

Infix Allomorphy in Ida'an-Begak

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1. Introduction

Ida'an-Begak is a Western Malayo-Polynesian language spoken by approximately 6,000 people on the east coast of Sabah, Malaysia, Borneo and belongs to the Sabahan subgroup of the North Borneo subgroup (Blust 1998). Ida'an-Begak has three dialects, Ida'an, spoken in the villages of Segama to the west of Lahad Datu, Ida'an Sungai spoken in the Kinabatangan and Sandakan districts, and Begak spoken in Ulu Tungku, to the east of Lahad Datu (Banker 1984).¹ Moody (1993) deals with Ida'an; this paper concentrates on the Begak dialect. In this paper I will present new data gathered in the field and provide an analysis of the allomorphy. The study is based on spontaneous data as well as examples elicited from my language informants.

Several languages of this group show infixation/prefixation allomorphy, where the vowel of the infix allomorph coalesces with the stem vowel (Blust 1997's 'ablaut'). Ida'an-Begak shows a rather complex instantiation of this phenomenon. In this paper I will present new data gathered in the field and provide an analysis of this allomorphy.

The Ida'an-Begak Past Tense (P) is marked by *ni-*, *-i-* or *-ən-*, depending on the shape of the stem, while the Dependent (D) is marked by *m-*, *-u-* or *-əm-*, depending on the shape of the stem.² The distribution of these infixes is as in Table 1. Stems that start with a consonant followed by schwa or /a/ are infixed with *-i-* (P) and *-u-* (D), resulting in vowel coalescence. Stems that start with a consonant followed by a high vowel are infixed with *-ən-* (P) and *-əm-* (D); vowel-initial stems are always prefixed with *ni-* (P) and *m-* (D). Stems starting with a liquid followed by a high vowel are prefixed with *nə-* (P) and *mə-* (D). The result of the affixation is ideally a consonant-initial bisyllabic form, which is the optimal prosodic word of the language.

Stem Starts With	stem	Gloss	P. affix	Past Tense	D. affix	Dependent
V	<i>abput</i>	'bite'	<i>ni-</i>	<i>nebput</i>	<i>m-</i>	<i>mabput</i>
Ca/Cə	<i>səgkow</i>	'call'	<i>-i-</i>	<i>sigkow</i>	<i>-u-</i>	<i>sugkow</i>
Ci	<i>timbak</i>	'shoot'	<i>-ən-</i>	<i>tənimbak</i>	<i>-əm-</i>	<i>tənimbak</i>
Cu	<i>tunu</i>	'set on fire'	<i>-i-</i>	<i>tinu</i>	<i>-əm-</i>	<i>təmunu</i>
Li	<i>ligow</i>	'deceive'	<i>nə-</i>	<i>nəligow</i>	<i>mə-</i>	<i>məligow</i>

Table 1: Distribution of the suppletive allomorphs

The morphemes of the Past Tense and the Dependent derived historically from proto-Austronesian *IN and *UM respectively (Blust 1997). Contrary to Ussishkin (2000)'s analysis of the same phenomenon in the related language Mukah Melanau, I will claim that the synchronic allomorphs in Ida'an-Begak are no longer derived from one underlying form. Synchronically,

they must be analysed as suppletive affixes that still bear resemblance to *IN and *UM but never surface as such. The claim of this paper is that allomorphy in Ida'an-Begak is suppletive and that the choice of allomorphs is governed by constraint ranking. The phonology decides which allomorph fits best for which stem.

In the next section I will describe which constraints are needed to obtain this optimal consonant-initial bisyllabic form. In section 3, the interaction between the various constraints is analyzed. In section 4, arguments are presented in favour of an analysis with suppletive allomorphs, and section 5 offers some conclusions.

