ⴰⵙⵉⵏⴰⴳ-*Asinag,* 7, 2012, p. 151-171

Morphological haplology in amazigh*

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L'allomorphe « zéro » du morphème de l'intensif verbal en amazighe a, jusqu'ici, échappé à l'attention des chercheurs. Le préfixe [tt+] n'est pas réalisé phonétiquement en situation de contact avec un morphème qui contient un élément consonantique dont les traits sont identiques ou similaires à celui de l'intensif (le [ttu+] du passif et le [ss+] du causatif). Ceci est dû à un processus de dissimilation induit par une haplologie morphologique. Tout en rendant compte de l'intensif de certains verbes simples, notre analyse simplifie la morphologie de l'intensif et propose une solution à un problème de la morphologie de l'amazighe qui a longtemps résisté à un traitement adéquat.

Introduction

Intensive verb formation involves up to three basic processes, some of which apply in tandem, illustrated here with data from Tashlhit: (i) gemination (*nkr*/*nkkr* 'to wake/get up'), (ii) tt-prefixation (*bbi*/*ttbbi* 'to cut, bite'), (iii) vowel epenthesis (*skr*/*skar* 'to do'), (iv) gemination and vowel epenthesis (*gn*/*ggan* 'to sleep'), and (v) tt-prefixation and vowel epenthesis (*knkr*/*ttknkar* 'to pick a bone'). Since the early days of Amazigh linguistics, this state of affairs has been the source of the commonplace statement in the literature that the formation of the intensive form of verbs (henceforth the intensive) is a complex phenomenon (see Abdelmassih, 1968; Basset, 1929, 1952; Bensoukas, 2001a; Boukhris, 1986; Dell and Elmedlaoui, 1991; Derkaoui, 1986; Elmountassir, 1989; Iazzi, 1991; Jebbour, 1996; Lahrouchi, 2001, 2010; MacBride, 2004 among others.)

More specifically, the intensive in Amazigh presents a highly complex case of allomorphy revolving around affixation, internal gemination and vowel epenthesis. As far as affixation and internal gemination are concerned, Bensoukas (2001a) argues that the intensive morpheme consists of an abstract consonantal mora, the prefixation of which is concomitant with a very intricate allomorphy: stem-internal gemination or tt-prefixation. Combining with both gemination and tt-prefixation, vowel epenthesis is an independent process which is argued to be morphologically motivated (Bensoukas, 1994, 2001a, 2006/7; Jebbour, 1996; Lahrouchi, 2001). The intensive that differs from the base on the basis of epenthesis solely (*skr*/*skar* 'to

* In preparing this paper, I benefited from fruitful discussion with El Mehdi Iazzi, Abdallah Boumalk and Rachid Laabdelaoui.

do') reveals the third manifestation of the intensive morpheme, a 'zero' allomorph, as it were. As far as we know, this facet of the allomorphy has so far not received attention in the literature.

The aim of this paper is to investigate the 'zero' allomorph in the intensive on the basis of facts from Tashlhit, a Moroccan Amazigh dialect. The hypothesis underlying the treatment is that the intensive prefix [tt+] fails to be realized when it co-occurs with another morpheme that contains a coronal obstruent, be it similar or identical continuancy-wise. Accordingly, our treatment generally falls within the purview of dissimilation (Alderete, 2003; Alderete and Frisch, 2007; Bye, 2011; Suzuki, 1998; Walter, 2007 to cite but a few). More specifically, we will claim that this facet of the allomorphy is driven by morphological haplology (Ackema and Neeleman, 2005; de Lacy, 1999; Dressler, 1977; Menn and MacWhinney, 1984; Nevins, 2010; Plag, 1998; Stemberger, 1981; Yip, 1995, 1998 among others).

The morphological classes relevant to the analysis are primarily, though not exclusively, the causative and passive. The intensive [tt+] fails to be realized phonetically in this case either because it co-occurs with a morpheme whose consonantal make-up is identical (passive [ttu+]) or similar (causative [ss+]). With a few provisions, the analysis extends to the intensive of some simple verbs, gaining width in terms of data coverage. The results obtained (i) simplify intensive morphology by reducing its complexity to a tri-partite allomorphy- gemination, tt-prefixation and the non-realization of the morpheme- and (ii) shed light on a long-standing problem in the treatment of the verb morphology of Amazigh.

2. Tashlhit intensive verb forms

2.1 Verb stems in Amazigh

In the verbal system of Amazigh, the intensive is one of three basic stems, the aorist, the intensive and the perfective, also referred to as stem I, stem II, and stem III, respectively (Galand, 1977).

The perfective form of the verb displays an opposition between an affirmative stem and a negative one in most Amazigh dialects (referred to here as stem III'). The intensive/stem II has a negative counterpart (stem II') in a limited set of dialects. The overall system is thus based on a five-way opposition as the items in (1) illustrate. On the basis of verb stem oppositions, we restate the same grouping as in Bensoukas (2007) for the Amazigh varieties:[1]

[1] In this paper, we use IPA symbols, except for emphasis, which is transcribed with a dot underneath the consonant symbol in question. Gemination is indicated by doubling the consonant.

