

Order and Interaction of Prefixes in Mayrinax Atayal

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1. Introduction

Much recent work in Optimality Theory has done to deal with the interaction of phonological constraints and constraints on morpheme position. Morpheme positions are said to be determined by the property of each morpheme. That is, the direction of attachment is indicated in the phonological string of a morpheme (de Lacy 1999). Here I will not go into how the grammar distinguishes prefixes from suffixes. In this paper, I will simply use morpheme-specific alignment constraints to indicate the direction of attachment.

Previous research has taken the pre-/suffixal nature of a given morpheme to be a function of ‘parochial’ alignment constraints (Hammond 2000), such as those in (1). By saying that the morpheme in target should align with some phonological unit, this morpheme gets its affixed place. Every morpheme must be subject to one or more such constraints, or else it would have no edge orientation of any kind.

(1) Examples of gradient, morpheme-specific alignment

ALIGN([*um*]_{AT}, L, Stem, L)

‘The affix *um* occurs stem-initially, is a prefix’ (McCarthy and Prince 1993)

ALIGN(1SG, L, Mwd, L)

‘The 1st person singular morpheme is a prefix.’ (Akinlabi, Akinbiyi 1996)

NOINTERVENING(*ta*; R)

‘Nothing intervenes between *ta* and the right edge of the word.’ (Zoll 1998)

These morpheme-specific alignment constraints sometimes interact with phonological constraints. For example, if an affix, say a prefix, has vowel initial, it would be sometimes infixated after the first consonant of the word for prosodic reasons. The vowel initial prefix is in need of an onset; thus the constraints on morpheme position interact with the phonological constraints, and that makes the prefix look like an infix. Take Tagalog infixation for further instance:

(2) Tagalog Infixation (McCarthy & Prince 1993)

- | | | |
|-------------------|-----------------|---------------------------|
| a. /um + alis/ | → /um-alis/ | ‘leave’ |
| b. /um + tawag/ | → /t-um-awag/ | ‘call’ pf., actor trigger |
| c. /um + gradwet/ | → /gr-um-adwet/ | ‘graduate’ |

The morpheme *-um-* occurs as a prefix with vowel initial roots (*um-alis*), but an infix with consonant initial roots (*t-um-awag*, **um-tawag*). A substantial number of authors (McCarthy & Prince 1993; Zoll 1998; Orgun & Sprouse 1999; McCarthy 2002) have treated this phenomenon as a phonologically motivated case of morpheme dislocation. That is, a prefix becomes an infix to satisfy a certain condition on phonological well-formedness. The morpheme-specific alignment constraint and the prosodic constraint are listed below:

(3) ALIGN-*um*-L

‘Align the left edge of *-um-* with the left edge of the PrWd.’

(4) NO-CODA

*C]_σ (‘Syllables are open.’)

The following ranking of NO-CODA and ALIGN-*um*-L produces ‘infixation’ in consonant initial roots, and ‘prefixation’ in vowel initial roots. (P-constraint stands for phonological constraints, and M-constraint for morphological constraints.)

(5) P-constraint >> M-constraint

NO-CODA >> ALIGN-*um*-L

This is illustrated by the following tableau.

(6)

/um-gradwet/	NOCODA	ALIGN- <i>um</i> -L
a. um.-grad.wet	***!	
b. g-um.-rad.wet	***!	*
☞ c. gr-u.m-ad.wet	**	**
d. grad.w-u.m-et	**	*****!

In this paper, I will explore the order and interaction between several prefixes in Mayrinax Atayal. Mayrinax Atayal has a set of focus¹ system. Some of them appear as prefixes (*ma*-² active focus (AF)), *si-* beneficiary/instrument focus (BF/IF), etc.), some appear as suffixes (*-un*, patient focus (PF)) and some as infixes (*-um-* (AF)). In

¹ The focus here is identified with a grammatical voice (Chang, 1997). Focus is used here throughout because it is widely accepted in Austronesian circle.

