



Universiteit  
Leiden

The Netherlands

## Proto-Berber heavy verbs

Putten, M. van; Korangy, A.; Bensoukas, K.

### Citation

Putten, M. van. (2024). Proto-Berber heavy verbs. In A. Korangy & K. Bensoukas (Eds.), *Springer Handbooks in Languages and Linguistics* (pp. 307-334). Singapore: Springer.  
doi:10.1007/978-981-99-5690-6\_15

Version: Publisher's Version

License: [Licensed under Article 25fa Copyright Act/Law \(Amendment Taverne\)](#)

Downloaded from: <https://hdl.handle.net/1887/3761725>

**Note:** To cite this publication please use the final published version (if applicable).



Marijn van Putten

## Contents

Introduction .....	307
The Perfective Vocalism .....	310
Application of the A- $\Theta$ -A $\rightarrow$ Vocalism to Quadrisyllabic Stems .....	311
The Aorist Vocalism .....	312
The Imperfective Formation .....	315
The Classification of Middleweight Verbs .....	316
Conclusion .....	318
Appendix .....	319
Class 1 (Aor. $\Theta$ -A $\rightarrow$ ) .....	319
Class 2 (Aor. $\Theta$ $\rightarrow$ ) .....	326
Bibliography .....	332

## Introduction

The complexities of Berber verbal morphology have long been recognized, and its reconstruction has been undertaken by several authors, most notably by Prasse (1973). In principle we can distinguish between several general verb types, which

---

In order to not give a false sense of specificity, this chapter uses the regular Berberological transcription in the Proto-Berber reconstructions using *z* and *ɖ* for the emphatics, *ɣ* for the back voiced fricative, *ə* and *ã* for the central vowels, and *k* and *g* for the palato-velars. Transcriptions of living dialects have adopted the transcription of this volume using IPA. The only deviation I adopt is that I use *ã* for the low central vowel in dialects that distinguish it from *ə* rather than the IPA sign [ɐ], and geminates are indicated with doubled consonants [dd] rather than [d:].

---

M. van Putten (✉)  
Leiden University, Leiden, The Netherlands  
e-mail: [m.van.putten@hum.leidenuniv.nl](mailto:m.van.putten@hum.leidenuniv.nl)

Heath (2005) has classified for Tuareg as “light verbs” (verbs with two stem vowels) and “heavy verbs” (verbs with more than two stem vowels).

The most common class of light verbs, which shares many similarities with the Proto-Semitic verbal system, as recently examined by Kossmann and Suchard (2018), was first reconstructed for Proto-Berber by Prasse (1973), and received important updates by Kossmann (2001a), especially integrating the newly discovered Proto-Berber consonant \*ʔ, and making the reconstructions somewhat less Tuareg-centric. The heavy verbs, however, have not yet received the same attention. This chapter aims to reconstruct these heavy verbs.

Besides the light and heavy verbs, there is at least one other verb class that seems to be reconstructible for Proto-Berber, namely, the set of (mostly stative) verbs that have an \*i- or \*u- in the initial syllable of the Aorist and Imperfective, e.g., \*ini “to say,” and \*uksuḍ “to be afraid.” These verbs will have to be discussed in a later publication.

Unlike other Berber languages, Tuareg, Ghadames, and Zenaga Berber<sup>1</sup> retain a distinction between two central vowels \*ā and \*ə, which have merged in the other Berber languages to a single central vowel ə, of questionable phonemic status. This central vowel distinction plays an important role in the apophony of the different verb forms in the languages that retain the contrast. While there are several in-depth descriptions of the heavy verbs in a variety of different Berber dialects, and cross-dialectally (e.g., Boumalk 2003, for Tashelhiyt; Dallet 1953, for Kabyle; and Basset 1929, for a comparative description), no attempt at the reconstruction of the Proto-Berber heavy verbal system has been undertaken and an integration of especially the Tuareg, Ghadames, and Zenaga Berber data into this comparative perspective has also not been undertaken in great detail.

Tuareg displays an astounding number of “heavy verb types,” which Prasse (1973) classifies into 15 different conjugations, with many different subtypes. However, these conjugations share more similarities with each other than that they do with the basic “light verbs,” and recently several authors have significantly reduced the Tuareg heavy verb categories to a significantly smaller subset. Sudlow (2001) takes the classification of Prasse (1973, which in itself was already a simplification of de Foucauld 1950), and reduces it to five basic heavy stems – a similar reduction created by Heath (2005). Kossmann (2011) reconstructs four apophonic classes, which he further reduces to only two general patterns on a historical level (Table 15.1).

**Table 15.1** Tuareg apophony

	Aorist	Perfective
Type 2	ə→	A-ə-A→
Type 3	A→	ə-ə-A → (< *A-ə-A→)

<sup>1</sup>In Zenaga Berber the distinction between plain vowels \*a, \*i, \*u, \*e, and the central vowels \*ā and \*ə is largely lost, generally merging \*a and \*ā to a single phoneme /a/ and \*ə to \*i or \*u, depending on the phonemic environment.

Kossmann envisions these vowel patterns to be assigned to the vowel slots of a stem from left to right, and every vowel that follows after the defined vowel will copy the preceding vowel. A gives rise to  $\tilde{a}$  on central vowel slots, and  $a$  on plain vowel slots; whereas  $\Theta$  gives rise to  $\partial$  in central vowel slots, and  $i$  or  $u$  in plain vowel slots. As such, a verb such as *vmvnu $\nu$ kl* ‘to be a chief’<sup>2</sup> (a type 2 verb) can be assigned an Aorist and Perfective, as follows:

Apophony of *vmvnu $\nu$ kl*

Aorist	Perfective
$\Theta$ - $\Theta$ - $\Theta$ - $\Theta$	A- $\Theta$ -A-A
<i>am<math>\nu</math>nu<math>\nu</math>k<math>\nu</math>l</i>	<i>am<math>\nu</math>na<math>\tilde{a}</math>l</i> (< * <i>am<math>\nu</math>na<math>\tilde{a}</math>l</i> )

In Kossmann’s work on Ghadames (Kossmann 2013a: 66–74), a similar apophonic class system is identified (Table 15.2).

The third Berber language that also retains the central vowel contrast between \* $\tilde{a}$  and \* $\partial$ , Zenaga, is also identified as having a very similar system by Cohen and Taine-Cheikh (2000: 291ff.). Only one clear type is visible in Zenaga, which corresponds mostly to Tuareg Type 2 and Ghadames Class 2. A smaller subtype has A-type vowels in the middle vowel slot, both in the Aorist, and the Perfective. This subtype has no clear parallels in other Berber varieties, and it is, therefore, difficult to decide where it comes from, and how it relates to the verbal type attested in the other varieties (Table 15.3).

Kossmann (2012: 43f.) already observed several of the similarities in vowel patterns of these heavy verbs across the different Berber languages and this chapter wishes to further expand on their linguistic history. The similarities in these systems, across very widespread Berber varieties, makes it highly likely that this is an old system that may be reconstructed to Proto-Berber. In this chapter, I aim to reconstruct the different apophonic classes present in the Proto-Berber heavy verbs, and will show that the systems reconstructible from these  $\partial/\tilde{a}$  contrast-retaining dialects are corroborated by the dialects that have lost this contrast in the outcome of plain vowels in the stem.

**Table 15.2** Ghadames apophony

	Aorist	Future	Perfective
Class 2	$\Theta$ →	= Aorist	A- $\Theta$ -A→
Class 3	$\Theta$ →	$\Theta$ -A→	A- $\Theta$ -A→
Class 4	$\Theta$ -A→	= Aorist	A- $\Theta$ -A→

**Table 15.3** Zenaga apophony

	Aorist	Perfective
Basic	$\Theta$ - $\Theta$ - $\Theta$	A- $\Theta$ -A
Mid-A:	$\Theta$ -A- $\Theta$	A- $\Theta$ -A/A-A-A

<sup>2</sup>Central vowel slots are designated with  $\nu$ , whereas plain vowels are generally marked with the plain  $a$ ,  $i$ , or  $u$ , as it appears on the Aorist.

Throughout this chapter several verbs will be cited, which return in the appendix. These verbs are marked by {#}, where # is the corresponding number in the appendix. In the appendix, one can also find the abbreviations used for the different Berber varieties, and the sources consulted.

## The Perfective Vocalism

The perfective vocalism of the heavy stems is clearly reconstructible from the comparative evidence available to us. Ghadames and Zenaga point to a vocalism A- $\text{\textcircled{A}}$ -A $\rightarrow$  in the perfective, while Tuareg, either has  $\text{\textcircled{A}}$ - $\text{\textcircled{A}}$ -A $\rightarrow$ , or A- $\text{\textcircled{A}}$ -A $\rightarrow$ . The former Tuareg pattern can easily be understood as being the result of an active Tuareg-internal vowel harmony that shifts any  $\check{a}$  preceding  $\text{\textcircled{a}}$  to  $\text{\textcircled{a}}$  (Kossmann 2011: 57 f.). This is clear from the fact that the third-person masculine plural pronominal object clitic =*tān* undergoes vowel harmony to =*tən* when the following vowel is  $\text{\textcircled{a}}$ , when it is in fronted position – while, when it comes after the verb, it remains =*tān* (Kossmann 2011: 22).

Vowel harmony of  $\check{a}$  to  $\text{\textcircled{a}}$  in Tuareg

<i>əkrəd=tān</i>	“attach them!”
<i>a=tən=yəkrəd</i>	“he will attach them”

This vowel harmony does not apply when the medial high vowel is *u*: in such cases therefore the initial  $\check{a}$  reappears (Kossmann 2011: 57), cf.:

- P *əqqətās* “be cut” < \**āqqətās*  
 P *əggolāz* “be left over” < \**āggulāz*

As such, the A- $\text{\textcircled{A}}$ -A $\rightarrow$  pattern can be reconstructed as the perfective vocalism of the heavy stems in all three varieties.

Traces of this pattern can also be recovered in Berber varieties that have lost central vowel contrast, e.g., Central Moroccan Berber retains a reflex *-a* of word-final \* $\check{a}$ ?; whereas \* $\text{\textcircled{a}}$ ? has no reflex (Kossmann 2001a). Perfectives of heavy roots with final glottal stop, therefore, consistently have a zero-reflex in the aorist and a final *a* in the perfective.

- {4} \**āqqəymā?* “to sit,” CMB *qqima* (A *qqim*); Tu. *āqqim*; Ghd. *āqqim*  
 {5} \**āffəstā?* “to be silent,” CMB *fəsθa* (A *fəsθ*); Ghd. *āfəss*; Zng. *āffus<sup>s</sup>ʿa?*

Likewise, nouns that have a plain vowel as the second vowel slot will shift it to the expected high vowel in the stem. The vowel usually becomes *u*, unless a consonant *w* follows it, in which case it regularly becomes *i*.<sup>3</sup>

<sup>3</sup>This same shift is attested in the light verbs, with an initial plain vowel followed by *w*, cf. A \**agəm* P \**ugām* “to draw water,” but A \**awəd* P \**iwād* “to arrive.”