(1) Verb stems in Amazigh

a- Five verb stem varieties (e.g. Ait Oulichek Tarifit, Figuig Tamazight)

Stem I	Stem II	Stem II'	Stem III	Stem III'	
azu	ttazu	ttizu	uzi/a	uzi	'to skin'

b- Four verb stem varieties (e.g. Imdlawn Tashlhit, Ait Attab Tamazight, Zemmour Tamazight)

Stem I	Stem II	Stem III	Stem III'	
azu	ttazu	uzi/a	uzi	'to skin'
nkr	nkkr	nkr	nkir	'to get up'

c- Three verb stem varieties (e.g. Tashlhit of Agadir and Tiznit)

Stem I	Stem II	Stem III	
azu	ttazu	uzi/a	'to skin'
nkr	nkkr	nkr	'to get up'

The varieties of Amazigh differ on the basis of negative stems in a two-layered fashion. While stem II' is attested in Tarifit varieties and the variety of Figuig, for example, stem II is used in the remaining varieties in both affirmative and negative contexts. The other negative opposition, stem III/III', is being neutralized in some Tashlhit dialects, where stem III is used in both affirmative and negative contexts.[2]

2.2 Intensive formation in Amazigh simple verbs

There is consensus among Amazigh scholars that intensive formation uses three basic processes. As a matter of fact, the intensive may be obtained by geminating one of the consonants of the base, as in (2a). This process is limited to a set of verbs that have some defining structural properties that set them apart from the verbs undergoing the remaining processes. Geminating verbs are typically native forms that are short, consisting of two or three root elements. If a verb is not subject to gemination, it is more likely to undergo tt-prefixation, as in (2b) below. The third process consists of epenthesizing a vowel as in (2c).[3] Each of the gemination process and tt-prefixation one may combine with vowel epenthesis as in (2d) and (2e), respectively.[4]

[2] This issue is dealt with in Bensoukas (2007), where it is suggested that the negative forms display a morphological change in progress**.** See also Bensoukas (2010a), in which these aspects are considered in more detail.

[3] The epenthetic vowel surfaces most of the time as the least marked vowel, namely *a*, or a copy of the vowel of the base (Basset, 1929; Bensoukas, 2001b, 2002, 2004b and references therein.) Other possible epenthetic segments are [u] in some Tashlhit cases like *srm*/*srum* 'to whittle', in addition to [i] in other dialects of Amazigh as in *frfr*/*ttfrfir* 'to flutter'.

[4] The combination of gemination and tt-prefixation has been reported as not productive. The intensive *ttgga* (>*g* (to be)) is the counterexample par excellence. We assume that *g* is

(2) Intensive verb formation processes

a- Gemination			b- tt-prefixation			c- Vowel epenthesis		
krz	kkrz	'to plow'	ddz	ttddz	'to press'	skr	skar	'to do'
frn	ffrn	'to sort'	asi	ttasi	'to take'	zri	zraj	'to pass'
mgr	mggr	'to harvest'	ini	ttini	'to say'	ʃfi	ʃfaj	'to cut (olives)'
knu	knnu	'to bend'						

d- Gemination+v-epenthesis			e- tt-prefix+v-epenthesis		
gn	ggan	'to sleep'	xdm	ttxdam	'to work'
fl	ffal	'to let'	knkr	ttknkar	'to pick a bone'
ut	kkat	'to hit'	bbaqqi	ttbaqqaj	'to explode'
ḍr	ṭṭar	'to fall'	ktitf	ttfktitif	'to shiver'
sɣ	ssaɣ	'to buy'	mmurri	ttmurruj	'to sightsee'

Such a situation is very challenging with respect to positing a unitary morpheme for the formation of the intensive. Ideally, the explanatory effort should focus, at the morphological level, on establishing one unitary morpheme and explain the processes involved by considering them ensuing from the interaction between morphology and phonology.

3. Morphological haplology in Tashlhit

In the formation of the intensive of (over-)derived verbs, tt-prefixation is the predominant process. It should be stressed from the outset that (over-)derived verb forms do not have recourse to morphological gemination, a process used exclusively by short, native roots in simple verb morphology (see (2) above).

In Tashlhit, haplology occurs in two situations both involving contact between two [coronal] affixes: (i) featural identity, as in the combination of intensive [tt+] and passive [ttu+]; and (ii) featural similarity, as in the combination of intensive [tt+] and causative [ss+]. Two pieces of evidence uphold the haplology analysis. First, when the two morphemes are different feature-wise, haplology fails to take place. This is the case of the reciprocal/reflexive morpheme [mm+], which co-occurs with intensive [tt+]. Second, haplology fails to take place when the similarity/identity is between a prefixal element and a radical one. We start this section with a general overview of morphological haplology. Then, we present our analysis of Tashlhit facts.

3.1 Morphological haplology: An overview

Although no consensus seems to hold regarding the formalization of haplology, this morphological process is generally considered in the literature as a

underlyingly vowel final, and, on comparative grounds, also contains a geminate *gg*. In the present analysis, tt-prefixation and gemination are in 'complementary distribution'.

dissimilatory operation that applies when two morphemes that are similar or identical come into contact.

