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Zenaga reflexes of Berber final weak verbs

Abstract

Berber languages outside Mauritania have a number of different morphological classes of vowel-final and semivowel-final verbs ("final weak verbs"). The situation in Zenaga of Mauritania looks very different. In this article, the Zenaga reflexes of the non-Mauritanian weak verbs are compared by studying all relevant cognates. As a result, it proves possible to establish to what extent the main weak verb classes of non-Mauritanian Berber are reflected in Zenaga, and to what extent certain irregularities can be understood from Zenaga-internal developments.

Keywords

Berber historical phonology, Berber historical morphology, Zenaga, Afroasiatic.

1. Introduction

In Berber languages,[1] many verbs have stem forms ending in vowels or semivowels. More often than not, there is vowel alternation in this position, depending on the aspect and the person of the inflected verb. In this article, these different categories will be subsumed under the term final weak verbs, highlighting the many irregularities and the great dialectal variation.

Since the works of the late Karl-G. Prasse (1957; 1969; 1972–1974; 2011), final weak verbs have played a major role in the study of historical phonology of Berber. Prasse reconstructs final weak verbs as verbs that originally contained final consonants – laryngeals and semivowels – that were lost in most or all of the modern languages. This analysis was largely based on an internal reconstruction of the Tuareg system (Prasse 1972–1974). Around the turn of the century, a great

[1] I wish to thank Marijn van Putten for his important comments on an earlier draft of this article. Of course all responsibility for errors and flaws in the argument remains with the author.

breakthrough in historical phonology was achieved due to the publication of new data on the Berber language of Mauritania, Zenaga, by Catherine Taine-Cheikh (among others: Taine-Cheikh 1999; 2004; 2008; Cohen & Taine-Cheikh 2000). While until then Zenaga was only known from a number of sources that were difficult to interpret phonologically, the wealth of new data and the exceptionally high quality of transcription and analysis opened up entirely new vistas on the development of Berber. Most tree-type classifications consider Zenaga to be the first branching of the Berber language family (e.g., Blažek 2010). As such, it contains archaisms not retained in any other Berber language, and has undergone developments not found elsewhere. At many points, Zenaga phonology is highly innovative (see Taine-Cheikh 1999 for an overview of the consonantal developments, and Kossmann 2001b for the history of the vowel system), but at one point it presents a crucial archaism, viz. the preservation of a laryngeal consonant /ʔ/. As shown simultaneously (and independently) by Taine-Cheikh (2004) and Kossmann (2001a), this consonant can be reconstructed into proto-Berber, and accounts for a number – but not all – of the laryngeals reconstructed by Prasse (see also Prasse 2011).

In this article, I will provide an overview of the correspondences of most non-Mauritanian Berber final weak verb classes with Zenaga forms and classes, building upon work done by Catherine Taine-Cheikh (esp. 2004) and myself (esp. 2001a, 2001b). Even though most of the etymologies discussed here have already been identified by Taine-Cheikh (2008) and others, I think it is useful to organize the available materials in order to get a somewhat clearer picture of the system of correspondences. There exist no etymological dictionaries of Berber,[2] but the etymological notes in Taine-Cheikh (2008) present cognates and comparisons for Zenaga items, most of which are fully convincing. At a few points, I have different opinions as to the probability of some cognates, or provide additional proposals.[3]

In the discussion of the etymologies, I will make a difference between strong cases and weaker cases. Reasons for considering an etymology less strong are manifold. Sometimes it is questionable whether the compared forms are cognates at all. This may be due to irregularities in the formal correspondences and/or to differences in semantics. In other cases, the reconstruction of the final element in non-Mauritanian Berber posits challenges. Thus, sometimes, even though there is little doubt that the item has a cognate in Zenaga, it is not clear to what weak verb category it originally belonged. In still other cases, the Zenaga form presents irregularities that are suggestive that the verb has

[2] Naït-Zerrad (1998; 1999; 2002) is essentially an organized list of attested Berber forms that are not obviously loans from Arabic or from European languages, and hardly ever discusses etymologies, even though the organization in itself can be interpreted as based on etymology.

[3] I will not discuss all etymologies proposed or suggested by Taine-Cheikh, as some are rather remarks on broad similarities than genuine etymological proposals, esp. those preceded by "Cf.".

undergone major restructuring within Zenaga itself. As such restructurings may also have affected the final segment, this makes them less insightful when it comes to discerning general developments. Of course, the decision whether to consider an etymology strong or less strong is to a large degree subjective, and other researchers may have different assessments.

2. Final weak verbs in non-Mauritanian Berber

There are (at least) six different groups of final weak verbs in non-Mauritanian Berber.

(B1) The first group consists mainly of biradical verbs. In forms without a suffix, they have no final vowel in the Aorist, while they have vowels in the Perfective. The vocalization differs according to the person and number of the subject and is subject to large-scale dialectal variation (cf. Destaing 1920; Basset 1929; Kossmann 1994). This group will be called -C* here; it largely corresponds to Prasse's conjugation I.A.7 (Prasse 1972–1974, Vol 2, 109–114) and Basset's verb type 65 (Basset 1929: 58ff.).

(B2) The second group also consists mainly of biradical verbs. In this group, both the Aorist and the Perfective have stems ending in vowels. In most varieties there is some variation in the vowel quality as to the person and number of the subject, and Aorist and Perfective have different vocalizations. This group will be called -CV here, and largely corresponds to Prasse's conjugation I.A.8 (Prasse 1972–1974, Vol 2, 115–119) and Basset's verb type 75 (Basset 1929: 71ff.).

(B3) The third group has an ancient radical, represented here by *H,[4] which is preserved as /h/ in Mali Tuareg and as /b̲/ in Ghadames and, to some extent, Awjila (Beguinot 1924; Prasse 1969; Kossmann 1999); In my opinion, the most probable phonetic reconstruction of this consonant is a bilabial fricative [β] (Kossmann 1999: 132). In all other varieties the consonant has been lost in final position, giving way to a wide array of different vocalizations (Kossmann 1999: 81–135). This group will be referred to as -CH.

(B4) The fourth group has a palatal semivowel as its last radical. Due to relatively straightforward phonological processes, /y/ has merged in many varieties in many contexts with /i/. In Ghadames, and to some extent in Awjila, the normal correspondent of /y/ in y-final verbs is /k/. This group will be referred to as -Cy. Kossmann (1999: 204) suggests, among other solutions, that final /y/ could go back to his palatalized *k^y, a proposal followed by van Putten (fc.). This would mean that obstruent realizations of this consonant,

[4] This corresponds to h^2 and h^3 in Prasse (1969), to Ĥ in Kossmann (1999), and to H* in Taine-Cheikh (2008).

as found in Ghadames, Awjila, and, as we will see, also in Zenaga, are original. As the present article is more about correspondences than about reconstructions, this question will not be further addressed here.

(B5) The fifth group has a semivowel /w/ as its last radical. Due to relatively straightforward phonological processes, /w/ has merged in many varieties in many contexts with /u/. This group will be referred to as -Cw.

(B6) The sixth group has final /-t/. Especially in Tuareg, but in some verbs also elsewhere, /-t/ is in morphological variation with forms lacking /-t/.

(B7) In addition, there is one group of biradical verbs that have no final vowels and thus, strictly speaking, are not final weak verbs. As they play some role in the discussion of the final weak verbs, they will be taken into account here and referred to as CC verbs. They correspond to Prasse's conjugation I.A.5 (Prasse 1972–1974, Vol. 2, 102–106) and Basset's verb type 4 (Basset 1929: 8–11).

Within Berber, only few varieties maintain the distinction between all seven categories. Varieties that do so are, among others, Mali Tuareg and Ghadames. Most varieties have merged at least some of these categories in the Aorist and the Perfective.

a. In the so-called Zenatic varieties (see Kossmann 1999: 31–32), encompassing a large group of dialects including Tarifiyt, Figuig, Mzab, Ouargla and Chaouia, CC and -C* have completely merged in the Aorist and Perfective.
b. In Tashelhiyt, Kabyle and in all Tuareg varieties outside Mali, -CH and -CV have merged completely. In Zenatic, however, -CH (> -Ci) remains distinct from -CV (> -Ca) (Kossmann 1999: 86–91).
c. In Niger Tuareg, -CH, -CV and -C* have merged completely.
d. In Ouargla, -CH (> -Ci) has merged completely with -Cy (> -Ci).