² We will determine which prefix (*m-/ma-*) to choose in the following paper. Here we use the cover term *ma-* to indicate this prefix.

this paper, I will discuss prefixes³ only. In addition to focus system, there are two prefixes indicating aspect —*in-* and *pa-*, representing realis and irrealis respectively. Affixes indicating different focuses can co-occur with those indicating aspect. This paper is thus arranged as follows. In section 2, I will give the data illustrating these prefixes and the solution of the previous works. Section 3 provides the morpheme-specific alignment constraints for each prefix, including the ordering of the attachment. Section 4 is the interaction caused by morpheme-specific alignment constraints and the phonological constraints. Section 5 is the conclusion.

2. Data and previous works

In this paper, I will focus on three focus markers, *ma-*, *-um-* (AF) and *si-* (BF/IF), and two aspectual markers, *-in-* and *pa-*. These two set of systems can co-occur.

2.1 Data of Mayrinax Atayal

Two AF markers, *ma-* and *-um-*, the former is said to be prefixed on stems to form stative or intransitive verbs, and the latter to form dynamic or transitive verbs (Huang 2000, Rau 1992). There is no clear cut between these two sets of verbs. We could only say that verbs with *-um-* tend to take two main arguments, while *ma-* take only one.

(7) Dynamic/transitive and stative/intransitive contrast (Huang 2000b)

- a. t-um-aqu? cku? nabakis ku? ?ulaqi?
 push.down-AF Acc old.man Nom. child

‘*The child pushed the old man (to fall) down.*’

- b. ma₂-taqu? ku? ?ulaqi?
 AF-fall.down Nom child

‘*The child fell down.*’

The verb in (7a) takes two arguments, one is ‘child’ taking the nominative case, and the other is ‘old man’ taking the accusative case, while in (7b), the verb only takes one argument; that is, the ‘child’ taking the nominative case. After knowing the distinction, let’s look at some data concerning these AF markers.

³ The prefixes here include infixes on the surface. I assume that they are infixes owing to prosodic reasons.

(8) Mayrinax Atayal active focus— *ma*-⁴

	Stem	<i>ma</i> + stem	Gloss
a.	caq.ruh	ma.-caq.ruh	'stand'
b.	ta.ljum	ma.-ta.ljum	'run'
c.	ta.huq	ma.-ta.huq	'sit'
d.	ni.bwag	ma.-ni.bwag	'drink'
e.	si.hwaw	ma.-si.hwaw	'drop'
f.	si.wa.ʔ-i	ma.-si.waʔ	'court'
g.	sa.siq	ma.-siq	'make fun of'
h.	rag	ma.-rag	'rescue'
i.	bil.bil	ma.-bil.bil	'tremble'
j.	ʔu.raw	ma.-ʔu.raw	'make dirty'
k.	qwa.lah	ma.-qwa.lah	'rain'
l.	qi.lup	ma.-qi.lup	'sleep'
m.	ŋi.lis	ma.-ŋi.lis	'cry'
n.	pa.ka.tiʔ	ma.-pa.ka.tiʔ	'throw'
o.	ʔwah	m-wah	'come'

Note that in (8a-n), *ma*- is prefixed to the stem; however, in a vowel-initial stem like (8o)⁵, *m*- is prefixed.

(9) Mayrinax Atayal active focus—*um*-

	Stem	<i>um</i> + stem	Gloss
a.	ʔju.p-an ⁶	ʔ-u.m-jup	'blow'
b.	ta.piq	t-u.m-a.piq	'beat'
c.	ka.mi.l-i	k-u.m-a.mil	'scratch'
d.	rwak	r-u.m-wak	'chase'
e.	hi.ba.g-un	h-u.m-i.bag	'cut'
f.	ra.kjas	r-u.m-a.kjas	'climb'
g.	tu.ti.ŋ-un	t-u.m-u.tij	'knock'
h.	ʔu.hak	ʔ-u.m-u.hak	'pull'

This marker *-um-* is infix after the first consonants if the stems are consonant-initial ones, and prefixed to those with vowel-initials. Note that there is a glottal stop

⁴ These two AF marker, *ma*- and *-um-* are not in complementary distribution. Certain stems could take both markers to indicate different meanings. For example, a stem *sasjaq*, takes *ma*- as AF marker (*ma-sasjaq*) to mean 'joking,' and takes *-um-* (*s-um-sasjaq*) to mean 'to joke on each other.'

