

## Tone Loans: the Adaptation of English Loanwords into Yoruba<sup>□</sup>

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In this paper we present the results of a study of the tonal adaptation of English (E) loanwords into Yoruba (Y). The study is based on the c. 800 word corpus assembled in the appendix to Ojo (1977).<sup>1</sup> Y is a language whose lexical items are composed of open-syllables that belong to one of three contrasting tonal categories: H(igh) (e.g. *rá* 'disappear', M(id) (e.g. *ra* 'rub'), and L(ow) (e.g. *rà* 'buy'). Consequently, in order to sound like a Y word any loan must conform to the CV syllable template and be assigned a tonal specification. E lacks lexical tones. A word's F0 contour is determined by its position in an intonational phrase. Given the distinct phonological functions of tone in the two languages, it is an open question to what extent the Y tonal adaptations take account of the E F0 contours. If adaptation were primarily based on equivalences at the phonological/phonemic level, we might not be surprised to see a default tonal pattern (presumably mid in Y) emerge in the absence of any direct correspondence of phonological categories. In the few cases in which this question has been posed in the African context this is not what we appear to find. Rather there seems to be a direct correspondence between the major stress of English (or French) and a high tone in the borrowing language. This could reflect an equivalence drawn at a more abstract level of "prominence" in which stress peaks are equated with F0 maxima. Alternatively, it could reflect correspondence based on F0 given that the stressed syllable of English is the site of a H\* pitch accent in citation contours. An additional complication is presented by the fact that a distinct variety of E has evolved in Nigeria. To what extent are the adaptation

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<sup>1</sup> Thanks to Akin Akinlabi for calling Ojo's work to our attention and furnishing us with a copy.

patterns observed in loans also reflected in Nigerian English (NE)? Can NE be viewed as the proximate source for loans? We briefly touch on these questions as well.

The rest of this paper is organized as follows. We present the major tonal adaptation strategies cast informally as OT constraints starting with E words containing a single stress and then multiple stresses. We then turn to the behavior of inserted vowels. The paper closes with a brief comparison with the tonal adaptation of E loans into Hausa and Shona. To preview our conclusions, while the tonal adaptation strategies are quite similar, there are nevertheless subtle but systematic differences that are naturally described by differential ranking of familiar constraints. Since the source is arguably same (British English), the ranking differences either reflect unknown properties of the three languages or different selections among a hopefully limited set of options that become established as grammatical rules operating in the loanword phonology.

## 2. Yoruba Major Adaptation Strategies

The gross generalizations characterizing the Y tonal adaptations are stated in (1) for organic (nonepenthetic) syllables. See section 4 for epenthetic syllables.

(1)

- stressed syllable in E source adapted with H tone
- final syllable of E source adapted with L tone
- pretonic syllables adapted with M (occasionally L) tone<sup>2</sup>
- Y MHL tonal pattern corresponds to the E rise+fall citation contour H\*L%

The generalizations in (1) are illustrated by the paroxytones in (2) where the penultimate syllable is H and the final syllable is L; the pretonic syllables are predominantly M (occasionally L).

(2)	mu'latto	mọlátò	'paper	pépà
	oc'casion	okésòn	'body	bọdì
	re'volver	rifọfà	'dollar	dọlà
	re'corder	rikọdà	'hanger	àngà
	to'mato	tòmátò	'barber	bábà

E words with final stress are more varied. The forms in (3) illustrate the adaptation of words whose final vowel bears the main stress in E.