2. Description of the data and possible constraints

The attachment of the Past Tense and Dependent affixes always results in consonant-initial words. Therefore ONSET must be rather highly ranked in Begak. ONSET is active in various parts of the phonology. The language uses for example glide insertion and vowel coalescence to avoid vowel hiatus. Sometimes, glottal stops are inserted if a word starts with a vowel. Nevertheless, certain words (nouns and stative verbs) may start with a vowel; in that case ONSET is overruled by other constraints.

- (1) ONSET: "A syllable must have an onset" (Prince & Smolensky 1993:99)

The second constraint that we need to adopt is that a word must be a foot, i.e. a word is maximally and minimally two syllables long. This constraint explains why Begak strives towards bisyllabic words.

- (2) PRWD=FT: "a word is a foot / maximally two syllables long"

This constraint is a slight modification of PRWD=BIN: a Prosodic Word must be binary (Prince & Smolensky 1993: 55).³

The third constraint that we need to adopt says that only the last two syllables of a word can have a full vowel. Not all words are bisyllabic, but if they are longer, for example after a bisyllabic stem has been prefixed or infixes, the syllables before the penultimate one can only contain an empty vowel. All prefixes have the shape C-, Cə (C)- or CəCə- and the three non-coalescing infixes have the shape -əC-, thereby filling non-footed syllables with schwa⁴:

(3)	<i>gə-</i>	Actor Voice	<i>gə-lindut</i>	'run'
	<i>bəg-</i>	Actor Voice	<i>bəg-arab</i>	'search'
	<i>məng-</i>	Actor Voice	<i>məng-inum</i>	'drink'
	<i>kə-</i>	Actor Voice- Stative	<i>kə-lapas</i>	'passed by'
	<i>məngə-</i>	Actor Voice causative	<i>məngə-lawas</i>	'make clean'
	<i>pə-</i>	Dependent causative	<i>pə-buay</i>	'make long'
	<i>nə-</i>	Past Tense causative	<i>nə-lewas</i>	'made clean'
	<i>tə-</i>	Intensive	<i>tə-buat</i>	'very long'
	<i>məkə-</i>	Petitive	<i>məkə-ledung</i>	'ask for help to go down'
	<i>səng-</i>	Nominalization	<i>səng-əgkot</i>	'manner of work'

Infixes in Begak have only schwa as their vowel:

(4)	<i>-ər-</i>	Reciprocal	<i>s-ər-agga'</i>	'fight with each other'
	<i>-ən-</i>	Past Tense	<i>t-ən-iru'</i>	'taught'
	<i>-əm-</i>	Dependent	<i>t-əm-iru'</i>	'teach'

Just like some other North Bornean languages, Begak does not have any productive suffixes, but even historically suffixed words have schwa in the prepenultimate syllable:

(5)	<i>turug</i>	'sleep'	<i>tərug-an</i>	'bed'
	<i>tapis</i>	'strain'	<i>təpis-an</i>	'strainer'
	?		<i>kə-təpus-an</i>	'last'
	?		<i>kələgbung-an</i>	'ridgepole'

The Stative prefix *a-* is the only exception; it forms a kind of appendix and appears to the left of all other prefixation.

(6)	<i>ligot</i>	'late'	<i>a-ligot</i>	'rather late'
	<i>tot</i>	'stuck'	<i>a-p-ə-tot</i>	'accidentally stuck'
	<i>luan</i>	'go out'	<i>a-kə-luan</i>	'accidentally go out'
	<i>inum</i>	'drink'	<i>a-kə-p-inum</i>	'accidentally drink'

Blust (1997:21) formulates the vowel distribution of North Bornean languages as Prepenultimate Neutralization. This can be turned into the following constraint:

- (7) PREPENULTIMATE NEUTRALIZATION (PPN): "Every unfooted syllable is reduced to schwa."

PPN is actually a weaker form of the constraint PRWD=FT mentioned above and can therefore perhaps better be split up in two separate constraints: PRWD=FT and a form of Positional Faithfulness (Beckman 1997, Alderete

1995) or Licensing (Steriade 1994a,b, Zoll 1998). Positional Faithfulness deal with faithfulness constraints of elements in “strong” positions while Licensing deals with the markedness of elements in “weak” positions. Although PPN can be split up, I will use the constraint PPN to deal with unstressed syllables, for ease of exposition.