Stemberger (1981:792) defines morphological haplology as follows: "An affix of the shape Z does not appear if, e.g., the stem to which it is added ends in Z. Often the first Z must also be a morpheme or the affix will be added as usual." The possessive form of English regular plurals is a case in point, where only one *s* appears finally, as in the example *the boys' bikes/ *the boys's bikes*. However, when the sequence of *s*'s or *z*'s is not morphemic, no haplology takes place, as shown in *the cheese's flavor*. After arguing against formalizing haplology as deletion and no addition, Stemberger (1981:806) describes it as vacuous rule application. The rule is not totally vacuous, in the sense that although there is no phonological material added, the morphological structure is affected.

According to Menn and MacWhinney (1984), while tolerance of the repetition of morphemes seems to be the norm, the accidental repetition of morphemes can trigger (i) haplology (deletion or non-addition), (ii) avoidance (blocking of derivation) or (iii) suppletion. Menn and MacWhinney (1984:529) propose the repeated morph constraint:

"*XY, where X and Y are adjacent surface strings such that both could be interpreted as manifesting the same underlying morpheme through regular phonological rules, and where either

(a) X and Y are both affixes, or

(b) either X or Y is an affix, and the other is a (proper subpart of a) stem."

More recent accounts of haplology are provided in the model of Optimality Theory (Prince and Smolensky, 1993/2004). Yip (1995, 1998) considers haplology as an effect of identity avoidance and formulates a set of Obligatory Contour Principle (OCP) constraints (see McCarthy, 1986 and references therein), one of which is OCP(Affix). Each co-occurrence of identical elements results in the violation of the constraint *REPEAT. In an essentially similar fashion, Plag (1998) also considers haplology as an effect of OCP constraints. In a different spirit, de Lacy (1999) argues that haplology is a coalescence process. When two input elements are subject to haplology, neither of them deletes; rather, they are simultaneously realized, just like two segments that coalesce and surface as one.

Having provided general information about haplology, we now deal with the facts of Amazigh.

3.2 Affixal verb morphology: Derived/overderived verbs

Amazigh affixed verbs, referred to in the literature as 'derived' verbs, are generally classified into three major categories: (i) the causative (caus.), (ii) the passive (pass.), and (iii) the reflexive/reciprocal (refl./ recip.). In case a verb undergoes multiple affixation involving one of these, it is referred to as 'over-derived'. Examples of these are provided in (3) and (4):

(3) Amazigh derived verb forms

a- Caus.			b- Pass.		
nkr	ssnkr	'to wake up'	skr	ttuskar	'to do'
aʃk	ʃʃaʃk	'to come'	bdr	ttubdar	'to mention'
zri	zzri	'to pass'	mḍl	ttumḍal	'to bury'
nʒm	ʒʒnʒm	'to escape'	ara	ttjara	'to write'

c- Recip./refl.

kl	mmkl	'to spend the day'
rg	mmrg	'to crack'
rḍu	mmrḍu	'to accept'
sl̈lm	nsallam	'to greet'

(4) Over-derived verb forms:

Base	Recip.	Caus./Recip.	Caus./Recip./ Caus.	
rg	mmrg	smmrg	-	'to crack'
rḍu	mmrḍu	smmrḍu	-	'to accept'
sl̈lm	nsallam	snsallam	-	'to greet'
afuḍ	ssifḍ	msifḍ	-	'to go away'
aʃk	ʃʃaʃk	mʃaʃk	ʃmʃaʃk	'to come, agree'

Morphologically, all these verb forms involve prefixation, and the affixes themselves are subject to interesting allomorphies targeting their featural content and weight.[5] Although derived verbs may be subject to further derivational processes, hence over-derivation, the possible combinations of morphemes are constrained (see Jebbour, 1992).

With this background in mind, we move on to the haplologizing morphology of Tashlhit.

3.3 Morphological haplology in Tashlhit intensive verb forms

Two cases will be examined, depending on whether what causes haplology is morpheme identity (intensive and passive) or similarity (intensive and causative) regarding featural content.

We start with the passive verb forms, in which the intensive (Int.) [tt+] is realized as a zero allomorph. Examples are in (5):

(5) Haplology in intensive passives: Identical morphemes feature-wise

[5] The causative morpheme displays an alternation affecting its anteriority and voicing, resulting in the variants [s(s)], [z(z)], [ʃ(ʃ)], and [ʒ(ʒ)]. The reflexive/reciprocal morpheme has the variants [m(m)] and [n(n)], the latter depending on whether the root contains a labial consonant. The passive has the variants [ttu], [ttaw], and [ttj]. For analyses of some of the alternations above, see Bensoukas (2004a), Boukous (1987, 2009), Elmedlaoui (1992/1995), Jebbour (1996), and Lasri (1991), among others.

