



Minor Syllables in Moroccan Arabic: Evidence from a Secret Language in Kenitra Dialect

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Abstract

This paper investigates the existence and behavior of minor syllables in Moroccan Arabic (MA) through data drawn from a secret language (SL) used by speakers of the Kenitra dialect. Specifically, it examines the placement of the dummy infix (DI) -akun- and its role in conforming to the prosodic structure of MA. Drawing on Optimality Theory (OT) (Prince & Smolensky, 1993), the analysis shows that the DI consistently targets the first vowel of the stem and is never inserted after a minor syllable, which lacks a vowel. The findings support earlier claims that MA permits minor syllables. Accordingly, this paper provides phonological evidence supporting the existence of minor syllables in MA and shows that they cannot serve as suitable hosts for infixation processes. The constraint Affix-to-Initial-Root-Vowel is at play to ensure that DI appears before the first vowel of the stem rather than attaching to a minor syllable.

Keywords: Moroccan Arabic, minor syllables, secret language, infixation

لمقاطع الصغرى في العربية المغربية: دلائل من لغة سرية في لهجة القنيطرة

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ملخص

تبحث هذه الورقة في وجود وسلوك المقاطع الصغرى في العربية المغربية من خلال بيانات مأخوذة من لغة سرية يستعملها متحدثو لهجة القنيطرة. على وجه التحديد، تفحص الدراسة موضع اللاحقة الوهمية -akun- ودورها في تأكيد البنية الإيقاعية للعربية المغربية. بالاعتماد على نظرية الأمثلية (Optimality Theory) (Prince & Smolensky, 1993) يُظهر التحليل أن اللاحقة الوهمية تستهدف باستمرار أول حركة في ساق الكلمة، ولا تُدرج أبداً بعد مقطع صغرى يفتقر إلى حركة. تتحدى النتائج دراسات سابقة اقترحت أن مقاطع مثل /ʔ/ قد تشغل نوى مقطعية، إذ تؤكد هذه الدراسة بدلاً من ذلك أن مثل هذه المقاطع تعمل كبدايات (onsets) تدعم النتائج الادعاءات السابقة بأن العربية المغربية تسمح بوجود المقاطع الصغرى، وتقدم دليلاً فونولوجياً يثبت ذلك، مع الإشارة إلى أن هذه المقاطع لا تصلح أن تكون مضيفات لعمليات الإلحاق. يُفَعَّل قيد «الإلحاق على أول حركة-Initial-Root-Vowel» (Affix-to-Initial-Root-Vowel) لضمان ظهور اللاحقة الوهمية قبل أول حركة في ساق الكلمة، بدلاً من التحامها بمقطع صغرى.

الكلمات المفتاحية: العربية المغربية، المقاطع الصغرى، نظرية الأمثلية، اللغة السرية، الإلحاق الوهمي

I. Introduction

MA has been the subject of extensive phonological study, particularly syllable structures. Al Ghadi (1994) and Boudlal (2001) argue that minor syllables made up of a single consonant in MA satisfy foot binarity. Therefore, this paper builds on these accounts by drawing on data from -akun- dummy infixation SL spoken in the Kenitra dialect used by speakers to conceal their speech. The analysis highlights a key finding: although minor syllables do occur in MA, they do not host infixes. Using data from the SL, we demonstrate that the DI consistently appears before the first vowel of the stem. This suggests that the infixation site is constrained by syllable structure in MA. The paper also revisits ongoing debates about the role of consonantal nuclei and schwa epenthesis, reinforcing the view that MA avoids complex onsets and codas through predictable phonological strategies. This study provides a new perspective on the phonology and morphology of MA, illustrating how even informal linguistic systems (secret languages) conform to systematic patterns.

II. Theoretical framework

Since OT has become central in phonological and morphological studies, it offers insights into both language universals and differences by explaining how languages use different strategies to avoid undesirable structures.

McCarthy and Prince (2004) outline five key principles of OT:

- **Universality:** All languages draw from the same set of constraints (Con).
- **Violability:** Constraints can be violated if higher-ranked ones are satisfied.
- **Ranking:** Constraints are ordered differently in each language.
- **Inclusiveness:** A set of possible output candidates is evaluated.
- **Parallelism:** All candidates are evaluated at once across the full constraint hierarchy.