The fourth observation on Table 1 is that vowel coalescence is often used to avoid vowel hiatus and to keep words bisyllabic. Malay loan words containing a vowel hiatus or a sequence of a glide and a vowel are adapted by means of vowel coalescence, as in (9). This means in OT terms that UNIFORMITY must be ranked low in Begak.

(8) UNIFORMITY: “no element of S₂ has multiple correspondents in S₁”
(McCarthy & Prince 1995)

(9)	Malay	gloss	Begak	gloss
	<i>wayang</i>	‘movie’	<i>oyang</i>	‘movie’
	<i>wayar</i>	‘wire’	<i>oyar</i>	‘wire’
	<i>tuala</i>	‘towel’	<i>tola</i>	‘towel’
	<i>pəlihara</i>	‘look after’	<i>(pə)lera</i>	‘look after’
	<i>jarum</i> [djarum]	‘needle’	<i>derum</i>	‘needle’
	<i>ajaib</i> [adjaib]	‘miraculous’	<i>deip</i>	‘astonished’
	<i>janji</i> [djandji]	‘promise’	<i>dendi</i>	‘vow’

Begak has only four underlying vowels: /a/, /i/, /u/, and /o/ in final syllables and /a/, /i/, /u/ and schwa in penultimate syllables.

(10)

	Front -Round		Round Back
High	i		u
-High -Low	e	ə	o
Low		a	

The two derived vowels /e/ and /o/ can only occur as a result of vowel coalescence in the penultimate syllable. These vowels are actually two vowels realized in one segment and can be represented as in (11). The vowel schwa is always overwritten by /i/ and /u/ after vowel coalescence, because schwa has no features to start with.

(11)

V	+	V	=	V
		[high front -round]		[high front -round]
/ə/		/i/		/i/
V	+	V	=	V
		[high back round]		[high back round]
/ə/		/u/		/u/

V	+	V	=	V
[low]		[high front -round]		[-high -low front -round]
/a/		/i/		/e/
V	+	V	=	V
[low]		[high back round]		[-low-high back round]
/a/		/u/		/o/
V	+	V	=	V
[high	+	[high back round]		[high front -round]
front				
-round]				
/i/		/u/		/o/

Other combinations of vowels are not involved in coalescence because in the case of affixation, an other allomorph is chosen. If the stem vowel /u/ is infixed with *-i-* it is overwritten by it, for example /*t-i-unu*/ ‘burn’ becomes *tinu*, but the opposite does not occur: stems with a penultimate /i/ cannot be infixed with *-u-*, for example */*t-u-iru*’/ but *t-əm-iru*’ ‘teach’. This is an idiosyncrasy that I cannot explain.

The last constraint that needs to be adopted for the analysis of the Past Tense and Dependent allomorphy forbids complex onsets: *COMPLONSET (Prince and Smolensky 1993). Begak native words lack complex onsets and complex onset in loan words are adapted, as is illustrated in (12).

(12)	English	Begak
	<i>tractor</i>	<i>təlaktul</i>
	<i>class</i>	<i>kəlas</i>
	<i>school</i>	<i>iskul</i>

3. Analysis

We can now adopt the following hierarchy of the constraints:

- (13) ONSET, PPN, *COMPLONSET >> PRWD=FT >> UNIFORMITY

As for the choice between infixation and prefixation, it is possible to adopt an alignment constraint ALIGN (affix, L) (Prince&Smolensky 1993, McCarthy 2002) for Begak, because the language has no productive suffixes. All its affixes are prefixes, or infixes that are affixed after the first consonant of the stem. Nevertheless, I will not discuss any constraints that refers to the place of affixes, because Alignment constraints are so low on the hierarchy that they do not influence the choice of the allomorph.⁵

3.1 Consonant-initial verbs

Table (2) shows the Past Tense of the verbs *səgkow* ‘call’, *dalud* ‘wait’ and *sukot* ‘ask’. The prefixed candidates **nisəgkow*, **nidalud* and **nisukot* have a full vowel in an unfooted syllable, and are therefore ruled out. The candidates infixed with *-ən-* are too long and violate PRWD=FT. The last candidates are the optimal candidates despite the fact that they violate UNIFORMITY because of their vowel coalescence: these candidates are bisyllabic and consonant-initial.

