JOURNAL OF AFRICAN LANGUAGES AND LITERATURES
2/2021, 1-29

Epenthetic glides in Taqbaylit

AMAZIGH BEDAR [1] / LUCIE QUELLEC [2] / LAURENCE VOELTZEL [3]

CNRS / Université de Nantes
[1] amazigh.bedar@yahoo.fr
[2] lucie.quellec@etu.univ-nantes.fr
[3] laurence.voeltzel@gmail.com

ABSTRACT

This paper aims to offer an extra-phonological analysis for a purely phonetic-phonological phenomenon: epenthetic glides in Taqbaylit. In this language, both epenthetic glides [j] and [w] may appear in specific contexts and are usually considered a hiatus-repairing strategy. We will discuss the different contexts where all types of glides appear and focus on the glides that are not lexically motivated. More precisely, we will discuss the epenthetic glides that surface at the junction between a noun/verb and their clitics. We aim at explaining and formalizing the distribution of epenthetic glides, whose motivation goes beyond phonology.

KEY WORDS: Taqbaylit, epenthesis, glide, boundary, morpheme

DOI 10.6092/jalalit.v2i2.8019
ISSN 2723-9764

1. Introduction

In this paper, we address an analysis of epenthetic glides in Taqbaylit Berber of Chemini.[1] In this language, the epenthetic glides [w] and [j] repair hiatus found either between a noun or a verb and their clitics. The challenge is to account for and predict the quality of the glide. While several studies have described or justified the need for epenthetic glides (GUERSSEL 1986; LAHROUCHI 2013, *inter alia)* – in order to break hiatus –, the distribution between [j] and [w] remains unexplained.

After a detailed overview of the status of glides in some Berber languages, we will focus on their distributions in Taqbaylit Berber. We will provide rules that justify the color of the glide that appears in epenthetic contexts. We will show that the quality of glides is predictable, based on the morphosyntactic constitution of words and sentences. Our analysis is related to the boundaries between major units (verbal or nominal phrases) and their dependents/clitics. We will rely on the fact that not all verbal/nominal modifiers are equal in their proximity with their head.

The article is organized as follows: in section 2, we discuss three previous studies on Berber languages that will shed some light on the general status of glides in Taqbaylit. Epenthetic glides are distinguished from lexical glides that are also present in the language. Accordingly, we will discuss and illustrate the respective characteristics of both types of glides. Section 3 gives more general information on the Taqbaylit morphology, especially regarding nominal and verbal affixation and clitization. As previously mentioned, the internal construction of nouns and verbs will be highly relevant to our analysis as it constitutes the environment where epenthetic glides are observed. In section 4, we illustrate our proposal for the distribution of epenthetic [j, w]. Finally, section 5 concludes this paper.

2. Glides in Taqbaylit

Taqbaylit has two glides: [j] and [w]. Their origin may vary; we thus distinguish between (i) *lexical glides* that appear in roots, as in (1a),[2] or (ii) *epenthetic glides*

[1] Taqbaylit, so-called 'Kabyle', is a Berber language and belongs to the Afroasiatic phylum.

[2] We should also mention glides that derive from (lenified) palatal fricatives during the formation of nouns derived from verbs: **ɕrəz** 'plough.AOR' > **θa*j*ərza** 'ploughing'; **ɕməs** 'knot.AOR' > **θa*w*əmmust** 'knot.SG'. It is also worth noting that Timezrit Taqbaylit has fricatives where Chemini Taqbaylit has (lexical) glides. For instance 'rabbit' [a**w**θul] and 'ant' [θa**w**əṭṭufθ] are realized [a**j**θul]/[a**ç**θul], [θa**j**əṭṭufθ] respectively in Timezrit.

that surface under some conditions only, as in (1b).[3]

(1)	a.	[j]		[w]	
		aɣ*j*ul[4]	‘donkey’	a*w*θul	‘rabbit’
		aβəl*j*un	‘canister’	al*w*əs	‘brother in law’
		ʕla*j*	‘be tall’	ða*w*i	‘cure’
	b.	[j]		[w]	
		θaziba = *j*ihin	‘that necklace’	ur i-ẓri *w*ara	‘he did not see’
		asaru = *j*aki	‘this hook’	ur i-ʃəppu *w*ara[5]	‘he does not remember’
		j-əppi = *j*as	‘he brought to him’	u = s = θ = id jə-ppi *w*ara	‘he did not bring it there to him’

The rest of this section will precisely discuss the distinction between the two types of glides and their respective characteristics. First, we will present the lexical glides and illustrate their behavior in their alternation with high vowels. In doing so, we will establish a contrast with epenthetic glides, which cannot be linked to lexical vowels. We will then turn to two specific contexts where glides intervene and discuss their status and origin: construct state and plural formation.

2.1 Lexical (alternating) glides versus epenthetic glides

One of the first noticeable characteristics of Berber lexical glides is that they alternate with high vowels in a vast majority of words, depending on their immediate surroundings. The modification in the environment quality is induced by syntactic and morphological changes. Berber languages are templatic: grammatical information may be marked by affixation and/or by the insertion of vowels between root consonants. Regarding the vowel/glide distribution, high vowels are found adjacent to a consonant, and glides are found in the vicinity of vowels, as shown in (2) (from GUERSSEL 1986: 2). The initial segment (i, u/j, w) either indicates the third person singular or serves the construct state (more extensively described in 2.2).

[3] There is another epenthetic consonant, [ð], which appears in certain specific syntactic contexts. We leave the analysis of this epenthetic element for further study as it would bring us out of the scope of the present article.

[4] In this paper, we have opted for transcriptions using the International Phonetic Alphabet (IPA) for our data of Taqbaylit Berber. However, we did not adapt the data taken from GUERSSEL (1986) and LAHROUCHI (2013), which may cause some variation across the transcriptions.

[5] [p] is the result of the gemination of [w] or [f] in Taqbaylit of Chemini.

(2)	**i-ru**	'he cried'	**is i-ru**	'did he cry'
			aha j-ru	'then he cried'
	u-mazan	'messenger'	**x u-mazan**	'on the messenger'
			arra w-mazan	'messenger's kids'
	j-ari	'he writes'		
	w-ansa	'place'		

GUERSSEL (1986), who focuses on representing high vowels in Tamazight Berber, proposes to account for this peculiar behavior with specific phonological representations. While it has been proposed that both types of segments rely on two different sets of phonological objects (PENCHOEN 1973; MAMMERI 1976), the complementary distribution between glides and high vowels seems to rather indicate that they are the same phonological objects and receive different surface realization according to the environment they surface in (APPLEGATE 1971). In other words, [i, u] are the vocalic equivalents of [j, w], respectively [i, j]/[u, w], and are made of the same 'ingredients'.

While this second hypothesis seems satisfying to account for most Berber data, it fails to explain why some vowels remain as is even though they appear in a vocalic surrounding. This is illustrated in (3) below (GUERSSEL 1986: 3).[6]

(3)	**arba**	'boy'	**arba-u**	'this boy'	[arbaju] *[arbaw]
	afa	'fire'	**afa-u**	'this fire	[afaju] *[afaw]
	tenna	'she says'	**tenna = i**	'she told me'	[tennaji] *[tennaj]
	tebgha	'she wants'	**tebgha = i**	'she wants me'	[tebghaji] *[tebghaj]

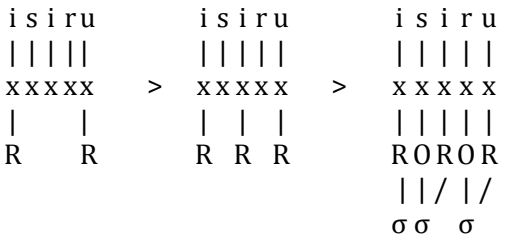
In (3), the demonstrative suffix *-u* and the 1SG object clitic *=i* remain vowels even though they follow another vowel. The newly created vocalic sequence triggers the insertion of a glide [j]. This is classically presented as a hiatus-repairing strategy and will be further discussed later in this section. From the previous data, we can infer that Berber has three types of segments: vowels that can alternate with glides as in (2), vowels that never alternate with glides, as in (3), and glides that never alternate with vowels, but serve the purpose of breaking vocalic sequences, also illustrated in (3).