In addition to this, large-scale analogical reformations have lead to levelings within paradigms and across paradigms (see, among others, Destaing 1920, Kossmann 1994). As this is of no relevance to the present study, it will not be treated further.

3. Final weak verbs in Zenaga

Zenaga has a radically different situation as to final weak verbs from the other Berber varieties. Cohen & Taine-Cheikh (2000) point to the existence of four different groups of final-weak verbs, presented here in a slightly different fashion:

(Z1). Verb stems that have a final vowel when not followed by a suffix. When followed by a 3PL suffix (as well as under some other circumstances), these verbs end in a glottal stop (Cohen & Taine-Cheikh 2000: 283, *sub* a; Taine-Cheikh 2004)[5]. Example: *yänši* (*-aʔn*) (A) / *yənšä* (*-aʔn*) 'passer la nuit' [CTC404].
These verbs will be referred to as -vʔ# verbs.

(Z2). Verbs that have a short vowel and final *h* when not followed by a suffix. When followed by a 3PL suffix, *h* is absent and the vowel remains short (Cohen & Taine-Cheikh 2000: 284, *sub* c). Example: *yuṃdih (-än)* (A) / *yuṃdäh (-än)* (P) 'être usé' [CTC347].
These verbs will be referred to as -v# verbs.

(Z3). Verbs that have a long vowel and final *h* when not followed by a suffix. When followed by a 3PL suffix, *h* is absent and the vowel remains long (Cohen & Taine-Cheikh 2000: 284, *sub* b). Example: *yuḍmīh* (A) / *yaḍmāh* (*-ān*) 'croire' [CTC134].
These verbs will be referred to as -v̄# verbs.

(Z4). Verbs that have a short vowel and final *h* when not followed by a suffix. In combination with a 3PL suffix, *h* is absent, but the vowel is long (Cohen & Taine-Cheikh 2000: 284, *sub* c). Example: *yogih* ~ *yäwgih* (A) / *yugäh* (*-ān*) (P) 'dépasser, aller au delà; passer' [CTC188].
These verbs will be referred to as -v/-v̄# verbs.

To this we may add a fifth category, not mentioned in Cohen & Taine-Cheikh, but obvious from the entries in Taine-Cheikh's *Dictionnaire zénaga-français* (Taine-Cheikh 2008):

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[5] Citations of Zenaga verbs give the 3SG forms (starting in *y*-) if not indicated otherwise. Where relevant, the final segments of the 3PL:M form are provided between brackets.
The forms are given in the phonetic transcription as provided in Taine-Cheikh (2008), except that I merged the (phonetically identical) geminates (tense consonants) written by consonant doubling and those written by means of a capital letter. Especially with regard to vowel qualities, Taine-Cheikh's transcription system offers more detail than phonologically relevant; as vowel qualities are only rarely relevant to the argumentation here, I will not dwell upon this further (see Taine-Cheikh 2008: lxxiv for a phonological interpretation). In a few cases, Taine-Cheikh has chosen an unusual sign for representing a sound; among these one remarks especially <z̄> for [θ] and <ẓ̄> for [θˤ].
The following abbreviations are used: A = Aorist; CTC = Taine-Cheikh (2008); F = feminine; I = Imperfective (aoriste intensif in the terminology used in Taine-Cheikh 2008); M = masculine; NI = Negative Imperfective; P = Perfective; PL = plural; SG = singular; W = Iwellemmeden Tuareg Y = Ayer Tuareg.

(Z5). Verbs that have final *h* preceded by a vowel that has free (?) variation between short and long variants when not followed by a suffix. When followed by a suffix, *h* is dropped, and the vowel is consistently long. Example: *yäwši(i)h* (A) / *yūšāh* (pl. *ūšān*) (P) 'se démêler (coton, laine)' [CTC557]. These verbs will be referred to as -v~-v̄# verbs.

Finally, for the cause of comparison, a sixth group has to be taken into consideration, which, in Zenaga, functions as a regular consonant-final type:

(Z6). Verbs that end in -*g*. There is no variation as to the final segment in this group. Example: *yuḍnug* (A) / *yuḍnäg* (P) 'remplir' [CTC136]. These verbs will be referred to as -*g*# verbs.

Kossmann (2001b) argues that, phonologically speaking, one should consider a vowel in word-final position as a realization of underlying /vʔ/, a position also taken by Taine-Cheikh (2004; 2008). Kossmann (2001b) considers the final *h* found in Z2, Z3, Z4 and Z5, which is absent when the vowel is not in word-final position, an automatic phonetic "off-glide" in word-final position. Taine-Cheikh (2004; 2008) takes a different position, and seems to consider word-final *h* a phonemic consonantal element that is elided under some circumstances. Taine-Cheikh (2004: 186–187) is undoubtedly right that there is no *a priori* reason to consider word-final *h* historically a phonetic accident in all cases, and it is very well possible that some (or even all) *h*-final verbs originally contained a consonant *h. However, as there is synchronically no opposition between underlyingly vowel-final verbs and *h*-final verbs, any original difference between the two seems to have been obliterated. I will refer to the verb classes containing this phonetic variation between *h* word-finally and its absence word-internally as vowel-final verbs.

The differences in final vowels are summarized in table (1), including a phonological representation of the suffixless forms according to the analysis in Kossmann (2001b).

Table 1. Distribution of vowel length in various Zenaga verb classes

	forms without a suffix (phonetic)	forms without a suffix (phonemic interpretation)	forms with a 3PL:M suffix
Z1	-v	-vʔ	-vʔn
Z2	-vh	-v	-vn
Z3	-v̄h	-v̄	-v̄n
Z4	-vh	-v	-v̄n
Z5	-vh ~ -v̄h	-v ~ -v̄	-v̄n

In the following, a comparison between different types of final weak verbs in Zenaga and elsewhere will be made. Two types, -C* and CC, have already been treated elsewhere *in extenso*, and will only be summarized for the sake of reference.

4. -C* and CC verbs

As shown in Taine-Cheikh (2004) and Kossmann (2001a), -C* verbs (i.e. B1) in northern Berber regularly correspond to verbs with a glottal stop as their final radical (-vʔ#; Z1). The correspondence is highly regular, and only few verbs Zenaga that correspond to -C* verbs are different. As this type has been studied extensively in the literature (Kossmann 2001a: 77–80; cf. also the many references in Taine-Cheikh 2008), we shall not dwell upon it here.

It should be noted, however, that two pan-Berber -C* verbs are represented in Zenaga by -v# verbs (Z2):

- *yänẓih* (A) / *yənẓäh* (*-än*) (P) 'être mis en vente, être vendu' [CT415]
- *yarġih* (*-an*) (A) / *yurġah* (*-an*) 'être chaud, chauffer' [CT438]

CC verbs in non-Mauritanian Berber regularly correspond to biradical verbs without a final vowel in Zenaga (Taine-Cheikh 2004, Kossmann 2001a). There seems to be no confusion between verbs of this type and other types, except, sometimes, with the class of -C* verbs.

5. -CV verbs

-CV verbs represent a relatively small number of reconstructible Berber verbs. In Zenaga, verbs corresponding to -CV verbs elsewhere belong to several different classes:

5.1. -CV = -v# (Z2)[6]

- *yuṃdih (-än)* (A) / *yuṃdäh (-än)* (P) 'être usé, être vieux' [CTC347].

No doubt related to a well-attested verb meaning 'to finish, to be finished' elsewhere in Berber, e.g. Mali Tuareg *əmdu* (~ *ămd*, *ămdu*) 'be complete, whole, finished';[7] Ghadames *əmdu* 'achever, compléter'; Mzab *əmda* 'être complet';

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[6] I will not discuss here the irregular verb *yənnäh* (*-än*) (P), *yənäbbäh* (*-än*) (I) (suppletive Aorist *yizzən*) 'dire' [CTC411]. In view of wide-spread Aorist forms of the type *ini* the root shape, and thus the final element, are difficult to reconstruct.