However, also  $\bar{c}icc$  stems have this  $i/a$  alternation in Kabyle, an environment where Tuareg, or any other Berber language seems to undergo this alternation, e.g., Kb. *zziçər* P *zzaçər* “to twist; to make a string”.<sup>4</sup> This alternation is, presumably, analogically spread from the  $ccicc$  verbs discussed above, but it is difficult to be sure.

In most other Berber varieties, this alternation has been leveled out. Tashlhiyt, for example, gives no indication of this alternation:

{30} Tashl. A *grīwl* P *grīwl* “to turn” not **\*\*grawl**

On the basis of the isolated verbs that have the alternation of Tuareg it seems likely that we can reconstruct this alternation to Proto-Berber for verbs with a stem-internal  $i$  after two consonants. However, verbs that have a vowel  $u$  in this position hardly ever give evidence for this alternation outside of Tuareg, e.g.,

{22} Kb. *fruri* P *fruri* “to drop fruits or seeds;” Tashl. *fruri* P *fruri* “to drop fruits or seeds;”

CMB *frury* P *frury* “to drop fruits or seeds;” not **\*\*frary**.

{20} Tashl. A *krurri* P *krurri* “to be round;” not **\*\*krarri**

The treatment of verbs with a root-internal  $u$  in Ghadames follows the majority of the Berber varieties. While it normally applies the  $A-\Theta-A \rightarrow$  pattern to heavy verbs in the perfective, for verbs of this type, we find a pattern  $A-\Theta-\Theta-A$ , meaning that the  $u$  is not changed to  $a$ :

{21} Ghd. *gnunni* < *\*əkənnəy* P *āgnunne* < *\*ākənnāy* “to roll”

{24} Ghd. *əǧlūlu* < *\*əǧəlulu* P *āǧəlula* “to hang;” Fig. A = P *ylulu* “id.”

Basset (1929: 90, 93) records one Kabyle verb with the alternation as found in Tuareg *grurəz* P *grarəz* “to fall into ruin.” This form is not recorded by Dallet in his dictionary. He also records (optionally) the alternation for several verbs in Ida u Semlal: *mdudu* P 1sg. *mdudaḅ/mdadaḅ* “to have insolation” and *flufu* P *flufa* “to boil,” but plural perfective participle *flafanin*.

While the evidence for  $u/a$  alternation in verbs of this type outside of Tuareg is even more sparse than it is for the  $i/a$  alternation, the fact that it occasionally shows up in fairly disparate varieties of Berber suggests that Tuareg does reflect the original situation, despite this vocalization being lost in most varieties.

---

## The Aorist Vocalism

The Aorist presents a more complicated situation than the Perfective. It is clear that in Tuareg there are two vocalisms, (1) an  $A \rightarrow$  vocalism, and (2) an  $\Theta \rightarrow$  vocalism (Kossmann 2011: 58).

---

<sup>4</sup>This verb is clearly deverbal from *izikər* “rope.”

A→: Tu. A *āqqātās* P *āqqātās* “to be cut”  
 Θ→: Tu. A *āgguləz* P *āggoləz* “to be left over”

Zenaga usually points to an Θ→ vocalism even where most Berber languages point to a vocalism containing A-type vowels. This is likely a secondary development (Cohen and Taine-Cheikh 2000: 292):

{8} Zng. A *y-uruʔri* P *y-āruʔrā* “vomit”; CMB *rar* P *rura* “id.”  
 {12} Zng. A *y-iyiyi* P *y-āyiyā* “be born”; Tam *lal* P *lula* “id.”  
 {3} Zng. A *y-āddurwiy*<sup>5</sup> P *y-āddurwāy* “be blind”; Tu. *āddārkwāl* P *āddārkwāl* “id.”

In two cases, an A-A-Θ vocalism surfaces as an alternative vocalization for the final glottal stop verbs, once in the clearly reconstructible verb “to be quiet,” and the Arabic loanword “to pray”:

{5} Zng. A *y-uffūsʹsʹi*, *y-affasʹsʹi* P *y-āffūsʹsʹa* “be silent”; Ghd. *fəss* A *āfəss*  
 {15} Zng. A *y-usʹsʹulli*, *y-asʹsʹalli* P *y-asʹsʹəllä* “pray”; CMB *zʹzʹall* P *zʹzʹulla*

It is tempting to see in the A-A-Θ vocalism the A→ vocalism found in Tuareg, but the exact development is not clear.

A few cases exist in Zenaga where the Aorist has a Θ-A-Θ vocalism; in these cases, the perfect has an A-A-A vocalism:

Zng. A *y-inmārəg* P *y-ānmāräg* “to resemble”  
 Zng. A *y-əfwādi:h* P *y-āfwāda:h* “envoyer”

No traces of this subtype can be found in Tuareg or Ghadames. Both words identified by Cohen and Taine-Cheikh (2000) with this vocalism lack clear Proto-Berber etymologies, it is, therefore, difficult to evaluate whether this lexically determined vocalism is an archaism, or rather, an innovation of Zenaga.

Whatever the exact development of the subtypes, it is clear that the Θ→ vocalism can be readily identified with the identical Θ→ vocalism found in Tuareg (and Ghadames) – and that it has been generalized across many verbs where Tuareg has an A→ vocalism in the Aorist.

The situation is more complex for Ghadames. Unlike Tuareg and Zenaga, Ghadames has three different aspectual forms, which all perform different parts of the functions where Tuareg and Zenaga only use the Aorist, namely, the Imperative, Aorist, and Future.<sup>6</sup> There are four different combinations. Type 1 has Θ→ for all three aspects. Type 4 has Θ-A(-Θ) for all three aspects. Both, Type 2, and Type 3 have Θ-A→ for the Future, but the Imperative, either agrees with the Aorist Θ→ vocalism (Type 2), or with the Future Θ-A→ vocalism (Type 3).

<sup>5</sup>This must be a loanword from another Berber language, as Proto-Berber \**γ* yields *ʔ* in Zenaga (Kossmann 2001a: 63–65; Souag 2017).

<sup>6</sup>For an overview of the function of these stems see Kossmann (2013a: 161ff.).

	Type 1	Type 2	Type 3	Type 4
Imperative	( $\Theta$ -) $\Theta$ - $\Theta$ <i>fənzər</i> “have a nosebleed”	$\Theta$ - $\Theta$ - $\Theta$ <i>əmmiɬəf</i> “be entered”	( $\Theta$ -)A-A <i>māklaw</i> “take lunch”	( $\Theta$ -)A(- $\Theta$ ) <i>fad</i> “be thirsty”
Aorist	$\Theta$ - $\Theta$ - $\Theta$ <i>əffənzər</i>	$\Theta$ - $\Theta$ - $\Theta$ <i>əmmiɬəf</i>	$\Theta$ - $\Theta$ - $\Theta$ <i>əmməkluw</i>	$\Theta$ -A(- $\Theta$ ) <i>əffad</i>
Future	$\Theta$ - $\Theta$ - $\Theta$ <i>əffənzər</i>	$\Theta$ -A-A <i>əmmatāf</i>	$\Theta$ -A-A <i>əmmāklaw</i>	$\Theta$ -A(- $\Theta$ ) <i>əffad</i>

Other Berber varieties such as Tuareg have a separate Imperative as well, but they never differ in vocalism, but only clip off the first vowel and shorten the initial geminate.

- Tu. Imp. *vātās* A *āqqātās* “to cut”  
 {4} Tu. Imp. *vāym* A *āqqāym* “to sit”  
 Tu. Imp. *dubən* A *əddubən* “to marry”

This same process of clipping and shortening is present in Ghadames as well (Kossmann 2013a: 78):

- {5} Ghd. Imp. *fāss* A *yāffāss* “to be quiet”  
 {7} Ghd. Imp. *βərgi* A *əββərgi* “to dream”

The Tuareg and Zenaga  $\Theta \rightarrow$  vocalism can be readily equated with the Ghadames vocalism  $\Theta \rightarrow$  (Type 1). The Tuareg Aorist A  $\rightarrow$  should probably be equated with the Ghadames  $\Theta$ -A  $\rightarrow$  vocalism. However, these are not perfectly identical, and the question becomes which of the two vocalisms is original to Proto-Berber.

To my mind, it is more likely that the more complex  $\Theta$ -A  $\rightarrow$  vocalism is original, as it seems difficult to arrive at this vocalism from an A  $\rightarrow$  vocalism while the Tuareg A  $\rightarrow$  vocalism could be derived analogically from an original  $\Theta$ -A  $\rightarrow$  vocalism through the imperative. As already discussed, the imperative clips off the first vowel of heavy stems, and degeminates the word-initial consonant. This yields an A  $\rightarrow$  vocalism for the Imperative in Ghadames as well, by virtue of the initial vowel having been clipped. Tuareg could have introduced an innovative A  $\rightarrow$  vocalism to the Aorist from the imperative, which in Tuareg is otherwise identical to the Aorist.

Another argument that speaks in favor of the reconstruction of the Proto-Berber Aorist vocalism as  $\Theta$ -A  $\rightarrow$  is that it is the vocalism used in both Tuareg and Ghadames for the Imperfective. In several other verb types,<sup>7</sup> the Imperfective takes on the same vocalism as the Aorist, so it seems likely that this would also be the case for the Heavy Verbs.

As such, it seems reasonable to assume that the Aorist vocalism of Tuareg was originally identical to that of the imperfective and, thus, also had an

<sup>7</sup> Verb types that copy the vocalism of the Aorist for the imperfective are most prominently verbs with initial *i-* or *u-* prefixes, e.g., A *ini* “to say” P *ənni* I *ətini* (Prasse’s I.C verbs); A *irsan* “to be tired” P *ārsin* I *ətirsan* (Prasse’s II verbs), and the heavy verbs with an  $\Theta \rightarrow$  vocalism in the Aorist, as we will see in section “[The Imperfective Formation](#)” below.

Θ-A→ vocalism. Therefore, for Proto-Berber it seems possible to reconstruct two main vocalisms in the Aorist, Θ→ and Θ-A→, the latter of which usually corresponds to the Ghadames Future stem.