With his hypothesis, GUERSSEL (1986) accounts for the three types of segments:

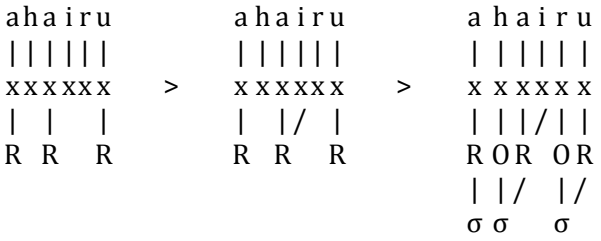
[6] Throughout this article, we use "-" to indicate affix boundaries and "=" to indicate clitics boundaries. Clitics pronouns will be further developed in section 3. The abbreviations used for the glosses are: 1, 2, 3 = person, ACC = accusative, AOR = aorist, COMP = complementizer, COP = copula, CS = construct state, DAT = dative, DEM = demonstrative, DET = determiner, DIR = directional, F = feminine, FS= free state, GEN = genitive, INT = intensive, IPFV = imperfective, M = masculine, NEG = negation, PFV = perfective, PL = plural, POSS = possessive, SG = singular, t = trace.

he proposes to distinguish between alternating vowels/glides and 'true' vowels based on a phonological discrepancy. While they all bear resemblance in their content (the same phonological primes can characterize them), they differ in their association to the syllabic tier. While true vowels are lexically connected to a rime head through the skeletal tier, alternating vowels are only connected to the skeletal tier. This gives the representations in (4):

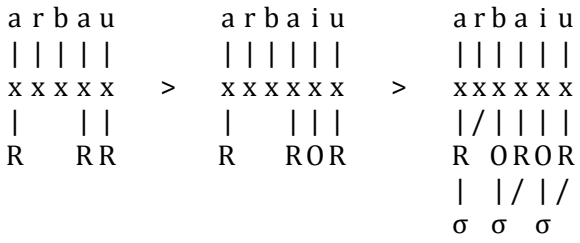
(4) a. **is i-ru** 'did he cry' [isiru]



b. **aha i-ru** 'then he cried' [ahajru]



c. **arba-u** 'this boy' [arbaju]



In (4a), in **i-ru**, the second vowel – which does not alternate with a glide – is attached to the skeletal tier and a syllabic position (a rime). It corresponds to the representation of 'true' vowels. However, the first segment in ***i*-ru** may alternate ([i, j]) depending on its environment. In this specific case, it is adjacent to two consonants; one is from the prefix, and one belongs to the root. Accordingly, nothing prevents it from connecting to a rime position and surface as a vowel. However, in (4b), the same root is preceded by a prefix ending in a vowel **aha** ***i*-ru**. Two options are theoretically possible: (i) the high segment connects to its own rime position and surfaces as a vowel, which yields an illicit configuration

for Berber (i.e., a hiatus *[a.i]) or (ii) it connects to the preexisting rime position already occupied by /a/. Accordingly, it surfaces as a glide, yielding the sequence [aj], and the constraint of vocalic sequences is satisfied.

In (4c), the fact that the high segment in **arba-*u*** surfaces as a vowel, even though a vowel precedes it, indicates that it must receive the same representation as a 'true' vowel. It is thus lexically attached to its own rime position. To satisfy the constraint on vocalic sequences, which would otherwise be violated, an onset must be inserted between /a/ and /u/. GUERSSEL (1986) gives this segment a different representation than the surface glide in **aha i-ru**: it comes lexically attached to an onset position, meaning that it can never alternate with a vowel.

Tashlhiyt Berber – another Berber language – exhibits challenging data with respect to GUERSSEL's (1986) analysis. In (5), we present two types of derivations on the verbs **gru** 'pick up' and **bri** 'crush' (from LAHROUCHI 2013): in (5a), a noun is derived from the verb. More specifically, /a/ vowels are inserted between the root consonants, creating a noun with the same semantics as the equivalent verb. In (5b), a clitic is added to the verb. Here the clitic is the 3SG person dative.

(5) a. **gru** 'pick up!' **agraw** 'assembly'
bri 'crush!' **abraj** 'crushing'

b. **gru = as** **grujas** ***grwas** 'pick it up for him!'
pick.up=3SG.DAT
bri = as **brijas** ***brjas** 'crush it for him!'
crush=3SG.DAT

On the one hand, during nominalization, the final vowel of the verb alternates with a glide to avoid hiatus. On the other hand, the same verb-final vowel remains vocalic after clitization, and an external/epenthetic glide has to be inserted to make the surface form licit. Representing these vowels that may or may not alternate with glides is particularly challenging in GUERSSEL's (1986) representations.

LAHROUCHI (2013), who focuses on Tashlhiyt Berber, proposed an analysis of the data in (5) based on morphosyntactic phases (PIGGOTT and NEWELL 2006; NEWELL 2008). In other words, the behaviors observed on the same root are not due to the phonological representation of vowels but result from morphosyntactic frontiers or phases. Phases (CHOMSKY 1999, 2005) and phase derivation imply that nouns, adjectives, and verbs – which constitute phrases – form a structure connecting a root to an element providing it with a syntactic function. Each element inserted in the course of nominal/adjectival/verbal derivation is enclosed within the same phase as the root. Once the derivation is licit and satisfies the phonotactics rules of a given language, a new phase may begin. For

instance, PIGGOTT and NEWELL (2006: 8) show that the formation of the English noun **twinkling** [twiŋkəliŋ], derived from the verb **twinkle**, implies a different phase configuration than the noun **twinkling** [twiŋkliŋ]. The noun **twinkling** [twiŋkəliŋ] would correspond to the representation [[twiŋklØ$_{nP}$]iŋ$_{vP}$] where the verbal phrase (*vP*) contains the lexeme /twiŋkl/, which is the root, and a verbalizer, (*v*), phonetically unexpressed. The verbal syntagm is included in a nominal syntagm (*nP*). In other words, it is a noun derived from a verb. In the second phase, the verb acquires a nominator (*n*), which receives a phonetic expression: /iŋ/. LOWENSTAMM (2007) described *n* as the functional head comprising the essence of nominality and which provides the constituent *nP* with the characteristics allowing it to function as a name. On the other hand, the noun **twinkling** [twiŋkliŋ], which is not derived from the verb but is a noun directly derived from the lexeme /twiŋkl/, would receive the following representation: [twiŋkliŋ$_{nP}$]. This underlying difference between both nouns is directly observable through the presence versus the absence of schwa: [ə] is inserted between /k/ and /l/ inside the *vP* because English would not allow such a cluster in final position. The phase would not be licit as such, and the derivation could not pursue.

This is the direction that LAHROUCHI (2013) takes to account for the Tashlhiyt data in (5). In (5.a), he considers that the vowel /a/ is the spell out of the nominalizer and is, therefore, included in the same phase as the root. In (5.b), however, the clitic intervenes outside the *vP* – which contains the root and the verbalizer. In **grujas** and **brijas** the vowel from the clitic and the vowel from the root are separated by a phase boundary. His vowels analysis is as follows: high vowels are subject to alternation with glides if they are in a vocalic environment within a phase. If a high vowel comes in contact with another vowel through a different phase, an epenthetic glide is inserted. This is motivated by *phase impenetrability* (CHOMSKY 1999), which states that once a phase is 'closed', the elements inside of it cannot be modified and are – to a certain extent – not subjected to the influence of the following phases.

While this analysis motivates the insertion of the glide [j] in Tashlhiyt Berber, we propose to extend it to Taqbaylit Berber where [w] can also be inserted. The main aspect that we want to discuss in this paper (especially in section 4) is the conditions of alternation between [j] and [w] in Taqbaylit.

