól-à              | ‘to rot’               | /ú-ku-gol-a/          |
|      | i. | ú-kúú-n-gól-à          | ‘to rot for me’        | /ú-ku-n-gol-a/        |
|      | j. | á-má-ímbi              | ‘waves’                | /á-ma-gimbi/          |

In Cilungu there are no surface \*[wu] or \*[wo] sequences. When such occur, the [w] will delete (18a, c, d, e). This deletion process can be bled, however, by a rule which hardens /w/ to [b] (after a heteromorphemic nasal), as seen in (18b, f). An underlying /g/ will delete (18g, h, j) unless preceded by a nasal (18i). In all the examples in (18) where the /w/ or /g/ has deleted, the language tolerates a surface hiatus. Given the forms we have examined thus far, one might think that what is prohibited in the language are only word-initial cases of VV hiatus. However /g/ deletion and /w/ deletion can create hiatus in this position as well, as seen below.

- |      |    |           |                           |              |
|------|----|-----------|---------------------------|--------------|
| (19) | a. | á-í-lás-é | ‘that he/she hit it (C3)’ | /á-gí-lás-é/ |
|      | b. | ú-í-lás-é | ‘that you hit it (C3)’    | /ú-gí-lás-é/ |
|      | c. | á-òómb-é  | ‘that he get wet’         | /á-womb-é/   |

Finally, it is important to note that the rule of Pre-root H-toned Mora Insertion will only apply if the root is *underlying* vowel-initial. If it is C-initial, even when that C deletes, no H-toned mora is inserted as shown below.

- |      |    |           |                          |                 |
|------|----|-----------|--------------------------|-----------------|
| (20) | a. | à-òl-á    | ‘and then he/she rotted’ | /a-gol-a +H/    |
|      | b. | à-òz-íl-è | ‘he/she has rotted’      | /a-gol-il-e +H/ |
|      | c. | ì-òl-é    | ‘that it (C9) rot’       | /i-gol-é/       |

As can be seen, in these cases Pre-root H-toned Mora Insertion (6) does not apply. The root vowel is not lengthened and no additional H tone is inserted.

Now that we have surveyed the cases where surface vowel hiatus is tolerated in Cilungu, let us address the question as to what might motivate the rule of Pre-root H-toned Mora Insertion. While this has no obvious solution and is certainly still a matter for future research, I offer some tentative suggestions here on one possible line of analysis.

Let us reconsider the examples in (4a, c). Were there no H-toned mora insertion rule, the other productive rules of the language would predict the following forms.

- |      |    |             |                             |                  |
|------|----|-------------|-----------------------------|------------------|
| (21) | a. | *èèlék-él-á | ‘and then she cooked for’   | /a-elek-il-a +H/ |
|      | b. | *y-ùùm-íl-á | ‘and then it (C9) beat for’ | /i-um-il-a +H/   |

There is nothing phonotactically problematic about these forms in terms of the length of the various vowels and the overall tone pattern. However, there is something interesting about the form in (21a) in that there is no surface segmental realization of the Subject Marker. Such will never be true of SMs of the shape CV since the C always survives any process of vowel deletion or gliding. Might it be possible, therefore for the language to fail to apply a phonological rule which deletes the entire segmental content of some morpheme?<sup>6</sup> While I ultimately think that this may be part of the solution, let us first note that there are two potential problems with this account. First, as can be seen, this does not account for the ungrammaticality of (21b), since there is a segmental realization of the SM. Second, there are in fact cases in Cilungu where some morpheme fails to have any segmental realization, as illustrated below.

- (22) a. y-éélék-èl-á            ‘they have just cooked for’            /yá-á-elek-il-á/  
 b. y-úúm-íl-àn-á            ‘they have just dug for each other’    /yá-á-um-il-an-á/  
 c. tw-áá-fúl-il-á            ‘we have just washed for’            /tú-á-ful-il-á/

In (22a-b) the entire segmental content of the TAM prefix /a-/ has deleted due to the immediately following vowel. The vowel of the SM /ya-/ has deleted as well. (The form in (22c) motivates the presence of /á-/ in the URs of this TAM.)