(3)	sur'vey	sọfẹẹ	'bar	báà	refu'gee	řẹfují
	de'lay	đilẹẹ	'bier	bíà	garan'tee	garantí

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<sup>2</sup> Ojo (1977) and Carter (1987) report that pretonic syllables are primarily assigned a M tone while A. Akinlabi (personal communication) assigns them to the L category. This may reflect a dialect difference (Olanike Ola Orie, personal communication). Other languages with three tone levels that adapt pretonic syllables as mid include Cantonese (Silverman 1992) and Fon (Gbetto 2000).

de'cree      dikírîi      'draw    dúróò      refe'ree      reḥírî

The final vowel is doubled in the data of the first two columns. We interpret this as an adaptation strategy to realize both components of the falling F0 contour of the stressed syllable of the E source. Since Y lacks long vowels, and since the syllable is the tone-bearing unit in Y, the doubled vowels of (3) are interpreted as heterosyllabic. This "lengthening" only occurs in reflexes of E final stressed syllables; hence it is plausibly interpreted as a strategy to reflect both the peak H\* and the final L% that comprise the citation contour of the E source. In the exceptional cases of the third column where just one tone is realized, the peak dominates the valley (Ident-H >> Ident-L).

The data in (4) illustrate adaptations with a final epenthetic syllable. In trisyllabic cases like 'pencil > pènsùlù the penultimate syllable corresponding to the E final syllable systematically takes L. Such faithfulness to the E source is also shown by the oxytones (ad'dress > adirèḥèsi) and monosyllables ('bath > báàfu). They systematically double the vowel.

(4)	'pencil	pènsùlù	'bath	báàfù	ad'dress	adirèḥèsi
	'pilot	páílòḥi	'bag	báàgù	ga'zette	gasèḥèḥi
	'dozen	dòḥsìḥi	'bat	báàḥi	a'larm	aláàmù
	'farthing	fáḥḥiḥi	g'um	gòḥòḥù	con'trol	kòḥḥíróòlu
	'prefect	píríḥèḥi	s'ick	síikì	re'ceipt	risíḥiḥi

The constraints and tableaux in (5) illustrate the analysis to this point.

(5) Ident-H, L: Corresponding vowels in the E input - Y output relation have identical specifications for H, L tone.

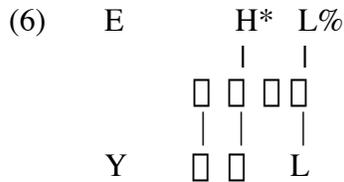
Dep-V: don't insert a vowel in the mapping between input and output

/dózèḥ/	<u>Ident-H</u>	<u>Ident-L</u>	<u>Dep-V</u>
-> dózèḥi			*
dózèḥi	*	*	*

/bâg/	<u>Ident-H</u>	<u>Ident-L</u>	<u>Dep-V</u>
bâgù		*!	*
-> bá.àgù			**

/referî/	<u>Ident-H</u>	<u>Dep-V</u>	<u>Ident-L</u>
-> refirî			*
refirî.ì		*!	

Given that the MH\*L% contour has the correspondence depicted in (6), there does not appear to be strong motivation for assigning the medial (penultimate) syllable of a paroxytone such as 'senator to a particular tonal category.



In the E source it is presumably a zone of transition between the H\* and L% and so might be expected to be M or have no determinant value in the eyes of a Y speaker. The facts are that the medial syllable of a proparoxytone is systematically adapted as H in Y, as shown by the data in (7).

(7)

'camera	kámérà	ma'ternity	matánítì
'councilor	kánsílò	mu'nicipàl	munísípà
'liberty	libáǎ	com'misioner	kòmíşónnà
'senator	sénétò	par'ticulars	patíkúlà
'embassy	émbási	au'thority	òtórítì

What could be the source of this behavior? It is well-known that both Y H and L tones spread into the following syllable in a HLH sequence; M neither spreads its tone nor attracts a preceding H or L (Akinlabi & Liberman 1995). One possibility is that when presented with a structure like (6), the H simply crosses the empty medial syllable to reach the final L. But if the motivation for the Y tone spread is to allow more time to traverse the distance between H and L tonal targets, then the unspecified medial syllable should provide ample time to reach the L and so a transitional M might be expected instead. Another possibly relevant factor is that the same process is found in the adaptation of E loans into Hausa (Leben 1996) and Mende (Leben 1978).