⁵ The underlying form of (8o) is /uah/. Please see the following paper for further explanation.

⁶ /-ʔjup-/ is a bound root. It never stands along. The suffix *-an* in /ʔju.p-an/ indicates locative voice.

inserted after prefixing *-um-* to vowel-initial stems.

There is a set of AF data that shows different pattern with those mentioned above. Consider the following data.

(10) Mayrinax Atayal active focus—*ma-* or *-um-* ?

a.	ba.hag	ma.hag (*ma.-ba.hag, *b-u.m-a.hag)	'chase'
b.	ba.hij	ma.hi (*ma.-ba.hi, *b-u.m-a.hij)	'hit'
c.	ban.ba.hag	man.ba.hag (*ma.-ban.ba.hag, *b-u.m-an.ba.hag)	'fly'
d.	ba.huq	ma.ba.huq ma.huq	'wash (cloth)'
e.	bi.ʔiŋ	mi.ʔiŋ (*ma.-bi.ʔiŋ, *b-u.m-i.ʔiŋ)	'touch'
f.	pi.raj	mi.raj (*ma.-pi.raj, *p-u.m-i.raj)	'rub'
g.	paj.maʔ	maj.maʔ (*ma.-paj.maʔ, *p-u.m-aj.maʔ)	'wash (hand)'
h.	pas.ta.tal	mas.ta.tal (*ma.-pas.ta.tal, *p-u.m-as.ta.tal)	'jump'
i.	pa.tas	ma.tas (*ma.-pa.tas, *p-u.m-a.tas)	'write'
j.	pa.qas	ma.qas (*ma.-pa.qas, *p-u.m-a.qas)	'be happy'
k.	pu.mwaʔ	mu.mwaʔ (*ma.-pu.mwaʔ, *p-u.m-u.mwaʔ)	'plant rice'
l.	pa.ta.waw	ma.ta.waw (*ma.-pa.ta.waw, *p-u.m-a.ta.waw)	'work'
m.	pa.si.lu.hi	ma.si.lu.hi (*ma.-pa.si.lu.hi, *p-u.m-a.si.lu.hi)	'(mountain) fall down'
n.	pa.ga.nawʔ	ma.ga.nawʔ (*ma.-pa.ga.nawʔ, *p-u.m-a.ga.nawʔ)	'play'
o.	pi.hiq	mihiq (*ma.-pi.hiq, *p-u.m-i.hiq)	'press'
p.	ka.ta.kuʔ	ma.ta.kuʔ (*ma.-ka.ta.kuʔ)	'fall down'
q.	ka.ʔi.cuʔ	ma.ʔi.cuʔ (*ma.-ka.ʔi.cuʔ)	'be afraid'
r.	ka.sa.piq	ma.sa.piq (*ma.-ka.sa.piq)	'be lazy'
s.	kas.ʔaŋ	mas.ʔaŋ (*ma.-kas.ʔaŋ)	'be angry'

Note that in (10a-o), a syllable seems to be deleted after prefixing the AF marker *ma-*. These prefixed stems happened to have bilabial consonant initials. In (10p-s), the first syllable *ka-* seems to be deleted as well; however, *ka-* is said to prefix to form verbs that are more stative (Zeitoun 2000). *Ma-* is just prefixed to the stems instead of deleting the *ka-* and replacing it.

(11) Mayrinax Atayal beneficiary/instrument focus—*si-*

Stem	<i>si</i> + stem	Gloss
a. rag	si.-ra.rag	'help'
b. ʔu.hak	si.-ʔu.hak	'pull'

(12) Mayrinax Atayal realis—*in-*

Stem	<i>in</i> + stem	Gloss
a. ta.piq	t-i.n-a.piq	'beat'
b. ma.hij	m-i.n-a.hij	'hit'
c. ma.hag	m-i.n-a.hag	'chase'

(13) Mayrinax Atayal irrealis—*pa-*

Stem	<i>pa</i> + stem	Gloss
a. ta.ljum	pa.-ta.ljum	'run'
b. rwak	pa.-rwak	'chase'
c. ʔu.hak	pa.-ʔu.hak	'pull'