Where Tuareg, and most other Berber varieties have an Aorist, Ghadames has three separate stems: the Imperative, Future, and Aorist. Kossmann (2000) convincingly shows that the Future stem should be reconstructed for Proto-Berber, as in eastern Berber varieties besides Ghadames, namely, Sokni, Foqahi, and Awjili, show traces of an ancient Future stem different from the Aorist in the light verb system. However, due to a lack of data and many innovations, these varieties cannot be used to inform us about the vocalism of Future stem of the heavy verbs. As such, it remains unclear to what extent the system of four types of heavy verbs in Ghadames is ancient, or not. What we can observe is that the two vocalisms reconstructible for the other Berber languages are also present, in some form, in Ghadames. The Type 1 verbs, which have Θ→ vocalism for all three stems can be readily equated to the verbs that have an Aorist with Θ→ vocalism in other varieties. Types 2, 3, and 4 all have Θ-A→ vocalism in at least one of the three stems that correspond to the Aorist in other varieties. Therefore, this one likely corresponds to the A→ class of Tuareg. Nothing more can be said about the reconstructibility of the Future in heavy stems of Ghadames.

To sum up, we find that the Perfective vocalism is always A-Θ-A→. But the Aorist vocalism consists of two classes. Class 1 can be reconstructed with an Aorist vocalism Θ-A→, and Class 2 with an Aorist vocalism Θ→.

---

## The Imperfective Formation

The Imperfective formation in Berber presents us with several problems. Where the Aorist and Perfective are, generally, regularly derivable from the stem, the Imperfective in a variety of different Berber dialects represent significantly more issues. This much is clear, for example, in Kabyle, where a verb very frequently has a variety of different Imperfective formations (see, e.g., Dallet 1953: 375ff.).<sup>8</sup>

Several Berber dialects have more predictable imperfective formations, most notably Tuareg, Tashlhiyt, and Central Moroccan Berber. While it seems likely that there were other Imperfective formations around,<sup>9</sup> the pattern found in these languages is most readily reconstructible. The process usually employed by Tuareg,

---

<sup>8</sup>This is also clear in the appendix at the end of this chapter, where Kabyle often lists a variety of different imperfective formations.

<sup>9</sup>These may have even had slightly different aspectual functions. Tarifit, for example, makes use of a variety of different Imperfective stems, which express subtle differences in semantics (Lafkioui 2018: 98). While Lafkioui, convincingly, makes the case that in its formal application, this is an innovation of Tarifit, the amount of different stems different verbs can have in Kabyle (e.g., *ɔwəl* “to falsify,” Imperfective *idəwəl*, *yətsɔwəl*, *yəddəwəl*) suggests that there may have already been some morphological variation which, perhaps, had some semantic specification at an earlier stage of the language already.

Tashlhiyt, and Central Moroccan Berber for heavy verbs, and one that is also frequently attested as an option (and often even the only option) in other Berber varieties derives the Imperfective from the Aorist stem through the following process:

1. Application of the vocalism of the Aorist
2. Add the imperfective prefix *\*-vtt-*
3. Lengthen the final vowel

While in dialects that have lost central vowel distinctions, it is only possible to see this pattern when the root contains a plain vowel, whenever we do find such stems, they seem to agree with the general Tuareg system.

If the Aorist pattern is  $\Theta$ -A $\rightarrow$ , the lengthened vowel surfaces as *a*.

{10} A *\*əyyawān* P *\*äyyiwān* I *\*əttāyawan* “get used to,” cf. Fig. A *dzawən* P *dziwən* I *tyawan*, *dzawan*.

If the Aorist pattern is  $\Theta$  $\rightarrow$ , and there are no plain vowels in the stem, the lengthened vowel is *i*.

{25} A *\*əffərɣər* P *\*äffərɣūr* I *\*əttəfərɣir* “flap the wings,” cf. Fig. A = P *ffərɣər* I *ttfərɣir*

If there is *\*u* in the stem, the lengthened vowel harmonizes with this *\*u*.

{16} A *\*əggugəl* P *\*äggugäl* I *\*əttəgugul* “to be an orphan,” cf. Ouargla A = P *gguzəl* I *ttguzul* “id.”

---

## The Classification of Middleweight Verbs

In his grammar of Tuareg, Jeffrey Heath (2005: 102ff.) makes a useful distinction between middleweight verbs and heavy verbs. Middleweight verbs are verbs whose stem has three central vowels, while heavy verbs either have four or more central vowels or contain a stem-internal plain vowel *i* or *u*. In Tuareg these middleweight verbs have an ( $\Theta$ -)A $\rightarrow$  vocalism in the Aorist and Imperfective (Proto-Berber Class 1). In other Berber varieties, however, the situation is less clear. While triconsonantal verbs of this type are very rare outside of Tuareg, when they do appear, they seem to be universally treated as Class 1 verbs. There are a few triradical verbs in, for example, Kabyle with an Aorist and Perfective with a long consonant, and shortening of this consonant + infix *a* in the imperfective, which corresponds well to the vocalism as found in verbs of this type in Tuareg.

{1} Kb. *qqrəs* I *ṯṯṯṯṯṯbras* “to be ripped” < *\*əqqārās* I *\*əttāyāras*  
 {2} Kb. *rʳʳʳəzʳ* I *ṯṯṯṯṯṯrʳʳʳa* “to be broken” < *\*ərrāzāʳ*? I *\*əttārāzaʳ*?

However, for quadriconsonantal verbs, the evidence is conflicted. Tuareg, Tashelhiyt, and Central Moroccan Berber generally treat them as a class 1 verbs, whereas Kabyle and Zenatic varieties<sup>10</sup> treat them as class 2 verbs, for example,

- {3} Tuareg *dārʷāl* I *əttadārʷāl* “to be blind”; Tashl. *ddrʷl* I *ttdrʷāl* “id.”; CMB *ddərʷəl* I *ttðərʷəl* “id.”;  
Kb. *ddərʷəl* I *ttðərʷil* “id.”; Fig. *tʰərʷəl* I *ttʰərʷil* “id.”

However, there is a fairly large group of common verbs for which the majority of the dialects treat them as Class 1, for example,

- {4} \**əqqäymǎ?* I \**əttäyǎyma?* “to sit; stand still”  
{5} \**əffāstā?* I \**əttāfāsta?* “to be silent”  
{8} \**əṛā?rā?* I \**əttārā?ra?* “to return; vomit”  
{10} \**əḡḡawān* I \**əttāyawan* “to be full; satiated”  
{12} \**əlālā?* I \**əttālala?* “to give birth”

Therefore, it is tempting to see the treatment of Kabyle and Zenatic of verbs like {3} \**əddārʷāl*, as Class 2 verbs as innovations, rather than retentions. With the loss of central vowel contrast, which took place in both varieties, the distinction between Class 1 and Class 2 verbs would have gotten blurred, and therefore, it stands to reason that some varieties would have analogically spread the Class 2 imperfective formation to verbs that were originally part of Class 1.

There is one group of quadriconsonantal verbs, however, which have Class 2 vocalism in the imperfective, even in Tashelhiyt and Central Moroccan Berber (but not in Tuareg, where they are Class 1). These are the verbs that have complete reduplication of two root consonants.

- {25} Kb. *ffərʃər* I *tʃərʃir* “to flap the wings”; CMB *fərʃər* I *tʃərʃir* “id.”; Tashl. *ffərʃər* I *tʃərʃir* “id.”  
{26} Tu *bārʃār* I *əttabārʃar* “to go out”; Ouargla *bbərʃər* I *əttbərʃir* “to go up; to travel”  
{28} Tu *dägḏäg* I *əttadägḏag* “to crush”; Kb. *ddəjḏəj* I *ddəjḏij* “id.”; Ayt Atta CMB *dəgdəg* I *ddəgdig* “id.”

The fact that, otherwise rather diverse Berber varieties are in agreement that such verbs are Class 2 verbs – except for Tuareg – makes it likely that Tuareg is innovative in this regard, and that reduplicated verbs belong to the Class 2 verbs, despite their only having three central vowels in the stem, which is a feature that would normally qualify them to belong to the middleweight Class 1 verbs.

A confounding element of this reconstruction, however, is that Figuig shows special treatment of these reduplicating verbs that is different from both Class 1 and Class 2 verbs. Unreduplicated verbs in Figuig have the imperfective *tcəccic*, consistent with Class 2 (e.g., *ddərʷəl* I *dʰərʷil* “to be blind”); But the reduplicated verbs

<sup>10</sup>Zenatic languages form a fairly homogeneous subgroup that share several morphological innovations with each other. For a discussion of these features see Kossmann (1999: 31f.; 2017).

are regularly *təccəc* (e.g., *ffərfər* I *tfərfər* “to flap the wings”) – with no long vowel infixation, whatsoever (Kossmann 1997: 139). This appears to be a behavior unique to Figuig as other Zenatic varieties, such as Ouargli, give such verbs *i*-infixes. At the moment it is unclear how the Figuig data should be integrated into our understanding of the reconstruction of the heavy verb.

## Conclusion

In this article we have shown that the heavy verb classes can be reconstructed for Proto-Berber in the form of two distinct apophonic classes. The apophonic class to which any one heavy verb belongs is largely predicted by its stem shape. Class 1 is the class of verbs that contain three central vowels in the stem, and a few lexically determined stems with a plain vowel (see {9–13}).<sup>11</sup> Class 2 contains the majority of the verbs with plain vowels, verbs with four central vowels, and a small group of reduplicated verbs with three central vowels. Schematically the vocalizations can be represented as per Table 15.4.

There still remain several verb classes that are clearly reconstructible for Proto-Berber. First, there is a group of verbs with a vocalic prefix in the Aorist, such as Tashl. A *ini* P *nn<sup>a</sup>/i* I *ttini* “to say”; Kb. A *izmir* P *uzmar* I *t̄s̄s̄izmir* “to be able”; Tu. A *uksad<sup>s</sup>* P *āksud<sup>s</sup>* I *ttuksad<sup>s</sup>* “to be afraid,” and second there are the causative verbs derived from, either light or heavy verbs, which form a subtype of the heavy verb class. Besides this, there are the reciprocal derivations with an *m*-prefix, and passive derivations with a *t*-prefix, which seem to have a vocalic pattern that agrees with Class 1 verbs. In Tuareg and Ghadamsi, they simply behave as Class 1 verbs, but in other Berber languages they often receive an *a*-infix in their stem. A full treatment of these forms will have to be discussed another time.

## Lexical Data

Throughout this chapter, lexical data from a variety of different Berber dialects have been used. The following table gives the abbreviation used, name of dialect, and reference to the source.