OT consists of three main components:

Lexicon – Contains the morphemes and words.

GEN (Generator) – Produces all possible outputs for a given input. This reflects the idea of "richness of the base," meaning that any input is possible, and GEN is free to generate any output.

EVAL (Evaluator) – Compares all candidate outputs and selects the optimal one based on the ranked constraints. The goal is to find the output with the fewest violations of the most important constraints.

Constraints in OT are of three main types:

- **Faithfulness constraints** – Require outputs to preserve aspects of the input.
- **Markedness constraints** – Push for well-formed, simplified outputs.
- **Alignment constraints** – Ensure proper alignment of linguistic elements (e.g., morphemes and syllables).

An OT tableau visually represents how candidates are assessed. For a given input, GEN produces several possible outputs (candidates). Each candidate is evaluated against the ranked constraints. Asterisks (*) indicate constraint violations, and an exclamation mark (!) shows a fatal violation that disqualifies the candidate. The optimal candidate (marked with a pointing finger, ☞) is the one that best satisfies the hierarchy, avoiding fatal violations and minimizing others.

2.1 Moroccan Arabic Syllable Structure and Optimality Theory

Moroccan Arabic (MA) syllable structure consists of both full vowel syllables (i, u, a) and epenthetic schwa (ə) syllables. Moreover, MA prohibits onsetless syllables and open schwa syllables, meaning schwa always appears in closed syllables to bear weight (Benhallam, 1990a; Boudlal, 2001). The syllable weight in MA follows a prosodic hierarchy where open syllables are light (monomoraic) and closed syllables are heavy (bimoraic), with codas contributing moraic weight (Prince & Smolensky, 1993). For instance, minimal words cannot be simple CV forms because these are monomoraic and thus violate the bimoraic foot requirement; CVC syllables satisfy this minimality by assigning a mora to the coda consonant.

To maintain the binary foot requirement with CCV forms, Boudlal (2001) suggests that the first consonant forms a minor syllable that bears a mora, while the following consonant serves as the onset of the major syllable, ensuring bimoraicity. The syllables that contain the schwa sound share a mora from the adjacent consonant in the coda since the schwa sound cannot bear a mora. These restrictions on syllable structures in MA are summarized in the ranking of constraints in (1) and demonstrated in tableaux (2) and (3) below¹:

(1)

FT-BIN, *COMPLEX, Max-IO, Parse-seg, Onset >> Dep-IO, *Min-σ, No-Coda

FT-BIN: Feet are binary under moraic or syllabic analysis (Kager, 1999)

- a. ***COMPLEX-MARGIN** (henceforth ***COMPLEX**): Codas and onsets must not branch (Prince and Smolensky 1993)
- b. **Max-IO**: Input segments must have output correspondents (Kager, 1999)
- c. **PARSE-segment** (Parse-seg) Every segment must belong to a syllable (Prince & Smolensky, 1993)
- d. **Onset** (ONS): (Prince & Smolensky, 1993/2004): Every syllable must have onsets.
- e. **DEP-IO**: No phonological epenthesis (McCarthy & Prince, 1995)
- f. ***Min-σ**: Minor syllables are prohibited (Boudlal, 2001)
- g. **No-Coda**: *C]σ ('Syllables are open.') (Kager, 1999)

(2)

¹ This ranking of constraints, posited by Boudlal (2001), accounts for syllable structure in Casablanca and applies to almost all syllable structures in MA. Note that this paper does not provide tableaux for each syllable structure. For further reading on syllables and prosody in MA, see Boudlal (2001).

Input /ktb/	FT-BIN	*COMPLEX	Max-IO	Parse-seg	Onset	Dep-IO	*Min-σ	No-Coda
a. .k.təb						*	*	*
b. ktəb	*!	**				*		*
c. .k.t.əb					*!	*	**	*
d. .t.əb			*!		*	*		*
e. .k.tb				*!*			*	