Root	Pass.	Int. pass.	
mgr	ttumgar	ttumgar/*ttttumgar	'to harvest'
asi	ttjasaj	ttjasaj/*ttttjasaj	'to take'

One might argue that what is taking place here is an assimilatory process followed by some kind of simplification through deletion, given that a sequence of two geminates that are similar is difficult to articulate. While this remains a possible description of facts, we discard it on the basis of what happens in the causatives as we will see immediately.

The intensive morpheme fails to be realized when the causative affix is involved, regardless of whether the causative is derived or over-derived, as in (6a) and (6b), respectively:

(6) Haplology in intensive causatives: Similar morphemes feature-wise

a- Root	Caus.	Int. caus.	
nkr	ssnkr	ssnkar/*ttsnkar	'to wake up'
bbaqqi	sbbaqqi	sbbaqqaj/*ttsbbaqqaj	'to explode'
zri	zzri	zzraj/*ttzzraj	'to pass'
ħʃʃm	ʃħʃʃm	ʃħʃʃam/*ttʃħʃʃam	'to be embarrassed'
ʒʒu	ʒuʒʒu	ʒuʒʒu/*ttʒuʒʒu	'to smell good'

b- Refl.	Caus. refl.	Int. caus. refl.	
mmrg	smmrg	smmrga/*ttsmmrga	'to crack'
mxassr	smxassr	smxassar/*ttsmxassar	'to go bad'
nħubbu	snħubbu	snħubbu/*ttsnħubbu	'to love'

Here again, we notice that the intensive [tt+] is not realized. Together with the passive cases in (5) above, this reveals the generality of morphological haplology in Tashlhit.

To sum up, when the prefix in a complex verb form is a [ttu+] or a [ss+], the inflectional [tt+] is not realized.[6] The allomorphy affecting the intensive morpheme is thus reduced to a two-way allomorphy: [tt+]/Ø.

3.4 Non-haplologizing verb forms

The aim of this section is to adduce further evidence for the morphological haplology analysis of the facts above. We will show that haplology does not affect one of two different morphemes feature-wise, nor does it apply when one of the contiguous coronals belongs to the root.

[6] One exception we are aware of is the verb *ssudu* > *ddu* 'to go'. In Tashlhit, this verb is no longer perceived as a causative, but rather as a plain verb meaning mount (*ssudu lkaṛ* 'to take the bus (literally 'to make the bus go')', and *ssudu ajjis* 'to go on horse-back'). This verb has the corresponding intensive *ttsudu*.

First, when the derivational prefix is different feature-wise from the intensive prefix [tt+], both affixes co-occur. This is the case of the intensive reciprocal/reflexive forms exemplified in (7):

(7) Intensive reciprocals- Different morphemes: No haplology

Root	Recip.	Int. recip.	
rg	mmrg	ttmrga	'to crack'
xsr	mxassr	ttmxassar	'to go bad'
ħubbu	nħubbu	ttnħubbu	'to love'

As is clear in (7), the combination of a labial affix and a coronal affix does not trigger morphological haplology. Note that the coronality of the nasal in *ttnhubbu* is due to labial dissimilation (see section 5.2.1 below); also there does not seem to be any evidence for the fact that the dissimilated nasal participates in haplology, irrespective of its coronality.

Second, we examine what happens in situations where the [tt+] prefix co-occurs with a radical coronal sound regardless of its continuancy.

(8) Morpheme and radical- Similar/identical feature-wise: No dissimilation

a- Root initial t			b- Root initial s/z/ʃ/ʒ		
ttu	tt-ttu	'to forget'	skkiws	ttskkiwis	'to sit'
ṭṭs	tt-ṭṭs	'to sleep'	ssu	ttssu	'to lay'
ṭṭf	tt-ṭṭf	'to have'	zzig	ttzzig	'to hold'
			ʃtutl	ttʃtutul	'to crawl'
			ʒʒi	ttʒʒi	'to heal'

In the roots that are t-initial, the [tt+] prefix is retained, and so is the case in those that are s-initial. It is noteworthy that in roots that are t-initial, two pronunciations are possible: The [tt+] is retained separate from the [t] of the root, or it is totally assimilated to the initial [t].

In this connection, a very informative pair of verbs with identical phonetic forms is non-derived *ssu* 'to lay' and causative *ssu*, derived from *su* 'drink'. The causative form *ssu* is decomposable into the root *su* 'to drink' and the causative prefix, hence the initial phonetic geminate, as opposed to the radical one in *ssu* 'to lay'. As expected, *ssu* 'to lay' with a root geminate has a corresponding intensive with a [tt+], *ttssu*, whereas the intensive causative is *sswa*/ **ttssu*/ **ttsswa*.

To sum up, a requirement in Tashlhit haplology, a contact dissimilation process, is the fact that the segments with similar/identical features be affixes. The prefixes concerned are the intensive, passive and causative morphemes, whose consonantal make-up contains the feature [coronal].

4. Apparent exceptions

There are two apparent exceptions where the affixes involved are both coronal, but their contact does not result in haplology: (i) some derived feminine nouns in the Construct State and (ii) clitic pronouns involving a coronal consonant.