[7] Unless indicated otherwise, citations from non-Mauritanian Berber are taken from the following sources: Mali Tuareg: Heath (2006); Ahaggar Tuareg: Ritter (2009); Niger Tuareg: Prasse e.a. (2003);

Ouargla *əmda* ‘être complet, accomplir, finir’. In Kabyle, the verb has been introduced into the CC class: *məd* ‘parvenir à un certain développement; grandir, grossir’. Forms like Mali Tuareg *mănd* ‘be completed, be finished, be used up’, cited by Taine-Cheikh (2008) are probably irregular derivations with the prefix *m(m)-*. When this prefix is attached to a root containing a bilabial consonant, it normally becomes *n(n)-*. Apparently, in this verb the dissimilation has targeted the root consonant rather than the prefix.
<Taine-Cheikh 2008 compares, with a question mark, the M-derivation in Tuareg>.

• *yūḍih (-an)* (A) / *yūḍah (-an)* (P) ‘être répudié’ [CTC536].
The long vowel in the Zenaga verb corresponds regularly to *b* in most Berber varieties; as argued in Kossmann (1999; 2001b), this is in fact the ancient consonant *H (probably a bilabial fricative), which developed into *b* before a consonant except in a few varieties, most notably Zenaga. In Zenaga, *H before consonants seems to have become *w*, which, under some circumstances, can be vocalized into *ū* (Taine-Cheikh 2005: 53). The meaning ‘to be divorced’ seems to constitute a semantic narrowing from a more general meaning ‘be separated, separate’; the same development is found in Mzab and Ouargla.

Mali Tuareg *əbḍu* ‘be separated’; Tashelhiyt *bḍu* ‘partager’; Middle Atlas *bḍu* ‘diviser, séparer’ [O]; Kabyle *əbḍu* ‘partager, séparer’; Iznasen *bḍa* ‘partager’; Figuig *bḍa* ‘partager, séparer, diviser, couper’; Mzab ‘répudier, divorcer’; Ouargla *bḍa* ‘se séparer, divorcer, répudier’.
<NZ.I.27–28; Kossmann 1999: 121; same etymology in Taine-Cheikh 2008>.

• *yägwih (-än)* (A) / *yəgwah (-än)* (P) ‘mugir (bovidé)’ [CTC224].
Referring to the sound made by small-cattle rather than by bovines, the verb is well-attested in Zenatic varieties, where *g^y has become *ž*, e.g. Rif *žwa* ‘bêler’; Iznasen *žwa* ‘bêler’; Chaouia *žwa* ‘bêler’ (Basset 1961: 277); Mzab *žwa* ‘bêler’. In Tuareg, a similar verb with *ɣ* is used to refer to different types of communication among animals: Iwellemmeden *ăɣwu*, Ayer *əɣwu* ‘miauler (chat), bêler (mouton, chèvre, antilope, gazelle), crier (oiseau), bourdonner (mouche), cliqueter (pièces métalliques, chaînes)’; Ahaggar Tuareg *əɣu* ‘bêler, miauler, beugler’. There is a somewhat erratic variation between *g(ʸ)* and *ɣ* in some Berber roots, and this may be one of these cases (see Kossmann 1999: 212–216). In addition, Tuareg has a verb *ănğu* (Ahaggar); *ənğu* (Mali); *əngəw* (Niger), which, among others,

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Ghadames: Lanfry (1973); Awjila: van Putten (2014); Kabyle: Dallet (1982); Tashelhiyt: Destaing (1938); Middle Atlas: Oussikoum [O] (2013); Azdoud (2011); Taïfi (1991) [T]; Beni Iznasen: field notes by the author and Rahhou (2004–2005); Figuig: Benamara (2013); Mzab: Delheure (1984); Ouargla: Delheure (1987); Nefusa: Beguinot (1942); Siwa: Naumann (2013). Transcriptions have been homogenized.

means ‘to moo (cow)’, and which bears some similarity to the Zenatic verb (cf. Ritter 2009, Vol. II, 527).
<Kossmann 1999, no 313; same etymology in Taine-Cheikh 2008>.

The following two verbs are problematic, but still constitute serious candidates:

- *yäzzih (-än)* (A) / *yəzzäh (-än)* (P) ‘être meilleur que, l’emporter’ [CTC609].

There is a possible cognate in one variety, which demands a relatively straightforward consonant assimilation and a defensible semantic shift: Figuig *dza* ‘suffire’. The main problem with this comparison is the lack of cognates elsewhere in Berber.
<no etymology proposed in Taine-Cheikh 2008>.

- *yəkkənfih ~ yukkunfih* (A) / *yäkkunfah (-an)* (P) ‘se reposer’ [CTC304]; *yinfih (-än)* (A) ‘commencer à guérir’ [CTC388].

These two verbs belong to a complex of verbs meaning ‘to rest, to be healed’.[8] There is considerable variation within Berber as to the initial consonant of the verb. Next to Zenaga *kk-* one frequently finds *gg-*, and *w-*, in addition to causative derivations, often with *s(s)u-* or *s(s)w-* instead of *s(s)-*, e.g. Mali Tuareg *sunf* ‘rest, relax’; Ahaggar Tuareg *sunfu* ‘se reposer’; Ouargla *stənfu* (A = P) ‘respirer’; Ghadames *sənfu* ‘respirer, être au repos’; Tashelhiyt *sunfu* ‘se reposer’; Middle Atlas *sgunfa ~ swunfa* ‘se reposer, souffler, reprendre haleine’ [T]; *swunfu* (A), *swanfa* (P) ‘cesser de se livrer à une activité fatiguante; reprendre haleine; se reposer; se détendre’ (Azdoud 2011); Iznasen *ggənfa* ‘guérir’.

The verb is related to nouns like Ghadames *ənnəfu* ‘respiration’; Mzab *tanəffut* ‘haleine, souffle’; Ouargla *tanfut* ‘souffle, haleine, souffle de la vie’. There is some unclarity about the final vowel. While the verb fits into the -CV class in Ghadames, Ahaggar Tuareg and Iznasen, it is irregular in Mali Tuareg, Middle Atlas and Ouargla. Therefore the attribution of this verb to the -CV class is far from certain.
<NZ.III.829–830; Kossmann 1999, no 448, same etymology for *yəkkənfih* in Taine-Cheikh 2008>.

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[8] A phonetically similar verb in Zenaga and elsewhere in Berber is *yänfih* (A) ‘valoir, être utile’ [CTC388], Mali Tuareg *ənfu* ‘be useful’, which is probably a loan from Arabic *nafaʕa* ‘to be useful’. One notes, however, that the loss of the pharyngeal is untypical for the integration of Arabic loans in Berber. The loan may either be very early, or represent a conflation of the original Berber verb ‘to be healed’ (or something similar) and the Arabic meaning. Different from Taine-Cheikh (l.c.), I consider the verbs *yänfih* ‘valoir’ and *yinfih* ‘commencer à guérir’ to be different verbs with different etymologies; the relation to the Arabic loan in Ouargla (and elsewhere) *ʕfa* ‘guérir’ suggested by Taine-Cheikh eludes me.

5.2. -CV = -v~-v̄# (Z5)

One verb that probably belongs to the -CV class has correspondences with variation between long and short vowels:

- *yäwši(i)h* (A) / *yūšāh* (3:PL:M *ūšān*) (P) 'se démêler (coton, laine)' [CTC557].

The long vowel in the Zenaga verb corresponds regularly with *f* in most Berber varieties; as argued in Kossmann (1999; 2001b) this *f* can be understood as an assimilation of *H (probably [β]) to the following voiceless fricative. In non-Mauritanian Berber there is variation between forms in which this verb belongs to the -CV class, and those in which it belongs to the -Cy class. The latter are probably due to a confusion with the verb *HSY (> *fsəy*) 'to melt'. Apparently, the semantics of the two verbs, both implying the disintegration of a formerly more solid entity, were considered to be close enough to lead to confusion. Many varieties, including Zenaga, maintain a difference between *HSV 'to be disentangled' and *HSY 'to melt', and this is no doubt the original situation.