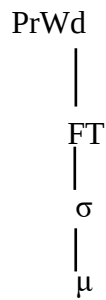
From the tableau above, candidate (2a) satisfies all undominated constraints in MA. Dep-IO is violated to satisfy the higher-ranked Parse-seg since consonants should be parsed into syllables. To satisfy FT-BIN, the first consonant of *(k)təb* is syllabified as a minor syllable. Besides, *COMPLEX is satisfied at the expense of violating *Min-σ to avoid complex margins. Since codas are allowed in MA, the corresponding constraints are lower-ranked, as they do not affect the outcome of deriving the harmonic candidate, which is (2a). Candidate (2b) is ruled out, given that it fatally violates a higher-ranked constraint that states the foot should be binary (FT-BIN). In fact, this candidate has only one syllable and a mora shared by the coda, which is preceded by the schwa. Candidate (2c) triggers a fatal violation mark for the constraint Onset that bans any output with an initial vowel. Max-IO eliminates candidate (2d) because the input segment /k/ lacks a corresponding segment in the output. Lastly, candidate (2e) would emerge as optimal if it did not violate an undominated constraint requiring all segments to be parsed. The tableau below uses the same ranking of constraints in (1) and (2) that account for CCV structures in MA. It is meant to demonstrate that even forms with full vowels cannot satisfy FT-BIN without the presence of a minor syllable.

(3)

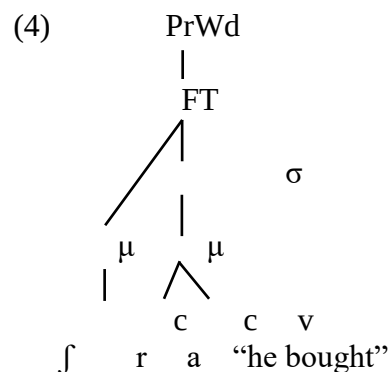
Input /kla/	FT-BIN	*COMPLEX	Max-IO	Parse-seg	Onset	Dep-IO	*Min-σ	No-Coda
a. .k.la							*	
b. kla	*!	*						
c. .kl	*!		*	*			*	
d. .kl.a					*!		*	

Previous accounts of minor syllables in Moroccan Arabic

There is a large body of literature regarding syllables in MA. Most Moroccan linguists (e.g., Al Ghadi, 1994; Boudlal, 2001) agree that minor syllables in MA exist as a result of satisfying foot binarity. Al Ghadi (1994) claims that the minimal prosodic word in MA consists of two moras, considering the initial and final consonants of a cluster as a degenerate syllable. In the same vein, Selkirk (1980) states that degenerate syllables violate the Strict Layer Hypothesis (SLH), a principle that governs the relationship between hierarchically arranged layers of the prosodic structure. The presentation below illustrates this hierarchy:



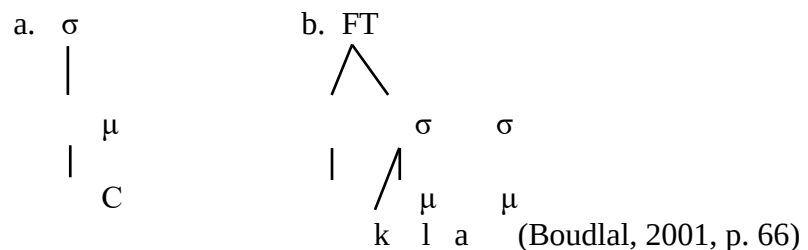
Al Ghadi (1994) adopts the same approach with respect to Selkirk's claim by assigning moras to degenerate syllables. This can be seen below:



In view of the fact that MA does not allow complex margins, the first consonant is branched from the foot. Note that the word *fra* satisfies the minimal word requirement in MA, as it contains two moras. This supports the fact that Moroccan Arabic does not permit lexical items bearing only one mora. Consequently, the first consonant of the cluster, which is /f/ in the word *fra* is moraic.

In line with McCarthy and Prince (1995), languages resort to augmentation to satisfy foot binarity. Boudlal (2001) presents a thorough account of how foot binarity is satisfied by treating the first consonant of a cluster as a minor syllable. He distinguishes two types of syllables in Moroccan Arabic: a major syllable, which contains a full vowel, and a minor syllable, which consists of a single consonant. This approach satisfies the SLH as the hierarchical prosodic structure is maintained. By way of illustration, consider the following representation:

(5) The minor syllable in MA



It is noteworthy that MA does not permit content words with only one mora or one syllable bearing only one mora. Consequently, the foot must be binary. Forms such as CV or CCV violate foot binarity since both structures bear one mora on the vowels. However, Boudlal (2001) accounts for this by syllabifying the first consonant in the onset as a minor syllable and

assigning it a mora, while the consonant following the vowel is branched as the onset of the major syllable. For instance, the word *kla* “he ate” is syllabified as *.k.la..* Therefore, this ensures that the word meets the requirement for a binary foot structure, as seen in 6b..