The analysis of this present article focuses on true epenthetic glides. It excludes glides resulting from a lexical (alternating) vowel[7] and, also, glides that may

[7] Taqbaylit lexical glides display a similar behavior as the other previously mentioned Berber languages. For instance, when forming the intensive aorist theme of causative verbs, one inserts

never surface as a vowel, which are also considered lexical. Accordingly, we will not look at data like those in (2), but will focus on data similar to (3) and (5.b).

In the next section, we will present two contexts where glides appear to further elaborate on the distinction between lexical and epenthetic glides.

2.2 The construct state

In Taqbaylit Berber, nouns have two possible forms: free state (FS) and construct state (CS). The former corresponds to the default form of nouns when used in isolation or a non-specific syntactic structure. The latter is used in specific constructions: when a noun is a possessor in a genitive construction as in (6a', 7a'), or when the subject is post-verbal (as in 6b', 7b'). Note that the verb-subject inversion may yield pragmatic changes.[8]

(6) a. **aɣjul** **aməqqṛan**
FS.donkey FS.great
'The big donkey'

a'. **θaβarða n wəɣjul**
FS.saddle GEN CS.donkey
'The donkey's saddle'

b. **aɣjul** **jə-ttʃa**
FS.donkey 3MS-eat.PFV
'The donkey ate'

b'. **jə-ttʃa** **wəɣjul**
3MS-eat.PFV CS.donkey
'The donkey ate'

(7) a. **ifkər** **aməqqṛan**
FS.tortoise FS.great
'The big tortoise'

a'. **θ-aqəʒʒaṛ-θ n jəfkər**
FS.leg GEN CS.tortoise
'The tortoise's leg'

b. **ifkər** **jə-ttʃa**
FS.tortoise 3MS-eat.PFV
'The tortoise ate'

b'. **jə-ttʃa** **jəfkər**
3MS-eat.PFV CS.tortoise
'The tortoise ate'

FS is not explicitly marked on the noun, as it is its default form. On the other hand, the formation of CS implies the reduction of the initial vowel and the addition of an initial glide. The quality of the glide depends on the noun initial lexical vowel: nouns that begin with [a, u] will have [w] in the construct state, as in **aɣjul - wəɣjul** 'donkey'. Nouns that begin with [i], will take [j] in the construct state, as in **ifkər - jəfkər** 'tortoise'.

In order to understand the mechanisms at play here, we will use the CV framework as initiated in GUERSSEL (1992a) and LOWENSTAMM (1996). In this framework, sequences of CV positions – domains – are associated with

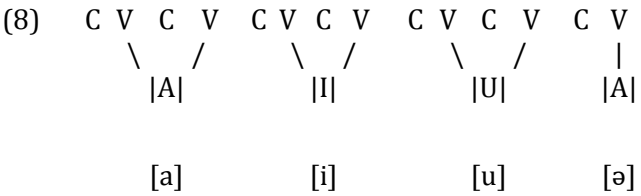
an [a] in the penultimate position, and the last vowel of the root becomes a glide: **ss-ali** 'make rise.IPFV > **ss-alaj** 'make rise.INT'; **ssə-ddu** 'make walk.IPFV' > **ssə-ddaw** 'make walk.INT'.

[8] Several syntactic analyses of *Construct State* and *Free State* in Berber languages can be found in GUERSSEL (1992b), OUHALLA (1996), EL MOUJAHID (1997), ENNAJI (2001), ACHAB (2003), METTOUCHI and FRAJZYNGIER (2013), METTOUCHI (2014).

morphosemantic values like case, determiner, etc. (MCCARTHY 1979, 1982, 1983). Moreover, morphological features have a dedicated room to express within a CV template. Following BENDJABALLAH (2005), we will also consider that in Taqbaylit, /i, a, u/ vowels are virtually long, which means that they occupy two V positions, while schwa is phonologically short.[9]

As illustrated in (8), the elements |A|, |I| and |U| (KAYE, LOWENSTAMM, and VERGNAUD 1985; HARRIS 1994; BACKLEY 2011) correspond to [a, i, u], respectively, when they are associated to two adjacent V positions. Whenever a full vowel is associated with a single V, it is realized as a schwa according to the phonotactic rules of Taqbaylit (BENJABALLAH 2005: 54).

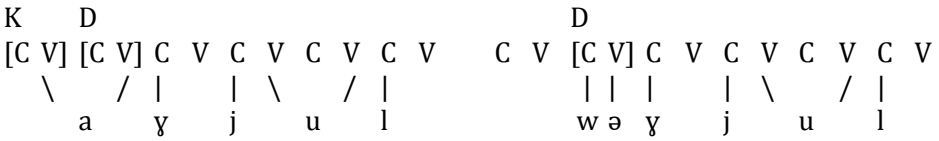
(8)



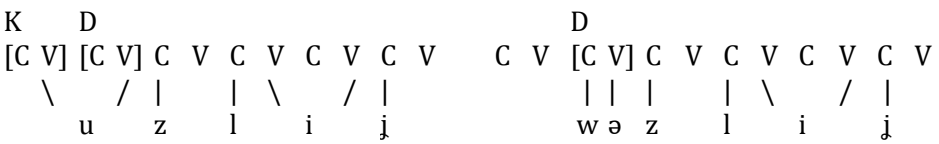
In this framework, vowel reduction (e.g. [a] > [ə]) can be interpreted as the loss of a domain: a CV slot. BENDJABALLAH and HAIDEN (2008), following GUERSSEL (1992b), propose that the initial vowel of a noun in free state is linked to two CV units in the template, which are K(ase) and D(eterminer). Hence the representation of the noun 'donkey' in the free state given in (9a), where the material responsible for the articulation of [a] is linked to both domains. In the construct state, the initial vowel is reduced to schwa due to the loss of space. More specifically, the vowel serves the expression of the determiner only, and a glide is inserted in the first C position. The same goes for 'crooked' in (9b), where the initial vowel, [u], is reduced to schwa, and 'houses' in (9c), where the initial vowel [i] reduces to schwa. The only difference in (9c) is the quality of the inserted glide: [j]. Note that in the construct state, the CV initially labeled as K may accommodate *light* prepositions, i.e., prepositions that consist of one segment like *f* 'on' and *g* 'in' (BENJABALLAH and HAIDEN 2008, 2013).

[9] In this context, phonological length is not interpreted as phonetic quantity, but as quality (HAMMOND 1997; BUCCI 2013; LOWENSTAMM 1991).

(9) a. **aɣjul ~ wəɣjul** 'donkey' FS > CS



b. **uzliɟ ~ wəzliɟ** 'crooked' FS > CS



c. **ixxamən ~ jəxxaməɴ** 'houses' FS > CS

We infer from this data that the default glide is /w/, that is |U|. Hoxwever, if the initial vowel contains |I|, it is maintained and overwrites the |U| in the inserted glide, which results in [j].[10]

2.3 The ambiguous case of plural formation

Finally, we would like to mention the plural formation, as it is also relevant to our overview of glides.

There are three types of plurals in Taqbaylit:

(i) external plural where the suffix *-n* is added to the singular form (**iθβir ~ iθβirn** 'pigeon');

(ii) internal plural where an *a* appears in the last vocalic position and the quality of the vowels of the root is altered (**aɣanim ~ iɣunam** 'reed');

(iii) mixed plural, which consists of both previous strategies simultaneously (**azal ~ izilan** 'daylight').

