An OT Account of Auca Stress*

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The aim of this paper is to show that Auca is not a syllable-counting but a mora-counting language and that an analysis of the stress system provides some evidence for Stratal Optimality (Kiparsky, 2002 a, b) in which the ranking of constraints at each level is assumed to be distinct. The arguments are based on certain facts: 1) there is no heavy syllable, 2) vowel sequences are treated as two separate nucleus or a vowel with one mora, and 3) the language does not have syllable weight distinction.

Key words: auca, stratal OT, stress, moraic trochee, syllabic trochee.

1. Introduction

Auca is one of the Indian Languages spoken in the Upper Curaray River region of Ecuador. The stress system of this language was first documented by Pike (1961) and a more general description was provided by R. Saint and K. L. Pike (1962, henceforth S & P). The stress system is classified as a syllabic trochaic system and was formally analyzed by Hayes (1995, p. 183). This paper will show 1) there is some doubt for the claim that this language is a syllable-counting system and 2) the analysis of the language is in need of adopting Stratal OT (Kiparsky, 2002a, b).

2. Auca

Before Auca stress is considered, this section presents the phonemic inventory and phonotactic restrictions of Auca.

First, as shown in (1), the phonetic inventory is not large with stop

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consonants only ranging from bilabial to velar regions, a semivowel, /w/, five oral vowels and five nasal vowels.

(1) Phoneme inventory of Auca (S & P, 1962, p. 4)

a. consonants: p, t, (tʃ), k
b, d, y, g, m, n, ɲ, ŋ, w

b. vowels-orals: i, e, æ, o, a
nasals: ĩ, ẽ, æ̃, õ, ã

The consonants cannot occur in the coda position and cannot combine to form clusters; leading to the simple syllable structure of (C)V. Except for that, there is no restriction on the distribution of consonants, as is summarized in (2).

(2) Distribution of consonants (S & P, 1962, p. 14)

a. Any one of the consonants may be found in initial syllables.
b. No consonant occurs in the final syllable.
c. No clusters of consonant phonemes occur.
d. Any of the consonants may precede any of the vowels.

Unlike consonants, vowels can combine forming clusters, as described by S & P and exemplified in (4).

(3) Distribution of vowels (S & P, 1962, pp. 21-22)

a. Numerous clusters of two vowels are found within words.
b. The most frequent vowel clusters are
i) doublets (sequences of two same phonemes) and
mixed doublets of the same articulatory quality
but with one of the vowels oral and the other nasal)
ii) clusters ending in /i/ or /ĩ/

(4) Combinations of vowels

a. doublets: *iika* 'ramos palm fruit', *kaate* 'being itchy'
b. mixed doublets: *ãaka* 'he bathes', *ææ̃nebo* 'I yawn'
c. clusters ending in high vowels: *kæ̃i* 'eat', *mõĩko* 'blanket'

3. Auca Stress

In reporting the stress system of Auca, Pike (1961, p. 425) uses the word

'train'; 'Two separate trains start both ends of Auca words to assign stress to words.' The two trains are called the stem train and the suffixal train, respectively. (5) and (6) provide the description of the stress trains of Auca. Syllables are symbolized with the letter, 's', the end of the stem is marked with the right square bracket,], and the end of words with #. Below, following Pike (1961) and Hayes (1995), I use syllables as counting units until I present the evidence against the syllable counting theories in section 5.1.

(5) Suffixal Train (Pike, 1961, p. 425-427)

a. A wave train starts from the end of words with the final suffixal syllable unstressed, alternating backwards to penultimate stress, antepenultimate nonstress, pro-antepenultimate stress, until the stem or forth syllable is reached.

b.	ś] s#	gó] bo	'I go' (go 'go', bo 'I')
	ś] ś s#	gó] bópa	'I go (declar)'
	ś] s ś s#	gó] tabópa	'I went'
	ś] ś s ś s#	gó] támõnápa	'We two went'

The monosyllabic suffix is not stressed as in *]bo* while the disyllabic suffix gets stressed on the penultimate syllable as in *]bópa*. To sum up, in suffixes, every even numbered syllable is stressed counting from the end. The exception to this generalization is with suffixes consisting of five syllables, the stress pattern is ś s s ś s# rather than s ś s ś s#. Example of this pattern is *gó. kȩ́dõmõnáĩ ba* 'We two would have gone'.[1]

It is not possible to decide which stress is more prominent among stresses when there are more than two syllables with prominence in Auca words since descriptions of Pike (1961, p. 430) and S & P (1962, p. 20) do not agree on this issue. Thus, all stresses will be considered to be the same degree of prominence even though Hayes (1995, pp. 183-184) interprets the stem final stress as the most prominent one.