Although the majority of Moroccan linguists claim that minor and degenerate syllables exist in MA, as previously discussed in this paper, Louriz (2014) treats the first consonant of a cluster as the nucleus of the syllable. Her analysis is based on an utterance produced by a female speaker at a slow pace.²

Data presentation and analysis

Before addressing this section, it is necessary to define the notion of secret language. Berjaoui (2010) defines secret language as a medium of communication that orally modifies a natural language to make it difficult for a third party to decipher.

This section presents the formation of the SL under study and the syllabification patterns it reveals accordingly. It has been observed that the syllabification of this SL does not allow onsetless syllables and that the DI is never infixes into minor syllables but always appears before the first vowel of the stem. Consider the following representations illustrating how this SL is formed:

(6)

a.

-akun-
↓

Saʕid	→	S- akun -aʕid	“Said”
sir	→	s- akun -ir	“go”
ṭabla	→	ṭ- akun -aḅla	“a table”
ʃəzra	→	ʃ- akun -əzra	“a tree”
qərʕa	→	q- akun -ərʕa	“a bottle”
kas	→	k- akun -as	“a cup”

b.

ħrəʃ	→	ħ.ra.ku.nəʃ	“rough”
bka	→	b.ka.ku.na	“he cried”
ktəb	→	k.ta.ku.nəb	“he wrote”
twahʃtək	→	t.wa.ku.na.ħəʃ.tək	“I missed you”

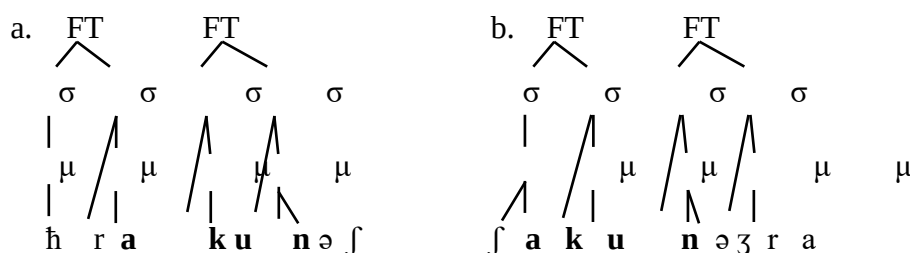
c.

ka-j-qraw	→	ka-j-q.ʔa.ku.naw	“they are studying”
ka-t-χdəm	→	ka-t-χ.da.ku.nəmə	“she is working”
ka-j-tfərzu	→	ka-j-t.ʔa.ku.nər.zu	“they are watching”
ka-j-ləʕbu	→	ka-j-la.ku.nəʕbu	“they are playing”

² Louriz (2014) views the first consonant of the word *ʕss.naaḏq* “on the crates” as the nucleus of the first syllable. The word is syllabified as follows: *ʕs.s.naaḏq*. However, the speakers of the SL opt for the insertion of schwa between /ʕ/ and /s/, constructing the word as *ʕəs.s.na.ku.naḏ.q*.

The dataset in 7 shows that the DI is infixed directly after the first consonant of the stem, as seen in 7a., and it is infixed after the second consonant of the stem, as shown in 7b.. A reasonable question that arises here is: what forces the DI to be infixed at that site? The answer lies in the OT analysis presented in this paper. It is important to note that, although these SL formations are primarily created by uneducated speakers of the Kenitra dialect in Morocco, their structure is not random. In fact, it is the phonology of the language that governs the patterns of such SLs. For clarity regarding the infixation of the DI, consider the following representations:

(7)