Tashelhiyt *fsu* 'carder'; Middle Atlas *fsu* 'démêler, étirer (fibre, etc.)' [O]; Kabyle *əfsu* 'défaire, étirer' (also *əfsəy* 'fondre, démêler, délier'); Figuig *fsa* 'carder, feutrer'; Mzab *əfsu* (A = P) 'démêler, défaire'; Ouargla *əfsu* 'démêler, défaire'[9]. Varieties with -Cy include Niger Tuareg (W) *əfsəy* 'se démêler, se fondre'; Tashelhiyt *fsi* 'démêler (du fil), être fondu'; Eastern Kabylia *fsi(y)* 'fondre, dénouer' (Berkai 2012–2013); Rif *fsi* 'fondre, dénouer'.
<I no more concur with Kossmann 1999 (no 530 and 531) that the two verbs are probably etymologically the same; NZ.III.656; same etymology in Taine-Cheikh 2008>.

A second Zenaga verb of this type has a perfect cognate with a -CV verb in some Berber languages, while others have a different final segment for what seems to be the same verb.

- *yufṭʸi(i)h (-īn)* (A) ~ *yäfṭʸi(i)h* (pl. *äfṭʸīn*) (A) / *yäfṭʸi(i)h* (pl. *äfṭʸīn*) ~ *yufṭʸāh (-ān)* (P) 'partager en deux' [CTC168].

The consonant *tʸ* corresponds to *l when followed or preceded by a voiceless consonant (Taine-Cheikh 1999: 313), compare *yäfṭʸiš* (A) 'être sûr, avoir confiance en' [CTC168] with Niger Tuareg *əfləs* 'avoir confiance en'.

Outside Zenaga, Mali Tuareg *əflu* 'split (peanut, heart) in half' and Tashelhiyt *flu* 'fendre' provide direct cognates. One may note the existence of a much better attested verb root FLY (Kossmann 1999, no 529), which refers to splitting wood,

[9] The unchanging *-u* in Mzab and Ouargla is unexpected. In these varieties, the normal correspondents of CCV verbs have CCa (Kossmann 1994). In addition to *əfsu*, these varieties also have a CCa verb with a different meaning: *əfsa* 'répandre, verser'.

e.g. Ahaggar Tuareg *əfli* ‘fendre’; Ghadames *ăflək* ‘débiter du bois’; Middle Atlas *fəly* ‘déchirer’ [O]; Ouargla *fli* ‘faire tomber, fendre du gros bois’. <NZ.III.562; Taine-Cheikh 2008 provides comparisons with nominal forms from the same root>.

A third verb belonging to this category is highly problematic:

• Imperative *ägẓi(i)h / yägẓīh* (A) / *yugẓāh* (*-ān*) (P) ‘percer, trouer’ [CTC182].
The consonant [ẓ] mostly occurs as a variant of /ḟ/ in intervocalic position (Taine-Cheikh 2008: lxii). In this verb it may represent a voicing assimilation to preceding *g*. A reconstruction of the form for earlier Zenaga could therefore be */agfə ~ agfī/.

One wonders (following Taine-Cheikh 2008: 182) whether the verb is connected to Tashelhiyt *bgu* ‘percer’; Middle Atlas *gbu* ‘percer, trouer’ [T]. In view of nominal forms lacking /b/ such as the Tashelhiyt Imperfective *agga*, one can safely posit the original form as *HGV (Kossmann 1999: 122). In *agga* (< *Hăgga or something similar), the original *H was lost, while in *bgu* it became *b* because it was immediately followed by a consonant. The form *gbu* then constitutes a later metathesis.

The final vowel in Tashelhiyt is found both in ancient -CV verbs and in ancient -CH verbs (Kossmann 1999: 108). In this case, there is good reason to posit *HGV here rather than *HGH, as roots with identical first and third radical are rare in Berber. On the other hand, positing *HGH would explain the presence of a long vowel in most Zenaga forms, as this is a regular outcome of *H.

The main problem in the comparison with Zenaga is that Zenaga has *f rather than *H; normally *H is reflected by /w/ or by a long vowel in Zenaga. Therefore one may seriously doubt that *ägẓi(i)h* and *bgu* are related at all. <NZ.I.33; NZ.III.712; same etymology in Taine-Cheikh 2008>.

5.3. -CV = -v̄# (Z3)

There is one verb that undoubtedly belongs to the -CV class and that has a long vowel in all its Zenaga forms:

• *yaṛīh* (A) / *yuṛāh (-ān)* (P) ‘vaincre’ [CTC441].
This verb is cognate to generally attested *RNV ‘to win’, e.g. Mali Tuareg *ərnu* ‘triumph, be stronger than, defeat’; Ghadames *ərnu* ‘vaincre’; Tashelhiyt *nru* (metathesized form); Middle Atlas *rru* (P: *rra*) ‘vaincre’ [O]; Kabyle *rnu* ‘vaincre’ (also: ‘ajouter’); Figuig *rna* ‘vaincre’; Mzab *rna* ‘vaincre, battre, dépasser’; Ouargla *əṇṇa* ‘vaincre’. The Zenaga form lacks the consonant /n/. As this is also the case with its homonym *yaṛīh* ‘augmenter’, which comes from *RNH (see section 6.1 below), I assume this is due to a Zenaga-internal sound change.

Kossmann (2001b: 86) proposes that the long vowel in *yaṛīh* is due to the conflation with *RNH, and that it therefore would not be a regular correspondence. In view of the existence of other -CV verbs that have forms with long vowels in Zenaga, this is not necessary.
<same etymology in Taine-Cheikh 2008>.

The following -v̄# verb is probably cognate to a -CV form elsewhere, even though the consonants pose some problems:

- *yuḍmīh* (A) / *yaḍmāh* (*-ān*) 'croire' [CTC134].

The verb looks very much like non-Mauritanian forms such as Niger Tuareg *admu* 'supposer; penser, croire'; Middle Atlas *dmu* 'imaginer, croire à' [O]; Kabyle *dmu* 'insinuer, affirmer sans conviction'; Figuig *dma* 'concevoir' (in the sense of: 'to imagine'); Ouargla *dma* 'espérer, avoir confiance dans l'avenir, s'attendre à'. The fact that Zenatic varieties have -Ca rather than -Ci shows that this is originally a -CV verb and not a -CH verb.

The correspondence of Zenaga *ḍ* to general Berber *d* is unexpected; one, somewhat artificial, solution would be to consider *yuḍmīh* derived from *yudṃīh*, i.e. with underlying pharyngealization of /m/. This "solution" moves the problem to the origins of Zenaga *ṃ*, which is unknown for the time being. Naït-Zerrad (1999: 339) and Taine-Cheikh (l.c.) compare *dmu* and *yuḍmīh* to Arabic *ṭamiʕa* 'désirer ardemment' and *ḍanna* 'to think', respectively. There is not much reason to assume that the Berber forms are related to these Arabic forms. The semantic difference between an original meaning that must have been something like 'to imagine' and a verb of strong desire is strained, while the non-Mauritanian forms with plain /d/ argue against an Arabic origin. The derivation of *yuḍmīh* from *ḍanna* is unlikely for formal reasons: there is no reason why Zenaga /m/ should correspond to Arabic /n/ (especially as the preceding consonant is an alveolar), nor would one expect an Arabic geminated verb to be taken over as a form without gemination.

A final problem is presented by the existence of a similar noun in Zenaga which has final *ʔ* rather than a final vowel: *aḍma* (/aḍmaʔ/) 'espoir, signe', cf. *aḍmaʔ-n-š* 'son espoir' [CTC134]. Taine-Cheikh suggests (with a question mark) that this is derived from Arabic *ṭamiʕa*, and therefore not related etymologically to *yuḍmīh*, which she derives (without a question mark) from Arabic *ḍanna*. When she is right in establishing different etymologies for *aḍma* and *yuḍmīh* – which concurs with the difference in the final segment – one could venture the idea that the pharyngealization in *yuḍmīh* is to some extent inspired by the semantically close, but etymologically different word *aḍma*.
<NZ.II.339; different etymology in Taine-Cheikh 2008>.