4.1 The Construct State of the noun

The phrase 'Construct State' (CS) is used in Amazigh studies to refer to a form of the noun with a special case marking. The noun is said to be in the CS when it is a postverbal subject, the object of the verb, the object of a preposition or the complement of a numeral (Basset, 1932; Chaker, 1988; Chaker and Mettouchi, 2009; Elmoujahid, 1982; Guerssel, 1983; Jebbour, 1991; Saib, 1982 among others). Otherwise, the noun is said to be in the Free State (FS). König (2008:7) refers to this type of case system as accusative, where the nominative is both morphologically and functionally unmarked and is used in citation. Examples with the noun *afullus* 'chicken' are listed in (9):

(9) a- iʃʃa afullus 'he ate the chicken'

b- iʃʃa ufullus ([iʃʃa wfullus])/

cf. afullus iʃʃa 'the chicken ate'

c- taḍartt n ufullus ([uwfullus]) 'the leg of the chicken'

d- jan ufullus ([jaw(w)fullus]) 'one chicken'

In the most straightforward instance of CS morphology, the initial vowel [a] of masculine singular nouns is replaced by [u], as in (10a). In a class of special nouns, the masculine singular vowel is maintained in the CS, whose vowel appears as a glide [w] instead, as in (10b).

(10) Masculine singular Construct State

a- FS	CS		b- FS	CS	
afunas	ufunas	'bull'	anu	wanu	'well'
afullus	ufullus	'chicken'	ajjis	wajjis	'horse'
afrux	ufrux	'boy'	aggas	waggas	'injury'

A totally different behavior is displayed by feminine nouns in the CS. Feminine nouns, which normally appear in the FS with a [t+…+t] circumfixed to the masculine form, obtain their CS form by simply deleting the initial vowel, both in the singular and the plural forms:

(11)

Fem. sg.		Fem. pl.		
FS	CS	FS	CS	
tamɣart	tmɣart	timaɣarin	tmɣarin	'woman'
tafunast	tfunast	tifunasin	tfunasin	'cow'
tafruxt	tfruxt	tifrxin	tfrxin	'girl'

Note that a class of feminine nouns that quite resembles that of the masculine nouns in (10b) keeps the initial vowel in the CS form. In this case, neither is the CS vowel realized, nor is the initial vowel deleted:

(12)

Fem. sg.		Fem. pl.		
FS	CS	FS	CS	
tadgalt	tadgalt	tadgalin	tadgalin	'widow'
targant	targant	targinin	targinin	'Argan tree'

With this background in mind, let's consider a particular behavior of feminine nouns with respect to morphological haplology. After the deletion of the nominal vowel, nouns in CS may exhibit a succession of two morphemes of the like prohibited in the verb forms above. In a class of locative and instrument deverbal nouns, the prefixal part of the feminine circumfix [t+…+t] becomes adjacent to the locative/instrument prefix [s(s)+]. Examples are:

(13)	Der. form	FS	CS	
	t+a+s+*aru*+t	tasarut	tsarut	'key'
	t+a+s+*uk*+t	tasukt	tsukt	'passage (street)'
	t+a+s+*krf*+t	taskrft	tskrft	'fastening'
	t+i+ss+*gni*+t	tissgnit	tssgnit	'needle, syringe'

Here, we are in front of an interesting, as well as challenging, situation: Both the [t+] and [s(s)+] are prefixes, the former inflectional and the latter derivational. The question that needs to be addressed now is why these forms are acceptable, notwithstanding the repetition of morphemes with similar coronal obstruents.

Two options, at least, are available to explain this behavior. The first option is based on a serial derivation. We might consider haplology as being specific to the level where affixation takes place. The feminine [t+] and instrument/locative [s(s)+] are not adjacent at that level, being separated by the nominal vowel. In the CS, what serves as a base is not the pieces of inflection and derivation that these nouns contain; rather, it is the whole feminine noun in the FS, a surface form. At the level at which the vowel is deleted, the morphological, haplological restriction is no longer operative.

Another option, which we think explains more, is based on the analysis of the CS morpheme in Bensoukas (2010b). The feminine morpheme is argued there to have so much strength as to preclude the CS morpheme, which is compulsory in all other cases. Interaction of various Optimality Theory alignment constraints (see McCarthy and Prince, 1993) explains the fact that the nominal initial vowel gets deleted, but not the prefixal part of the feminine morpheme. A similar argument may be invoked to explain why haplology fails to apply in this case, since both the locative/instrument affix and the feminine one are compulsory in this type of nouns. Finally, bear in mind that one way of avoiding contact between the two morphemes is to keep the vowel, as is the case in the FS of the noun. This option is not sustained.