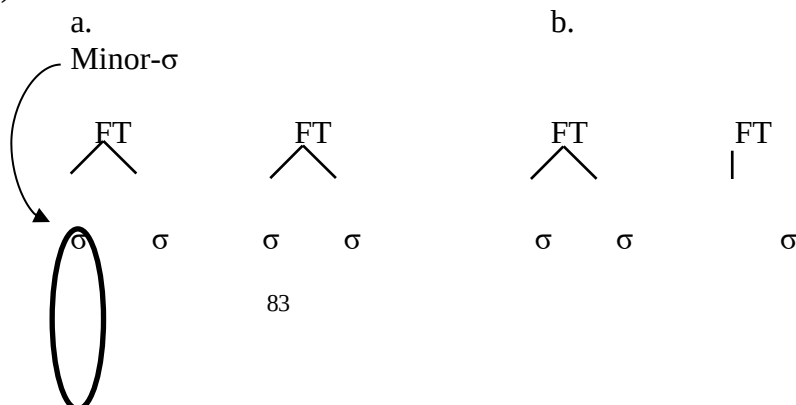
It is apparent that the DI is placed between the vowel of the stem and the onset, as seen in 8a.. Also, the DI is placed before the first vowel of the stem, regardless of whether the stem starts with a single consonant or a cluster of consonants, as shown in 8b.. This occurrence is also found in an Oceanic language of the Solom Islands, where the infix *-in-* nominalizer is placed before the first vowel of the word (Davis, 2003, p. 39). See the representation below:

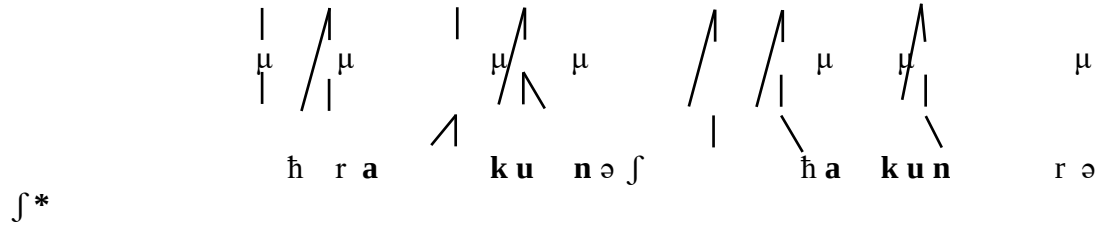
(8)

edo	“be happy”	→	in -edo	“happiness”
hiva	“want”	→	h- in -iva	
	“wishes, desires”			
gele	“be long”	→	g- in -ele	“length”
to	“be alive”	→	t- in -o	“life”
mea va	“be yellow”	→	m- in -eava	“yellowness”

Note that *-in-* is infixed before the first vowel even though the word has an initial vowel. This indicates that the placement of the infix is consistent since *-in-* does not target the first consonant of the stem, which is /d/ in the case of *edo* “happiness”. The linguistic behavior of infixation in (9) differs from the SL discussed in this paper, as the DI requires that syllables where it is infixed should be major syllables containing an onset and a full vowel. This is no surprise given the fact that MA does not allow onsetless syllables. Illustrative data are given below:

(9)





Assuming that the DI is added directly after /h/ as seen in 10b., the outcome would be an ill-formed output in this SL since it violates foot binarity. Moreover, the constraint requiring the DI to be infixed before the first vowel of the stem will be violated. In fact, there is evidence that the DI should be attached to (1) a full syllable (CV) and (2) before the first vowel of the stem. This is illustrated below:

(10)

a.	usama	→	u.sa.ku.na.ma	“Oussama” ³
b.	ustada	→	us.ta.ku.na.da	“a teacher”
c.	ilham	→	il.ha.ku.nam	“Ilham”
d.	iljas	→	il.ja.ku.nas	“Ilyas”

According to some speakers of this SL who opt to consider the vowel in the initial position, the DI is surprisingly placed before the second vowel of the stem, which is preceded by a consonant seeking the (CV) syllable shape. Additionally, the DI can neither be added after the first vowel of the stem nor after the first consonant. The former is not permitted because MA does not allow hiatus (two adjacent vowels), and the latter is not permitted because the DI requires a (CV) syllable shape and not a (CC) syllable shape.