Affix	<i>səgkow</i> ‘call’ / <i>dalud</i> ‘wait’ / <i>sukot</i> ‘ask’	ONSET	PPN	PRWD=FT	UNIFORMITY
<i>ni-</i>	<i>nisəgkow</i> / <i>nidalud</i> / <i>nisukot</i>		*!	*	
<i>-ən-</i>	<i>sənəgkow</i> / <i>dənalud</i> / <i>sənukot</i>			*!	
<i>-i-</i>	<i>sigkow</i> / <i>delud</i> / <i>sikot</i>				*

Table 2 Past Tense of verbs starting with Cə, Ca or Cu

The Dependent allomorphy in Table (3) can be explained in almost the same way: the prefixed candidates **msəgkow* and **mdalud* fatally violate *COMPLONSET; the infixed candidates **səməgkow* and **dəmalud* are too long and the candidates *sugkow* and *dolud* win despite vowel coalescence.

Affix	<i>səgkow</i> ‘call’ / <i>dalud</i> ‘wait’	*COMPLONSET	PRWD=FT	UNIFORMITY
<i>m-</i>	<i>msəgkow</i> / <i>mdalud</i>	*!		
<i>-əm-</i>	<i>səməgkow</i> / <i>dəmalud</i>		*!	
<i>-u-</i>	<i>sugkow</i> / <i>dolud</i>			*

Table 3 Dependent of verbs starting with Cə or Ca

Verbs starting with a consonant followed by the vowel /i/ cannot be infixed with /i/ in the Past Tense because vowel coalescence cannot take place. Two identical adjacent vowels are forbidden, therefore **tiiru*’ is out. An anti-homophony constraint is needed for the Past Tense of verbs starting with Ci and the Dependent of verbs starting with Cu.⁶

- (14) MORPHDIS: “A segment cannot belong to more than one morpheme.”
(McCarthy & Prince 1995).⁷

The form **tiiru*’ is bisyllabic and consonant-initial but nevertheless this form is out because it violates the constraint MorphDis. The optimal candidate is then *təniiru*’, even if it is trisyllabic:

Past Tense affix	Stem <i>tiru</i> ' 'teach'	ONSET	PPN	MORPHDIS	PRWD=FT	UNIFORMITY
ni-	nitiru'		*!		*	
m- -ən-	təniru'				*	
-i-	tiiru'	*!	*		*	
-i-	tiru'			*!		*

Table 4 Past Tense of verbs starting with Ci

The selection of the Dependent allomorph of consonant-initial verbs with a high penultimate vowel, as in Table 5 can be explained in the same way: prefixation with *m-* results in an illicit, clustered onset while infixation with *-u-* in combination with vowel coalescence is impossible here. Therefore the optimal candidate is infixed with *-əm-*, even though it renders the form trisyllabic.

Dependent affix	Stem <i>sukot</i> 'ask'	ONSET	PPN	COMPL ONSET	MORPH DIS	PRW D=FT	UNIFORMITY
m-	msukot			*!			
m- -əm-	səmukot					*	
-u-	suukot	*!	*			*	
-u-	sukot				*!		*

Table 5 Dependent of verbs starting with Cu

3.2 Vowel-initial stems

All vowel-initial stems are prefixed with *ni-* in the Past Tense and with *m-* in the Dependent, regardless of the quality of their initial vowel. Examples of all possible types are given below.