[10] The overwriting of |U| by |I| is mentioned in BACKLEY (2011: 178), where he proposes the following representation for the English liquid /l/: |AU|. In the vicinity of /j/ or any vowel containing |I| (**limb**, **let**, **lean**, **late**, **leer**), the liquid changes to a clear articulation, corresponding to |AI|. The competition, or imbalance, between |I| and |U| is also underlined in PÖCHTRAGER (2010), where he observes Turkish vocalic harmony. While |I| can spread and be interpreted in any other vocalic position on the right, |U| can only spread towards lexically empty nuclei. If the right nucleus already contains melody, |U| harmony fails (eg., **kol-dan** 'arm.ABL', but **kil-den** 'clay.ABL'). For the specific case of Berber languages, the exact formalization of the construct state markers needs to be further investigated in a future article.

The plural suffix that we previously referred to as "-n suffix" has, in reality, several possible realizations. The table in (10) illustrates them.

(10)

SINGULAR	PLURAL	SUFFIX	
i-θβir	**i-θβir-n**	**-n**	'pigeon'
a-βəqqa	**i-βəqqa-jən**	**-jən**	'slap'
aɣərða	**iɣərða-jən**	**-jən**	'mouse'
alma	**alma-θən**	**-θən**	'meadow'
izəm	**izm-awən**	**-awən**	'lion'
aməçsa	**imәçsa-wən**	**-wən**	'shepherd'
ifər	**afr-iwən**	**-iwən**	'wing'

CHAKER (1983) interprets this surface variation as allomorphy of the plural suffix: all the segments that constitute the suffix are, therefore, specific to the plural form. In this approach, glides that may surface in the plural suffixes are epenthetic.

BEN SI SAID (2014, 2020) proposes an alternate analysis based on the templatic structure of roots in a CV perspective. His main claim is that the plural suffix is regular and unique (**-n**), and the external plural formation is, in fact, only one strategy. The presence of segments between the root and **-n** is a consequence of the suffixation of **-n**. These segments are not part of the suffix *per se*. We present in (11) the examples previously given in (10) with a new segmentation.

(11)

SINGULAR	PLURAL	APPARENT EPENTHESIS	SUFFIX	
i-θβir	**i-θβir-n**		**-n**	'pigeon'
a-βəqqa	**i-βəqqa-j-n**	**j**	**-n**	'slap'
a-ʝawa	**i-ʝawa-w-n**	**w**	**-n**	'person from Djurdjura'
alma	**alma-θ-n**	**θ**	**-n**	'meadow'
izəm	**izm-aw-n**	**aw**	**-n**	'lion'
ifər	**afr-iw-n**	**iw**	**-n**	'wing'

Contrary to CHAKER (1983: 90), who treats the segments between the root and **-n** as epenthetic, BEN SI SAID (2014, 2020) claims that they belong to the root and remain silent on the surface in the singular. More specifically, they are floating in the singular form: the singular template does not provide them with enough space to connect to the temporal/syllabic tier. This proposal is congruent with the unpredictability of the so-called epenthetic segments surfacing in the course of plural formation. Nouns belonging to the same template and displaying the same phonological environment in the singular form do not present the same epenthetic segments in the plural form.

BEN SI SAID's (2014, 2020) analysis is couched within the CV framework (LOWENSTAMM 1996; SCHEER 2004). Given the vocalic behavior inside the roots in plural formation, BEN SI SAID proposes that the template of plural has five CVs in total, regardless of the initial amount of CV domains a word makes use of in the singular. We will illustrate this proposal below in (12-14) and show how it unifies the plural data given earlier in (10-11). More precisely, we will show the derivations successively from singular to plural for nouns with three CVs in the singular (**izəm ~ izmaw-n** 'lion'), for nouns with four CVs, such as (**urgəl ~ urgal-n** 'early fig') and nouns with five CVs (**a-zuliɣ ~ i-zuliɣ-n** 'mud').

In (12.a), the singular form template contains three CVs, which does not allow the final consonant **w** to be associated and realized. It thus remains floating. In (12.b), the template is increased to five CVs. The final glide can now be associated with the syllabic tier and thus be realized. Also, note that the vowel schwa from the singular surfaces as /a/ in the plural. This is made possible by the association of |A| to a second V position – the one provided by the plural template. Additionally, the plural suffix **-n**, which comes with its own CV, is also attached to the root.

(12) a. **izəm** (SG)

```
C  V[11] - C  V  C  V  C  V
          \   |  |     |  |
           |I| z     m  |A|w
```

b. **izmaw-n** (PL)

```
C  V  -  C  V  C  V  C  V  C  V  C  V  -  C  V
          \   |  |     |  \     /  |        |
           |I| z     m    |A|    w        n
```

In (13), the singular template contains four CVs. In the plural template, which is larger and contains more room, the schwa has, once again, the possibility to spread and surface as [a]. No additional consonant surfaces in the root (as opposed to the previous example in (12)). However, the **-n** suffix comes at the end of the root with its own CV.

[11] This first CV is devoted to the determiner. The initial radical vowel is associated with the first V position of the root or template and the V position of the determiner (cf. BENDJABALLAH 2011).

(13) a. **urgəl** (SG)

```
C  V  -  C  V  C  V  C  V  C  V
      \     |  |     |  |  |
            |U|r     g  |A|l
```

b. **urgal-n** (PL)

```
C  V  -  C  V  C  V  C  V  C  V  C  V  -  C  V
      \     |  |     |  \     /  |        |
            |U|r     g     |A|   l        n
```

Finally, in (14), the singular template contains five CVs, which also corresponds to the structure of the plural template. No noticeable change occurs in the root, as the organization of the material remains the same. Only the **-n** marker appears at the end of the root.

(14) a. **a-zuliɣ** (SG)

```
C  V  C  V  -  C  V  C  V  C  V  C  V  C  V
   \     /     |  \     /  |  \     /  |
      |A|        z     |U|   l     |I|   ɣ
```

b. **i-zuliɣ-n** (PL)

```
C  V  C  V  -  C  V  C  V  C  V  C  V  C  V  -  C  V
   \     /     |  \     /  |  \     /  |        |
      |I|        z     |U|   l     |I|   ɣ        n
```

While this analysis satisfyingly unifies the plural formation in Taqbaylit, it also sheds some light on the more general picture of glides: the [j, w] segments that may appear before the **-n** suffix (**izəm ~ izmaw-n** 'lion', **a-βəqqa ~ i-βəqqa-j-n** 'slap') are not predictable and not regular, because they are most likely not epenthetic.

The lexical status of glides in the previous examples is further reinforced by the fact that [j, w] can sometimes appear in the feminine singular form, in the absence of the plural feature. In the examples in (15), the feminization of both nouns 'mouse' and 'shepherd' leads to the surfacing of a glide, which is identical to the glide triggered by the presence of the plural marker in (11). Also, note that the need for a hiatus-repairing segment is hard to justify here, as the feminine circumfix corresponds to consonants (**θ- -θ**). It implies that the feminine template contains more CV domains and allows the expression of a floating consonant.

(15)	**aɣərða**	'mouse.M.SG'	**θ-aɣərðaj-θ**	'mouse.F.SG'
	aməçsa	'sheperd.M.SG'	**θ-aməçsaw-θ**	'sheperd.F.SG'

In this section, we have discussed the properties of lexical glides versus epenthetic glides, and we have seen several contexts involving glides. As previously mentioned, we will dedicate the rest of this paper to glides that are not lexically motivated. This will bring us to specifically look at clitics, whose boundaries with nouns and verbs often trigger the surfacing of [j, w]. In the next section, we detail the clitic system of Taqbaylit.

3. Overview of verbal and nominal morphemes

Before starting our discussion on boundaries and morphemes, we want to define and distinguish two types of morphemes: affixes and clitics. An affix can be defined as a morpheme attached to a stem to form a new word or new form. It may be derivational or inflectional. On the other hand, the clitic is a morpheme of second position: it depends on another word or host (HALPERN 1998).

We start our overview with verbal morphemes, and then we will focus on nominal morphemes. Finally, we will turn to clitic movement.