Based on these observations, it is evident that the DI is infixed before the first vowel of the stem and after the second consonant of the onset. This claim will be reconsidered throughout the analysis in this paper. For the unattested forms drawn from the same data in 7b., consider the following examples:

(11)

ħrəʃ	→	ħa.kun.rəʃ*	“rough”
ka-j-q.ɾa-w	→	ka-j-q.a.kun.ɾa-w*	“they are studying”
bka	→	ba.kun.ka*	“he cried”
ktəb	→	ka.kun.təb*	“he wrote”
twahʃtək	→	ta.ku.naw.ħəʃ.tək*	“I missed you”

It appears that the DI formulated by the speakers is not unsystematic since it starts with the vowel -a...n- and ends with a consonant. By way of illustration, consider the representation below:

(12)

ktəb	→	kt-akun-əb	→	k.[t]a.ku.[n]əb
------	---	------------	---	-----------------

/t/ is attached to the vowel of the DI to avoid the emergence of an onsetless syllable. Similarly, /n/ of the DI is assigned to the schwa sound to satisfy the Onset constraint. The following subsection provides an optimality-theoretic analysis to account for the placement of DI. It is

³ It is worth noting, on the one hand, that some speakers of this SL consider the first sound of these words to be vowels. On the other hand, most speakers of this SL perceive the first segment as a glottal stop. As far as this paper is concerned, the representation in (8) serves solely to show empirical evidence that the DI must be attached to a major syllable, and the DI requires a typical syllable structure to be attached to.

meant to illustrate the constraint ranking that explains the reason why attaching the DI to the minor syllable provides ill-formed outputs.

To account for Minor syllables and the placement of the DI in this SL, we need both markedness and faithfulness constraints. These constraints are given below (additional constraints will be introduced to address unexpected outputs):

(13)

Onset (Onset): (Prince & Smolensky, 1993/2004): Every syllable must have onsets.

Affix-to-First-Vowel (Yu, 2007): Align (R, akun; L, First root Vowel)

DEP-IO: No phonological epenthesis (McCarthy & Prince, 1995)

*Min-σ: Minor syllables are prohibited (Boudlal, 2001)

*COMPLEX-MARGIN (henceforth *COMPLEX): Codas and onsets must not branch (Prince and Smolensky 1993)

Align-akun-L

4

Align the left edge of -akun- with the left edge of the PrWd

To answer the question raised above regarding the placement of the DI in this SL, we need a constraint that forces the DI to be infixated at that specific site (Affix-to-First-Vowel), as defined in (14b). Consider the tableau below:

(14)

Input /akun, Saʕid /	Affix-to-First-Vowel
Ⓢ a. S- akun -aʕid	
b. Saʕ- akun -id	*!

We have seen that the DI is either inserted after the first consonant in the onset position or after a cluster of two consonants in the onset position of a stem, as observed in 7a. and b.. As expected, the tableau above shows that candidate (15a) is the optimal output because it satisfies a higher-ranked constraint that requires the DI to be inserted before the first vowel of the stem. Nevertheless, the tableau illustrates that the DI is infixated immediately before the first vowel of the stem rather than after the first or second consonant of the stem because of the Affix-to-First-Vowel that forces the location of infixation. Candidate (15b) incurs a fatal violation of this higher-ranked constraint and is consequently ruled out of the competition. Let us now consider a word whose onset contains a cluster of two consonants.

(15)

Input /akun, bka /	Affix-to-First-Vowel
Ⓢ a. b. ka.ku .na	
Ⓢ b. b ka.ku .na	

^ε This constraint, which is from the one posited by Kager (1999, p. 121), is edited in this paper to serve the same purpose, which is alignment.

Tableau (16) shows a tie. Therefore, the harmonic candidate does not emerge as an optimal output. Since MA does not permit complex margins, candidate (16b) is excluded, as seen below:

(16)

Input /akun, bka /	Affix-to-First-Vowel	*COMPLEX
☞ a. b.ka.ku.na		
b. bka.ku.na		*!

Note that Affix-to-First-Vowel and *COMPLEX are not in conflict, since the optimal output emerges as the winner without violating any of the constraints in (17). Both constraints are undominated in MA. MA resorts to syllabifying the first consonant of *bka* as a minor syllable to avoid complex margins. This can be seen below:

(17)

Input /akun, bka /	Affix-to-First-Vowel	*COMPLEX	*Min-σ
☞ a. b.ka.ku.na			*
b. bka.ku.na		*!	