(14) Mayrinax Atayal active focus + realis—*ma-* + *-in-*

Stem	<i>ma</i> + <i>in</i> + stem	Gloss
a. caq.ruh	m-i.n-a.-caq.ruh	'stand'
b. nu.bwag	m-i.n-a.-nu.bwag	'drink'
c. marakawp	m-i.n-a.-ra.kawp	'fight'
d. qi.lup	m-in.-qi.lup	'sleep'
e. qwa.lah	m-in.-qwa.lah	'rain'

Note that there is a morpheme-dislocation that makes *-in-* look like an infix within *ma-* when two systems co-occur.

(15) Mayrinax Atayal active focus + realis—*um-* + *-in-*

Stem	<i>um</i> + <i>in</i> + stem	Gloss
a. ʔju.p-an	ʔ-u.m-i.n-jup	'blow'
b. ʔu.hak	ʔ-u.m-i.n-u.hak	'pull'
c. ra.kjas	r-u.m-i.n-a.kjas	'climb'
d. rwak	r-u.m-i.n-wak	'chase'
e. hi.ba.g-un	h-u.m-i.n-i.bag	'cut'

(16) Mayrinax Atayal BF/IF + irrealis—*si-* + *pa-*

	Stem	<i>si</i> + <i>pa</i> + stem	Gloss
a.	tu.ti.ŋ-un	si.-pa.-tu.tiŋ	'knock'
b.	ʔu.hak	si.-pa.-ʔu.hak	'pull'

From the above data, we could observe at least four facts. First, two vowel-initial affixes, *-um-* and *-in-*, appear as infixes; others appear as prefixes. Second, when prefixing AF markers (*ma-* or *-um-*), the first syllable of those bilabial-consonant initials might be deleted (*miʔiŋ*, **ma-piʔiŋ*, **p-um-iʔiŋ*). Third, when voice markers co-occur with realis/irrealis markers, focus markers always stand on the left side of aspectual markers (*um-in*, **in-um*, *si-pa*, **pa-si*). Fourth, morpheme dislocation might happen when two systems co-occur (*m-in-a*, **ma-in*).

2.2 Previous works

In this sub-section, let's look at how previous works deal with the facts that I've mentioned at the end of 2.1. I mainly focus on the discussion of Huang 1993 and Rau 1992.

2.2.1 The special status of *-um-* and *-in-*

These two affixes differ from other prefixes in that they occur after the first consonant of the roots. Huang and Rau both treat it as infixation. It seems reasonable because unlike the Tagalog examples listed in (2), *-um-* and *-in-* do not show asymmetrical relation between vowel initial and consonant initial roots. It is partly owing to that all syllables in Atayal must have an onset (Lambert 1999), at least on the surface. Without onsetless syllable, we are unable to see the asymmetry. However, since there is no phonemic contrast between the glottal stop and zero consonant in vowel-initial position, we could see the glottal stop is an inserted segment because the onsetless syllable is in need of an onset.

(17) a.

	/u.hak/	ONSET	MAX-IO-V	DEP-IO-C	V-NUC
☞ a.	ʔu.hak			*	
b.	u.hak	*!			

b.

	/iu.p-an/	ONSET	MAX-IO-V	DEP-IO-C	V-NUC
☞ a.	ʔju.p-an			*	*
b.	ju.p-an		*!		
c.	ʔiu.p-an	*!		*	
d.	iu.p-an	**!			

The definitions of each constraint are as followings:

(18) MAX-IO-V

‘An input vowel must have a correspondent in the output.’

(19) DEP-IO-C

‘An output consonant must have a correspondent in the input.’

(20) V-NUC

‘Every [-consonantal] segment must be linked to the nucleus without sharing it with other element.’

This is one of the issues that I will take care of by ranking P-constraint over M-constraint. *-Um-* and *-in-* are underlyingly prefixes, owing to the interaction between P- and M-constraints, surfacing as infixes.