3.1 Verbal morphemes

This section will present two types of verbal morphemes in Taqbaylit: (i) inflectional affixes, which are called agreement markers, and (ii) verbal clitics that mark phi-features of direct and indirect object, and directional. There is another type of verbal prefixes that mark changes in diathesis (causative,[12] reciprocal...) that will not be discussed here as they will not be relevant to our analysis.

3.1.1 Inflectional affixes

Agreement markers are attached to the verbal stem. They can be suffixed, prefixed, or circumfixed, as shown in (16).

(16)

	SG		PL	
1.		**-ɣ**	**n-**	
2.M	**θ-**	**-ð̩**	**θ-**	**-m**
2.F	**θ-**	**-ð̩**	**θ-**	**-mt**
3.M	**i-/jə-**			**-n**
3.F	**θ-**			**-nt**

Note that the 3.M.SG has two forms: [jə] appears before two consonants, while [i]

[12] The causative prefix is **(s)s-** : **xðəm** 'work' > **ssə-xðəm** 'make work'. The prefix of reciprocal is **m(j)-**: **ħəmməl** 'to love'> **mjə- ħmal** 'to love reciprocally'.

appears before a consonant followed by a vowel. For instance, **jə-xðəm** 'he worked' versus **i-nuða** 'he searched'.

3.1.2 Verbal clitics

Taqbaylit has three sets of morphemes that enclitics a verb: (i) dative clitics (DAT), which mark the indirect object, (ii) accusative clitics (ACC), which mark the direct object, and (iii) directional clitics (DIR), which mark the directionality of the action (towards the speaker with /=d/ or towards the listener with /=n/). The complete paradigm of the first two sets of verbal clitics is given in the following table.

(17)

	a. DATIVE CLITICS		b. ACCUSATIVE CLITICS	
	SG	PL	SG	PL
1.	**=(i)ji**	**=aɣ**	**=(i)ji**	**=aɣ**
2.M	**=aç**	**=awən**	**=(i)k**	**=(i)kʷən**
2.F	**=am**	**=açʷənt**	**=(i)kəm**	**=(i)kʷənt**
3.M	**=as**	**=asən**	**=(i)θ**	**=(i)θən**
3.F	**=as**	**=asənt**	**=(i)tˢ**	**=(i)θənt**

The sentence in (18a) illustrates the DAT clitic of the first singular person, and the sentence in (18b) shows the ACC clitic of the second singular person in the feminine.

(18) a. **jə- ddəm *=iji* θaqəṛʕunt**
3.M.SG. take.PFV *=DAT.1SG* FS.bottle
'He took a bottle from me'

b. **jə- ddəm *=ik* wərgaz =ənni**
3.M.SG. take.PFV *=ACC.2SG.F* CS.man =DET
'The man took you'

The three sentences in (19) illustrate the two different directional clitics used in Taqbaylit. The sentence in (19a) does not give the directionality of the action. The sentence in (19b) shows that the action is directed towards the speaker, while in (19c), the action is directed towards the listener.

(19) a. **jə- rwəl wərgaz =nni**
3.M.SG flee.PFV CS.man =DET
'The man fled'

b. **i- rəwl *=əd* wərgaz =nni**
3.M.SG flee.PFV *=DIR* CS.man =DET
'The man fled here'

c. **i- rəwl *=ən* wərgaz =nni**
3.M.SG take.PFV *=DIR* CS.man =DET
'The man fled to you'

In the next section we will present the nominal morphemes of Taqbaylit.

3.2 Nominal morphemes

Similar to what we have presented earlier for verbs, we start this section on nouns by giving an overview of the affixes that can be attached to nouns, and then we will show the nominal clitics.

3.2.1 Nominal affixes

Taqbaylit noun has three affixes that mark number, gender, and state (case). Number is marked by the suffix **-n**, as shown in (20) and as explained in section 2.3. The feminine form is marked by the circumfix [**θ- -θ**], as shown in (21). Construct state is marked by the alteration of the initial vowel of the word. When the word begins with [a] or [u], [w] appears, but when the word begins with [i], [j] is selected as illustrated in (22) and as explained in section 2.2.

(20)

SG	PL	
axxam	**ixxam-*ən***	'house'
aʃəkkaṛ	**iʃəkkaṛ-*ən***	'bag'

(21)

M	F	
amʃiʃ	***θ*-amʃiʃ-*θ***	'cat'
afṛux	***θ*-afṛux-θ**	'bird'

(22)

FS	CS	
aβrid	***wə*-βrið**	'road'
ul	***w*-ul**	'heart'
iɟənni	***j*-iɟənni**	'sky'

After this brief overview of the nominal affixes, we now turn to nominal clitics.

3.2.2 Nominal clitics

There are two types of nominal clitics in Taqbaylit: possessive clitics and demonstrative clitics. The complete paradigm of possessive clitics is given in table (23).

(23)

	SG	PL
1.	=jnu	=nnəɣ
2.M	=jnəç	=ntəɣ
2.F	=jnəm	=nçʷənt
3.M	=jnəs	=nsən
3.F	=jnəs	=nsənt

The examples in (24) illustrate the demonstrative clitics =aki, =ihin, =ənni and =ənnajəḍ.

(24) axxam=aki 'this house'
axxam=ihin 'this house there'
axxam=ənni 'the house'
axxam=ənnajəḍ 'another house'

Following the analysis of BENJABALLAH and HAIDEN (2013), the last demonstrative =nnajəḍ is formed from the genitive -n plus -ajəḍ. We will come back to this demonstrative in the next section.

3.3 Clitic movement

This section is devoted to the movement of verbal and nominal clitics in certain syntactic contexts. We will begin with verbal clitics movement and then turn to nominal clitics movement.

3.3.1 Verbal clitics movement

Verbal clitics undergo movement in certain well-defined contexts (GUERSSEL 1983; OUHALLA 1988; OUALI 2011; BENDJABALLAH and HAIDEN 2013, among others). As an example, we will take the DIR clitic (illustrated in (19)). However, note that all verbal clitics behave the same.

In the sentence (25a) the DIR enclitics the verb, but it may be attracted towards the following elements :

(i) negation particle, as in (25b). Note that negation is expressed with a preverbal and a post-verbal particle as follows: u(r) Verb ara.

(ii) aspectual particles a(ð)- for aorist (25.c) and la- for intensive (25d)

(iii) complementizer (25e).

(25) a. **i-ṛuħ** ***=əd*** **ar** **θəβħirθ**
3M.SG-go.PFV *=DIR* to CS.garden
'He came to the garden'

b. **ur** ***=d*** **i-ṛuħ** **ara** **ar** **θəβħirθ**
NEG1 *=DIR* 3M.SG-go.PFV NEG2 to CS.garden
'He did not come to the garden'

c. **a** ***=d*** **i-ṛuħ** **ar** **θəβħirθ**
AOR *=DIR* 3M.SG-go.PFV to CS.garden
'He will come to the garden'

d. **la** ***=d*** **i-tˢ-ṛuħu** **ar** **θəβħirθ**
INT *=DIR* 3M.SG-INT-go to CS.garden
'He comes to the garden (regularly)'

e. **ar** **θəβħirθ** **i** ***=d*** **i-ṛuħ**
to CS.garden COMP *=DIR* 3M.SG-go.PFV
'To the garden he came'

We now turn to nominal clitics.

3.3.2 Nominal clitics movement

Unlike verbal clitics that are always bound to stems or attracted to certain particles, nominal clitics have an independent form. They may be free morphemes in the sentence. We repeat in (26-28a) the examples given earlier in section 3.2.2 and, as a comparison, we show in (26-28b) how the demonstrative clitics behave in focus.