**Table 15.4** Proto-Berber apophony

	Aorist = Imperfective	Perfective
<b>Class 1</b>	ə-A→	A-ə-A→
<b>Class 2</b>	ə→	A-ə-A→

<sup>11</sup> While the subset of non-derived verbs with Class 1 vocalism is smaller than those with Class 2, verbs that are in this class, they are generally easier to reconstruct for Proto-Berber than those in Class 2. The Class 1 vocalism is also used for Medio-passives (*m*-derivations) and passives (*t*-derivations) in Tuareg, and traces of this can be found in other Berber languages as well. However, several other formations seem to be common in these derivational patterns that do not easily map onto Class 1 verbs in other Berber languages, such as the Tashl. A *myissin* P *myassan* I *tmyissin* “to know one another” (Boumalk 2003: 128).

Abbreviation	Dialect name	Source
Kb.	Kabyle	Dallet (1982)
CMB	Central Moroccan Berber	Taifi (1992); Oussikoum (2013)
Tashl.	Tashelhiyt	Stroomer (forthcoming)
Ghd.	Ghadames	Lanfry (1973)
Tu. M	Mali Tuareg	Heath (2006)
Tu. U	Tudalt Tuareg (Burkina Faso)	Sudlow (2009)
TU. BF-M	Tamaghit Tuareg (Burkina Faso)	Sudlow (2009)
Tu. W	Iwellemeden Tuareg (Niger)	Prasse et al. (1998)
Tu. Y	Ayer Tuareg (Niger)	Prasse et al. (1998)
Fig.	Figuig	Benamara (2013), and Kossmann (1997)
Zng.	Zenaga	Taine-Cheikh (2008, 2010)
Awj.	Awjila	Van Putten (2014)
Snh.	Senhaja	Ibañez (1959)
Rif.	Tarifit	Serhoual (2002)

## Appendix

This appendix gives an overview of reconstructible heavy verbs of the different types. It does not intend to be exhaustive, but it does attempt to give several clear and illustrative examples of the different formations that exist. These examples are numbered, and whenever verb forms are referred to in the article, the corresponding number is given. In several cases, previous works have commented on the reconstruction, or cognates present, of some of these reconstructed words. References to these are given in square brackets after the reconstructed term. The etymologies discussed in Kossmann (1999) are marked by K, followed by the example number from the book. Cognates discussed in Naït-Zerrad (1998–2002) are marked by NZ, followed by the abstracted root as found in that work. The etymological notes of Taine-Cheikh (2008) are marked by TC, followed by the footnote number that discusses the etymology. Finally, if the verb is discussed by Basset (1929) it is marked by B, followed by the conjugation number where it is discussed.

### Class 1 (Aor. $\Theta$ -A $\rightarrow$ )

#### \* $\text{ə}\bar{\text{c}}\bar{\text{a}}\bar{\text{c}}\bar{\text{a}}\bar{\text{c}}$

This group is rather common in Tuareg but is significantly more difficult to detect in other Berber languages. When we do find these verbs, we usually find them as transitive  $\text{əcc}\bar{\text{a}}\bar{\text{c}}$ /intransitive  $\text{əc}\bar{\text{a}}\bar{\text{c}}$  pairs, much like Tuareg *ābtas* “to cut,” *ḅātās* “to be cut.” None of the verbs of this type that I have detected in northern Berber have good cognates in Tuareg. While this pattern is not productive in any modern Berber variety, it likely points to an older situation where this derivational pattern was more productive.

**{1} \*əqqārās “to be torn”**

This verb corresponds to the transitive light verb \*āyṛās “to slaughter; to tear.”

Proto-Berber	Aorist *əqqārās	Perfective *əqqərās	Imperfective *attāyāras	
Kabyle	qqər <sup>s</sup>	qqər <sup>s</sup>	ṭṭāyāras	“to be torn”
Figuig	qr <sup>s</sup>	qr <sup>s</sup>	[qər <sup>s</sup> ]	“to be torn; tear”

The Figuig form has been reanalyzed as a regular light verb, but the retention of the *q*, rather than *ṭ* in initial position shows that it was originally derived from a verb with an initial *qq*.

In Kabyle we still find quite a lot of verb pairs of this type, but most of these lack well-attested cognates in other Berber varieties, or, when there are cognates, only show cognates for one of the two forms of the pair. Not all of them have as clear a distinction between transitive and intransitive. Some examples are: *llfəḅ* ~ *lfəḅ* “to be destroyed,” *llχs* “to be very wet” ~ *lχs* “to be wet.” One should perhaps also compare Kabyle *nnkəl* “to spill; to be spilled” and Tuareg (M) *əḥkəl* “to be poured out.” This is likely an ancient retention of Kabyle, but without more widespread comparative evidence it is difficult to be sure.

**{2} \*ərrāzā? “to be broken”**

This verb corresponds to \*ārzə? “to break.”

Proto-Berber	Aorist *ərrāzā?	Perfective *ārəzā?	Imperfective *əttārāza?	
Kabyle	r <sup>s</sup> əz <sup>s</sup>	r <sup>s</sup> əz <sup>s</sup>	ṭṭārāza, [ṭr <sup>s</sup> uz(u(y))]	“to be broken”
Figuig	r <sup>s</sup> əz	r <sup>s</sup> əz	[ttr <sup>s</sup> əddza]	“id.”
Ouargla	r <sup>s</sup> əz <sup>s</sup>	r <sup>s</sup> əz <sup>s</sup>	yəttər <sup>s</sup> ə, [yət <sup>s</sup> ər <sup>s</sup> əz <sup>s</sup> , r <sup>s</sup> əz <sup>s</sup> ]	“id.”

**\*əccācc**

This stem type has several roots that are readily reconstructible for Proto-Berber with widespread attestations, but the most readily reconstructible forms all end in a final glottal stop.

**{3} \*əddāryāl “to be blind” [B: 123; NZ: DRYL; TC: 209]**

Proto-Berber	Aorist *əddāryāl?	Perfective *əddəryāl?	Imperfective *əttāddāryal?	
Kabyle	ddərḅəl	ddərḅəl	[ddərḅil, ṭṭərḅil]	“to be blind”
Tuareg (M)	d <sup>s</sup> ərḅāl	[d <sup>s</sup> ərḅal-]	ətad <sup>s</sup> ərḅal	“id.”
CMB	ḍər <sup>s</sup> ḅəl	ḍər <sup>s</sup> ḅəl	[tṭḍər <sup>s</sup> ḅil]	“id.”
Figuig	t <sup>s</sup> ər <sup>s</sup> ḅəl	t <sup>s</sup> ər <sup>s</sup> ḅəl	[tṭ <sup>s</sup> ər <sup>s</sup> ḅil]	“id.”
Ouargla	ddərḅəl	ddərḅəl	[tṭḍərḅil]	“id.”
Tashlhiyt	drḅl	drḅl	ttḍərḅal	“id.”
Zenaga	əddurḅiy	əddurḅäy	[əddurḅiy]	“to be one-eyed”

The Zenaga form is not cognate, but rather a loan from another Berber language, this is clear because Proto-Berber \* $\gamma$  regularly shifts to  $\gamma$  in Zenaga, and not to  $\nu$  that we see here (Kossmann 2001a: 63–5; Souag 2017).

Most Berber languages have a  $\Theta \rightarrow$  vocalism in the Aorist/Imperfect of this verb. As discussed in the section called “The Classification of Middleweight Verbs”, it seems likely that Tuareg and Central Moroccan Berber retain the original vocalism here, although this could certainly be debated.

One is tempted to see this root as some form of compound of an unidentified element *dr*<sup>12</sup>, followed by a shortened form of the verb \**āqqəl* “to watch” (cf. Fig. *qqəl* “to watch,” CMB *qqəl* “id.,” and probably Tu. *ival* “to believe”).<sup>13</sup>

#### {4} \**āqqāymā?* “to sit; remain” [B: 198; TC: 52]

Proto-Berber	Aorist * <i>āqqāymā?</i>	Perfective * <i>āqqəymā?</i>	Imperfective * <i>əttāyāyima?</i>	
Kabyle	<i>qqim</i>	<i>qqim</i>	[ <i>ṭṭṭimi</i> , <i>ṭṭim</i> , <i>ṭṭama</i> ]	“to stay; remain”
Tuareg (M)	<i>āqqam</i> , <i>āqqaym</i>	<i>āqqima</i>	<i>ətakāyima</i>	“to sit; be seated”
CMB	<i>qqim</i>	<i>qqima</i>	<i>ttṭima</i>	“to sit; remain”
Figuig	<i>qqim</i> , <i>qqyəm</i>	<i>qqim</i> , <i>qqyəm</i>	<i>ttṭima</i>	“id.”
Ouargla	<i>əqqim</i>	<i>əqqim</i>	<i>əttqima</i>	“id.”
Ghadames (irregular)	Imp. <i>qem</i> < * <i>γāymā?</i> [Aor. <i>əqqim</i> < * <i>āqqəymā?</i> ]	<i>āqqim</i>	[ <i>əttṭim</i> ]	“to remain”
Tashlhiyt	[ <i>qqama</i> , <i>ṭama</i> , <i>ṭumu</i> , <i>qumu</i> ]	[ <i>γama</i> , <i>qama</i> ]	[ <i>ṭṭumu</i> , <i>ttqumu</i> , <i>ttqama</i> , <i>ttṭama</i> ]	“to sit; remain”
Zenaga	[ <i>iḡmi</i> ]	<i>aḡma</i>	[ <i>ittiḡmi</i> ]	“to sit”

The Tashlhiyt forms are certainly cognate to other varieties, but it is difficult to reconcile its form with the one attested in the other varieties examined here, even when compared to Central Moroccan Berber, which in many other ways is linguistically very close to Tashlhiyt. I do not have a clear historical explanation for the presumably innovative development of the Tashlhiyt form.

#### {5} \**əffāstā?* “be silent” [NZ: FST1; TC: 314]

Proto-Berber	Aorist * <i>əffāstā?</i>	Perfective * <i>əffəstā?</i>	Imperfective * <i>əttāfāsta?</i>	
CMB	<i>fəsθ</i>	<i>fəsθa</i>	<i>təfsθa</i>	“to be silent”
Tashlhiyt	<i>fəss</i> , [fiss]	<i>fəss</i> , [fiss]	<i>tfəssa</i> , [tfssas]	“id.”

(continued)

<sup>12</sup>I have found some marginal evidence that *dr* may have originally been a kind of pejorative prefix, cf. Kb. *ddərçəl* “to misstep,” Kb. *tiçli* “walk,” Tu. M *akəl* “to step.” Perhaps we can add here, also, Mzab *ddərnəs* “to languish,” Mzab *əns* “to spend the night,” Kb. *ddərbəz* “to fall heavily,” Tu. WY *bāzbāz* “to fall (of fruit or grain)”.

<sup>13</sup>I thank Maarten Kossmann for suggesting this connection to me.