2.2.2 Deletion of the first syllable when prefixing AF markers

Rau argues that it is a process of deletion when *-m-* is inserted in a verb stem with initial labial, velar, uvular or glottal stops.

(21) Deletion of initial consonant (Rau 1992: 32)

Stem	Affixed form	Gloss
biq	miq (*bmiq)	‘give’
pa.tas	ma.tas (*pma.tas)	‘tattoo’
ʔa.ras	ma.ras (*ʔma.ras)	‘take along’
ki.taʔ	mi.ta (*kmi.ta)	‘see’
qa.niq	ma.niq (*qma.niq)	‘eat’

It is hard to say if Rau’s analysis in Squliq is proper or not in analyzing Mayrinax Atayal because there is no infix *-m-* on surface in Mayrinax dialect.

2.2.3 Focus markers on the left side of aspectual markers

Huang and Rau both robustly describe the order of these two sets of affixes. Rau further combines some of the affixes as one. For example, she describes the active past marker as *min-*, not *m-* + *-in-*. In the following section, I will use morpheme-specific alignment constraints to cope with this issue.

2.2.4 Morpheme dislocation when *ma-* and *-in-* co-occur

This is a very interesting phenomenon caused also by the ranking of P-constraint over

M-constraint that no previous works have mentioned. We will first take care of which AF markers, *ma-* or *m-*, is prefixed, and then deal with this issue.

3. Morpheme-specific alignment constraints

In this section, I will give each set of morpheme (focus markers and aspectual markers) a morpheme-specific alignment constraint to indicate their positions of attachment.

3.1 Focus markers—*ma-*, *-um-*, *si-*

Although one of these voice markers *-um-* appears as an infix, they are basically aligned with left edge of stems. *-Um-* is basically a prefix other than that it is dislocated after the first consonant because it needs an onset for the initial vowel. This phenomenon is due to phonological reasons which will be fully discussed in the next section. Thus, we could assume that these focus markers, *ma-*, *-um-*, *si-*, are all attached to the left of the prosodic word.

(22) ALIGN([*ma-/um-/si-*]_{FOCUS}, R, PrWd, L)

‘Align the right edge of focus markers with the left edge of the prosodic word.’

This is illustrated by the following tableaux.

(23) a.

/ma, caq.ruh/	ONSET	ALIGN _{FOCUS} (PrWd,L)
☞ a. ma.-caq.ruh		
b. caq.ruh.-ma		*****!
c. caq.-ma.-ruh		***!

b.

/um, ta.piq/	ONSET	ALIGN _{FOCUS} (PrWd,L)
☞ a. t-u.m-a.piq		*
b. um.-ta.piq	*!	
c. ta.piq-um		*****!

c.

/si, ʔu.hak/	ONSET	ALIGN _{FOCUS} (PrWd,L)
☞ a. si.-ʔu.hak		
b. ʔu.hak.-si		*****!
c. ʔu.-si.-hak		**!

The first candidates in these three tableaux are optimal. Candidate (a) in (23b), although violating $\text{ALIGN}_{\text{FOCUS}}(\text{PrWd},\text{L})$ once, it does not violate the higher ranked ONSET . Other candidates violate $\text{ALIGN}_{\text{FOCUS}}(\text{PrWd},\text{L})$ too many times because they are not left-aligned with the prosodic word.

3.2 Aspectual markers—*in-*, *pa-*

The irrealis marker *pa-* is a prefix attached to the left of the stem (*pa-ʔjup*, *ʔjup-*pa*). The realis marker *-in-*, just like the AF marker *-um-*, is a prefix dislocated owing to prosodic reasons. Thus, we could conclude the morpheme-specific alignment constraint for aspect as (24).

(24) $\text{ALIGN}([-in-/pa-]_{\text{ASPECT}}, \text{R}, \text{PrWd}, \text{L})$

‘Align the right edge of aspectual markers with the left edge of the prosodic word.’

The ranking argument is as tableaux (25).

(25) a.

/pa, iup/	ONSET	MAX-V	$\text{ALIGN}_{\text{ASPECT}}$ (PrWd,L)	DEP-C	V-NUC
☞ a. pa.-ʔjup				*	*
b. ʔjup.-pa			*****!	*	*
c. pa.-jup		*!			

b.