4.2 The behavior of clitic pronouns

Another class of items which would otherwise call for the haplologizing operation is that of clitic pronouns. These are presented in (14a), illustrated with the verb *skr* 'to do'. The pronouns that are relevant are provided with examples in (14b) on the basis of the verb *ssnkr* 'to wake up (caus.)'.[7]

(14) Pronouns:

a-

		Sg.		Pl.	
1st p.	masc.	+ɣ	skrɣ	n+	nskr
2nd p.	masc.	t+…+t	tskrt	t+…+m	tskrm
2nd p.	fem.			t+…+mt	tskrmt
3rd p.	masc.	i+	iskr	+n	skrn
3rd p.	fem.	t+	tskr	+nt	skrnt

b-

2nd p. sg.	tssnkrt
2nd p. pl.	tssnkrm/ tssnkrmt
3rd p. fem.	tssnkr

This class of affixes is important in the sense that haplology may be restricted to a certain domain. While haplology obviously applies in the domain of proper affixation, it seems to be inapplicable at the morphosyntax interface, where clitics are allegedly analyzed. A similar situation has been pointed out for the behavior of these pronouns with respect to another dissimilation process affecting phonological features (see Elmedlaoui, 1992/1995; Bensoukas, 2004a), in which clitics again resist a general phonological process which applies to morphemes proper. This definitely calls for a proper understanding of the interfaces between phonology, morphology, and syntax as far as these elements are concerned.

Also relevant is data in which two clitics occur at the end of a verb.[8] In (15), the object feminine, singular, clitic pronoun *tt* is separated from the subject pronoun by an inserted *s*. This operation does not apply if the subject clitic is not a geminate *tt* or is any consonant other than *t*.

(15)					
1st p. sg.	/fl-ɣ-tt/	→	[flɣtt]	'I left her'
	/ut-ɣ-tt/	→	[utɣtt]	'I hit her'
2nd p. sg.	/t-fl-t-tt/	→	[tfltstt]	'you left her'
	/t-ut-t-tt/	→	[tuttstt]	'you hit her'
3rd p. pl.	/fl-n-tt/	→	[flntt]	'they left her'
	/ut-n-tt/	→	[utntt]	'they hit her'

[7] It should be stressed that in case a clitic pronoun *t* co-occurs with a *s*, both are retained. If, however, the *t* co-occurs with another *t*, the *t* is either assimilated or maintained (as in the case of the passive *tttjasaj/ttjasaj* 'she was carried').

[8] I would like to thank El Mehdi Iazzi for having brought this case to my attention.

The set of data in (15) is interesting in more than one respect. The inserted consonant deserves phonological analysis in itself, in that a consonant is inserted to split a consonant cluster. Additionally, the inserted consonant splits two elements that would otherwise haplologize. To make the situation more complicated, the inserted consonant is similar to the clitics feature-wise, which gives us exactly the opposite of what is expected under haplology. This is not an isolated phenomenon in the language, since another dissimilation process eliminating one of two round features co-exists with the opposite process of copying round features. More research is in order to elucidate all these aspects of the grammar of the language.

5. Extensions

In this section, we will point out possible extensions of our analysis. One is related to the morphology of simple verbs. This case is very intriguing in that haplology seems to have moved from the realm of derived verbs to that of non-derived ones. The second extension is related to the larger array of dissimilation phenomena in Tashlhit, which may be analyzed as cases of avoidance of repetition.

5.1 Simple verb morphology

In Tashlhit, some simple verb forms obtain their intensive by just epenthesizing a prefinal vowel. Behaving this way, these verbs align with the derived forms that involve the causative morpheme. Examples are provided in (16):

(16)

Verb	Intensive	
skr	skar	'to do'
srm	srum	'to whittle'
sti	staj	'to choose'
zri	zraj	'to pass'
ẓli	ẓlaj	'to separate'
ʃfi	ʃfaj	'to cut (olives)'

One might argue that some of these verbs are causatives obtained from nouns. *skr* for instance, is quite related to *kra* 'something', and is morphologically analyzable just like *sawl* 'to speak', obtained from *awal* 'speech', and *sunfs* 'to breathe' obtained from *unfus* 'breath'. However, this analysis does not account for all the other items.

The verbs in (15) have sometimes been referred to in the literature as pseudo-causatives. These are problematic in that they are expected to behave like short verbal bases and be subject to gemination or tt-prefixation.[9] A possible explanation for their behavior is to consider that the phonological make-up of the initial root *s* in these verbs results in interpreting it somehow as a causative morpheme that induces haplology in case intensive morphology is involved. However, this fails to

[9] A certain amount of variation is involved cross-dialectally, especially with the alternative intensives *zrri* and *ẓlli*, for example.

apply to forms like *skkiws* 'to sit'. It seems to us that a diachronic approach will be quite illuminating in this respect and may help explain why the items in (15) are aligning with the class of causatives, while *skkiws* and other verbs like it are not.

5.2 Tashlhit dissimilation phenomena: The overall context

In this section, we will survey a few dissimilatory phenomena in Tashlhit that are not necessarily of a purely morphological nature, namely the dissimilation of the labial and round features, degemination, and morphological neutralization. We suggest that however unrelated these phenomena may be, they are related to haplology at a more subtle level, all being cases of avoidance of repetition.[10]

5.2.1 Featural dissimilation

In Tashlhit, dissimilation affects the labial consonant *m*, labialized consonants, and round vowels. We deal with each in turn.