As shown in tableau (18), candidate (18a) meets the *COMPLEX requirement at the expense of violating *Min-σ to prevent consonant clusters at the margins. *COMPLEX dominates *Min-σ because MA prefers to have minor syllables than complex margins. As a strategy to solve this dilemma, Min-σ is violated. Two potential candidates might emerge as optimal outputs. These candidates opt for inserting a schwa sound to break a cluster of two consonants to avoid complex margins. Nonetheless, these candidates trigger a violation mark of higher-ranked constraints, namely (*ə]σ) and (Onset), as observed in (19) and (20):

(18)

Input /akun, bka /	Affix-to-First-Vowel	*COMPLEX	*ə]σ	*Min-σ
a. b.ka.ku.na				*
b. bka.ku.na		*!		
c. bə.ka.ku.na			*!	
⊗ d. bək.a.ku.na				

*Min-σ is dominated by *ə]σ (open schwa syllables are prohibited), given that the language prefers to have a minor syllable rather than an open syllable, as in the case of candidate (19a). In fact, Boudlal (2001) argues that schwa cannot occur in open syllables. Furthermore, the ranking in Tableau (19) predicts the wrong output (19d). We have seen that MA does not allow onsetless syllables. This indicates that candidates as such would never emerge as optimals since the higher-ranked constraint Onset is evidently violated, consider the tableau below⁵:

(19)

Input /akun, bka /	Affix- to-First- Vowel	Onse t	*COMPLE X	*ə] σ	*Min -σ
⊗ a. b.ka.ku.na					*
b. bka.ku.na			*!		
c. bə.ka.ku.na				*!	
d. bək.a.ku.na		*!			

Candidate *[ba.kun.ka] is not included in the tableau above because it undoubtedly violates the undominated constraint requiring the DI to be inserted before the first vowel of the stem. Although Affix-to-First-Vowel accounts for the site of the DI, some forms with morphosyntactic markers satisfy this constraint. This can be seen in the tableau below:

(20)

/akun, lʔb / ka-j-ləŋ.b-u	Affix- to-First- Vowel	Onse t	*COMPLE X	*ə] σ	*Min -σ
a. kaj.la.k.u.nəŋ.bu	*!				
⊗ b. ka.ku.na.j.ləŋ.bu					*
c. ka.ja.ku.nləŋ.bu	*!		*		

The tableau above predicts the incorrect optimal output. The constraint responsible for the infixation of the DI fails to derive the harmonic candidate. Candidate (21b) emerges as the optimal form because it attaches the DI before the first vowel of the stem. In this case, Affix-to-First-Vowel must be revised to ban the DI from attaching to any vowel in the stem. The revised constraint, Affix-to-Initial-Root-Vowel, rules out any candidates that place the DI before any vowel other than the initial root vowel. Consider tableau (23) below:

(21) **Affix-to-Initial-Root-Vowel:** ALIGN-L (akun,Root-Initial-Vowel)

⁵ I sincerely thank Professor Boudlal for his constructive remarks on my previous analysis of constraint interaction, which led to significant improvements in the present article.

(23)

/akun, lʃb / ka-j-ləʃ.b-u	Affix-to- Initial-Root- Vowel	O nset	*COMP LEX	*ə] σ	*Min -σ
☞ a. kaj.la.k.u.nəʃ.bu					
b. ka.ku.na.j.lə.ʃ.bu	*!			*	**
c. ka.ja.ku.nləʃ.bu	*!		*		
d. a.kun.ka.j.ləʃ.bu	*!	*			*

The undominated constraint is now satisfied by the anticipated candidate (23a). Note that all other candidates are ruled out due to the revised constraint. It is worth mentioning that forms whose roots contain an onset cluster of two consonants have no chance of winning in this competition. Specifically, they violate the higher-ranked constraint Affix-to-Initial-Root-Vowel. Moreover, the harmonic candidate violates an alignment constraint that penalizes candidates whose left edge of *-akun-* is not aligned with the left edge of the PrWd, as illustrated in (25).