5.4. Summary

The reflexes of non-Mauritanian -CV verbs in Zenaga are rather incoherent. The following reflexes were found:

-CV = -v#:	three strong cases: *yuṃdih; yūḍih; yägwih*
	three possible, but problematic, cases: *yäzzih; yəkkənfih/ yinfih; yənnäh* (P)
-CV = -v~-v̄#	two strong cases: *yäwši(i)h*; *yuṭʸi(i)h*
	one highly problematic case: *ägyi(i)h*
-CV = -v̄#	two relatively strong cases: *yaṛīh*; *yuḍmīh*

6. -CH verbs

As shown in Kossmann (2001b), the consonant *H corresponds regularly to a long vowel in Zenaga in many positions. This is also the case when *H is word-final. With two exceptions, all verbs with final *H that have a cognate in Zenaga surface with a final vowel that is long in all forms:

6.1. -CH = -v̄# (Z3)

• *yaḍīh* (A) / *yuḍāh (-ān)* (P) 'plier' [CTC133].
This root belongs to forms such as Mali Tuareg *aḍh* (P: *oḍha*) 'fold'; Ghadames *oḍəḇ* 'plier, replier'; Tashelhiyt *aḍu* 'revenir, retourner', *snuḍu* 'plier, se plier'; Middle Atlas *aḍu* (P: *aḍu*) 'plier' [O]; Mzab *aḍi* 'empaqueter, rouler, plier'. The correspondence word-final Mali Tuareg *h* <> Ghadames *ḇ* <> Middle Atlas *u* <> Zenatic *i* is regular, and the forms leave no doubt as to the presence of *H in this verb.
<NZ.III.443; Kossmann 1999, no 152; same etymology in Taine-Cheikh 2008>.

• *yägḍāh (-ān)* (P) 'être égal' [CTC178].
The evidence for *H comes from Mali Tuareg *ağdəh* 'be the same size or amount as; be the equal or equivalent of'. Outside Tuareg, cf. Tashelhiyt *giddi* 'être ajusté; être égal', which belongs to another verb type.
<NZ.III.728; Kossmann 1999, no 168; same etymology in Taine-Cheikh 2008>.

• *yaṛīh* (A) / *yuṛāh (-ān)* (P) 'augmenter' [CTC440].
Clearly related to Ghadames *ărnəḇ* 'ajouter'; Middle Atlas *rnu* (P: *rnu*) 'ajouter' [T]; Kabyle *rnu* 'ajouter'; Iznasen *rni* 'ajouter'; Figuig *rni* 'ajouter'; Mzab *rni* 'ajouter'; Ouargla *ṇṇi* 'ajouter; Chaouia *rni* 'ajouter'; Nefusa *rni* 'ajouter'; Awjila *ərni* 'ajouter' (with irregular stem forms, van Putten 2014: 86). The

development **rn* > *ṛ* is also found in the homonymous verb *yaṛīh* 'vaincre' < RNV (see section 5.3 above). The correspondence Ghadames *h* <> Middle Atlas *u* <> Zenatic *i* is regular; one remarks however that Awjila has *-i* instead of expected *-əv*.
<Kossmann 1999, no 157; same etymology in Taine-Cheikh 2008>.

• *yäykīh (-ān)* (A) / *yiykāh (-ān)* (P) 'mépriser' [CTC582].
Zenaga *y* is the regular correspondent of *l* elsewhere in Berber. Tuareg and Ghadames clearly show that this verb originally had *H: Mali Tuareg *əlkəh* 'show no respect towards, have a low opinion of, underestimate'; Ghadames *ălkəḇ* 'se tenir coi, ne pas répondre'.
<Kossmann 1999, no 154; same etymology in Taine-Cheikh 2008>.

• *yaẓīh (-ān)* (A) / *yəẓāh (-ān)* (P) 'écorcher' [CTC603].
Very well attested in other Berber languages: Ghadames *ozəḇ* 'écorcher'; Tashelhiyt *azu* 'écorcher'; Middle Atlas *azu* (P: *azu*) 'dépouiller' [O]; Kabyle *azu* 'écorcher'; Iznasen *azi* 'écorcher'. Mali Tuareg, unexpectedly, has a form without *h*: *aš* 'skin and butcher (a slaughtered animal)'. The correspondence Ghadames *ḇ* <> Middle Atlas *u* <> Zenatic *i* clearly shows that the original structure of the verb had *H; the Mali Tuareg form must be considered an anomaly.
<Kossmann 1999, no 155; same etymology in Taine-Cheikh 2008>.

• *yəẓrīh (-ān)* (A) / *yəẓrāh (-ān)* (P) 'avoir faim, avoir le ventre creux' [CTC607].
This is probably a cognate of a Mali Tuareg form with related semantics *əšrəh* 'be thin, loose weight (animal)'; its relationship to Niger Tuareg is less clear: *ăzru*, *əzru* 'penser intensément à (avec désir/impatience/tristesse), être désespéré/découragé/attristé, être abattu/très fatigué (malade)'.
<same comparison (with a question mark) in Taine-Cheikh 2008>.

• *ärāh* (M) / *arāḏäḏ* (F) (conjugated adjective) 'cru' [CTC441].
Mali Tuareg *irah* (P: *ărah*) 'be unripe, (food) be raw or undercooked'. The formal relationship with Niger Tuareg (W) *ḥărăy* 'être cru (fruit, légume, viande)' is unclear; one may note that in Mali Tuareg *ihray* (P: *hăray*) has a different meaning, 'be inept or sloppy'. The Mali Tuareg form *irah* matches the Zenaga form perfectly.
<no etymology in Taine-Cheikh 2008>.

The following cases are highly problematic:

• *yäʔgīh* (A) / *yäʔgāh (-ān)* (P) 'témoigner' [CTC21].
The root is well-attested in Berber (Basset 1934–1935), but only Tuareg unambiguously shows the presence of *H: Mali Tuareg *ğayh* (A: *ăğğayh*,

P *əğğiha*) 'bear witness, testify as a witness'; Ahaggar Tuareg *iğah* 'être témoin'. The presence of *H can also be inferred from northern Berber nominal forms, which have a stem formant *n* rather than *m*, which is regular when *H is present in the original form: Kabyle, Tashelhiyt, Middle Atlas [O] *inigi* 'témoin'; Chaouia *iniži* 'témoin' (Naït-Zerrad 2002: 920). While the presence of *H stands beyond doubt, it is not certain that it was the final segment of the verb in proto-Berber. Tuareg forms suggest that the verb may have ended in a glottal stop (i.e. a root *GYHʔ); this would explain the final vowel in the Perfective stem. There is no glottal stop in final position in Zenaga.
<NZ.III.920; Kossmann 1999, no 219; same etymology in Taine-Cheikh 2008>.

- *yoggīh* (A) / *yuggāh (-ān)* (P) 'se finir, être fini, se terminer, s'achever' [CTC185].

Kossmann (2001a: 86) suggests a connection to Tuareg forms like Mali *əğdəh* 'be enough (for sb.)'. As already mentioned in Kossmann (2001a), the comparison is highly problematic, as it demands for unproven phonetic changes (assimilation of *gd > *gg*) and for a major semantic shift.
<Taine-Cheikh cites Kossmann (2001a) without acclaiming it>.

6.2. -CH = -v~-v̄# (Z5)

There is one verb with final *H, which shows variation between long and short vowels in Zenaga:

- *yogri(i)h* (A) / *yugra(a)h (-ān)* (P) 'entendre, ouïr, louer' [CTC215].

This corresponds to a verb otherwise only attested in Tuareg, e.g. Mali Tuareg *əğrəh* 'understand'.
<NZ.III.876ff; Kossmann 1999, no 8; same etymology in Taine-Cheikh 2008>.

6.3. -CH = -v# (Z2)

In one verb, final *H corresponds to a short vowel in Zenaga:

- *yīrih ~ yiʔrih* (A) / *yāräh ~ yäʔrä (-än)* (P) 'dicter' [CTC48].