We start with labial dissimilation, which has received a lot of attention in the literature (Alderete, 1997; Bensoukas, 1999, 2004a; Boukous, 1987, 2009; Elmedlaoui, 1985, 1992/1995; Lasri, 1991; Selkirk, 1993, 1995 among others). This process takes place when *m* co-occurs within the stem domain with *b*, *f*, or another *m*, forcing the *m* on the left to lose its labiality, in compliance with the OCP (McCarthy, 1986 and others). The labial on the left coincides with the agentive noun morpheme (AN) or the reciprocal morpheme as is illustrated by the following items:

(17) a- Dissimilation of the agentive noun morpheme:

	UR	AN	
(i)	/krz/	amkraz	'to plow'
	/ɣ^{w}ʃʃu/	amɣ^{w}ʃaʃ	'to cheat'
	/aws/	amawas	'to help'
(ii)	/mgr/	anmgar	'to harvest'
	/g^{w}mr/	ang^{w}mar	'to hunt'
	/frn/	anfran	'to sort out'
	/ḍfr/	anḍfur	'to follow'
	/ʕḍb/	anʕḍab	'to injure'

[10] While there are mentions of syntactic OCP and syntactic haplology in the literature (see for example Neeleman and de Koot, 2006), we unfortunately are not aware for the time being of any syntactic phenomena in Amazigh that yield to such analysis. Syntactic haplology would reveal yet another aspect of the avoidance of repetition and make the presentation even more complete.

b- Dissimilation of the reciprocal morpheme:

	UR	Recip.	
(i)	/ʕawn/	mʕawan	'to help'
	/rg/	mmrg	'to crack'
	/ħada/	mħada	'to be near'
(ii)	/fts/	nfattas	'to chop'
	/ħubbu/	nħubbu	'to love'
	/sllm/	nasallam	'to greet'
	/xalf/	nxalaf	'to change'

In addition, Tashlhit displays a process of round velar dissimilation that has also received extensive treatment (Bensoukas, 1999, 2006; Clements, 1991; Elmedlaoui, 1985, 1992/1995; Jebbour, 1985; Lasri, 1991; Selkirk, 1993). The Tashlhit consonantal system contains five labialized consonants: k^w, g^w, x^w, $ɣ^w$, and q^w. The data below illustrates the alternation these sounds exhibit when they occur with other round segments:

(18) Round velar consonant dissimilation in Tashlhit:

a-	Aorist	Perfective	
	knu	k^{w}ni	'to bend'
	gnu	g^{w}ni	'to sew'
	xlu	x^{w}li	'to become crazy'
	ag^{w}l	ugl	'to hang'
	ak^{w}z	ukz	'to recognize'
	ag^{w}i	ugi	'to refuse'
b-	Singular	Plural	
	taglut	tig^{w}la	'oar'
	aɣjjul	iɣ^{w}jjal	'donkey'
	agru	ig^{w}ra	'frog'
	ax^{w}s	uxsan	'teeth'
	aɣ^{w}i	uɣa	'calves'
	amddakk^{w}l	imddukkal	'friends'

Underlying round velar consonants in Tashlhit surface phonetically as their corresponding non-round counterparts whenever the word they occur in contains the vocoids *u* or *w*, a dissimilatory process.

Finally, we address the issue of vowel dissimilation. A class of simple verbs in Tashlhit form their perfective form by simply applying an ablaut operation that merely changes an initial or medial vowel *a* to *u*. The relevant class of verbs is the one that has an initial vowel *a*, as the items in (19a) show. An oft-overlooked case of rounding dissimilation is related to a class of verb roots with an initial *a* that is immediately followed by the vocoid *w*. When ablaut is involved, the vowel *a* changes to *i* rather than the expected *u*, as in (19b):

(19)

	Aorist	Perfective	
a-	amẓ	umẓ	‘to catch’
	add	udd	‘to press’
	aḍr	uḍr	‘to tread on’
b-	awi	iwi / *uwi	‘to take’
	awz	iwz / *uwz	‘to stay up’
	aws	iws / *uws	‘to help’
	awn	iwn / *uwn	‘to go up (a hill)’

Although the number of verbs like those in (19b) is limited, this is a clear case of round vowel dissimilation in Tashlhit, which makes the picture of dissimilating features even more complete.

5.2.2 Degemination

Affecting the intensive, degemination is one of the salient aspects of the morpho-phonology of Tashlhit. Examples are in (20):

(20)

	Aorist	Int.	
a-	gganti	ttgantaj	‘to fall over’
	mmaɣ	ttmaɣ	‘to fight’
	lluzzu	ttluzzu	‘to disperse’
	ddullu	ttdullu	‘to be mean’
	bbaqqi	ttbaqqaj	‘to explode’
b-	add	ttadd	‘to press’
	azzl	ttazzal	‘to run’
	qrrs	ttqrras	‘to await’

As illustrated in (20a), when the geminate affix [tt+] is attached to the verb root, a root-initial geminate consonant is degeminated via a process of contact dissimilation and accordingly surfaces as the corresponding singleton consonant. Other stem geminates that are distant from [tt+] are spared, as (20b) shows.