(26) a. **axxam** ***=aki***
FS.house *=DEM*
'This house'
[axxamaki]

b. ***waki*** **ð** **axxam**
DEM COP FS.house
'This one is a house'
[wakiðaxxam]

(27) a. **axxam** ***=ihin***
FS.house *=DEM*
'This house there'
[axxamihin]

b. ***wihin*** **ð** **axxam**
DEM COP FS.house
'That one there is a house'
[wihinðaxxam]

(28) a. **axxam** ***=nnajəḍ***
FS.house *=DEM*
'Another house'
[axxamnnajəḍ]

b. ***wajəḍ*** **ð** **axxam**
DEM COP FS.house
'The other is a house'
[wajəḍðaxxam]

In this section, we have discussed the different morphemes that verbs and nouns can take in Taqbaylit. These elements may be affixes or clitics. The junction

between noun/verb and their dependents is where glides may be inserted if morphology creates a vocalic sequence: if one of the dependents starts with a vowel and is attached to a root ending in a vowel. The following section is dedicated to this type of situation.

4. Glides and boundaries

The present section is dedicated to epenthetic glides that may appear between verbal/nominal roots and their clitics. Recall that the glide may be [j] or [w]. We aim to provide a unified analysis that will correctly explain (and predict) why glides are inserted and why they take an anterior or a posterior articulation.

In the following data in (29), we have a series of nouns followed by a demonstrative: **=aki** 'this one' or **=ihin** 'that one'. In (29a), nouns end in a consonant, and the demonstrative – which is postponed – is directly attached to the stem. In (29b), the nouns end in a vowel, and, as we can see, a glide has been inserted between the stem and the clitic. This glide, [j] is not related to the stem, nor the demonstrative. It is classically analyzed as a hiatus-breaking strategy (GUERSSEL 1986).

(29) a.

axxam =aki	**isla-n =aki**	**aɣjul =aki**
house =DEM	groom-PL =DEM	donkey =DEM
'this house'	'these grooms'	'this donkey'
[axxamaki]	[islanaki]	[aɣjulaki]
axxam =ihin	**isla-n =ihin**	**aɣjul =ihin**
house =DEM	groom-PL =DEM	donkey =DEM
'that house'	'these grooms'	'that donkey'
[axxamihin]	[islanihin]	[aɣjulihin]

b.

θaziba =aki	**isli =aki**	**asaru =aki**
necklace =DEM	groom =DEM	hook =DEM
'this necklace'	'this groom'	'this hook'
[θazibajaki]	[slijaki]	[asarujaki]
θaziba =ihin	**isli =ihin**	**asaru =ihin**
necklace =DEM	groom =DEM	hook =DEM
'that necklace'	'that groom'	'that hook'
[θazibajihin]	[slijihin]	[asarujihin]

The glide [j] is inserted between the nominal base and **=aki** or **=ihin**, regardless of the quality of the vowel at the end of the noun.

If we now look at the verbal constructions including a negation in (30), a glide appears in the same condition as previously illustrated. Negation consists of two particles: **ur** is added before the inflected verb and **ara** after the inflected verb.

Additionally, the vowel [i] is inserted in the penultimate position in the verbal base. If the verb ends in a consonant, then the second particle **ara** is directly adjacent to the root (30a). However, if the verb ends in a vowel, then [w] is inserted before the negation suffix (30b).

(30) a.

i-	**xðəm**		**ur**	**i-**	**xðim**	**ara**	
3M.SG-	work.PFV		NEG1	3M.SG-	work.PFV.NEG	NEG2	
'He did'			'He did not do'				
[ixðəm]			[urixðimara]				
jə-	**rwəl**		**ur**	**jə-**	**rwil**	**ara**	
3M.SG-	flee.PFV		NEG1	3M.SG-	flee.PFV.NEG	NEG2	
'He flew'			'He did not flew'				
[jərwəl]			[urjərwilara]				

b.

i-	**ẓra**		**ur**	**i-**	**ẓri**	**ara**	
3M.SG-	see.PFV		NEG1	3M.SG-	see.PFV.NEG	NEG2	
'He flew'			'He did not flew'				
[iẓra]			[uriẓri**w**ara]				
i-	**ʃəffu**		**ur**	**i-**	**ʃəffu**	**ara**	
3M.SG-	remember.IPFV		NEG1	3M.SG-	remember.IPFV.NEG	NEG2	
'He remembered'			'He does not remember'				
[iʃəppu]			[uriʃəppu**w**ara]				

Once again, the quality of the glide is not related to the vocalic environment, as [w] is attested after [i, u]. Note that there is an alternate strategy to avoid hiatus: dropping the verb last vowel (31).

(31)

ur	**i-**	**ẓri**	**ara**
NEG1	3M.SG-	see.PFV.NEG	NEG2
'He did not see'			
[uriẓrara]			
ur	**i-**	**ʃəffu**	**ara**
NEG1	3M.SG-	remember.INTNEG	2
'He does not remember'			
[uriʃəppara]			

In the following sections, we present three hypotheses that may be retained in order to explain the appearance of glides. We will illustrate each one in detail and show why we are in favor of the third one.

4.1 First hypothesis: nominal versus verbal root

The phonological environment is identical in the cases of nominal and verbal constructions (29b) and (30b): the base ends in a vowel [a], [i] or [u] and the suffix starts with the vowel [a] or [i] – yet the inserted glide varies. One could

posit that the grammatical nature of the base constrains the quality of the glide: [j] intervenes after a noun, [w] after a verb.

However, if we look at the extra data given in (32), we see that [j] can also be inserted in a verbal construction.

(32) a. **xðəm =as**
work =3SG.DAT
'Work for him!'
[xəðmas]

səl =as
listen =3SG.DAT
'Listen to him!'
[slas]

b. **jə- nna =as**
3M.SG- say.PFV =3SG.DAT
'He said to him'
[jənna**j**as]

jə- ppi =as
3M.SG- bring.PFV =3SG.DAT
'He brought to him'
[jəppi**j**as]

ʃnu =as
sing =3SG.DAT
'Sing to him!'
[ʃnu**j**as]

More precisely, the verb can have three complements, which function as clitics: indirect object, direct object, and directional particle – in that specific order. We will take the example of the indirect object masculine 3SG, which starts with a vowel **-as**. In the same manner as in (29) and (30), if the verb ends in a consonant, the indirect object surfaces directly adjacent to the verb (32.a). However, if the verb ends in a vowel, then the glide [j] is inserted (32.b). Once again, the surrounding vocalic identity does not seem to play any role.

Both glides are attested after nominal and verbal roots. Therefore, the nature of the root does not seem to provide an explanation as to when [j] versus [w] is inserted. We turn to our second hypothesis.

4.2 Second hypothesis: demonstratives as independent words

In the same fashion as plural formation (see part 2.3), which leads to the surfacing of a lexical glide that has been 'hiding' in the singular, one could posit that the [j] segment that surfaces before **=aki** and **=ihin** is lexically present in the demonstrative. In the specific context of postposition after a noun, this lexical glide would have room to surface.

However, when demonstratives are used as independent words – not as clitics –, they take an initial glide: [w] in (33).[13] In other words, **=aki** and **=ihin** do not

[13] The exact status/nature of the glide [w] in **waki/wihin/wajəḍ** is arguable. GALAND (2010) posits that [w] marks masculine, given that the feminine forms of the demonstratives are

seem to be lexically determined to function with any specific glide and can alternatively take [j] or [w].

(33)

waki	**waki**	**ð**	**aħəffaf**
DEM	DEM	COP	FS.hairdresser
'this one'	'This one is a hairdresser'		
[waki]	[wakiðaħəffaf]		
wihin	**wihin**	**ð**	**aʃənnaj**
DEM	DEM	COP	FS.singer
'that one'	'That one is a singer'		
[wihin]	[wihinðaʃənnaj]		

In this case, the nature of the clitic could have been a potential factor to determine which glide should be inserted. Clitics could be determined to have a specific glide that would surface when they need one. However, in the specific case of demonstratives, we have just seen that both glides may surface. We, therefore, turn to our third and last hypothesis.