Stress of stems is different from that of suffixes, as is stated in (6).

1) The vowel sequence, *aĩ*, is considered as a single vowel since it is in the suffix (Pike, 1961, p. 430).

(6) Stem train (Pike, 1961, pp. 427-428)
A second wave train starts from the beginning of the word- whether noun, verb, or attributive. This stem train begins stressed and produces an alternating stress-nonstress syllable sequences.

Examples (Hayes, 1995, p. 183)

ś]	bõ'	'cotton bird'	S & P 6
ś s]	bádã	'mother'	Pile 426
ś s ś]	mõ'ĩkó [2]	'blanket'	S & P 24
ś s ś s]	bódæpóka	'anthill'	Pike 426

Now, let us look at what happens when the two trains meet at the juncture of a stem and a suffix. First, consider (7) which shows that the trains can be in phase. Two trains are in phase when both a stem and an affix have an odd number of syllables or when both of them have an even number of syllables as in (7). Here Pike (1961) is referred to as P for simplicity.

(7) Trains in phase
Examples (Hayes, 1995, p. 183)

ś s] ś s	kǽga] kã'ba	'his tooth hurts'	P 427
ś s ś s] ś s	pǽdæpõ'nõ] ɲã'ba	'he handed it over'	P 426
ś] s	gó]bo	'I go'	P 425
ś] s ś s	gó] tabópa	'I went (declar.)'	P 426
ś s ś] s	kíwẽ ɲõ'] ɲa	'where he lives'	P 426
ś s ś] s ś s	ápãné] kãdápa	'he speaks'	P 428

Two trains are out of phase when a stem has an odd number of syllables but an affix has an even number in (8a) or when a stem has an even number of syllables but an affix has an odd number of syllables as in (8b).

2) Unlike in suffixes, the vowel sequence, *õĩ* is considered as two separate vowels in stems (Pike, 1961, p. 430).

(8) Trains out of phase

a. Examples (Hayes, 1995, p. 183)

ś] ś s	gó] bópa	'I go (declar.)'	P 425
ś s ś] ś s	yi'wæ̃mõ'] ŋã'ba	'he carves'	P 427
ś] ś s ś s	gó] támõnápa	'we two went'	P 426
ś s ś s ś] ś	stíkawódõnó] kã'ba	'he lights'	P 427

b.

* ś s] s -> ś ś] s	wódõ'] ŋã	'She hangs up'	P 427
* ś s] s ś s -> ś ś] s ś s	ẽ'ŋá] kãndápa[3]	'He was born'	P 427
* ś s ś s] s -> ś s ś ś] s	gã'næ̃æ̃'mæ̃'] ŋã	'He raised up his arms'	P 427

When the regular rules would assign stress to the stem-final syllable and suffix -initial syllable, both stresses are retained as in (8a). When the regular rules would not assign either to the stem-final syllable or the suffix-initial syllable, the final syllable of the stem becomes stressed, as is illustrated in (8b).

Of interest in (8) is this. Not only is stress clash tolerated between the stem final and the affix initial syllables in (8a), but also stress clash is created when the both the stem final and the suffix initial syllables are stressless in (8b).

4. Hayes (1995)

Hayes (1995) analyzes Auca stress formally with rules within Lexical Phonology (Kiparsky, 1982; Mohanan, 1982) considering it as a syllabic trochee system. The levels, rules, and the order of them assumed for Auca are given in (9).

(9) Levels and rules (Hayes, 1995, p. 185)

Level I : stem formation (includes compounding)

stress assignment (a. syllabic trochee from left to right

b. degenerate feet in strong position)

3) The only consonant clusters encountered in Auca are *ŋg, ŋk, nd, nt, mb,* and *mp.* These sounds seem to be pre-nasalized sounds since these homoganic sequences of consonants are analyzed as a single phoneme (Pike, 1961, p. 430, fn), syllabified as an onset rather than as combinations of a coda and an onset.

Level II : suffixation
collapsing of adjacent vowels into single syllables
stress assignment (right to left)

The strong position in Auca is the final syllable in odd-numbered stems according to Hayes (1995, p. 185). Along with the level ordering assumption, Hayes follows Kiparsky's view that cyclic stress rule can 'exceptionally' have access to the material belonging to the previous cycle and consequently reconstruct the constituent structures built at the previous level. (10) illustrates Hayes' analysis of Auca.