Dissimilatory degemination is interesting in other respects. For instance, a treatment of the degemination process should be undertaken in the overall mold of intensive aorist formation. Worthy of investigation is the relationship between this degemination and the gemination process that is so specific to this verbal form.[11]

[11] Degemination is even more intricate in three respects. First, some root-initial geminates eschew degemination: for example, the verb *bbi* ‘to cut’ has an intensive *ttbbi* rather than the degeminated form **ttbi*. Second, contiguous geminates are tolerated when they belong to different words, and two non-contiguous geminates may also co-occur in a single word (cf. *all ffi* ‘to lift and pour’ and *mmatti* ‘to get up’). Third, while dissimilatory phenomena in the language generally target affix elements (Bensoukas, 2004a; Selkirk, 1995), degemination rather targets radical ones.

5.2.3 Morphological neutralization

Like in mainstream Amazigh dialects, there is an opposition between four stems in Tashlhit verb morphology, as illustrated in (1) above. For the sake of illustration, we provide further examples in (21):

(21)

Stem I	**Stem II**	**Stem III**	**Stem III'**	
azzl	ttazzal	uzzl	uzzil	'to run'
azn	ttazn	uzn	uzin	'to send'
ffm	ttffam	ffm	ffim	'to understand'
ini	ttini	nni/a	nni	'to say'
ftu	fttu	fti/a	fti	'to go'

Negative stem III' morphology is marked overtly on the verb either through prefinal vowel insertion or final vowel change. In either case, the quality of the vowel is that of *i*.

In some Tashlhit dialects, stem III' is absent (Agadir and Tiznit varieties, for example (see Derkaoui, 1986; El Mountassir, 1989). In this case, the forms under stem III' in (21) are realized in third person as *uzzl, uzn, ffm, nna,* and *fta,* which reveals a full degree of syncretism between stems III and III'. The claim in Bensoukas (2009) is that this process consists in the neutralization of the expression of negation by the morphology of the perfective stem. Accounted for in the literature as a redundancy effect, the total absence of negative morphology is argued to be the result of a dissimilation process in Tashlhit. Since negation is expressed overtly and forcefully by the compulsory particle *ur*, then the morphology of the verb is (unnecessarily!) marked.

To sum up, there is plenty of evidence that shows that haplology is not an isolated case of dissimilation in Amazigh. In fact, featural dissimilation, degemination and morphological neutralization show that dissimilatory phenomena permeate the grammar of the language.

6. Summary and remaining issues

The aim of this paper has been to investigate a process of haplology that occurs in the verbal morphology of Amazigh. The tt-prefix of the intensive does not co-occur with morphemes that are identical or similar to it in terms of their featural make-up, namely the passive and the causative morphemes. While the process is itself interesting, it also helps in elucidating one of the aspects of intensive formation that has resisted proper analysis for quite some time, namely the non-realization of the intensive morpheme in specific contexts. The allomorphy the intensive morpheme exhibits is thus reduced to tt-prefixation/gemination and zero morphology. By the same token, a group of simple verbs whose intensive does not show the [tt-] prefix may be explained along the same lines.

A full appreciation of morphological haplology in Amazigh requires a more general picture of dissimilation in the language as well as across languages. For this purpose, a large array of dissimilatory phenomena in Tashlhit has been sketched. One pending task is to check what all these dissimilatory phenomena have in common. Another important aspect of haplology is to see how it works in the different dialects of Amazigh, in Morocco and elsewhere, to see how general the process is. The prediction made in this paper is that, at least in the Moroccan dialects of Amazigh, haplology, as has been described above, is an undeniable fact. Whether the specifics of the process are the same cross-dialectally remains to be investigated. Other dialects of Amazigh, Kabyle or Touareg for example, might be very illuminating in this respect. Dissimilation is also a current theme investigated by various scholars (Alderete and Frisch, 2007; Bye, 2011; Nevins, 2010 among others), and it would be very informative to see how the Tashlhit data fits in the overall picture of dissimilation cross-linguistically. These two issues we leave for future research.

Remaining issues which our analysis has not covered include the following. First, although the intensive morpheme is not realized phonetically in haplologizing verb forms, the verb still has the meaning of the intensive. An account of how this comes to happen is necessary. Second, in haplologizing intensives, the only means of distinguishing the intensive from the derived base form is the prefinal vowel, where one exists. Otherwise, the base and intensive of these derived verb forms are syncretic. Third, why not keep the intensive morpheme and haplologize the others? One possible answer is that the intensive particle is obligatory in most Amazigh dialects, and the morphological marking is redundant, which is not the case for the passive and causative morphemes. Finally, the very process of intensive formation, which induces haplology, also induces internal gemination, which is a case that somehow results in identity. In this, haplology is like all the other dissimilation phenomena in the language, which seem to coexist with opposite processes. If haplology is considered along with round dissimilation and copying of the round feature, on the one hand, and the neutralization of negative morphology in Tashlhit and its reinforcement in Tarifit, on the other, quite a few answers are required.

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