(8)

<u>E</u>	<u>Hausa</u>	<u>E</u>	<u>Mende</u>
'camera	kyamaràa	'minister	mínísà
'manager	manajàa	'spectacles	pétíkù

So far as we know, a process comparable to the Y spreading H onto a following L is not found in Hausa or Mende. If true, this point casts doubt on the appeal to this process as the reason for the Y adaptation. Another possibility is that the spread of H reflects the behavior of this tone in the realization of tonal melodies. Zoll (2003) observes that Hausa /HL/ and /LH/ melodies are realized as HHL and LHH, respectively, and suggests that H is spread in preference to L (\*L<sup>+</sup> >> \*H<sup>+</sup>). But Mende realizes /HL/ and /LH/ melodies as HLL and LLH by spreading the L (\*H<sup>+</sup> >> \*L<sup>+</sup>). Thus, the uniform spread of H in both Hausa and Mende loanword adaptations would not follow directly from the tonal grammar operating over the lexicons of each language. It thus appears that the rightward spread of the H that we find in Y, H, and M must be stipulated as a rule of the loanword phonology of these languages independent of native L1 synchronic system. Descriptively, it could be viewed as a preference for perseverative tone spreading or in the spirit of Zoll (2003) as a dispreference for the spread of L. The latter alternative entails that the pretonic M in forms like *par'ticulars* > *patíkúlà* arises from a /MH\*L%/ analysis of the

input in order to block bidirectional spread of H. We return to this question of directionality in section 4.

### 3. Multiple Stresses

In this section we look at the adaptation of words with multiple stresses in the E source as well as cases where the Y adaptation suggests an analysis with multiple stress. Given that H marks the stress peak, L marks the final syllable, and M marks pretonic syllables, Y does not have available another tonal level to distinguish prominence among stressed syllables. One might then expect to find a secondary stress of E to be treated either as a Y H or as a Y M. In fact, both of these adaptations are found. In the following discussion we distinguish three different cases.

First, the corpus contains examples of E compounds which are evidently borrowed as single lexical items. The secondary stress (marked by the double tick) of the second member of the compound is adapted as a M.

(7)	'race "course	résíkoḡsì	'show-"case	şókeèsì
	'round-a"bout	rándàbaòtù	'show "glass	şógilaàsì
	'scholar"ship	síkóláşìipù		
	'money "lender	mònílèdà	(cf. 'money	mòní

None of these words happens to contain a pretonic M. It is unclear if that is just a coincidence or if such cases are avoided because M tone cannot mark pretonic unstressed syllables as well as secondary stress in the same adaptation.

Words whose E source contains two stresses but are not compounds display three adaptation patterns depending on the location of the primary stress. First, we consider words with a primary+secondary stress contour where the secondary stress is not final. A small number of E loanwords of this type have high tone that extends over the correspondents of both stressed syllables.

(8)	'missio"nary	míşḡnnáři	'mortu"ary	mḡşúári
	'Febru"ary	Fébuári		

More typical is the adaptation where the secondary stress is marked by a H and the primary by a M.

(9)	'agricul"ture	agirikḡşḡ	'ampli"fier	apifáyà
	'heli"copter	ḡlikópútà	'cater"pillar	katapíla
	'aero"plane	ḡropúlèènì		

Finally, there are many examples where the E source has a rising secondary+primary stress contour. The Y reflexes invariably show just one H that corresponds to the primary stress of the E source. The secondary stress is M.

(10)	'manu'facture	manufákíşò	'Coro'nation	kòrònésòn
	'alu'minium	àlùmíníòn	'lemo'nade	lẹmonéèdì
	'vase'line	fasilíni		

Several factors could motivate the apparent shift of stress to the right that neutralizes the contrast between the '□+'□ of (9) and '□ +'□ contours of (10) in favor of the latter. First, it might derive from a simplification in the grammar of Nigerian English (NE), which may plausibly serve as an intermediate stage in the loanword adaptation process. In fact, Ayole (1991) reports rightward stress shift as one of the major innovations of NE.<sup>3</sup> Another motivating factor could be that in Y loans the L is bound to the syllable corresponding to the final syllable of the source. The transition from H to L is cross-linguistically the most prevalent marking of prominence in pitch accent systems (Gomez-Imbert & Kenstowicz 2001, de Lacy 2002). Also, Y raises the F0 of a H that precedes L (Yatunde 1991). Positioning prominence before this L would be optimal from the point of view of Y grammar.