It is important to realize that what is true across the whole language is that in any specific environment, either both vowel deletion and gliding will take place, or neither will. In other words, there is no environment where we find gliding blocked but not deletion, or vice-versa. Given that, if it is the case that there is some constraint or requirement in the language that the segmental content of certain morphemes (which would include Subject Markers, Object Markers, and roots, but not TAM prefixes) not be entirely eliminated —i.e. that there be at least some segmental correspondent of at least one segment of the input morpheme— then vowel deletion in the case of word-initial /a-V/ would be blocked, and if vowel deletion and gliding must either both apply or both not apply, then neither applies in this case. This would mean that the expected surface forms for (4a, c) would not be those given in (21), but would be as follows, where neither deletion or gliding apply.

- (23) a. \*à-èlék-él-á            ‘and then she cooked for’            /a-elek-il-a +H/  
 b. \*ì-ùm-íl-á            ‘and then it (C9) beat for’            /i-um-il-a +H/

It should be recalled from (17) and (18), however, that while a surface VV.V hiatus can result from underlying /VV-V/, a surface V.V hiatus only results from underlying /VwV/ or /VgV/. But this would not be true of the forms in (23) since the roots must be set up vowel-initial underlyingly and not /g/ or /w/ initial. This accounts for the fact that they do in fact induce gliding and deletion in other environments (cf. (3)). So, if the forms in (4a, c) cannot undergo gliding or deletion, and they cannot surface in hiatus where each V is short, then this motivates a rule which lengthens one of the vowels. If all underlying V-V sequences are examined, the first vowel (which can belong to a SM, TAM prefix or OM) can be either long or short. But the second V, which will always be from a root, is always underlyingly short, as Cilungu does not have a length contrast in verb-initial vowels. This might provide the motivation for lengthening the second vowel rather than the first if we assume that the language would prefer a non-neutralizing rule rather than a neutralizing one (of vowel length in this case). This would mean that the inserted mora prefers to lengthen the second vowel, which will never have the effect of neutralizing verb roots.

<sup>6</sup> Kurisu (2001) has proposed a REALIZEMORPH constraint (within Optimality Theory) which demands that a morpheme must be phonologically realized in the output. However, since the mora sponsored by the 3 singular SM /a-/ is in fact realized in the output as additional length on the first syllable of (21a), this constraint would not penalize this candidate if the phonological realization can be either prosodic or segmental. What I am appealing to here is a constraint or requirement that specifically demands that there be some segmental realization of the morpheme in question.

While this hypothesis suggests a reason why a mora might be added between an onsetless SM and a V-initial verb root, why should this mora be H-toned? Were a toneless mora inserted in the forms in (4a, c), the result would be that given below.

- (24) a. \*à-èèlék-él-á                    ‘and then she cooked for’            /a-elek-il-a +H/  
 b. \*ì-ùùm-íl-á                        ‘and then it (C9) beat for’           /i-um-il-a +H/

These forms are phonotactically well formed as can be seen by comparing them to the form in (25).

- (25) à-òòmb-él-á                        ‘and then he/she got wet for’        /a-womb-il-a +H/

But now let us consider what adding a toneless mora would do to a form with an H-toned root, such as the one in (8d).

- (26) \*ì-èél-él-á                        ‘and then they (C4) fished for’    /i-él-il-a +H/

It turns out that while Rising tones are attested in Cilungu, their distribution is not completely free. While they occur rather freely in word-initial and word-final positions, their occurrence is much more restricted elsewhere. In fact, when a Rise is created stem-initially, there is an independently motivated rule which converts it to a level Low. This would then neutralize the H-toned vowel-initial roots with the toneless ones—a neutralization which the language can again avoid, this time by ensuring that the mora added in these cases is H-toned.

In summary, I have shown that while Cilungu employs the cross-linguistically common processes of gliding and vowel deletion to resolve most instances of underlying VV hiatus, there are in fact a number of instances of surface VV hiatus. Some of these are due to either 1) the first vowel being underlyingly long (17), or 2) an underlying C between the two Vs which later deletes (18). The one case of surface vowel hiatus that does not result from one of these two situations is the one created by an onsetless Subject Marker being followed by a root-initial vowel. In this one case a High-toned mora gets inserted between the two vowels in hiatus. While the exact motivation for this particular “repair” is far from obvious, I have suggested reasons why a number of other possible repairs (or non-repairs) might be problematic in this context and have concluded that the strategy of inserting both a mora and a High tone in this context constitute one phonotactically licit way to deal with the hiatus, and one which does not neutralize the toneless and H-toned vowel-initial roots.

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