(15)	stem	gloss	Past Tense	Dependent
	<i>əgkot</i>	'work'	<i>nigkot</i>	<i>məgkot</i>
	<i>abput</i>	'bite'	<i>nebput</i>	<i>mabput</i>
	<i>issa'</i>	'put'	<i>nissa'</i>	<i>missa'</i>
	<i>usur</i>	'tell'	<i>nisur</i>	<i>musur</i>

Consider Table 6. The first, winning, candidate *nesso* only violates UNIFORMITY because of its vowel coalescence. The two other candidates **əmasso* and **esso* lack an onset and are therefore out.

Affix	Stems: <i>əgkot</i> ‘work’, <i>abput</i> ‘bite’, <i>issa</i> ‘put’, <i>usur</i> ‘tell’	ONSET	PRWD =FT	UNIFORMITY
ni-	nigkot / nebput / nissa’ / nisur			*
-ən-	ənəgkot / ənabput / ənissa’ / ənusur	*!	*	
-i-	igkot / ebput / issa’ / isur	*!		*

Table 6 Past Tense of vowel-initial verbs

The Dependent of the verb *asso* ‘read’ is shown in Table 7. The prefixed candidates *mabput*, *məgkot* and *missa*’ do not violate any constraint whereas the other candidates **əmasso*, **əməgkot*, **əmissa*’ and **osso*, **ugkot*, **uissa*’ lack an onset.

Affix	Stem <i>əgkot</i> ‘work’, <i>abput</i> ‘bite’, <i>issa</i> ‘put’	ONSET	PRWD =FT	UNIFORMITY
m-	masso / məgkot / missa’			
-əm-	əmasso / əməgkot / əmissa’	!*	*	
-u-	osso / ugkot / uissa’	!*		*

Table 7 Dependent vowel-initial verbs

Prefixation then, provides vowel-initial stems with an onset and vowel coalescence, in the case of the Past Tense, keeps them bisyllabic.

3.3 The Past Tense and Dependent affix after stems starting with a liquid

Verbs starting with a liquid followed by a high vowel often display metathesis of the consonants of the first syllable when they are infixed with *-ən-* or *-əm-*. This metathesis is obligatory for some forms, and optional for other forms. The variation is lexically conditioned, but there may be sociolinguistic influence. Examples are given in (16).

(16)	stem	gloss	Past Tense	Dependent
	<i>liug</i>	‘swap’	<i>nəliug</i>	<i>məliug</i>
	<i>riu</i> ’	‘bathe’	-	<i>məriu</i> ’
	<i>lauy</i>	‘flee’	-	<i>məlauy</i>
	<i>riksa</i> ’	‘examine’	<i>nəriksa</i> ’/ <i>rəniksa</i> ’	<i>məriksa</i> ’/ <i>rəmiksa</i> ’
	<i>longgo</i>	‘lay child to sleep on the floor’	-	<i>məlonggo</i>
	<i>lera</i> ’	‘look after’	<i>nələra</i> ’/ <i>lənera</i> ’	<i>mələra</i> ’/ <i>ləmera</i> ’
	<i>runi</i>	‘talk’	<i>rini</i>	<i>rəmuni</i>

Begak is not the only Austronesian language that forbids infixation of an infix that contains a sonorant after a stem-initial sonorant.⁸ Chamorro (Klein 2004) and Inonhan (Goudswaard 1998) also have metathesis in this context, whereas

Toba Batak shows assimilation and Tagalog does not parse the infix in this context (Klein 2004).⁹

Metathesis in this context is not an OCP effect of the type “no two sonorant consonants”, because it is not just any Sonorant-Vowel-Sonorant sequence that is forbidden here. The reverse order, where the infix is infixes after a non-sonorant-initial consonant but before a sonorant of the stem, C-ə̃m-SonVC, does not allow metathesis, as (17) shows. If metathesis were an OCP effect, we would expect infixation without metathesis in these stems to be ungrammatical as well.¹⁰