Proto-Berber	Aorist *əffästā?	Perfective *əffəstā?	Imperfective *əttāfāsta?	
Ghadames	Imp. <i>fāss</i>	<i>yāffəss</i>	<i>əttāfāss</i>	“id.”
Zenaga	[ <i>uffus</i> <sup>s</sup> <i>i</i> , <i>āffās</i> <sup>s</sup> <i>i</i> ]	<i>āffus</i> <sup>s</sup> <i>a</i>	[ <i>yətf</i> <sup>us</sup> <i>s</i> <sup>s</sup> <i>i</i> ]	“id.”

Most Berber varieties have assimilated the final *\*st* cluster to *ss*, but it seems reasonable to take the Central Moroccan Berber form as original here. The emphatic *s*<sup>s</sup> in the Zenaga form is not easily explained.

### {6} \*əggārβā? “to be last” [K: 140; NZ: GRB1, GR45; TC: 357]

Proto-Berber	Aorist *əggārβā?	Perfective *əggərβā?	Imperfective *əttāgārβa?	
CMB	<i>ggru</i> <i>ggir</i> , <i>g<sup>w</sup>ər</i>	<i>ggra</i> <i>ggir</i> , <i>g<sup>w</sup>ər</i>	[ <i>təjru</i> ] <i>tgira</i> , <i>tggir</i> , <i>tgg<sup>w</sup>ər</i>	“to be last”
Tashlhiyt	<i>gg<sup>w</sup>ru</i>	<i>ggra</i>	[ <i>tig<sup>w</sup>ru</i> , <i>ttggru</i> , <i>ttgru</i> ]	“to be last”
Kabyle	<i>j<sup>w</sup>ri</i>	<i>j<sup>w</sup>ra</i>	[ <i>tstj<sup>w</sup>ray</i> ]	
Ghadames	<i>gərβ</i>	<i>āg<sup>g</sup>ərβ(o)</i>	<i>ittəgərβ</i>	“to be behind”
Zenaga	–	<i>yāggārā</i>	–	“to end up . . .”
Tuareg (M)	[ <i>əg<sup>g</sup>urh</i> ]	[ <i>əg<sup>g</sup>urha</i> ]	[ <i>tig<sup>g</sup>urhu</i> ]	“to end up”

The final *u* of Tashlhiyt and some forms of Central Moroccan Berber are perhaps the regular outcome of the sequence *\*βv* in word-final position, but could also be an analogical spreading of the final *u* that we find in the nominal *m*-derivation *anggaru* “last” < *\*a-nāggarβu*?

Tuareg has a different derivation, with *u* after the first root consonant, and thus belongs to Class 2 verbs.

### {7} \*əβa/ərgā? “to dream” [K: 320; B: 94]

Proto-Berber	Aorist *əβa/ərgā?	Perfective *əβu/ərgā?	Imperfective *əttāβa/ərga?	
Tuareg (M)	[ <i>əhhurg</i> <sup>ə</sup> - <i>t</i> ]	<i>əhhurg</i> <sup>ä</sup> - <i>t</i>	[ <i>tihərg</i> <sup>u</sup> - <i>t</i> ]	“to dream”
Tuareg (BF-U)	[ <i>əhhərg</i> <sup>ä</sup> - <i>t</i> ]	<i>əhhərg</i> <sup>ä</sup> - <i>t</i>	[ <i>ti-hərg</i> <sup>a</sup> - <i>t</i> ]	“id.”
CMB	<i>warja</i>	<i>warja</i>	<i>ttwarja</i>	“id.”
Tashlhiyt	<i>wwarg</i>	<i>wwarg</i>	<i>ttwarga</i>	“id.”
Kabyle	<i>arju</i>	<i>urja</i>	<i>tst̄sarju</i>	“id.”
Ghadames	<i>əββərg<sup>i</sup></i>	<i>yāββərg<sup>i</sup></i>	<i>əttəβərg<sup>i</sup></i>	“id.”
Awjila	[ <i>uf tavərgát</i> ]	?	<i>vərga</i>	“id.”
Tarifit	<i>arza</i>	<i>urza</i>	<i>tarzi</i> , <i>tarza</i>	“id.”
Figuig	<i>rzit</i>	<i>rzit</i>	<i>ttizrit</i>	“id.”

As with the previous verb, Mali Tuareg has shifted this verb to another class, with *u* after the first root consonant, thus becoming a class 2 verb. The exact origin of the *-t* suffix of Tuareg is not yet fully understood, but often occurs on vowel-final/glottal stop-final verbs.

Central Moroccan Berber and Tashlhiyt – and perhaps Kabyle – point to a stem with *\*a* in the root *\*əβārǵǎʔ*. The Mali Tuareg form could originally be from the same form. As Class 1 and Class 2 merge in the perfect, it is easy to imagine that a verb like this could shift class by analogy from the perfect. The Tudalt Tuareg form, however points to *\*əβārǵǎʔ*, which likewise seems to be the basis for the Figuig form, which, moreover, has a final *\*t* that seems to correspond to the Tuareg forms with final *-t*, rather than a final *\*ʔ*. Awjili and Ghadames seem to point to a short vowel in the stem as well. These disparate forms are not easily reconciled.

**{8} *\*ərǎʔrǎʔ* “to return; vomit” [TC: 787]**

Proto-Berber	Aorist <i>*ərǎʔrǎʔ</i>	Perfective <i>*ǎʔrǎʔ</i>	Imperfective <i>*əttǎʔrǎʔ</i>	
CMB	<i>rar</i>	<i>rura, rur</i>	<i>ttrara</i>	“to return; vomit”
Tashlhiyt	<i>rar</i>	<i>rur</i>	<i>ttrara</i>	“id.”
Kabyle	<i>ərr</i>	<i>ərra</i>	[ <i>tst̪sarra</i> ]	“id.”
Ghadames	<i>ǎrr</i>	<i>ǎrra</i>	<i>ttǎrr</i>	“id.”
Figuig	<i>rr</i>	<i>ərru</i>	<i>tərra</i>	“id.”
Ouargla	<i>ərr</i>	<i>ərru</i>	<i>əttərra</i>	“id.”
Zenaga	[ <i>uruʔri</i> ]	<i>ǎruʔrǎ</i>	[ <i>əruʔri</i> ]	“id.”

This reduplicated verb does not seem to have the initial gemination found in other verbs of this type. This is perhaps to be related to the general avoidance of gemination of certain “weak,” and highly sonorous, consonants such as *\*w*, *\*y*, *\*β* as described by Kossmann (2008: 283ff.), and *\*r*, *\*l*, *\*m*, *\*n* as seen in imperfective formations of light verbs in Tashlhiyt and Ghomara, which have *βrs* “to slaughter” Impf. *qqrs*, rather than the more generally attested *βərrəs* (Dell and Elmedlaoui 1991: 85f.; Mourigh 2016: 143f.). Whatever the explanation, the seemingly likewise (partially) reduplicated verb {11} *əlalǎʔ* “to give birth” also lacks the gemination. Ghadames, Zenatic, and Kabyle lack the full vowel *a/u* in the root that we see in Central Moroccan Berber and Tashlhiyt. This is presumably because of the sequence *\*əʔ* lost completely in these varieties (and *\*ǎʔ* when unaccented) (Kossmann 2001a: 91f.). The regular outcome of the verb, e.g., in Kabyle, would therefore have presumably been A *\*rar* P *\*ərra* I *\*tst̪srara*. The predicted apophony has been analogically leveled out in all of these varieties.

**{9} *\*əGGǎʔfǎy* “to go up” [NZ: GFY; TC: 331]**

Proto-Berber	Aorist <i>*əGGǎʔfǎy</i>	Perfective <i>*ǎGGǎʔfǎy</i>	Imperfective <i>*əttǎGGǎʔfǎy</i>	
CMB	<i>ggafy</i>	<i>ggufy</i>	<i>tjafay</i>	“to go up”
Zenaga	–	<i>əggufǎh (-a:n)</i>	–	“to head north”

This etymology was suggested already by Taine-Cheikh (2008: 174, note 331) and Kossmann (2018: 181). The last of these seems quite uncertain about the etymology, but the formal match seems fine. Considering the context of where

Zenaga is situated, and was situated, in past centuries, south of the Atlas mountains, it strikes me as quite probable that, indeed, these two words are cognates.

### \*əcacāc

{10} \*əyyawān (or \*əyyāwān) “to be full, satiated” [K707, 711; B: 193; NZ: GWN1]

Proto-Berber	Aorist *əyyawān	Perfective *əyyiwān	Imperfective *əttāyawan	
Figuig	dʒawən	dʒiwən	tyawan, dʒawan	“to be satiated”
Ouargla	ʒzawən	əʒziwən	əttzawan	“id.”
Tarifit	ʒzawən	ʒziwən	tyawan	“id.”
Tuareg (M)	əyyāwān	əyyəwān	ətayāwan	“id.”
Tashlhiyt	ʒzawn, ʒziwn	[ʒzawn]	ttzawan, ttziwin	“id.”
CMB	ḏḏzawən	ḏḏziwən	tyawan	“id.”
Ghadames	(əgʕiḡiwān) Fut. əgʕiḡewān <sup>14</sup>	(əgʕiḡewān)	əttāḡewān	“id.”
Awjili	iwən		[ttiwān]	“id.”

Tuareg has a central vowel as its second vowel, and, therefore, behaves just like verbs of the type {1} \*əqqārās “to be ripped.” This same reflex is found in the next verb of the same structure {10} \*əGGawār “to sit.” There is no clear explanation for this distribution, and other verbs in similar environments retain the *a*, e.g., *hawāl* “to speak; rant,” while others seem to vascillate between dialects in terms of their treatment of this sequence, e.g., BF-M *kawān* “to answer,” but BF-U *kāwān* “id.” In Ayer Tuareg and the closely related Tudalt dialect of Burkina Faso the cacāc class has disappeared completely and thus their treatment of such verbs in this way is to be expected (Sudlow 2001: 206; Prasse et al. 1998: 452).

Kossmann (1999: 232f.) argues convincingly that the alternation between initial *ḏḏz/ʒz* in the Aorist and Perfective and *tt-y* in the imperfective in several of the varieties discussed here is best explained as *ḏḏz* being the outcome of geminate \*yy, as verbs of this type would regularly geminate the initial in the Aorist and Perfective stem. It appears that Awjili and Tuareg have a different outcome of \*yy than the other Berber varieties.

{11} \*əGGawār (or \*əGGāwār) “to sit” [NZ: GWR1]

Like the previous word, this word has a central vowel in Tuareg. As there are no dialects that distinguish \*g from \*ḡ that retain this root, it is reconstructed here with an undefined voiced velar \*G.

<sup>14</sup>One wonders if this form the result of mid-vowel harmony, as discussed in the noun by Van Putten (2018), reflecting \*əḡḡawān. There is, however, no clear explanation as to why this development would apply here and not to other verbs.