The final *H is confirmed by Berber forms such as Ghadames *orəḇ*; Tashelhiyt *ara* (P: *ara*); Middle Atlas *aru* (P: *aru*) [O]; Iznasen *ari* 'écrire'; Awjila *arəv* 'écrire' (for more forms, see Kossmann 1999, no 156). The Zenaga form is difficult to interpret for a number of reasons. In the first place, the first syllable shows alternation between a long vowel and a short vowel followed by a glottal stop. In the second place, some variants in the Perfective and Imperfective (*yəttāräh ~ yəttaʔrä*) have variation between forms with an underlying final short vowel (realized as *-äh*), while the forms which have a glottal stop in the first syllable also have an underlying glottal stop in final position (realized as *-ä*).

The plural forms do not have the final glottal stop (e.g. Imperfective *taʔrän*), which suggests that it is secondary in the other forms.

I have no solution for the variation in the first syllable. While one may venture that the presence of the long vowel is due to some kind of metathesis of *H, this hardly accounts for the variation with ʔ, nor does it explain the presence of a final vowel in the verb.
<Kossmann 1999, no. 156; same etymology in Taine-Cheikh 2008>.

6.4. Summary

The reflexes of non-Mauritanian -CH verbs in Zenaga are relatively coherent. The following reflexes were found:

-CH = -v̄#:	seven strong cases: *yaḍīh*; *yägḏāh*; *yaṛīh*; *yäykīh*; *yaẓīh*; *yəẓrīh*; *ärāh*
	two highly problematic cases: *yäʔgīh*; *yoggīh*
-CH = -v~-v̄#	one strong case: *yogri(i)h*
-CH = -v#	one difficult case, because of irregular reflexes in Zenaga: *yīrih ~ yiʔrih*

7. -Cy verbs

The reflexes of -Cy verbs in Zenaga[10] are twofold. The most common reflex is *g*, but there is a considerable number of verbs that have a vocalic reflex. As will be shown below, the distribution of the two reflexes is to a large degree predictable.

In non-Mauritanian Berber, many varieties have merged final *i* and final *y phonetically. In most cases, morphology allows one to differentiate *y verbs from verbs with a final vowel. In a few varieties, however, the two classes have merged completely, e.g. in Ouargla. In Ghadames, and to some extent also in Awjila, the final element in this class of verbs is normally *k* instead of *y*. In Tuareg, esp. in Ayer, the *k* variant also sometimes appears.

7.1. -Cy = -g# (Z6)

The most common reflex of non-Mauritanian final *y* in -Cy verbs is *g*. In Zenaga, this verb class merges with the regular consonantal verbs ending in the consonants *g and *k.[11]

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[10] In addition, one may compare Zenaga *ogğiʰ* 'lier, nouer' (NZ.III.788, based on Nicolas), cf. Iwellemmeden Tuareg *əgləy* 'nouer'. The verb does not feature in Taine-Cheikh's dictionary.

[11] Verbs with etymological *g in Zenaga include *yuḥḥug ~ yaḥḥug* 'être loin' [CTC76]; *yärgəg* 'être ferme, stable' [CTC435]; *yäwḏəg* 'être mouillé' [CTC531]; *yūnnəg* 'avoir l'oeil malade' [CTC550];

- *aʔẓ(ẓ)ag* (inflected adjective) ‘lourd’ [CTC73].

As a verb, this is well attested outside Mauritania, e.g. Mali Tuareg *iẓay* ‘be or become heavy’; Ghadames *ẓak* ‘être lourd’; Tashelhiyt *iẓḍiy* ‘être lourd’; Middle Atlas *ẓẓay* ‘être lourd’ [T]; Figuig *ẓẓay* ‘s’alourdir’; Mzab *əẓẓa* ‘être lourd’ (the verbal noun preserves the final *y*: *tiẓẓayt*); Ouargla *əẓẓa* ‘être lourd’ (the verbal noun preserves the final *y*: *tiẓẓayt*); Awjila *ẓẓak* ‘to be heavy’. Tashelhiyt *iẓḍiy* ‘être lourd’ suggests that all other Berber varieties have undergone an assimilation *ẓḍ > *ẓẓ*.

<Kossmann 1999, no 551; same etymology in Taine-Cheikh 2008>.

- *yuḍnug* (A) / *yuḍnäg* (P) ‘remplir’ [CTC136].

An unproblematic cognate of Tuareg forms such as Mali Tuareg *əḍnəy* ‘fill’; Niger Tuareg *əḍnəy* ‘entonner, remplir, engraisser par alimentation forcée (jeune fille)’. Also attested in Ghadames: *ăḍnək* ‘être tassé, comprimé, être serré en paquet’. Naït-Zerrad (2002: 476) distinguishes this verb from northern Berber forms meaning ‘to be thick’, such as Tashelhiyt *ḍni* ‘être épais’, Kabyle *əḍni* ‘être gros, corpulent’. Taine-Cheikh (l.c.) takes the two meanings together.

<NZ.III.476; Kossmann 1999, no 527; same etymology in Taine-Cheikh 2008>.

- *yäffug* (A) / *yuffäg* (P) ‘verser’ [CTC149].

Well-attested elsewhere: Mali Tuareg *əffəy* ‘verser’; Niger Tuareg *əffəy* ‘verser’; Tashelhiyt *ffi* ‘verser (un liquide)’; Middle Atlas *ffəy* ~ *ffi* (Ayt Izdeg) ‘déborder, suppurer (liquide)’ [T]; Iznasen *ffəy* ‘verser (un liquide), transvaser, transvider’ [Rahhou].

<NZ.III.681; same etymology in Taine-Cheikh 2008>.

- *yanḍug* (A) / *yunḍag* (P) ‘goûter’ [CTC384].

The Zenaga form constitutes an assimilation from *ămḍəy, cf. Tashelhiyt *mḍi* ‘goûter’; Middle Atlas *mḍəy* ‘goûter’ [O]; Figuig *mḍəy* ‘goûter, déguster’; Mzab *əmḍi* ‘goûter’; Ouargla *əmḍi* ‘goûter’; Nefusa *ənṭi* ‘assaggiare’; Awjila *ənṭi* ‘to taste’. Tuareg has cognate forms where, due to regular sound change *mḍ* has become *mḥ*, which is phonologically interpeted as /nḥ/, e.g. Niger Tuareg *ənḥəy* ([əmḥəy]; cf. Imperfective *nabbăy*) ‘goûter’.

<Kossmann 1999, no 560; same etymology in Taine-Cheikh 2008>.

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yäẓrəg ‘apporter l’eau du puits’ [CTC605]; *yaẓẓig* ‘être trait, traire’ [CTC645]. Verbs with etymological *k are rare. The only Berber verb of this type for which I could find a cognate in Zenaga is *yoftəg* ‘(se) détresser, (se) défaire’ [CTC165]. The voicing of a final velar stop seems to be regular in Zenaga, cf. the pronominal element *-āg* ‘you (masculine indirect object)’, corresponding to *-ak* in other languages (Taine-Cheikh 2008: 266).

• *mäẓẓūg* (conjugated adjective) ‘petit’ [CTC375].
This belongs to a wide-spread Berber root for ‘(being) small’, e.g. Tashelhiyt *imẓiy* ‘être petit’; Middle Atlas *mẓiy* ‘être jeune, être petit’; Kabyle *imẓi* ‘être petit’; Iznasen *mẓəy* ‘être petit’; Figuig *mẓəy* ‘être petit’; Mzab *mẓi* ‘être petit’. The background of the long vowel in Zenaga is unknown.
<Kossmann 1999, no 540; same etymology in Taine-Cheikh 2008>.

• *yänig* (A) / *yinäg* (P) ‘être à cheval, monter à cheval’ [CTC390].
Almost pan-Berber verb: Mali Tuareg *ənəy* ‘monter; monter (sur un animal)’; Ghadames ăni (< *ănəy*) ‘monter une bête, chevaucher’; Tashelhiyt *ni* ‘être monté (fusil, charrue)’; Middle Atlas *əny* ‘monter (cheval etc,)’ [O]; Iznasen *əny* ‘monter à cheval’; Figuig *nəy* ‘monter, enfourcher, chevaucher’; Ouargla *ənni* ‘monter au nez’; Chaouia *ny* ‘monter sur une femme’ (Basset 1961: 72); Nefusa *ənni* ‘montare (su una cavalcatura, carrozza, ecc.)’. The most common meaning is ‘to mount an animal’; however, the more general meaning in Mali Tuareg, as well as Ouargla *ənni* ‘monter au nez’ and, possibly, Kabyle *sənni* ‘empiler, entasser’ suggest that it may originally have been more general.
<Kossmann 1999, no 561; same etymology in Taine-Cheikh 2008>.