(17)	stem	gloss	infixation	gloss
	<i>tulud</i>	‘fly’	<i>tə̃mulud</i>	‘DEP-fly’
	<i>tula</i>	‘blame’	<i>tə̃rula</i>	‘REC-blame’ ‘blame each other’
	<i>tiru</i>	‘teach’	<i>tə̃miru</i>	‘DEP-teach’
	<i>tumis</i>	‘stirfry’	<i>tə̃mumis</i>	‘DEP-stirfry’

In other words, we need to invoke a constraint that refers only to the initial-consonant of the stem:

- (18) *AFF (SON): Sonorant affix avoidance
 “An affix containing a sonorant is prohibited after a morpheme-initial sonorant” (Klein 2002)

This constraint interacts with the faithfulness constraint LINEARITY:

- (19) LINEARITY: S_1 reflects the precedence structure of S_2 and vice versa.
 If $x, y \in S_1$; $x', y' \in S_2$; $x R x'$ and $xR y'$; then $x < y$ iff $x' < y'$. (McCarthy and Prince 1995)

The ranking of the constraints is then:

- (20) ONSET, *COMPLONSET, PPN >> MORPHDIS >> PRWD=FT >>
 UNIFORMITY >> *AFF(SON), LINEARITY >>
 ALIGN-BY-SEG (AFFIX, WD, L)

The constraints *AFF(SON) and LINEARITY are unordered with respect to each other, in order to explain the speaker variation between metathesized and non metathesized forms.

Table 8 shows how the metathesized form can win in sonorant-initial stems. The forms prefixed with *ni-* or *m-* or infixes with *-i-* or *-u-* are ruled out for reasons described in the sections above. The form infixes with *-ə̃n-* or *-ə̃m-* violates *AFF(SON) but respects LINEARITY and is therefore optimal in some peoples speech. The metathesized form violates LINEARITY but respects *AFF(SON) and is thus the winning candidate in most people’s speech. Table 8 shows the Past Tense of verbs starting with a liquid followed by /i/. The candidate prefixed with *ni-* has a full vowel in the prepenultimate syllable and is therefore out. The last candidate infixes with *-i-* is ruled out because it does not only have a full vowel in the prepenultimate syllable but also violates ONSET (and not shown here, the antihomophony constraint). The candidate

infixed with *-ən-* and the candidate prefixed with *nə-* are both longer than a foot and consequently they violate PRWD=FT. The winning candidate is the one prefixed with *nə-* as it does not violate *AFF(SON), which is ranked higher than LINEARITY.

Past Tense affix	stem <i>liug</i> 'swap'	ONSET	PPN	PRWD =FT	*AFF (SON)	LINEARITY	ALIGN-BY-SEG (AFFIX, WD, L)
ni-	niliug		*!	*			
-ən-	ləniug			*	*		*!
ni- -ən-	nəliug			*		*	
-i-	liug	*!	*				*

Table 8 Past Tense of verbs starting with Li

Table 9 shows basically the same picture as Table 8: the first and last candidates are ruled out because they violate PPN and a few other constraints. But this time the winning candidate is not the prefixed form *nətiru'* but the infixed form *təniru'*, as neither candidate violates *AFF(SON). The next constraint is LINEARITY, which is violated by the prefixed, metathesized form *nətiru'*. The winning candidate, then, is infix form *təniru'*.