Proto-Berber	Aorist *əGGawār	Perfective *ǎGGiwār	Imperfective *əttāGawar	
Tuareg (WY)	ǎggāwār	ǎggawār	əttāgāwar	“to sit down”
Tashlhiyt	ggawr, [ggiwr]	[ggawr], ggiwr	ttgawar	“id.”
CMB	[jiwr]	jiwr	[tjiwir]	“id.”

{12} \*əlalā? “to give birth” [TC: 1074]

Proto-Berber	Aorist *əlalā?	Perfective *ǎlulā?	Imperfective *əttālala?	
CMB	lal	lula	ttlala	“to give birth”
Tashlhiyt	lal	lul, lula	ttlala	“to be born”
Kabyle	lal	lul	ṯlala, [ṯlal]	“id.”
Ouargla	llal	llul	ttlala	“id.”
Ghadames		yālul “he is born”		“id.”
Zenaga	[iyiyi]	äyivä	əttiyiyi	“id.”

In most varieties this verb lacks the initial gemination, see {8} \*ərā?rā? “to give back; vomit,” for a discussion.

\*əcācāc

{13} \*əǧǧallā? “to swear” [K: 440; B: 165; NZ: GL23]

Proto-Berber	Aorist *əǧǧallā?	Perfective *ǎǧǧullā?	Imperfective *əttāǧalla?	
CMB	ggall	ggula	tjalla	“to swear”
Tashlhiyt	ggall	ggull, ggulla	ttgalla	“id.”
Kabyle	ggall	ggull	ṯjalla	“id.”
Figuig	dʒall	dʒull	dʒalla < *tʒalla	“id.”
Ouargla	ʒʒall	ʒʒull	ttʒalla	“id.”
Tarifit	ʒʒadʒ	ʒʒudʒ	tʒadʒa	“id.”

{14} \*əǧǧaggā? “to break up camp” [K: 446; B: 166; NZ: G26]

Proto-Berber	Aorist *əǧǧaggā?	Perfective *ǎǧǧuggā?	Imperfective *əttāǧaggā?	
CMB	ggadʒdʒ	[ggadʒdʒ]	tjadʒdʒa	“to decamp”
Kabyle	ggadʒ	ggudʒ	ṯjadʒ	“id.”
Tuareg (M)	ǎgʒgʒgʒ	ǎgʒgʒgʒ	tagʒgʒgʒ	“to load”

This root underwent a typical dissimilation of two subsequent velars where the latter turned into a  $\overline{dʒ}$ , or  $ʒ$ , in Central Moroccan Berber and Kabyle. This is the outcome of the sound law \*g/y. . . \*g > \*g/y. . . \*z as described by Kossmann (1999: 228), cf. also {16} \*əǧǧugal “to be an orphan”.

**{15} \*\*əzʒallā? “to pray” [B: 165]**

Proto-Berber	Aorist <i>*əzʒallā?</i>	Perfective <i>*əzʒullā?</i>	Imperfective <i>*əttāzalla?</i>	
CMB	<i>zʒʰalʰ</i>	<i>zʒʰulʰa</i>	<i>dzʰalʰa</i>	“to pray”
Tashlhiyt	<i>zʒʰall</i>	<i>zʒʰull, zʒʰulla</i>	<i>tzʰalla</i>	“id.”
Kabyle	<i>zʒʰall</i>	<i>zʒʰull</i>	<i>ṡzʰalla, dʒʰalla</i>	“id.”
Figuig	<i>zʒʰall</i>	<i>zʒʰull</i>	<i>tzʰalla</i>	“id.”
Ouargla	<i>zʒʰall</i>	<i>zʒʰull</i>	<i>ttzʰalla</i>	“id.”
Zenaga	<i>yusʰsʰulli, yasʰsʰalli</i>	<i>yasʰsʰällä</i>	<i>yətsʰällä</i>	“id.”

This verb certainly is a very early loanword from Arabic *sʰallā* “to pray” (Kossmann 2013b: 82) and so cannot be reconstructed for Proto-Berber. It is, however, the only verb of this type besides {13} *\*əǧǧallā?* “to swear,” well-attested across all Berber languages. Van den Boogert and Kossmann (1997: 318) suggest that this loanword was probably adapted into the class by analogy with {13} *\*əǧǧallā?* “to swear.” It is given here because it is a good illustration of this verb type in Zenaga, which lacks a cognate of {13} *\*əǧǧallā?* “to swear.” However, the Zenaga verb has *sʰsʰ* in place of *zʒʰ*. This is not the regular outcome of Proto-Berber *\*zʒ*, which normally yields *zʒʰ* while simplex *\*z* yields *θʰ*, e.g., P *yarʰθʰa* I *yirʰazʰa* “to break” (Taine-Cheikh 1999: 317; 2008: 453 f.). The reflex found here is presumably due to the influence of the Arabic verb *sʰallā*, from which it ultimately derives.

**Class 2 (Aor. Ə→)**

Verbs of this type generally have a lexical vowel *\*u* as their second stem vowel. Those that do not usually have four central vowels.

**\*əċucəc**

While this type is fairly well-attested, there are rather few reconstructible verbs in this type. Nevertheless, the actual formation is uncontroversial, forming A *\*əċucəc* P *\*ăċucăc* I *\*əttăcucuc*.

**{16} \*əggugəl “be an orphan” [K: 694; B: 95; NZ: GL22]**

Proto-Berber	Aorist <i>*əggugəl</i>	Perfective <i>*əggugəl</i>	Imperfective <i>*əttəgugul</i>	
Tuareg (WY)	<i>əggugəl</i>	<i>əggogəl</i>	<i>əttəgugul</i>	“to be an orphan”
Kabyle	<i>gguzəl</i>	<i>gguzəl</i>	<i>ṡjuzəl</i>	“id.”
Ouargla	<i>gguzəl</i>	<i>gguzəl</i>	<i>ttguzul</i>	“id.”

A dissimilatory sound law *\*g/y...g > \*g/y...ž* (Kossmann 1999: 228) has affected a variety of different dialects, and it cuts right across the Tuareg dialect continuum, where some dialects have not undergone this dissimilation, while others have.

**{17} \*əffudəy “be injured” [B: 93; NZ: FDY]**

Proto-Berber	Aorist *əffudəy	Perfective *əffidäy	Imperfective *əttəfuduy	
Tuareg (M)	[əffadäy]	əffidäy	[tafaday]	“to have cuts on skin”
Tuareg (WY)	əffidi	əffodäy	ətəfuduy	“to have a sore on the back”
Kabyle	ffuði	ffuði	[tfuði]	“to be injured”
Tashlhiyt	fudi	fudi		“id.”
CMB	ffidy	ffidy	ttfidiy	“id.”

In Mali Tuareg, this verb is a Class 1 verbs *fadäy*, perhaps the result of a reclassification due to Class 1 and Class 2 verbs of this type looking identical in the perfective. Central Moroccan Berber has a *i* vowel in the root, which does not have a clear explanation.

**\*əcuccəc****{18} \*əBBunzər “have a nosebleed” [B: 168; NZ: BNZR; TC: 559]**

Proto-Berber	Aorist *əBBunzər	Perfective *əBBunzār	Imperfective *əttəBunzur	
Tuareg (M)	əhhunfər	əhhunfār	ətihənfur	“have a nose bleed”
CMB	junzər	junzər	tjunzur	“id.”
Tashlhiyt	ggunzr (b-, m-, w-)	ggunzr	ttggunzur	“id.”
Figuig	ppunzər	ppunzər	tbunzur	“id.”
Ouargla	mmunzər	mmunzər	ttmunzur	“id.”
Kabyle	ffunzər	ffunzər	tṣfunzur	“id.”
Zenaga	u:nzər	əwnzər	əttu:nzər	“id.”
Ghadames	əffənzər	əffənzār	əttəfənzər	“id.”

The most well-attested verb in this class is “to have a nosebleed,” which has a rather astounding amount of variation of its initial consonant, which appears to reflect any possible initial labial consonant across the different Berber languages (denoted as a \**B* here), assuming here that the *g/gg* reflexes of CMB and Tashlhiyt are the result of geminated \**ww* > \**gg*<sup>w</sup>. Despite this difficulty, the verb is one of the best attested forms of \*əcuccəc verbs and is, therefore, included here.

**\*əcūcəc****{19} \*ədukkəl “to walk together, accompany” [NZ: DKL5]**

Proto-Berber	Aorist *ədukkəl	Perfective *ədukkāl	Imperfective *əttədukkul	
Tuareg (B-M)	ədukkəl	ədokkāl	ətidukkul	“gather together”
Tashlhiyt	ddukkl	ddukkl	ttdukkul	“walk together; accompany”
CMB	ddukk <sup>w</sup> əl	ddukk <sup>w</sup> əl	ttəddukk <sup>w</sup> ul	“be friendly with”
Kabyle	ddukəl	ddukəl	[tṣdukəl]	“walk together”

**\*əCəCUCəC****{20} əkəru(r)əy “to be round” [K: 750]**

Proto-Berber	Aorist <i>*əkəruəy</i>	Perfective <i>*ākərarāy</i>	Imperfective <i>*əttəkəruuy</i>	
Tuareg	<i>əkəruəy</i>	[ākərarāy]	<i>tikruuy</i>	“to be spherical”
Tashlhiyt	<i>krurri</i>	<i>krurri</i>	[ttkrurri, tkrurray]	“to be round”

While this verb type is well-attested, both in varieties that have lost the short vowel distinctions, and those that have kept it, this verb is one of the few verbs of this type that is attested in both types of Berber languages, and can probably be reconstructed for Proto-Berber. Note, that there is a difference in length of the third root consonant *r* between Tuareg and Tashlhiyt.

**{21} \*əkənunnəy “to roll, tumble” [K: 750; B: 108]**

Proto-Berber	Aorist <i>*əkənunnəy</i>	Perfective <i>*ākənannāy</i>	Imperfective <i>*əttəkənunnuy</i>	
Ghadames	<i>gnunni</i>	[āgənnunə]	<i>əttəgnunni</i>	“to tumble”
Tashlhiyt	<i>gnunni</i>	[gnunni]	<i>ttgnunnuy</i>	“to roll; tumble”
CMB	<i>çnunnəy</i>	[çnunnəy]	<i>ttəçnunnuy</i>	“to roll; tumble”
Mzab	<i>gnunni</i>	[gnunni]	<i>ttəgnunnuy</i>	“to roll on the ground”
Senhaja	<i>qnunni</i>	[qnunni]	[ttəqnunni]	“to roll”
Figuig	<i>qnunəy</i>	[qnunəy]	<i>ttəqnunuy</i>	“to roll”
Tarifit	<i>qnunni</i>	[qnunni]	<i>ttəqnunnuy</i>	“to tumble”

This semantically closely related verb is another verb that can be reconstructed for Proto-Berber. A variety of languages have expressive formations using the non-Proto-Berber phoneme *q* (Kossmann 2013b: 199ff.). While most varieties have a *g* as the first root consonant, there is no obvious explanation for the *k* in Central Moroccan Berber; whereas the *g* can be easily explained as the result of voicing assimilation, as such a reconstruction *\*əkənunnəy* is to be preferred over *\*əgənunnəy*.