/in, ta.piq/	ONSET	MAX-V	$\text{ALIGN}_{\text{ASPECT}}$ (PrWd,L)	DEP-C	V-NUC
☞ a. t-i.n-a.piq			*		
b. in.-ta.piq	*!				
c. ta.pi.q-in			*****!		

Candidate (a) in (25a) is chosen because it does not violate the high-ranked prosodic constraints. (b) in (25b) violates to many times on $\text{ALIGN}_{\text{ASPECT}}(\text{PrWd},\text{L})$.

3.3 The order of focus and aspectual markers

We have mentioned that prefixes indicating different focus can co-occur with those indicating aspect, and when these two kinds of prefixes co-occur, focus markers always appear to the left of the aspectual markers (*ʔ-um-in-jup*, *ʔ-in-um-jup) except

that the morpheme dislocation of *ma-* and *-in-* (m-in-a-caqruh, *ma-in-caqruh) which will be discussed in the next section. Aspectual markers are comparatively closer to the root than focus ones, and focus markers are always aligned with the left of the prosodic word. Thus, we could make the distinction between the two by ranking $ALIGN_{FOCUS}(PrWd,L)$ higher than $ALIGN_{ASPECT}(PrWd,L)$. This ordering relation can be accounted for by tableaux (26).

(26)

/si, pa, tu.tiŋ/	ONSET	$ALIGN_{FOCUS}(PrWd,L)$	$ALIGN_{ASPECT}(PrWd,L)$
☞ a. si.-pa.-tu.tiŋ			**
b. pa.-si.-tu.tiŋ		**!	
c. tu.-pa.-si.-tiŋ		****!	**

Candidate (a) is optimal because it does not violate the higher-ranked morpheme-specific alignment constraints, $ALIGN_{FOCUS}(PrWd,L)$. (b) and (c) both violate $ALIGN_{FOCUS}(PrWd,L)$.

4. The interaction between morpheme-specific alignment constraints and the phonological constraints

There are several issues left in the previous sections: 1) the special status of *-um-* and *-in-*, 2) deletion of the first syllable when prefixing AF, and 3) morpheme dislocation when *ma-* and *-in-* co-occur.

4.1 The special status of *-um-* and *-in-*

Although we have treated these two morphemes as prefixes dislocated for prosodic reasons, we have to find out which prosodic constraint are $ALIGN_{FOCUS}(PrWd,L)$ and $ALIGN_{ASPECT}(PrWd,L)$ interacting with.

We have mentioned that in Atayal, all syllables must have onsets. Thus, ONSET must be high-ranked for prosodic well-formedness. NO-CODA, unlike in Tagalog, is not crucial here because Mayrinax Atayal does accept syllables with codas. Thus with P-constraint (ONSET) ranked higher than M-constraint ($ALIGN_{FOCUS}(PrWd,L)$ and $ALIGN_{ASPECT}(PrWd,L)$), we could select the correct output as optimal candidate.

(27) a.

/um, ta.piq/	ONSET	$ALIGN_{FOCUS}(PrWd,L)$
☞ a. t-u.m-a.piq		*
b. um.-ta.piq	*!	
c. ta.pi.q-um		*****!

b.

/in, ta.piq/	ONSET	ALIGN _{ASPECT} (PrWd,L)
☞ a. t-i.n-a.piq		*
b. in.-ta.piq	*!	
c. ta.pi.q-in		*****!

4.2 Morpheme dislocation when *ma-* and *-in-* co-occur

Before discussing this issue, let's first determine which markers, *m-* or *ma-*, this AF marker is. Consider the following data selected from (8).

(28)

Stem	<i>ma</i> + stem	Gloss
a. caq.ruh	ma.-caq.ruh	'stand'
b. ta.ljum	ma.-ta.ljum	'run'
c. ta.huq	ma.-ta.huq	'sit'
d. ?wah	m-wah	'come'

Stems with consonant initials take *ma-* as prefix while vowel initials, as (28d) take *m-* as prefix. It is because that Mayrinax Atayal has a restriction on consonant clusters. Thus, the prefix is actually *m-*, but in avoidance of consonant clusters, a vowel /a/ is inserted.