• *yäšt^{y}ig* (A) / *yišt^{y}äg* (P) ‘cailler’ [CTC496].
Related to Mali Tuareg *əsləy* ‘curdle (milk)’; Niger Tuareg *əsləy* ‘être caillé, se cailler (lait)’; Middle Atlas *səly* ‘cailler, être grillé’ [O].
<same etymology in Taine-Cheikh 2008>.

• *yūšəg* (A) / *yūšäg* (P) ‘fondre (beurre)’ [CTC557].
Related to Niger Tuareg (W): *əfsəy* ‘se fondre, se liquifier, s’apaiser; être dénoué, être défait’; Niger Tuareg (Y): *əfsək*, *əḥsək*, *əḥsəy* ‘se désagréger, se fondre’; Tashelhiyt *fsi* ‘se fondre, fondre; démêler (du fil)’; Middle Atlas *fsəy* ‘fondre’ [O]; Kabyle *əfsi* ‘fondre, démailloter, délier’; Iznasen *fsəy* ‘se fondre’; Figuig *fsəy* ‘fondre, se liquéfier’; Mzab *fsi* ‘fondre, se fondre, se liquéfier’; Ouargla *əfsi* ‘être fondu, fondre’. In view of the Zenaga form, one can be certain that the initial *f* of the other varieties represents ancient *H, which, due to voice assimilation, became *f* in most other varieties (see Kossmann 1999: 122–125). There is wide-spread confusion between the verb *HSY ‘melt’ and the verb *HSV ‘to be disentangled’, see section 5.2 above. Zenaga, like a number of Zenatic varieties, keeps the two verbs well apart.
<NZ.III.665; Kossmann 1999, no 531; same etymology in Taine-Cheikh 2008>.

• *yäyig* (A) / *yiyäg* (P) ‘monter’ [CTC577].
Zenaga *y* corresponds regularly to *l* elsewhere. The verb is well attested elsewhere in Berber: Middle Atlas *aly* ‘monter’ [O]; Kabyle *ali* ‘monter’; Iznasen *aləy*

'monter, s'élever'; Figuig *aləy* 'monter'; Mzab *ali* 'monter'; Ouargla *ali* 'monter'; Nefusa *ali* 'salire (su un albero, un monte, ecc.)'.
<same etymology in Taine-Cheikh 2008>.

• *yäžžig* (A) / *yəžžäg* (P) / *yəẓäd^{y}d^{y}äg* (I) 'guérir' [CTC629].
The verb is well attested elsewhere in Berber, e.g. Mali Tuareg *əzzəy* 'get well, recover from illness'; Ghadames *əzīk* 'guérir'; Tashelhiyt *žži* 'guérir'; Middle Atlas *žžəy* 'guérir' [O]; Eastern Kabylia *žži* 'guérir, se rétablir, se porter bien, être gros' (Berkai 2012-2013); Figuig *žžəy* 'guérir, se rétablir'; Awjila *zik* 'to become well, recover, heal'. On the basis of the Ghadames and Awjila forms, Kossmann (1999: 232) argues that the geminate *žž* goes back to *zy. Assuming that Zenaga *d^{y}d^y* can represent ancient *yy (cf. Kossmann 1999: 232–233), the imperfective in Zenaga can be considered as supplementary evidence for this analysis (*yəẓäd^{y}d^{y}äg* < *yəzăyyăy).
<Kossmann 1999, no 549 and 702; same etymology in Taine-Cheikh 2008>.

• *yaẓ̄ṃug* (A) / *yuẓ̄ṃag* (P); cf. NA *uẓ̄mah* 'être cousu, coudre' [CTC637].
Well-attested verb, especially in the eastern part of the Berber-speaking world: Mali Tuareg *əẓməy* 'be sewn, sew'; Ghadames *ăẓmək* 'coudre'; Siwa *ẓmay* 'to weave the walls of a basket'; Awjila *ẓmək* 'to sew'.
<Kossmann 1999, no 550; same etymology in Taine-Cheikh 2008>.

There are two doubtful correspondences that one may wish to add to this list:

• *yägṃug* (A) / *yugṃäg* (P) 'suivre' [CTC194].
One wonders, with Taine-Cheikh (2008: 194), whether there is a link with Tuareg and Ghadames forms such as Niger Tuareg *əgməy* 'chercher, aller chercher, rechercher'; Ahaggar Tuareg *əğmi* 'chercher'; Ghadames *ăğmək* 'épier, regarder par-dessus, guetter'.
<NZ.III.813; Kossmann 1999, no 533; same etymology in Taine-Cheikh 2008>.

• *yaẓẓīg* (A) / *yuẓẓāg* (P) 'étrangler' [CTC647].
The verb has a semantically perfect, but formally problematic match in Middle Atlas *ẓəly* 'étrangler, suffoquer' [O]. The expected reflex of *ẓl is *ẓy* in Zenaga, and there is no explanation for the long vowel and for the long consonant.
<no etymology proposed in Taine-Cheikh 2008>.

7.2. -Cy = -v# (Z2)

There are two clear cases of *y*-final verbs that correspond to verbs that in Zenaga have a stable short stem-final vowel:

• *yärwih (-än)* (A) / *yərwäh (-än)* (P) ‘remuer, mélanger’ [CTC450].
This is a common verb elsewhere in Berber: Mali Tuareg: *ərwəy* ‘knead / stir with a stick’; Ghadames *ărwək* ‘mélanger en remuant’; Tashelhiyt *rwi* ‘remuer pour mélanger, délayer’; Middle Atlas *rwəy* ‘délayer, remuer’ [O]; Iznasen *ṛwəy* ‘être délayé’; Figuig *ṛwəy* ‘pétrir, malaxer (Benamara 2013); troubler (eau) (Kossmann 1997; Saa 2010)’; Awjila *ərwək* ‘to knead (barley pasta etc.)’.
<Kossmann 1999 no 544; same etymology in Taine-Cheikh 2008>.

• *äynäh* (conjugated adjective) ‘neuf’ [CTC588].
Clearly cognate with Tuareg forms such as Mali Tuareg *iynay* (A), *ăynay* (P) ‘be new’. Also attested in Medieval Nefusa texts (Brugnatelli 2011: 33).
<same etymology in Taine-Cheikh 2008; cf. Kossmann 2013: 121>.

7.3. -Cy = -v/-v̄# (Z4)

There are four relatively certain cases where a -Cy verb corresponds to a Zenaga verb with a final vowel that alternates between short and long forms:

• *yoʔgih* (A) / *yuʔgäh (-ān)* (P) ‘refuser’ [CTC20].
Niger Tuareg *ugəy* ‘refuser’; Tashelhiyt *ag^{w}i* ‘refuser’; Middle Atlas *agəy* ‘ne pas encore, ne pas arriver à’ [O]; Kabyle *ag^{w}i* ‘refuser’; Figuig *ayyəy* ‘refuser’; Siwa *ugay* ‘forbid, refuse’. Cf. also Mali Tuareg *unğəy* ‘refuse’.
<NZ.III.919; Kossmann 1999, no 423; same etymology in Taine-Cheikh 2008>.

• *yogih ~ yäwgih* (A) / *yugäh (-ān)* (P) ‘dépasser, aller au delà; passer’ [CTC188].
Well-attested verb, although with variable semantics: Mali Tuareg *akəy* ‘go past, happen, take place, pass by (also: be or remain awake)’; Niger Tuareg *aḳəy* ‘passer (dans l’espace ou dans le temps), cesser, dépasser’; Ghadames *aki* ‘emprunter une terrasse pour effectuer un parcours’; Tashelhiyt *ak^{w}i* ‘sauter en se laissant tomber, descendre’; Mzab *aki* ‘passer, dépasser, franchir’. In addition, there seems to be a second verb with a similar form meaning ‘wake up, be awake’. This is found – next to the ‘pass’ meaning, in Mali Tuareg, but also appears elsewhere: Middle Atlas *akəy*, *ašəy* ‘s’éveiller, se réveiller, être éveillé’ [T]; Kabyle *ak^{w}i* ‘s’éveiller, être éveillé’; Iznasen *aḵi* ‘se rendre compte, s’apercevoir, s’éveiller, se ressaisir’; Tarifiyt *aša* ‘sentir, se réveiller, se rendre compte’ (Serhoual 2001–2002: 566). The phonetic background of the latter forms is difficult to reconstruct. The Middle Atlas forms point to -Cy; Beni Iznasen *aḵi* can only be a regular reflex of *akəH, as in this variety *əy* and *i* (< *əH) are always kept apart; while in Tarifiyt the verb belongs to the -CV class.