**{22} \*əfəru(r)əy “to drop fruits or grain (said of trees)” [B: 104; NZ: FRY1]**

Proto-Berber	Aorist <i>*əfəruəy</i>	Perfective <i>*āfərarāy</i>	Imperfective <i>*əttəfəruuy</i>	
CMB	<i>fruy</i>	[fruy]	<i>tfruy</i>	“drop fruits”
Tashlhiyt	<i>fruri</i>	[fruri]	<i>tfruruy</i>	“id.”
Kabyle	<i>fruri</i>	[fruri]	[tʃʃfruruy, [tʃʃfruri]	“id.”
Ouargla	<i>fruri</i>	[fruri]	<i>tfruruy</i>	“to fall apart; decay”

**{23} \*əgəlugal “to be indecisive” [B 105; NZ: GL19]**

Proto-Berber	Aorist <i>*əGəluGəl</i>	Perfective <i>*ǎGəlaGäl</i>	Imperfective <i>*attəGəluGul</i>	
Tuareg	<i>gəlugal</i>	<i>əglagəl</i>	<i>tiglugul</i>	“to be indecisive”
Ida U Semlal <sup>15</sup>	<i>glugl</i>	<i>[glugl]</i>	<i>ttglugul</i>	“to stagnate”

**\*əCəCUCU****{24} \*əgəlulu “to be hung”**

Proto-Berber	Aorist <i>*əgəlulu</i>	Perfective <i>*ǎgəlala</i>	Imperfective <i>*attəgəlulu</i>	
Ghadames	<i>əgʷlulu</i>	<i>[ǎgʷəlula]</i>	<i>əttəgʷlulu</i>	“to be hung”
Figuig	<i>ylulu</i>	<i>[ylulu]</i>	<i>ttəylulu</i>	“to be hung”

This verb is likely connected to the light verb *\*agəl* “to hang (s.th.)” (cf. Figuig *ayəl* “id.,” CMB *agəl* “id.,” Zng. P *yugäy*), but to my knowledge there are no other transitive/intransitive pairs that correspond to  $ac^1əc^2$  and  $əc^1əc^2uc^2u$  verb types. It is, therefore, difficult to decide how their derivational relationship should be understood.

**\*əC<sub>1</sub>əC<sub>2</sub>C<sub>1</sub>əC<sub>2</sub>**

It is quite difficult to find clear cognates across dialects that retain central vowel contrast and those that do not. However, it is clear that a marginally productive pattern of expressive reduplicative verbs exists and is productive across the different Berber varieties. And when these occur, they clearly have a  $\Theta \rightarrow$  pattern in the **Aorist**, accompanied by an *i* vowel in the imperfective, as expected.

**{25} \*əffərfər “to flap the wings” [B: 172; NZ: FR1]**

Proto-Berber	Aorist <i>*əffərfər</i>	Perfective <i>*ǎffərfār</i>	Imperfective <i>*attəfərfir</i>	
Ghadames	<i>əffərfər</i>	<i>ǎffərfār</i>	<i>əttəfərfər</i>	“to flap the wings”
Kabyle	<i>ffərfər</i>	<i>ffərfər</i>	<i>ɪffərfir</i>	“id.”
Central Moroccan Berber	<i>fərfər</i>	<i>fərfər</i>	<i>tfərfir</i>	“id.”
Tashlhiyt	<i>ffirfir</i>	<i>ffirfir</i>	<i>ttfirfir</i> , <i>[ttfirfar]</i>	“id.”
Figuig	<i>ffərfər</i>	<i>ffərfər</i>	<i>[tfərfər]</i>	“id.”
Ouargla	<i>ffərfər</i>	<i>ffərfər</i>	<i>ttfərfir</i>	“to fly around”

<sup>15</sup>Basset (1929: 91), Boumalk (2003: 65, 172).

**{26} \*abbərbəɾ “to go out, travel” [NZ: BR2]**

Proto-Berber	Aorist <i>*abbərbəɾ</i>	Perfective <i>*ăbbərbăɾ</i>	Imperfective <i>*attəbərɓir</i>	
Tuareg (BF-M)	<i>ăbbərbăr</i>	<i>ăbbərbăr</i>	<i>attəbərbər</i>	“to go out; leave”
Ouargla	<i>bbərbəɾ</i>	<i>bbərbəɾ</i>	<i>ttəbərɓir</i>	“to go up; travel”
Siwi	<i>bbərbəɾ</i>	<i>bbərbəɾ</i>	<i>[bərbəɾ]</i>	“to gush out”

Cases of Proto-Berber *\*b* are extremely rare, which is cause for Maarten Kossmann<sup>16</sup> to doubt its reconstructibility. I agree with this assessment and, therefore, this verb and {27} *\*abbəzbəz* should not be uncritically accepted as reconstructible for Proto-Berber. However, both of these verbs are reduplicate and clearly expressive, onomatopoeic words. Onomatopoeia tends to allow for a broader range of phonemes than regular words (Dingemanse 2012), e.g., Japanese has a phoneme *p* in onomatopoeia and ideophones, while it is an allophone of *h* in native Japanese and Sino-Japanese words (McCawley 1968:77–80). Therefore, it can be imagined that verbs like these are indeed reconstructible with *\*b* despite the otherwise rarity of this phoneme.

**{27} \*abbəzbəz “to shake, shiver”**

Proto-Berber	Aorist <i>*abbəzbəz</i>	Perfective <i>*ăbbəzbăz</i>	Imperfective <i>*attəbəzbiz</i>	
Tuareg (M)	<i>ăbbăɓbăf</i>	<i>ăbbəɓbăf</i>	<i>attəbăɓbaf</i>	“to shake; knock”
CMB (Ayt Atta)	<i>bbəzβəz</i>	<i>bbəzβəz</i>	<i>ttəbbəzβiz</i>	“to tingle”

The reconstruction of Proto-Berber *\*b* poses some problems (see {26} *\*abbərbəɾ*, for a discussion).

**{28} \*əddəgdəg “to shatter/to be shattered” [NZ: DG19]**

Proto-Berber	Aorist <i>*əddəgdəg</i>	Perfective <i>*ăddəgdăh</i>	Imperfective <i>*attədəgdig</i>	
Tuareg (M)	<i>[ăddăgdăg]</i>	<i>ăddəgdăg</i>	<i>[əttădăgdag]</i>	“to shatter”
CMB	<i>ddəjðəj</i>	<i>ddəjðəj</i>	<i>ttðəjðij</i>	“id.”
Kabyle	<i>ddəjðəj</i>	<i>ddəjðəj</i>	<i>əddəjðij</i> (< <i>*ttədəgdig</i> )	“id.”
Tashlhiyt	<i>dgdg</i>			“to be tired”
Ouargla	<i>ddəgdəg</i>	<i>ddəgdəg</i>	<i>ttədəgdig</i>	“to shatter”

The semantics of the Tashlhiyt verb are quite far removed from the rest but may be compared to the English expression “to be shattered” in the meaning of “to be

<sup>16</sup>Personal communication. Kossmann (1999: 128–130) suggests that several words appear to point to Proto-Berber *\*b*, but these are quite rare.

very tired” and Dutch “kapot zijn” (= to be broken) – in the meaning of “to be very tired.”

This verb is widely attested in North-African Arabic, e.g., Moroccan *dəgdəg* “to shatter into tiny pieces,” *mdəgdəg* “shattered; very tired” (de Prémare et al. 1993–1999: IV, 302), Tunisian *mdəgdig* “broken; shattered”.<sup>17</sup> It is difficult to decide the direction of borrowing, or whether this is a case of parallel development of an onomatopoeic word.

### {29} \**attəftəf* “to grope around”

Proto-Berber	Aorist <i>*attəftəf</i>	Perfective <i>*əttəftəf</i>	Imperfective <i>*attəftəf</i>	
CMB	ʔəftəf	ʔəftəf	ʔəftəf	“to grope around”
Kabyle	təftəf	təftəf	təftəf	“id.”
Ouargla	təftəf	təftəf	təftəf	“id.”

### \**əcəcicəc*

### {30} \**əgəriwəl* “to turn” [B: 96; NZ: GRWL]

Proto-Berber	Aorist <i>*əgəriwəl</i>	Perfective <i>*əgərawəl</i>	Imperfective <i>*əttəgəriwil</i>	
Tuareg	əgəriwəl	əgərawəl	əttigəriwil	“to turn around”
Tashlhiyt (Ntifa) <sup>18</sup>	griwəl, [grawl]	grawl	ttgriwil	“id.”

Already at the Proto-Berber stage *\*uw* had dissimilated to *iw* (Prasse 1973: 93), therefore this verb and {31} *\*əfəriwəs* may have originally belonged to the *\*əcəcicəc* verbs, discussed above.

### {31} \**əfəriwəs* “jump (with joy?)” [FRWS1,2]

Proto-Berber	Aorist <i>*əfəriwəs</i>	Perfective <i>*əfərawəs</i>	Imperfective <i>*əttəfəriwis</i>	
Tuareg	əfəriwəs	əfərawəs	əttifriwis	“to be joyful”
Kabyle	firiwəs	frawəs	ṯṯṯəfiriwis	“to jump up”

The semantic connection of the Kabyle verb “to jump up” and Tuareg “to be joyful” is not perfect but seem close enough for them to be cognates. In any case, the formal similarity is perfect, allowing us to examine the formation of a *\*əcəcicəc* verb.

<sup>17</sup>From the TUNICO dictionary (<https://vicav.acdh.oeaw.ac.at/>) (consulted 8 january 2020).

<sup>18</sup>Basset (1929: 86, 220).