Earlier we interpreted the vowel doubling found on the correspondent of the final syllable of the E source as reflecting the Y perception of a stress prominence. There are quite a few cases where this doubling appears in both paroxytones and proparoxytones.

(11)	'bonnet	bónéèti	'almanac	álumánáàkì
	'college	kóléèjì	'negative	négétíifù
	'magic	májíikì	e'lectric	ẹlẹntíríikì
	'notice	nótíisì	'Methodist	mẹtódíisì

But there are a significant number in which the final syllable reflects absence of stress.

(12)	'pencil	pẹnsùlù	'principal	pírínsípùlù
	'vowel	fáwẹlì	'consonant	kónsónàntì
	'customs	kósítòmù	'reverend	rẹfúrẹnì
	'lesson	lẹsìnì	'catechism	katíkísímù
	'linen	línẹnì	'stadium	sítádíòmù

<sup>3</sup> In the few cases where the words cited by Atoye as instances of stress shift happen to also appear as loans in the Ojo corpus, the locus of H in the loan largely mimics the main stress of NE.

<u>BSE</u>	<u>NE</u>	<u>Y</u>
'petrol	pe'trol	pẹtiróòlù
'curfew	cur'few	kófíù
'hospital	hos'pital	ọsipítùlù
'telephone	tele'phone	tẹlifóònù
'cinema	cine'ma	sinimá

While there are exceptions in both directions, the E sources in (11) primarily end in obstruents while those in (12) end in sonorants. One might think that latter are heard as syllabic consonants and hence that that syllable is less prominent/sonorous. But the fact that the vowel that substitutes for the putative syllabic sonorant matches the source spelling in a significant number of cases casts doubt on this interpretation.

In a discussion of English loans in Y that otherwise anticipates some of our results, Ufomata (1991) sees the doubling in monosyllables like *tea* > *tí.ì* and *bar* > *bá.à* as a strategy to conform to the generalization that Y nouns contain two syllables. While the latter point may be true it is hard to see why lengthening would be extended to CVC words like *bag* > *bá.àgù* which become disyllabic anyway via epenthesis let alone to the polysyllabic nouns of (11). A comprehensive explanation of the distribution of doubling in Y loans requires a better understanding of stress in NE.

#### 4. Epenthetic Syllables

It is well-known that epenthetic syllables often behave differently from organic syllables with respect to synchronic phonological structure (Broselow 1982 and much later literature). The distinction is also important in loanword phonology where a principle of Minimal Saliency operates (see Shinohara 1997, Kenstowicz 2001, Steriade 2001) to make the inserted vowel as close to its zero correspondent as possible. Hence, epenthetic vowels tend to be short in duration (schwa or [i] or [u]) or have their quality determined by adjacent consonants or vowels. In Y loans the inserted vowel is consistently a high vowel: [u] in the context of labials and [i] otherwise (Akinlabi 2000). In the absence of schwa a high vowel is presumably the phonetically shortest in the inventory so Y arguably conforms to the Minimal Saliency principle. Tonally the inserted vowels also behave in a way that follows from this principle: they copy the tone of an adjacent TBU. This point has been noted explicitly for initial and final vowels by Ufomata (1991). Given that the correspondent of the E final syllable is consistently marked by L, any following epenthetic vowel is thus L as well. This point is evident throughout the data cited previously. An initial epenthetic vowel faithfully mirrors the tone of the following syllable, which varies among H and M (and L when the pretonic vowel is L instead of M).