(10) a. In phase

(x .)	(x)	(x .) (x)	output
s s s s	s s s s	s s s s	of
kæga]kã' ba	gó]tabópa	kíwẽ ɲõ'] ɲa	level 1

(x .) (x .)	(x .) (x .)	(x .) (x .)	output
s s s s	s s s s	s s s s	of
kæga] kã'ba	gó] tabópa	kíwẽ ɲõ']ɲa	level 2

b. Out of phase

(x)	(x .)	output
s s s	s s s	of
gó]bópa	wódõ']ŋã	level 1

(x) (x .)	(x) (x .)	output
s s s	s s s	of
gó]bópa	wódõ']ŋã	level 2

Hayes interprets prominence on the stem final stressed syllable as primary stress. However, since descriptions of Pike and S & P diverge on the issue, different marking is not used and line 2 is not represented here. At level 1, left-headed binary feet are formed over syllables of stems from left to right. In the case when there is only one syllable in stems such as *go]*, unary feet are formed. At level 2, binary feet are formed over syllables in suffixes from right to left. When there are not enough syllables in suffixes to make a binary foot as in *wodõ] ɲa*, the stem final syllable is used to form a foot with the suffix initial syllable, restruc-

turing the constituent built at level 1.

5. Analysis with Moraic Trochee

5.1. Evidence for Moraic Trochee

Rejecting Hayes' assumption that Auca is a syllable-counting system, I will show some facts suggesting that Auca is a mora-counting system. The major motivation to develop an analysis based on moraic trochee for Auca is the observations that syllable counting systems are rarer than mora counting systems (Kager, 1993, p. 407) and that in fact, syllable counting iambic systems are better analyzed based on moraic trochee (Kim 2000, 2002). Thus, if the languages classified previously as syllabic trochaic systems such as Auca turn out to have moraic trochee as their basic foot, then it would be possible to simplify the current foot inventory.

There is no distinction between a mora-counting system and a syllable-counting system when there are no heavy syllables in a language. For example, suppose that a language has only short vowels. Then, moraic feet and syllabic feet are the same. Here s = syllables, m = moras, v = vowels.

(11) [s s] [s s] [m m] [m m]
v v v v v v v v

The distinction shows up when a language has long and short vowel contrast, but this contrast is ignored by foot parsing. When feet are formed regardless of vowel length even though there is vowel length distinction, the stress system is called a syllable-counting system (Kager, 1993).

(12) [s s] [s s] s
v: v v v: v

In contrast, when foot formation is sensitive to the vowel length, the stress system is called a mora-counting system (Kager, 1993; Hayes, 1995).

(13) [mm] [m m] [mm] m
v: v v v: v

The first piece of evidence for the claim that Auca is a mora-counting system concerns the fact that there are no heavy syllables in Auca; no (C)VC(C) or (C)VV in Auca. The only possible syllable configuration is (C)V.

As for syllables with coda consonants, recall that no consonant is allowed as a coda in Auca. The only consonant clusters encountered are *ŋg, ŋk, nd, nt, mb,* and *mp.* However, these homorganic sequences of consonants are analyzed as a single phoneme (Pike, 1961, p. 430, fn), syllabified as an onset rather than as combinations of a coda and an onset.

Moreover, there is no long vowel or diphthong at all as phonemes as shown in (1b). It seems that the short vowels are in contrast with their long counterparts (S & P, 1962, p. 15-16), as in (14).

(14) ika 'it ripens'
iika 'ramos palm fruit'

However, the long vowels are counted as two separate syllables in stems (Pike, 1961, p. 430). Take a look at Pike's (Pike, 1961, p. 430) description on vowel sequences stated in (15) and (16).

(15) a. Within the stem, sequences of two like or of two diverse vowels act as sequences of two syllable nuclei in the mora count.
b. õ'õ'. ŋãndápa 'he went blow-gunnung'
(õ'õ 'hunt with blow-gun')
c. s s s s s
| | | | |
m m m m m
| | | | |
õ' õ'. ŋãn dá pa