**{32} \**arǧǧǧa?* “to tremble” [K: 323; B: 97]**

Proto-Berber	Aorist <i>*arǧǧǧa?</i>	Perfective <i>*ǧrǧǧǧa?</i>	Imperfective <i>*attarǧǧǧi?</i>	
Tuareg	<i>arǧǧǧi</i>	<i>arǧlagǧa</i>	<i>ttirǧǧǧi</i>	“to tremble”
Figuig	<i>rǧǧ</i>	<i>[rǧǧǧ]</i>	<i>ttarǧǧǧi</i>	“id.”
Ouargla	<i>rǧǧi</i>	<i>[rǧǧǧ]</i>	<i>ttarǧǧǧi</i>	“id.”
Zenaga	<i>arǧǧǧi</i>	<i>ǧrǧǧǧǧǧ</i>	<i>ttarǧǧǧǧi</i>	“id.”
Awjila	<i>arǧǧ</i>		<i>[tǧrǧǧǧa]</i>	“id.”
Kabyle	<i>rǧǧǧi</i>	<i>rǧǧǧǧi</i>	<i>tsǧtsǧrǧǧǧǧi</i>	“id.”
CMB	<i>rǧǧǧǧi</i> <i>rǧǧǧǧǧi</i>	<i>[rǧǧǧǧǧi]</i> <i>rǧǧǧǧǧǧǧi</i>	<i>ttarǧǧǧǧǧǧi</i> <i>ttarǧǧǧǧǧǧǧi</i>	“id.”
Tashlhiyt	<i>rgǧǧi</i>	<i>rgǧǧǧi</i>	<i>ttirǧǧǧǧi</i> <i>ttirǧǧǧǧǧi</i>	“id.”

Kabyle, Central Moroccan Berber and Tashelhiyt have reinterpreted this verb as having a final root consonant \**y*: \**arǧǧǧǧay*, as is also evidenced by the verbal noun Kb. *ǧarǧǧǧayθ*, Tashl. *targǧǧayt* (but CMB *targǧǧit*). The A→ vocalism attested in Zenaga suggests that perhaps Zenaga underwent a syncope of the initial open syllable, similar to many Tuareg dialects with verbs of this type (e.g., Tu. *kǧnihǧar* but P *ǧknahǧar* < \**ǧknahǧar* “be disgusting”). The Figuig and Awjili reflexes rather support a reconstruction with \**v*?, as final \**i* or \**ay* would be expected to yield *i* or *ay*.

**{33} \**amǧlǧlǧa?* “to meet one another”**

Proto-Berber	Aorist <i>*amǧlǧlǧa?</i>	Perfective <i>*ǧmǧlǧlǧa?</i>	Imperfective <i>*attamǧlǧlǧi?</i>	
Kabyle	<i>mlǧl</i>	<i>mlǧl</i>	<i>tsǧtsǧmǧlǧlǧi</i> , <i>[tsǧtsǧmlǧl]</i>	“to meet”
CMB (Ayt Atta)	<i>lmǧlǧi</i>	<i>lmǧlǧa</i>	<i>ttǧmlǧlǧi</i>	“to be close by”

The Ayt Atta form is likely a metathesis of this root, rather than the Kabyle form, as \**ǧc<sub>1</sub>ǧc<sub>2</sub>ic<sub>2</sub>ǧa?* reduplication seems common in verbs of this shape (see also {32} above).

**Bibliography**

- Basset A (1929) La langue berbère. Morphologie, le verbe, étude de thèmes. Librairie Ernest Leroux, Paris
- Benamara H (2013) Dictionnaire amazighe – français: parler de Figuig et ses régions. Institut royal de la culture amazighe, Rabat
- Boumalk A (2003) Manuel de conjugaison du tachelhit. L’Harmattan, Paris
- Cohen D, Taine-Cheikh C (2000) À propos du zénaga. Vocalisme et morphologie verbale en berbère. Bulletin de la Société de Linguistique de Paris 95:267–319
- Dallet J-M (1953) Le Verbe Kabyle. Fichier de Documentation Berbère, Fort National
- Dallet J-M (1982) Dictionnaire kabyle-français. parler des At Mangellat, Algérie. SELAF, Paris
- de Foucauld C (1950) Dictionnaire touareg-français (dialecte de l’Ahaggar). Imprimerie Nationale de France, Paris

- de Prémare A-L, Colin GS, Brunot L, Marçais W (1993–1999) Dictionnaire Arabe-Français. Établi Sur La Base de Fichiers, Ouvrages, Enquêtes, Manuscrits Études et Documents Divers Par A.-L. de Prémare. 12 vols. L'Harmattan, Paris.
- Dell F, Elmedlaoui M (1991) Clitic Ordering, Morphology and Phonology in the Verbal Complex of Imdlawn Tashlhiyt Berber. Part II. Langues orientales anciennes philologie et linguistique. Peeters, Louvain and Paris
- Dingemans M (2012) Advances in the cross-linguistic study of ideophones. *Lang Linguist Compass* 6(10):654–672
- Heath J (2005) A grammar of Tamashek (Tuareg of Mali). Mouton de Gruyter, Berlin
- Heath J (2006) Dictionnaire touareg du Mali. tamachek-anglais-français. Karthala, Paris
- Ibañez E (1959) Diccionario Español-Senhayi (Dialecto Bereber de Senhaya de Serair). Instituto de Estudios Africanos, Madrid
- Kossmann MG (1997) Grammaire du parler berbère de figuig. Peeters, Paris/Louvain
- Kossmann MG (1999) Essai sur la phonologie du proto-berbère. Rüdiger Köppe Verlag, Köln
- Kossmann MG (2000) La futur à Ghadamès et l'origine de la conjugaison verbale en berbère. In: Chaker S, Zaborski A (eds) *Études Berbères et chamito-sémitiques. mélanges offerts à Karl-G. Prasse*. Peeters, Paris/Louvain, pp 237–255
- Kossmann MG (2001a) The origin of the glottal stop in Zenaga and its reflexes in the other Berber languages. *Afrika und Übersee* 84:61–100
- Kossmann MG (2001b) L'origine du vocalisme en zénaga de Mauritanie. *Frankfurter Afrikanistische Blätter* 13:83–95
- Kossmann MG (2008) Three irregular berber verbs: 'eat', 'drink', 'be cooked, ripen. In: Lubotsky A, Schaeken J, Wiedenhof J (eds) *Evidence and counter-evidence, Festschrift Frederik Kortlandt*. Rodopi, New York, pp 225–236
- Kossmann MG (2011) A grammar of Ayer Tuareg (Niger). Rüdiger Köppe Verlag, Köln
- Kossmann MG (2012) Berber. In: Frajzyngier Z, Shay E (eds) *The Afroasiatic languages*. Cambridge University Press, Cambridge, pp 18–101
- Kossmann MG (2013a) A grammatical sketch of Ghadames Berber (Libya), *Berber studies* 40. Rüdiger Köppe, Köln
- Kossmann MG (2013b) The Arabic influence on northern Berber. Brill, Leiden/Boston
- Kossmann MG (2017) La Place Du Parler Des Senhaja de Sraïr Dans La Dialectologie Berbère. In: Vicente Á, Caubet D, Naciri-Azzouz A (eds) *La Région Du Nord-Ouest Marocain. Parlers et Pratiques Sociales et Culturelles*. Prensas de la Universidad de Zaragoza, Zaragoza, pp 93–108
- Kossmann MG (2018) Zenaga reflexes of Berber final weak verbs. *Folio Orientalia* 55:161–194
- Kossmann MG, Suchard DB (2018) A reconstruction of the system of verb aspects in proto-Berber-Semitic. *Bull Sch Orient Afr Stud* 81(1):41–56
- Lafkioui M (2018) The imperfective in Berber. In: Tosco M (ed) *Afroasiatic. Data and perspectives*. John Benjamins, Amsterdam, pp 85–103
- Lanfry J (1973) Ghadamès. étude linguistique et ethnographique. II. Glossaire (parler des Ayt Waziten). Fort-National, Algérie
- Mauri S (2015) Formal and functional properties of grammatical aspect in Ayt Atta Tamazight. PhD Thesis, The School of Oriental and African Studies, London.
- McCawley JD (1968) The phonological component of a grammar of Japanese. Mouton, The Hague
- Mourigh K (2016) A grammar of Ghomara Berber (North-West Morocco), *Berber studies* 45. Rüdiger Köppe, Köln
- Naït-Zerrad K (1998) Dictionnaire Des Racines Berbères (Formes Attestées) I. A-BEẒL. Paris/Louvain, Éditions Peeters
- Naït-Zerrad K (1999) Dictionnaire Des Racines Berbères (Formes Attestées) II. C-DĒN. Paris/Louvain, Éditions Peeters
- Naït-Zerrad K (2002) Dictionnaire Des Racines Berbères (Formes Attestées) III. D-GEY. Paris/Louvain, Éditions Peeters
- Oussikoum B (2013) Dictionnaire amzighe – français: le parler des Ayt Wirra, Moyen Atlas, Maroc. IRCAM, Rabat

- Prasse K-G (1973) Manuel de grammaire touarègue (tāhaggart) 2: VI–VII: Verbe. Éditions de l'Université de Copenhague, København
- Prasse K-G, Alojaly G, Mohamed G (1998) Lexique Touareg – Français. Deuxième édition revue et augmentée. Museum Tusulanum Press, København
- Serhoual M (2002) Dictionnaire Tarift-Français. PhD Thesis, Université Abdelmalek Essaâdi, Tétouan.
- Souag L (2017) La Diffusion En Berbère : Reconcilier Les Modèles. In: Diffusion, implantation, convergence, Mémoires de La Société de Linguistique de Paris, N.S. 24. Peeters, Louvain, pp 83–107
- Stroomer H (Forthcoming) Dictionnaire tašlhiyt-français
- Sudlow, D. (2001). The Tamasheq of North-East Burkina Faso. notes on grammar and syntax including a key vocabulary. Köln: Rüdiger Köppe Verlag.
- Sudlow D (2009) Dictionary of the Tamasheq of north-East Burkina Faso. Rüdiger Köppe Verlag, Köln
- Taifi M (1992) Dictionnaire tamazight-français (parlers du Maroc central). L'Harmattan-Awal, Paris
- Taine-Cheikh C (1999) Le Zénaga de Mauritanie à La Lumière Du Berbère Commun. In: Lamberti M, Tonelli L (eds) Afroasiatica Tergestina. Paper from the 9th Italian Meeting of Afro-Asiatic (Hamito-Semitic) Linguistics, Trieste April 23–24, 1998. Unipress, Padova, pp 299–324
- Taine-Cheikh C (2008) Dictionnaire zénaga-fançais. Rüdiger Köppe Verlag, Köln
- Taine-Cheikh C (2010) Dictionnaire français-zénaga (berbère de Mauritanie). Rüdiger Köppe Verlag, Köln
- Van den Boogert N, Kossmann M (1997) Les premiers emprunts arabes en berbère. Arabica 44: 317–322
- van Putten M (2014) A grammar of Awjila (Libya): based on Paradisi's work. Rüdiger Köppe Verlag, Köln
- van Putten M (2018) Proto-Berber mid vowel harmony. Nord J Afr Stud 27(3):1–32