4.3 Third hypothesis: the strength of boundaries

Both glides appear in the same vocalic environment. They do not seem to be lexically conditioned. We propose to analyze the distribution of [j, w] as follows: the glides are indeed sensitive to morphosyntactic boundaries: some trigger [j], some trigger [w]. However, the question is not about the nominal versus verbal nature of the boundary but rather about how many boundaries separate the basis from the clitic. We argue that the boundary that separates the verb from the negation particle is stronger than the boundary between the verb and the indirect object.

An inflected noun can be followed by two kinds of clitics: a demonstrative (as illustrated in (29)) and/or a possessive pronoun (e.g., **jnu** 1SG.poss). If they appear simultaneously, the order is fixed. We give in (34) examples of nouns with both suffixes.

θaki/θihin/θajəḍ. On the other hand, CHAKER (1983) defends that feminine is marked by a dental while masculine is unmarked (as shown by the opposition of the two nouns **awθul** 'rabbit.m' vs **θ-awθul-t** 'rabbit.f'). While we agree with both authors regarding /θ/ as the feminine marker, in this paper, we follow Chaker's analysis and consider [w] as an epenthetic segment.

(34)

axxam =jnu home =1SG.POSS 'My house' [axxamjnu]	**axxam =aki =jnu** home =DEM =1SG.POSS 'This house of mine' [axxamakijnu]
θaziba =jnu necklace =1SG.POSS 'My necklace' [θazibajnu]	**θaziba =aki =jnu** necklace =DEM =1SG.POSS 'This necklace of mine' [θazibajakijnu]
isli =jnu groom =1SG.POSS 'My groom' [islijnu]	**isli =ihin =jnu** groom =DEM =1SG.POSS 'That groom of mine' [islijihinjnu]
asaru =jnu hook =1SG.POSS 'My hook' [asarujnu]	**asaru =ihin =jnu** hook =DEM =1SG.POSS 'That hook of mine' [asarujihinjnu]

Regarding nominal inflection, it is usually admitted that nominal templates include initial and final CVs to host agreement, that is gender and number (ACHAB 2005; BENDJABALLAH and HAIDEN 2008). The full representation of the underlying noun structure can be summarized as follows:

(35) 2[1[AGR – N root – AGR]1 =DEM =POSS]2

Everything between the boundaries bearing the number 1 corresponds to the noun root: here are inserted the gender and number markers– this can be considered as the core domain. Demonstrative and possessive clitics, which are closely related to the noun, are included in a bigger nominal domain, marked with number 2. Any lexical elements inserted before the first frontier bearing a number 2 or after the last frontier bearing a number 2 will be considered outside the nominal domain.

A verb root can host subject agreement, and the inflected verb can take three clitics: dative clitics, accusative clitics and directional, in that particular order. The representation in (36) illustrates the full verbal domain. As for the noun in (35), it is classically admitted that a verbal root includes space to host the subject markers, the agreement – more specifically in an initial and a final domain (GUERSSEL 1992a). Outside the core domain, between the boundaries bearing the number 1 in our representation, we find a bigger verbal domain, where the verbal clitics are hosted. Once we have reached the boundaries marked with number 2, we are outside the verbal domain.

(36) 2[1[AGR – V root – AGR]1 =DAT =ACC =DIR]2

Negation should be inserted outside the frontiers bearing the number 2. Negation is not considered as a clitic nor a dependent of the verb – it is closer to the adverbial status. Consequently, it should not appear in the close verbal domain and hold the same relationship with the root as the verb dependents do. The representation in (37) illustrates the verbal domain configuration when negation is present. Note that verbal clitics move to the left of the inflected verb. The traces mark the initial position of the clitics before they move outside the verbal domain. Even though the clitics moved, they are still included in the bigger verbal domain: linearity changed, but the hierarchical relations are maintained.

(37) NEG 2[=DAT$_i$ =ACC$_j$ =DIR$_k$] 1[AGR – V root – AGR]1 t$_i$ t$_j$ t$_k$]2 NEG

Following the inner organization of verbal and nominal domains, we argue that the quality of the inserted glide depends on the type of boundary which is at its left. If a hiatus is created between the core and dependent domains – the separation corresponding to number 1 – then [j] is inserted. However, when a hiatus intervenes at the outside boundary of the verbal/nominal domain – which corresponds to the boundary bearing the number 2 – then [w] is inserted. This is what the examples in (38) illustrate.

(38) a. 2[1[AGR- V root -AGR]1 =DAT =ACC =DIR]2
jə- **ppi** **= as** **= θ** **= id**
3M.SG- bring.PFV =3.SG.DAT =3M.SG.ACC =DIR
'He brought it there to him'
[jəppi**j**asθid]

b. 2[1[AGR- N root -AGR]1 =DEM =POSS]2
asaru **= aki** **= jnu**
hook =DEM =1SG.POSS
'This hook of mine'
[asaru**j**akijnu]

c. [NEG =DAT =ACC =DIR] 2[1[AGR- V root -AGR]1]2 NEG
ur **= s** **= θ** **= id** **jə-** **ppi** **ara**
NEG =3.SG.DAT =3M.SG.ACC =DIR 3M. SG- bring.PFV NEG
'He did not bring it there to him'
[usθidjəppi**w**ara]

In (38a), we have an inflected verb followed by three clitics. As the first clitic – the indirect object – starts with a vowel, it creates a hiatus situation with the preceding verb that ends in a vowel. This hiatus straddles a boundary that

separates the core domain from the larger domain (a frontier marked with the number 1). Accordingly, [j] is inserted.

In (38b), the situation is similar even though we are dealing with a noun and not a verb. The noun **asaru** ends in a vowel. The closest clitic, here the demonstrative **=aki**, starts with a vowel. The hiatus corresponds to the boundary between the core domain and the larger nominal domain. Accordingly, [j] is inserted.

In (38c), however, the hiatus newly created by the adjunction of the negation particle **ara** after the verb **jə-ppi**, corresponds to a boundary numbered 2. This time, [w] is inserted. Note that clitics are attracted towards the negation. They move to the left of the verbal domain, outside the boundaries bearing the number 2.

5. Conclusion

In this paper, we have discussed the distribution of glides in Taqbaylit. We have illustrated several situations where glides appear.

First, we have distinguished between lexical and epenthetic glides and illustrated their respective behavior in relation to high vowels. The former may alternate with their vocalic equivalent – according to the phonological environment – and may also mark specific morphosyntactic features, such as the construct state. In doing so, we have also discussed glide insertion in the construct state, where the quality of the glide was [w] by default, and [j] if the |I| element was already present in the phonological chain. Besides lexical glides that are stable in the roots, we have seen cases of lexical glides that may disappear and reappear due to templatic constraints – as illustrated with the plural formation. The latter are not associated with any meaning and serve the sole purpose of breaking hiatus.

Then, we presented an overview of verbal and nominal morphemes. We more specifically detailed the affixes and the clitics that verbs and nouns can bear. We also presented clitic movements that are highly relevant to our analysis of the epenthetic glides, as they appear between verbal/nominal roots and their clitics.

Finally, we have discussed glide insertion in the verbal and nominal constructions and the distribution of [j, w]. We have shown that, in this context, glides are not lexically determined. Their distribution does not fall under a phonological constraint (the vocalic environment is not pertinent) or a syntactic categorization constraint (both glides may intervene in a verbal and a nominal construction). We proposed to put the quality of the glide and the underlying morphosyntactic structure in perspective. In other words, the glide color is to be

seen as the expression of the morphological boundaries. The glide [j] appears at the boundary between the verbal/nominal root and the clitics – which we refer to as a *weak* boundary –, and [w] appears outside the core domain, that is, outside the phrase containing the root and its direct dependents. We refer to this type of boundary – for example, between the verb and the particle of negation **ara** – as *strong* boundary. Thus, the quality of glides depends on a set of phonological, morphological, and syntactic constraints and not on the purely phonological environment.

Acknowledgment

We would like to thank our colleagues of the LLING for their fruitful feedback on this paper. We are also very grateful to our anonymous reviewers for their insightful comments. All remaining errors are ours.