Past Tense affix	stem <i>tiru'</i> 'teach'	ONSET	PPN	PRWD =FT	*AFF (SON)	LINEARITY	ALIGN-BY-SEG (AFFIX, WD, L)
ni-	nitiru'		*!	*			
ni- -ən-	təniru'			*			*
-ən-	nətiru'			*		*!	
-i-	tiiru'	*!	*	*			*

Table 9 Past Tense of verbs starting with Ci

Table 10 shows how the Dependent form is derived from liquid-initial stems and is almost identical to Table 8:

Dependent affix	Stem <i>liug</i> 'swap'	*COMPL ONSET	ONSET	PRWD =FT	*AFF (SON)	LINEARITY	ALIGN-BY-SEG (AFFIX, WD, L)
m-	mliug	*!		*			
-əm-	ləmiug			*	*		*!
m- -əm-	məliug			*		*	
-u-	luiug		*!				*

Table 10 Dependent of verbs starting with Li

The first candidate *məliug* has a complex onset and is therefore out. The last candidate lacks an onset in its second syllable and is therefore out. The

candidate infix with *-əm-* violates *AFF (SON) and is therefore ruled out. The candidate prefixed with a metathesized form of *-əm-* wins.

4. Discussion: listed allomorphs or one abstract input IN and UM?

Until now, I have assumed that the Past Tense and Dependent affixes are listed, suppletive allomorphs that cannot be derived from an underlying abstract morpheme, for example *IN or *UM. I will now provide some evidence for this claim. Assuming that the underlying form of the affixes is indeed *IN or *UM, it is easy to derive *-əm-* and *-əu-*: the vowels of IN and UM are reduced to schwa because of PPN. The shape of *-i-* and *-u-* is also predictable because of bisyllabicity as a maximum. However, the shape of *ni-* and *m-* is unpredictable: there is an asymmetry between the form of the Past Tense prefix *ni-* and the Dependent prefix *m-*. We would expect them to be either both of the shape CV- (*ni-* and **mu-* respectively) or both of the shape C- (**n-* and *m-* respectively), but this is not the case. The shape of the allomorphs is determined by historical processes, because in Mukah Melanau (Blust 1997; Ussishkin 2000) the corresponding morphemes are *nə* versus *mə* versus *mu-*: the reverse of Begak.¹¹ Therefore, a listed allomorph analysis is the best way to explain the data.

5. Conclusion

We have seen that the Begak Past Tense and Dependent allomorphy can be best explained as suppletive allomorphy where the phonology chooses the optimal form. The choice of the optimal allomorphs is directed towards creating consonant-initial bisyllabic words, i.e. words that consist of exactly one foot. Prefixation provides vowel-initial words with an onset and infixation in combination with vowel coalescence keeps consonant-initial words bisyllabic.

Not only prosodic but also segmental constraints play a role in infixation-prefixation alternations: metathesis prevents sonorant affixes to be infixated after a sonorant.

Endnotes

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1. The Ida'an Sungai or Subpan have largely intermarried with the people living along the Segama river, who are popularly called the Dusun Segama, and no longer constitute a distinct group.

2. The Past Tense and Dependent verb forms treated in this paper are Undergoer Voice forms by default, as they lack Actor Voice prefixes. The Actor Voice in Begak is marked with Actor Voice prefixes while the Undergoer Voice is characterized by the absence of these prefixes. The Dependent is used for imperatives, verbs of motion, successive actions in stories and after auxiliaries.

3. The optimal prosodic word is always bisyllabic in Begak, not just bimoraic.

4. There is only one exception: the Undergoer Voice Stative prefix *a-* has a full vowel. I have no explanation for this exception; perhaps this vowel receives secondary stress and is therefore footed in some way or another

5. An alternative approach is that infixes can be subcategorized for infixation and the prefixes for prefixation (Yu 2003).

6. There is evidence for anti-homophony in Begak. No transitive active (non-stative) verbal root can start with /b/, /p/, /m/, /n/ or /ŋ/ to avoid homophony with the prefixes *b-*, *p-*, *m-*, *ni-*, and *(mə)ŋ-* respectively. Stative verbal roots can start with nasals or labials but very few stative verbal roots can be affixed with Past Tense or Dependent morphology. If a loan word starts with one of these consonants, it is deleted in the Begak adaptation: *pikir* ‘think’ from Malay becomes not **məmikir* (*məng-pikir*) in the AV but *məng-ikir*.