(13)	'brother	búródà	'schnapps	şínáàbu
	'blazer	búlézà	cre'ole	kiryó
	bro'cade	burokéèdì	'granny	gìràní
	'blanket	bulankéèti		

More interesting is the behavior of medial epenthetic syllables. Here either the preceding or following tone could be copied. In this case the outcome is determined by the type of consonant cluster found in the E source. Vowels that split an Obstruent-Sonorant cluster (OR for short) copy the tone of the following vowel--the vowel flanking the sonorant. In the case of posttonic syllables a "dactylic" HLL tonal contour is assigned that contrasts strikingly with the HHL of organic syllables.

(14)	<u>OR</u>	<u>HLL</u>	<u>HHL</u>
	ca'thedral	ka'tíd ìrà	'labourer lébírà
	'muffler	móf`ilà	par'ticular patíkúlà
	'nursery	nó'sìrĩ	'councilor kánsílò
	'bat[t'ry]	bátìrĩ	'consonant kónsónàntì
	'boun[d'ry]	bánd ìrĩ	'regular rẹgúlà
	'op'ner	ópùnà	'labourer lébírà
	'gov'ner	góf ìnà	'liberty líbátì

Otherwise, the H tone of the stressed correspondent is spread from the left.<sup>4</sup>

(15)	<u>OO</u>	<u>RO</u>	<u>RR</u>
	'doctor dókítà	'silver sílífà	'Selma* sélímà
	'heli"copter ẹlikópútà	'welder wẹlídà	'Elmer* ẹlímà
	'easter ísítà	'album álúbòmù	
	'castor kásítò		
	'customs kọsítòmù		

The same disparity between OR clusters versus the rest operates pretonically as well.

(16)	<u>OR</u>	<u>RR</u>	
	la'trine latírìnì	Bal'moral*	bàlimórà
	con'trol kontíróòlù	El'mira*	ẹlimáírà
	ad'dress àdíréèsì		
	<u>RO</u>	<u>OO</u>	
	ad'vance àlùbànìsì	dis'penser	dìsìpẹnsà
	Albert** alubáàtì	ab'sorb*	àbùsọ̀q̀bù
	Alfred** àlùfúrẹ̀ẹ̀dì	ab'dominal*	àbùdómínà

The more transparent nature of the sonorants with regard to vowel copy has been noted before (Ihiunu & Kenstowicz 1994, McCarthy 1994). Specifically in regard to loanword adaptation Shabnam (2003) observes that Farsi breaks initial clusters with a copy vowel [u] when the intervening consonant is a sonorant (*blouse* > *buluz*; *dmuse* > *dumuze*); otherwise the default vowel [e] is inserted (*tkulster* > *tekulster*). She attributes the difference to the duration of the consonant that intervenes between the insertion site and the following copied vowel, where obstruents > nasal, liquid > flap. For our data there appears to be just a two-way distinction of sonorant vs. obstruent. Moreover, sonorant

<sup>4</sup> Adaptations marked by a single asterisk were supplied by Akin Akinlabi; those marked by a double asterisk are from Selma 1982.

consonants are more likely than obstruents to show F0 transitions. For descriptive purposes we assume a constraint that penalizes spreading a tone across an obstruent (preferring an uninterrupted F0) \*(VOV): penalize a tonal domain that is broken by an obstruent. While this analysis goes part of the way towards explaining the properties of OR and RO clusters, it does not explain why proparoxytones like *par'ticular* > *patíkùlà* copy the preceding H while an epenthetic syllable in the same position copies across the sonorant: *'muffler* > *móf ìlà*. Both vowels lack a tonal specification in the input and so would behave the same on Ident-Tone. We suspect that this behavior follows from the Minimal Saliency principle for epenthetic syllables--a strategy to render the output closer to the input by assigning it a tonal specification that mirrors the presumed F0 of the sonorant in the E source--at least in the perception of the Y speaker. (See Akanlig-Pare & Kenstowicz 2003 for an analogous case involving epenthetic syllables in the tonology of Buli). The prediction is that Y speakers would judge an E nonsense word like *'tacro* (rhyming with *macro*) as more similar to Y HLL *tákìrò* than to Y HHL *tákírò*. Psycholinguistic experimentation is needed to test this conjecture.<sup>5</sup>

Our analysis for the tone on inserted vowels runs as follows. Dep-Tone >> \*H+, \*L+ forces the inserted vowel to copy its tone from the adjacent syllable. For initial and final syllables there is no choice as to direction. For the word-medial cases we assume that \*(VOV) will favor spread across a sonorant.