(16) a. Within a suffix train, sequences of diverse vowels act in the mora count as single-syllable nuclei and sequences of like vowels fuse into a single one (Pike, 1961, p. 430).[4]

b. æ̃] mi i -> æ̃] mi 'Take!'
(*æ̃* 'take', *mi* '2 person singular', *i* 'subjunctive')

c.
```
s   s
|   |
m   m
|   |
æ̃ . mi
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Since Auca has no distinctive vowel length or no heavy syllables, it is hard to prove that the language is syllable-counting rather than mora-counting.

Second, Pike hinted that Auca is a 'mora'-counting system in his description of the language as is presented in (18).

(18) (Pike, pp. 425-426)
a. ... which clashes with a different wave train keyed into a **mora** count beginning from the last suffixal syllable.
b. Enclitics added to the suffix train do not affect the **mora** count for stress placement.

In conclusion, facts suggest that Auca stress system is mora-counting. More information should be gathered before arguing that Auca is syllable-counting.

5.2. Analysis Under Stratal OT

Having argued that Auca is mora-counting, I now show how the stress system of the language is analyzed with moraic trochee under Stratal OT (Kiparsky, 2002a, b) in this section. Unlike parallel OT (Prince & Smolensky, 1993), the Stratal OT adopts Lexical Phonology's distinction between levels. Each of phonological subsystems is viewed as a parallel OT constraint while seriality works only between the levels and each subsystem may have different constraint rankings. The idea that 'a grammar is internally organized into serially ordered strata (Kager, 1999, p. 382)' is proposed by others as well (Goldsmith, 1993; Inkelas & Orugun, 1995; Sprouse, 1997).

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4) No specification is provided in Pike or S & P about the length of the fused vowel.

The reason Auca stress should be analyzed under the stratal OT rather than the standard OT is that distinct rankings between Parse and FB should be assumed for stems and suffixes. That is, in stems degenerate feet are legitimate while in suffixes degenerate feet are not allowed, as will be shown shortly. The 'distinct rankings' cannot be incorporated elegantly into the standard OT.

This paper proposes to assume three levels for Auca: stem level, suffix level, and word level, as shown in (19). The three levels are different in the active constraints and their rankings.

(19)

Level 1	->	Level 2	->	Level 3[5]
Constraint set 1		Constraint set 2		Constraint set 3
Stem stress		Suffix stress		Word stress

The constraints required are presented in (20).

(20) Constraints for level 1 and 2

Set 1 and 2: PARSE (P): Syllables are parsed.
TROCHEE (T): Feet are trochaic.
FOOTBINARITY (FB): Feet are binary.[6]
ALIGNRIGHT (ALIGNR): Right edge of feet are aligned with the right edge of the word.

To see that constraint ranking for stems must be distinct from that for suffixes, consider the following tableaux of monosyllabic affixes and stems. Feet are marked with parentheses.

(21) monosyllabic stem: *bõ'* 'cotton bird'

bõ	PARSE	FB
bõ	*!	
☞ (bõ)		*

To account for stem stress at level 1, the ranking of Parse over FtBin is

5) As an anonymous reviewer points out, the account proposed in this paper needs to incorporate a device to make the information on stem/suffix boundary accessible in level 3 where word stress is checked. Otherwise, it would be impossible to differentiate stem stress from affix stress due to the effect of the Bracket erase Convention.

6) This constraint is defined in terms of moras.

critically important. High-ranking of Parse has the effect of enforcing a unary foot even though the foot incurs a violation of FtBin. However, if the same ranking is kept at the suffix level, stressing of suffixes is not accountable since a degenerate foot is intolerable at this level. Rather, leaving one syllable unparsed is preferred to forming a degenerate foot:

(22) monosyllabic suffix: *bo* '1st person'

bo	FB	PARSE
(bo)	*!	
☞ bo		*

In sum, PARSE outranks FB at level 1 while FB outranks PARSE at level 2.

In addition to PARSE and FB, TROCHEE is working both at level 1 and level 2. (23-24) illustrate this.

(23) disyllabic stem: *bádã* 'mother'

badã	TROCHEE
☞ (bádã)	
(badã')	*!

(24) disyllabic suffix: *bopa* '1st person, declar.'

bopa	TROCHEE
☞ (bópa)	
(bopá)	*!

Since Trochee is undominated, candidates violating the constraint will not be considered in the rest of the discussion; (x x) = (x́ x).

PARSE, TROCHEE, and FTBIN are not enough for stems and suffixes with more than three syllables. For example, the three constraints cannot pick out one candidate as an optimal one from (25a) and (25b);

(25) trisyllabic stem: *kiwẽ* 'live', *ɲõ* 'where'

	PARSE	FB
a. (kiwẽ)(ɲõ)		*
b. (ki)(wẽɲõ)		*

In other words, another constraint, ALIGN-R, is required. ALIGN-R must

be lower than Parse in the ranking hierarchy. Otherwise, (26b) would incorrectly be a winning candidate.

(26) quadrisyllabic stem: *bódæpóka* 'anthill'

bodæpoka	PARSE	ALIGN-R
a. (bodæ)(poka)		**
b. bodæ (poka)	*!*	

However, it is not clear how ALIGN-R is ranked with respect to FTBIN. The resulting ranking hierarchy of constraints for stem stress is in (27).

(27) Constraint set 1: PARSE, TROCHEE >> FB, ALIGNR

As in stems, Align R comes to work when a suffix contains more than three syllables. The ranking of the three constraints is:

(28) Constraint set 2: FB, TROCHEE >> PARSE >> ALIGN R

The ranking between PARSE and ALIGN R is confirmed by the quadrisyllabic suffix.

(29) quadrisyllabic suffix: *támənápa* 'we two, past tense'

	PARSE	ALIGN R
tamə(napa)	*!*	
☞ (tamə)(napa)		**

Next, the interactions of the constraints at level 1 and 2 are demonstrated by (30) and (31), respectively.

(30) Level 1
bádā 'mother'

badā	PARSE	FTBIN	ALIGN R
☞ (bádā)			
ba(dā')	*!	*	
(bá)(dā')		*!*	*
(bá)dā	*!	*!	*

mõ' ĩ kó 'blanket'

Mõĩko	PARSE	ALIGN-R	FB
(mõĩ)ko	*!	*	
☞ (mõĩ)(ko)		*	*
mõ(ĩko)	*!*		
mõĩko	*!**		

bódæpóka 'ant-hill'

bodæpoka	PARSE	ALIGN-R	FB
☞ (bodæ)(poka)		**	
(bo)(dæpo)(ka)		***!*	**
bodæ(poka)	*!*		
bo(dæpo)ka	*!*	*	

(31) Level 2

] bópa '1st person, singular, declarative'

bopa	FB	PARSE	ALIGN R
☞ (bopa)			
(bo)pa	*!	*	*
bo(pa)	*!	*	

] tabópa '1st person, singular, past tense'

tabopa	FB	PARSE	ALIGN R
☞ ta(bopa)		*	
(tabo)pa		*	*!
(ta)(bopa)	*!		**
(tabo)(pa)	*!		*

] támõnápa '1st person plural past tense'

tamõnapa	FB	PARSE	ALIGN R
(ta.mõ)napa		**!	**
☞ (tamõ)(napa)			**
(tamõ)na(pa)	*!	*	**
(ta)(mõ)(napa)	*!*		** ***

The outputs of level 1 bear stem stress and those of level 2 bear stem stress and suffix stress. Then, the outputs of level 2 enter level 3. Constraint set 3 involves Correspondence constraints, NOLAPSE (Selkirk, 1984; Kager, 1993, 2001) and NOCLASH (Kager, 1999);

(32) Constraint set 3

PROMMAXIO (MAXIO): Prominence in the input has a correspondent in the output.

PROMDEPIO$_{STEM}$(DEP$_{STEM}$): Prominence in the output of a stem has a correspondent in the input.

PROMDEPIO$_{SUFFIX}$(DEP$_{SUFFIX}$): Prominence in the output of a suffix has a correspondent in the input.

NOLAPSE (*LAP): No stressless elements are adjacent.

NOCLASH (*CLASH): No stressed elements are adjacent.

The ranking between the constraints are as follows.

(33) MAX IO, *LAP, DEP$_{SUF}$ >> DEP$_{STEM}$, *CLASH

The higher ranking of DEP$_{SUF}$ over DEP$_{STEM}$ is in contrast with the universal ranking between constraints governing stems and those governing suffixes. That is, constraints requiring congruence to stems outrank those requiring congruence to suffixes in general. However, this unusual ranking in Auca might be to make stems prominent in perception.