References

ACHAB, Karim (2003). "Alternation of state in Berber", in Jacqueline LECAME (ed.), *Research in Afroasiatic Grammar II: Selected papers from the Fifth Conference on Afroasiatic Languages*, Amsterdam and Philadelphia: John Benjamins, 1-20.

ACHAB, Karim (2005). "Le système de genre et son origine en berbère et en chamito-sémitique", *Faits de langues* 26: 97-128.

APPLEGATE, Joseph R. (1971). "The Berber languages", in Carleton T. HODGE (ed.) *Afroasiatic: A Survey*, The Hague and Paris: Mouton, 96-118.

BACKLEY, Phillip (2011). *An Introduction to Element Theory*, Edinburgh: Edinburgh University Press.

BEN SI SAID, Samir (2014). De la nature de la variation diatopique en kabyle : étude de la formation des singulier et pluriel nominaux, PhD thesis, University of Nice.

BEN SI SAID, Samir (2020). "La voyelle initiale des noms et l'état d'annexion en kabyle (berbère)", *Canadian Journal of Linguistics/Revue Canadienne de Linguistique* 65 (2): 155-180.

BENDJABALLAH, Sabrina (2005). "Longueur phonologique des voyelles en kabyle", *Études et Documents Berbères* 22: 47-69.

BENDJABALLAH, Sabrina (2011). "Note sur les noms à voyelle initiale stable en kabyle", in Amina METTOUCHI (ed.) *Parcours berbères, Mélanges offerts à Paulette Galand-Pernet et Lionel Galand pour leur 90e anniversaire*, Köln: Rüdiger Köppe, 417-434.

BENDJABALLAH, Sabrina, and Martin HAIDEN (2008). "A typology of emptiness in templates", in Jutta HARTMANN, Veronika HEGEDUS, and Henk VAN RIEMSDIJK (eds.), *The sounds of silence: empty elements in syntax and phonology*, Amterdam: Elsevier, 21-57.

BENDJABALLAH, Sabrina, and Martin HAIDEN (2013). "La représentation syntaxique des prépositions faibles du berbère de Chemini", in Jesse TSENG (ed.), *Prépositions et postpositions - approches typologiques et formelles*, Paris: Hermès Science-Lavoisier, 87-123.

BUCCI, Jonathan (2013). "Voyelles longues virtuelles et réduction vocalique en coratin", *Canadian Journal of Linguistics/Revue canadienne de linguistique* 58 (3): 397-414.

CHAKER, Salem (1983). *Un parler berbère d'Algérie (Kabylie)*, Université de Provence.

CHOMSKY, Noam (1999). "Derivation by phase", *MIT Working Papers in Linguistics: MIT Occasional Papers in Linguistics* 18.

CHOMSKY, Noam (2005). *On phases*, ms.

EL MOUJAHID, El Houssaïn (1997). *Grammaire générative du berbère: morphologie et syntaxe du nom en Tachelhit*, PhD thesis, Mohammed V University.

ENNAJI, Moha (2001). "The construct state in Berber", *Studies in the Linguistic Sciences* 31 (2), 55-72.

GALAND, Lionel (2010). *Regards sur le berbère*, Milano: Centro Studi Camito-Semitici.

GUERSSEL, Mohamed (1983). "A Phonological Analysis of the Construct State in Berber", *Linguistic Analysis* 11 (3): 309-330.

GUERSSEL, Mohamed (1986). "Glides in Berber and syllabicity", *Linguistic Inquiry* 17 (1): 1-12.

GUERSSEL, Mohamed (1992a). "The phonology of Berber derivational morphology by affixation", *Linguistic Analysis* 22 (1-2): 3-60.

GUERSSEL, Mohamed (1992b). "On the case system of Berber", *Canadian Journal of Linguistics/Revue canadienne de linguistique* 37 (2): 175-196.

HALPERN, Aaron L. (1998). "Clitics", in Andrew SPENCER and Arnold M. ZWICKY (eds.). *The Handbook of Morphology*, Oxford: Blackwell, 101-123.

HAMMOND, Michael (1997). "Vowel quantity and syllabification in English", *Language* 73 (1): 1-17.

HARRIS, John (1994). *English Sound Structure*, Cambridge: Blackwell.

KAYE, Jonathan, Jean LOWENSTAMM, and Jean-Roger VERGNAUD (1985). "The internal structure of phonological elements: a theory of charm and government", *Phonology Yearbook* 2 (1): 305-328.

LAHROUCHI, Mohamed (2013). "A propos de I et de U en berbère : de la phonologie, de la morphologie et des phases", in Ali TIFRIT (ed.), *Phonologie, morphologie, syntaxe : mélanges offerts à Jean-Pierre Angoujard*, Rennes: Presses Universitaires de Rennes, 21-30.

LOWENSTAMM, Jean (1991). "Vocalic length and syllable structure in Semitic", in Alan L. Kaye (ed.), *Semitic Studies in Honor of Wolf Leslau on the Occasion of His 85th Birthday*, Wiesbaden: Otto Harrassowitz: 949–965.

LOWENSTAMM, Jean (1996). "CV as the Only Syllable Type." In Jacques DURAND and Bernard LAKS (eds.), *Current Trends in Phonology. Models and Methods*, Manchester: ESRI, University of Salford: 419-442.

LOWENSTAMM, Jean (2007). "Little n, ROOT, and Types of Nouns", in Jutta HARTMANN, Veronika HEGEDUS, and Henk VAN RIEMSDIJK (eds.), *The sounds of silence: empty elements in syntax and phonology*, Amsterdam: Elsevier, 105-143.

MAMMERI, Mouloud. 1976. *Tajerrumt n tmaziγt*, Paris: Maspéro.

METTOUCHI, Amina (2014). "Foundations for a typology of the annexed/absolute state systems in Berber", *STUF-Language Typology and Universals* 67 (1): 47-61.

METTOUCHI, Amina, and Zygmunt FRAJZYNGIER (2013). "A previously unrecognized typological category: The state distinction in Kabyle (Berber)", *Linguistic Typology* 17 (1): 1-20.

MCCARTHY, John J. (1979). *Formal problems in Semitic phonology and morphology*, London: Routledge.

MCCARTHY, John J. (1982). "Prosodic templates, morphemic templates, and morphemic tiers", in Harry VAN DER HULST and Norval SMITH (eds.), *The Structure of Phonological Representations*, Dordrecht: Foris, 191-223.

MCCARTHY, John J. (1983). "Consonantal morphology in the Chaha verb", in Michael BARLOW, Daniel P. FLICKINGER and Michael T. WESCOAT (eds.), *Proceedings of the West Coast Conference on Formal Linguistics*, Stanford: University of Stanford, 176-188.

NEWELL, Heather (2008). *Aspects of the morphology and phonology of phases*, PhD thesis, McGill University.

OUALI, Hamid (2011). *Agreement, pronominal clitics and negation in tamazight berber: a unified analysis*, London and New York: Continuum International.

OUHALLA, Jamal (1988). *The syntax of head movement: a study of Berber,* PhD thesis, University of London.

OUHALLA, Jamal (1996). "The construct state in Berber", in Jacqueline LECARME, Jean LOWENSTAMM, and Ur SHLONSKY (eds.), *Studies in Afroasiatic grammar*, The Hague: HAG, 278-301.

PENCHOEN, Thomas G. (1973). *Tamazight of the Ayt Ndhir*. Los Angeles: Uneda.

PIGGOTT, Glyne, and Heather NEWELL (2006). "Syllabification, stress and derivation by phase in Ojibwa", *McGill Working Papers in Linguistics* 20 (2): 39-64.

PÖCHTRAGER, Markus, A. (2010). "Does Turkish diss harmony?", *Acta Linguistica Hungarica* 57: 458-473.

SCHEER, Tobias (2004). *A lateral theory of phonology: what is CVCV, and why should it be?*, Berlin: De Gruyter Mouton.