(17)	/múf.lèr/	<u>Dep-T</u>	<u>*(VOV)</u>	<u>Persev</u>
	móf ìlà	*!		
	(móf í)là		*!	
	-> móf(f ìlà)			*

In case of a tie where both consonants are obstruents (*'doctor* > *dókítà*) or both are sonorants (*'Selma* > *sélimà*) the H is copied. This could reflect dispreference for a spread L (\*L+ >> \*H+)--the same constraint appealed to in section 2 for the proparoxytones--or it could reveal a preference for perseverative tone spreading. Crucial evidence is provided by the pretonic cases. Adaptations such as *dis'penser* > *disìpénsà* and *Bal'moral* > *bàlimórà* argue for direction as the crucial factor rather than the spread of H in preference to L.

(18)	/dóktèr/	<u>*(VOV)</u>	<u>Persev</u>
	-> (dókí)tà	*	
	dó(kità)	*	*!
	/dispénsèr/	<u>*(VOV)</u>	<u>Persev</u>
	dì(sípén)sà	*	*!
	-> (dìsì)pénsà	*	

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<sup>5</sup> Fleischacker 2001 reports an experiment in which E speakers judge epenthesis inside initial #Ob+Son clusters as less noticeable than prothesis.

## 5. Tonal Adaptations in Hausa

Hausa (Ha) lexically contrasts H, L, and Falling tones as well as long vs. short vowels. It also has CVC syllables. Despite these differences in tonal inventory and syllabic structure, the tonal adaptation patterns for E loans are for the most part identical to those of Y. This topic has been studied in considerable detail by Leben (1996) based on a corpus of c. 335 E loans taken primarily from R. Newman (1990). Here we review Leben's findings focusing on the points of similarity and difference between H and Y.<sup>6</sup>

Ha adapts words with a single stress in the E source in essentially the same way as Y. Paroxytones are HL and oxytones are F. Proparoxytones show the doubled HHL. (We follow the Ha linguistic tradition and transcribe H tones with no accent mark.)

(19)	'visa	biizàa	'shirt	shât
	'parlour	faalòo	'film	fîl
	di'rector	dàaraktà	re'ceipt	ràsît
	'captain	kyaftìn	co'caine	kòokên
	ac'countant	àkantàa	tange'rine	tànjàrîn
	'camera	kyamaràa		
	'manager	manajàa		
	'primary	firamarèe		
	'carpenter	kaafintàa		
	'handkerchief	hankicì		

E words with two stresses (primary+secondary) are split roughly equally between those that mark both stresses with a H (13 examples) versus those that mark just the second (10 examples). The latter are consistent with the rightward shift of primary stress suggested by the Y data in (9). One point of difference is that Ha marks the first prominence with a HL while for Y the L is confined to the final syllable in loans. Stated differently Y evidences a ban on HLH sequences in the loans--perhaps not surprising in a language with both mid tones as well as downstep of H.

(20)	'scholar"ship	sùkoolàshîf	'carbu"retor	kàafireetòo
	'heli"copter	helikaftàa	'Cater"pillar	kàtàfiilàa
	'time"keeper	tânkiifàa	'orga"nizer	òogàneeziàa
	'choco"late	caakùleeti	'type-"writer	tàafireetàa
	'culti"vator	kultùbeetàa	'quarter"master	kwàtàmastàa

Turning to the epenthetic syllable, as in Y it is a high vowel [u] in the context of labials and otherwise [i]. (It is [a] before [r]). Tonally, there are some differences compared to Y. In Ha the final epenthetic vowel is always L. But instead of copying the L of the E H\*L% from the correspondent of the source as in Y, in Ha the L% is mapped directly to the final epenthetic syllable. Perhaps this can be viewed as the avoidance of a FL sequence (tonal absorption).