Since MAX IO is ranked at the top of the hierarchy, stress from the previous levels must be retained in the output of level 3 even at the expense of violations of *CLASH, as in *gobopa*. The highest ranking *LAP demands that no adjacent stressless syllables are allowed. Thus, this situation should be avoided at any price. However, new stress cannot be obtained on any of the syllables in a suffix due to the top ranking DEP$_{SUF}$. In consequence, a stem initial syllable gets to be stressed when stressless syllables happen to be adjacent at the juncture of a stem and a suffix as in *wódõ ŋã*. These are are shown in (34) and (35).

(34) In phase

ś] s

góbo	MAX IO	*LAP	DEP$_{SUF}$	DEP$_{STEM}$	*CLASH
góbó			* !(bo')		*
☞ góbo					
gobó	*!(go)		*(bo')		

ś] s ś s

gótabópa	MAX IO	*LAP	DEP$_{SUF}$	DEP$_{STEM}$	*CLASH
☞ gótabópa					
gótábopa	*!	*	*		*
gotábopá	*!*		**		

ś s] ś s

kǽgakā'mba	MAX IO	*LAP	DEP$_{SUF}$	DEP$_{STEM}$	*CLASH
☞ kǽgakā'mba					
kǽgakāmba	*!	**			
kægakā'mba	*!	*			

(35) Out of phase

ś] ś s

góbópa	MAX IO	*LAP	DEP$_{SUF}$	DEP$_{STEM}$	*CLASH
gobópa	*!				
góbopá	*!		*		
☞ góbópa					*

ś s ś] ś s

yi'wæ̃mõ'ŋā'ba	MAX IO	*LAP	DEP$_{SUF}$	DEP$_{STEM}$	*CLASH
yi'wæ̃mõ'ŋāba	*!	*			
☞ yi'wæ̃mõ'ŋā'ba					*
yi'wæ̃mõ'ŋā bá	*!		*		

ś s] s

wódõ ŋā	MAX IO	*LAP	DEP$_{SUF}$	DEP$_{STEM}$	*CLASH
☞ wódõ'ŋā				*	*
wódõ ŋā		*!			
wódõ ŋā'			*!		

ś s] s ś s

ẽ'ŋakāndápa	MAX IO	*LAP	DEP$_{SUF}$	DEP$_{STEM}$	*CLASH
ẽ'ŋakāndápa		*!			
ẽ'ŋakā'ndápa			*!		*
☞ ẽ'ŋakā'ndápa				*	*
ẽ'ŋakā'ndapá	*!*		**		

The reason lapse is not allowed at the juncture seems to be that the

boundary of a stem and an affix tends to be marked by stress either on the stem final syllable or on the suffix initial syllable to 'facilitate the processing of grammatical units in perception' (Kager, 1999; p. 144, 167). As a result, two stressless syllables at the juncture are intolerable, activating a repair mechanism: stress on the stem final syllable. Marking stem boundaries more prominent has priority over marking suffix boundaries prominent in Auca. This may be that stem should be more prominent in perception and all the suffixes presented in Pike and S & P are inflectional ones.

6. Residual Problem

This analysis of Auca stress based on moraic trochee under the assumption of Stratal OT is not free from problems. Consider the following tableau of a suffix with five syllables. The suffix is expected to be stressed on the second and the fourth syllables because of the ranking of FB >> PARSE >> ALIGN R at level 2: *kæ(dõmõ)(nã imba).* However, *(kædõ)mõ(nã imba)* is the actual output.

(36) kǽdõmõnáĩ mba 'We two would have gone.'

kædõmõnaĩ mb	FB	PARSE	ALIGN R
(kædõ)(mõnaĩ m)(ba)	*!		* ***
(kædõ)mõ(nã imba)		*	***!
☞ kæ(dõmõ)(nã imba)		*	**
(kæ)(dõmõ)(nã imba)	*!		** ****

One might expect the situation can be improved at level 3. Suppose level 3 takes up *kæ(dõmõ)(nã imba)* as an input.

(37)

gókædõ'mõnã'imba	MAX IO	*LAP	DEPSUF	DEPSTEM	*CLASH
☞ gókædõ'mõnã'imba					
gókǽdõ mõ nã' imba	*!	*	*		*

The expectation cannot be met since Max IO is the highest ranking constraint and thus the stresses from level 1 and 2 are preserved intact at level 3.

To develop an analysis avoiding this problem, more examples of this sort should be considered. However, unfortunately, the example mentioned above is the only word provided in Pike and S & P. Thus, I leave this problem for further research.

5. Conclusion

One of two goals of this paper was to argue that Auca is not a syllable-counting system based on certain facts: 1) there is no heavy syllable, 2) vowel sequences are treated as two separate nucleus or a vowel with one mora, and 3) the language does not have syllable weight distinction.

Another aim was to show that three levels with distinctive ranking systems should be assumed to account for stress patterns of Auca. That is, stress is marked serially passing through three levels. However, within each level, candidates are evaluated in a parallel manner.

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