Given that MA does not allow complex and onsetless syllables, the constraints *COMPLEX and Onset are regarded as undominated. Evidently, the DI is always attached to the first vowel of the stem. Therefore, the constraint Affix-to-Initial-Root-Vowel is also claimed to be undominated. It has been shown from the MA literature that epenthesis and minor syllables are allowed. Therefore, Dep-IO and *Min-σ are dominated. Mrhar and Smirkou (2024) examine the ranking of the constraint *Min-σ regarding the anti-epenthesis constraint Dep-IO. They argue that MA permits violations of both Dep-IO and *Min-σ to satisfy undominated constraints. Specifically, Dep-IO is violated in favor of fulfilling PARSEseg (this constraint is irrelevant to this study, as we do not analyze forms with complex margins in the coda), while *Min-σ is violated to satisfy *COMPLEX. Although satisfying *COMPLEX could be achieved through inserting multiple epenthetic vowels, MA tends to prefer minor syllables over excessive epenthesis, as illustrated by the example /ktb-t/ realized as [k.teb.t.] rather than [kət.bət.] ‘I wrote’. Consequently, Dep-IO must outrank *Min-σ. Accordingly, the proposed ranking in (25) and (26) ensures the emergence of the optimal attested output.

(24) Affix-to-Initial-Root-Vowel, Onset, *COMPLEX >> Dep-IO >> *Min-σ,
Align-akun-L

(25)

Input /akun, hɾəʃ/	Affix-to-Initial- Root-Vowel	Onset	*COMPLEX	Dep-IO	*Min-σ	Align-akun- L
☞ a. h.ra.ku.nəʃ					*	h.r
b. ha.kun.rəʃ	*!					h

c. hra.ku.nəf			*!		*	hr!
d. ak.un.hərəf	*!	*			*	
e. ?a.kun.hərəf	*!			*		?

By violating the high-ranking constraint Affix-to-First-Vowel, candidates (25b), (25d), and (25e) are ruled out on account of infixing the DI before the consonant and not before the first vowel of the stem. In addition to candidate (25c), it fatally violates *COMPLEX, which bans complex margins (in this case, the onset). The optimal candidate obeys Affix-to-Initial-Root-Vowel by adding the DI before the initial root vowel of the stem. Furthermore, the harmonic candidate satisfies the undominated constraint to prevent the infixation of the DI in the minor syllable. However, it violates *Min- σ to avoid a complex onset. The winning candidate triggers a violation mark for the constraint Align-akun-L since the left edge of -akun- is not aligned with the left edge of the PrWd. Now, let us consider a candidate whose onset contains only one consonant.

(26)

Input /akun, ʔa.bla/	Affix-to-Initial-Root-Vowel	Onset	*ə]σ	*COMPLEX	Dep-IO	*Min- σ	Align-akun-L
a. ʔa.ku.na.b.la							ʔ
b. ʔa.b.la.ak.un	*!	**					ʔa.b!la
c. ʔa.b.a.ku.nə.la	*!		*		*		ʔa.b!
d. ?a.kun.ʔa.b.la	*!			*	*		?
e. ʔa.b.la.ku.na	*!						ʔa.b!l
f. ak.un.ʔa.b.la	*!	**				*	

Given the summary of constraints in tableau 26, the optimal output is candidate (26a), which violates a lower-ranked constraint. This outcome is consistent with the core principles of OT, where constraints are violable but should be minimally violated. Candidates (26b-f) would never surface as optimal outputs as they violate the constraint forcing the DI to be inserted before the initial root vowel of the stem.

III. Conclusion

The present paper has not only provided us with the existence of Minor syllables to which the DI cannot attach, but it has also shown that the DI should be attached to the initial root vowel of the stem, which only major syllables have. The study concluded by asserting that the insertion of the DI consistently takes place before the initial root vowel of the stem. We argued that the dummy infix cannot attach to a single consonant lacking a vowel, as observed in cases involving minor syllables. The analysis reveals that the interaction among constraints Affix-to-Initial-Root-Vowel, Onset, *COMPLEX >> Dep-IO >> *Min- σ , Align-akun-L demonstrates why infixation cannot occur after minor syllables.

Furthermore, some speakers who consider the vowel in the initial position of the stem add the infix DI before the second vowel, which is always preceded by a consonant and shows the (CV) syllable shape required for the DI. These findings reinforce previous claims about the prosodic structure of MA and illustrate the vital role of syllable structure in governing infixation processes.

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