(29) a.

/m, caq.ruh/	Real	*COMPLEX	ONS	MAX-V	V-NUC	MAX	DEP
☞ a. m-a.caq.ruh							*
b. mcaq.ruh		*!					
c. m-aq.ruh						*!	
d. caq.ruh	*!					*	

b.

/m, uah/	Real	*COMPLEX	ONS	MAX-V	V-NUC	MAX	DEP
☞ a. m-wah					*	*	
b. m-awah				*!			
c. m-uah			*!				
d. wah	*!			*			
e. ?wah	*!				*		*
f. m-a?wah					*		**

The constraint Realize is put to make sure that the morpheme is realized, *COMPLEX is to avoid consonant clusters. The definitions of each constraint are listed below.

(30) Realize

‘Affix must be realized.’

(31) *COMPLEX

‘No complex syllable margins.’

And now, let’s take a look at the data we once regard as morpheme dislocation.

(32)

	Stem	<i>m + in + stem</i>	Gloss
a.	caq.ruh	m-in- a -caq.ruh	‘stand’
b.	nu.bwag	m-in- a -nu.bwag	‘drink’
c.	marakawp	m-in- a -ra.kawp	‘fight’
d.	qi.lup	m-in-qi.lup	‘sleep’
e.	qwa.lah	m-in-qwa.lah	‘rain’

The vowel /a/ is no more needed because there will be no consonant cluster of any kind in these data. But why still we need an inserted vowel in (32a-c)? The answer might be that there is some kind of OCP⁷ effect is working here. The two adjacent consonant /n/ and /c/ in *m-in-a-caq.ruh* have very near places of articulation, and thus /a/ is inserted. On the other hand, there is no need to insert a vowel in *m-in-qi.lup*, because /n/ and /q/ have different places of articulation.

4.3 Deletion of the first syllable when prefixing AF markers

Consider the selected data from (10).

(33)

a.	ba.hag	ma.hag	‘chase’
b.	ba.hi	ma.hi	‘hit’
c.	ban.ba.hag	man.ba.hag	‘fly’
d.	bi.ʔij	mi.ʔij	‘touch’
e.	pi.raj	mi.raj	‘rub’
f.	paj.maʔ	maj.maʔ	‘wash (hand)’
g.	pas.ta.tal	mas.ta.tal	‘jump’

⁷ The exact OCP effect in this dialect is not sure yet. We can only say for sure that it is about the place of articulation of the consonants.

At the first sight, we might think that it is *ma-* that is prefixed, and the first syllable of the stem is deleted after prefixation, just like the wrong predication of the data. However, if we give these data a second look, we can find that they are more like dynamic/transitive verbs than stative/intransitive verbs. That is, the AF marker they choose is supposed to be *-um-* instead of *m-*⁸. Since the initial consonants of these data are bilabials, we could strengthen the view that OCP of places of consonants does play a role. For further evidence, I have checked the word list made by Huang (2000), and there actually is no stem with bilabial initial that could be prefixed with *-um-* without deleting the first syllable. Thus, these data should be interpreted as, for example, *b-um-ahag*, and due to OCP effect, the first syllable is dropped and become *m-ahag*. A formal device of this process still needs further research.

5. Conclusion

In this paper, I focus on the interaction between morpheme-specific alignment constraints and the prosodic constraint in Mayrinax. Four issues are discussed: 1) the special status of *-um-* and *-in-*, 2) morpheme dislocation when *m-* and *-in-* co-occur, 3) deletion of the first syllable when prefixing AF markers, and 4) focus markers on the left side of aspectual marker. The first two issues could be solved by the ranking P-constraint >> M-constraint, here ONSET >> morpheme-specific alignment constraints. The third issue is still in need of a formal device to deal with. And the fourth issue is solved by the morpheme-specific alignment constraints of each set of prefixes.

⁸ Once again, there is no clear distinction between the semantic or syntactic use of these two markers. It is just a tendency. And most of these deleted data take two arguments; that is, dynamic/transitive verbs.

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