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<sup>6</sup> Thanks to Wil Leben for sharing his corpus.

- (21) 'lace            leeshì            cf. Y léèsì  
       'bandage        bandeejì            bándéèjì

An initial epenthetic syllable sometimes copies the H of a following syllable and is otherwise L--presumably the default tone. Tonal copy seems to depend on the nature of the second member of the #CC cluster. If it is a sonorant then H may copy across (18 examples vs. 12 with default L); if it is an obstruent (#sC) the tone is invariably default L (13 examples).

- (22) 'practice        faraatis        'blue            bùlû            'spirit        sìfirìt  
       'flour            filaawà        'flask            filâs            'stamp  
       sitamfii  
       'plot            fulootì        'bread            bùroodi        'skirt        sikyât  
       'clutch        kulooci        'pliers            filaayàa

Leben (1996) notes a striking asymmetry in the behavior of medial epenthetic syllables following the correspondent to the E tonic H\*. While the H systematically spreads to a following organic syllable (cf. 19) it just as regularly fails to spread to an epenthetic syllable (13 examples). This is precisely the same behavior as found in Y and follows from the principle of Minimal Saliency. Examples appear in (23).

- (23)            as'sembly            àsambùlèe  
           'England            ingilà  
           'ice-cream            askìrìn  
           'railway            reelùwèe  
           (turn) 'signal            sigìnà

Leben cites *kitikàa* 'kit car', *likita* 'doctor' and *asimàa* 'asthma' as exceptions. The first two have obstruent clusters which we have seen block the regressive spread of the L in Y. The same explanation may be applicable here. We also found a few examples of medial pretonic OR clusters where the tonic H\* fails to spread backwards: *dìgìrî* 'degree', *àdìreeshì* 'address', *tàafireetàa* 'type-writer', *sùkkùdireebàa* 'screw-driver'. While there are more exceptions in the Ha corpus, Ha follows Y in allowing the epenthetic vowel to assimilate its tone across a sonorant. Otherwise, it receives a default L tone.

## 6. Shona

In this section we compare the tonal adaptation patterns found in Y and Ha with the results of a preliminary study of E loans into Shona (S) based on the E words beginning in the letters r, s, k, b, and f in M. Hannah's (1981) dictionary (cf. also Carter 1983). In S, the syllable is the tone-bearing unit; S contrasts H vs. L (or zero) in nouns so that two tone patterns occur for monosyllables, four for disyllables, and eight for trisyllables. Verbs are H or L as a function of the root. On the basis of the data collected, tonal adaptation in S appears to be much simpler. As in Y and H, the syllable corresponding to main stress of the E source is assigned a H. But there is no spread of H in

proparoxytones. Furthermore, epenthetic syllables are uniformly L as well. The only case of H spread is a few words in which a syllable is found between two the correspondents of two stressed syllables that are assigned a H. In other words, the expected HLH is replaced by HHH. Not enough data with multiple stresses has been located to determine if both stresses translate to H as a general rule.

(24) proparoxytones

'recipe	resipi HLL	'lemonade	remonedhi HLLL
'litany	ritani HLL	phi'losophy	firosofi LHLL
'cinnamon	sinamoni HLLL		

epenthetic vowels

'sulpher	sarifa HLL	'sister	sisita HLL
'silver	sirivhu HLL	'filter	filita HLL
'snow	sinou LHL	'cream	kirimu LHL
'skirt	siketi LHL	'clips	kiripisi LHLL
'clinic	kiriniki LHLL	'blanket	bhurangeti LHLL

multiple stress

ac'cele"rator	senereta HHHL	'sell-"out	sereauti HHHL
'flying ma"chine	furaimachina LHLLHL		

While the assignment of L to the correspondents of stressless syllables might be argued to mimic the F0 of the source, the consistent assignment of L to epenthetic syllables as well suggests that L is a default. This accords with the received view that Shona, and Bantu languages in general, contrast H vs. Ø. The choice of L as the default is arguably also in accord with Minimal Saliency, given that H marks salient syllables.

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