7. This constraint can be ranked anywhere as long as it is higher than PRWD=FT.

8. All examples shown in (16) start with a liquid because Begak does not have any verbal stems starting with a nasal. Another context where infixation is forbidden after a stem initial sonorant or liquid is in the Reciprocal. The Reciprocal is marked by the infix *-ər-* if the stem starts with a consonant. Stems starting with a vowel or with a liquid mark the Reciprocal with a suppletive allomorphic process, CV reduplication.

9. In the Bisayan language Inonhan the plural actor infix *-Vr-* causes metathesis after an initial liquid. The examples in (i) show the ordinary infixation pattern if the stem does not start with a liquid, although it may contain one:

- | | | | | |
|-----|--------------|----------|--------------------|-----------------------|
| (i) | <i>súlat</i> | ‘read’ | <i>nag-surúlat</i> | ‘pres.perf-read-pl’ |
| | <i>pilá</i> | ‘spit’ | <i>nag-piríla</i> | ‘pres.perf-spit-pl’ |
| | <i>sáqot</i> | ‘dance’ | <i>nag-saráqot</i> | ‘pres.perf-dance-pl’ |
| | <i>kánta</i> | ‘sing’ | <i>nag-karánta</i> | ‘pres.perf-sing-pl’ |
| | <i>abót</i> | ‘arrive’ | <i>nag-qarábot</i> | ‘pres.perf-arrive-pl’ |

The following (elicited) examples illustrate metathesis after an initial liquid:

- | | | | | |
|------|---------------|---------------|---------------------|----------------------------|
| (ii) | <i>libot</i> | ‘surround’ | <i>nag-rilíbot</i> | ‘pres.perf-surround-pl’ |
| | <i>lohúd</i> | ‘kneel’ | <i>nag-rolóhud</i> | ‘pres.perf-kneel-pl’ |
| | <i>lítson</i> | ‘roast a pig’ | <i>nag-rilítson</i> | ‘pres.perf-roast a pig-pl’ |

10. Another Begak infix that cannot occur after a stem-initial liquid is the Reciprocal infix *-ər-*:

- | | | | | |
|-------|---------------|---------|-------------------|--------------------|
| (iii) | <i>kədtut</i> | ‘pinch’ | <i>k-ər-ədtut</i> | ‘pinch each other’ |
| | <i>kati</i> | ‘tease’ | <i>k-ər-ati</i> | ‘tease each other’ |
| | <i>tadtas</i> | ‘chase’ | <i>t-ər-adtas</i> | ‘chase each other’ |

Reciprocals of liquid-initial stems are formed with the suppletive morphological process of prefixation with the AV-prefix *gə-* combined with CV-reduplication:

- | | | | | |
|------|--------------|-----------|------------------|---------------------------|
| (iv) | <i>rakop</i> | ‘wrestle’ | <i>gəgərakop</i> | ‘wrestle with each other’ |
| | <i>lapas</i> | ‘pass’ | <i>gəgəlapas</i> | ‘pass each other by’ |

langu 'relative' *gəgəlangu* 'be relatives of each other'

There is an OCP effect to some extent: the infix *-ər-* cannot occur in stems that contain */r/*.

(v) *danggar* 'bump' *gəgədanggar* 'bump on each other (on purpose)'
tiru 'teach' *tətiru* 'teach each other'
taru 'put' *tətaru* 'put on each other'

The OCP effect of */r/* must be analysed as a distinct phenomenon that is different from the constraint against affixation after sonorants, as the OCP effect applies specifically to */r/* and not to any other non-initial sonorant or liquid: *t-ər-ula* 'blame each other' from *tula* 'blame' is perfectly grammatical although the root contains a liquid */l/*.

11. In Mukah Melanau, the allomorphs *-i-* and *-u-* replace schwa in the stem, *n-* and *m-* occur before vowel-initial stems, the allomorphs *mə-* and the *mə-* before consonant-initial stems, but *mu-* before labial-initial stems. There is no synchronic explanation for this asymmetry.

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