<Kossmann 1999, no 558. Taine-Cheikh (2008, l.c.) does not provide an etymology and refers to a proposal in Kossmann (2001b) for Zenaga *oggīh* (probably a typographical error, as exactly the same footnote is found on p. 185)>.

- *yäwih* (A) / *yuwah (-ān)* (P) / *yukka* (plural: *ukkiʔan* ~ *kaʔn*) (I) 'apporter' [CTC544].

In Zenaga, the verb is homonymous with *yäwih* 'frapper' (on which see section 9 below). The irregular Imperfective *yukka* has no doubt been introduced from the latter verb.

Otherwise, the verb *awəy* is attested everywhere except in some eastern varieties: Mali Tuareg *awəy* 'take, convey, carry'; Tashelhiyt *awi* 'apporter'; Middle Atlas *awy* 'emporter, emmener' [O]; Kabyle *awi* 'porter, emporter, amener'; Iznasen *awəy* 'emporter, amener'; Figuig *awəy* 'amener, apporter, rapporter, ramener, conduire, épouser'; Mzab *awi* 'porter, emporter, emmener'; Ouargla *awi* 'porter, conduire, prendre, emporter, emmener'; Nefusa *awi* 'portare (portar via, ad altro luogo), condurre, prendere'.
<same etymology in Taine-Cheikh 2008; I do not consider Ghadames *ăbb* cognate to this verb>.

- *yäẓyih* (A) / *yəẓyäh (-ān)* (P) 'jeter' [CTC628].

In non-initial position Zenaga *y* normally represents *l. The verb is attested in a small number of closely related Zenatic varieties in eastern Morocco: Ayt Seghrushen (eastern Middle Atlas): *əzləy* 'jeter' [T]; Figuig *zləy* 'lancer'.
<Taine-Cheikh (l.c.) considers this verb cognate with Tashelhiyt *zllʕ* 'jeter', which is no doubt a loan from Arabic, cf. Moroccan Arabic *zəllăʕ* 'to spill, scatter' (Harrell 1966: 227). She also adduces Foucaulds notation <ġellet> 'jeter à bas' (probably to be interpreted as *ğăḷḷăt*, cf. Ritter 2009, II, 917). The latter comparison is clearly irrelevant, as Ahaggar /ğ/ (< *g) does not correpond regularly to Zenaga /ẓ/ or, for that matter, to Tashelhiyt /z/. Moreover, it seems that *ğăḷḷăt* presents an assimilation *ḍl > *ḷḷ*, in view of forms such as Mali Tuareg *ğăḍlăt* 'cause to fall, knock down (in fighting)'. The present etymology, proposed in Kossmann (2001b: 91), is cited by Taine-Cheikh, but apparently rejected.>

Finally, there is one highly uncertain correspondence:

- *äggu*ʔ*fäh (-ān)* (P) 'prendre la direction du nord' [CTC174].

Maybe cognate with Middle Atlas *ggafy* 'monter' [O], see also the discussion in Taine-Cheikh (2008: 174, note 331), cf. NZ.III.750.

7.4. -Cy = -v̄# (Z3)

There is one -Cy verb that has a stable long final vowel in Zenaga:

- *yaẓyīh* (A) / *yuẓyāh* (P) 's'isoler, se séparer' [CTC643].

Mali Tuareg *əẓləy* 'separate (young animal) from its mother; make a difference, matter'; Niger Tuareg *əẓləy* 'mettre à part, séparer, distinguer'; Tashelhiyt *ẓli* 'séparer, trier'; Mzab *əẓli* 'partager, diviser par une ligne'.
<same etymology in Taine-Cheikh 2008>.

7.5. -Cy = -v~v# (Z5)

Two y-final verbs show variation between forms with a final short vowel and with a final long vowel in Zenaga. Both are problematic.

- *yäẓri(i)h (-īn)* (A) / *yəẓrä(ä)h (-aʔn)* (P) 'venir après, rester après' [CTC606].

The Zenaga verb not only has variants with long and short final vowels, but also (underlyingly) vowel-final forms and (underlyingly) ʔ-final forms, which makes it highly irregular, and difficult to categorize. Elsewhere in Berber, the verb has final *-y*: Mali Tuareg *əšrəy* 'lag behind, bring up the rear, regress'; Niger Tuareg *əzrəy* 'rester après, venir après'. No doubt there is a connection with the northern Berber verb Tashelhiyt *zri* 'passer'; Middle Atlas *zəry* 'passer' [O]; Figuig *zrəy* 'passer'.
<same etymology in Taine-Cheikh 2008>.

- *yokkīh* (A) / *yukka(a)h (-ān)* (P) 'porter, prendre en charge' [CTC301].

Tuareg forms with similar semantics have initial *n*: Iwellemmeden Tuareg *ənkəy* 'supporter, assumer (charge sociale)'. The verb is only attested in Niger, but a corresponding noun is generally used in Tuareg (see Ritter 2009, Vol. II, 950), e.g. Mali Tuareg *tămaŋkayt* 'wooden post holding up middle of tent'. Whether there is a relation to Kabyle *əkki* 'participer, prendre part' remains an open question. The etymology depends on the question whether Zenaga *kk* can come from *nk. While this is a well-attested assimilation in northern Berber (e.g. Figuig *kkər* 'se lever' < *NKR), there is little evidence for it in Zenaga, cf. *yänkur* (A), *yunkär* (P) 'se lever' [CTC397], where no such assimilation is found.
<Taine-Cheikh (2008) compares, with a question mark, Niger Tuareg (Y) *əkkəl* 'soulever'. This is problematic from the formal point of view, as *l does not regularly develop into a long vowel in Zenaga (Taine-Cheikh 2005: 54)>.

7.6. Summary

Among the verbs that have -Cy elsewhere in Berber, Zenaga shows different reflexes:

-Cy = -g#	11 strong cases: *aʔẓ(ẓ)ag*; *yuḍnug*; *yäffug*; *yanḍug*; *mäẓẓūg*; *yänig*; *yäštʸig*; *yūšəg*; *yäyig*; *yäžžig*; *yaẕ̱ṃug*
	2 uncertain cases: *yägṃug*; *yaẓẓīg*
-Cy = -v#	2 strong cases: *yärwih*; *äynäh*
-Cy = -v/-v̄#	4 strong cases: *yoʔgih*; *yogih*; *yäwih*; *yäẕ̱yih*
	1 uncertain case: *äggu*ʔ*fäh*
-Cy = -v̄#	1 strong case: *yaẕ̱yīh*
-Cy = -v~v̄#	2 problematic cases: *yokkīh*; *yäẕ̱ri(i)h*

As is evident from this count, more than half of the -Cy verbs have final *-g* as their reflex. When considering the other forms, one remarks that verbs that have a first or second radical that is a velar or labial-velar consonant (*g*, *k*, *w*) never have *-g*: out of the 9 exceptions, 5 have a (labial-)velar consonant elsewhere in the verb. This clearly points to a rule: the correspondence of *-y* to *-g* is only found when the verb does not contain a (labial-)velar consonant. Assuming that *-y* was the original pronunciation (which is not certain, see Kossmann 1999: 204), this can be understood as a constraint checking the development of stems containing two velar consonants.

The remaining four verbs that do not have the *-g#* in Zenaga are: *äynäh*, *yäẕ̱yih, yaẕ̱yīh, yäẕ̱ri(i)h*. With the exception of *äynäh* (< YNY, a rare stem consonantal type in which the first and the last radical are identical), all these verbs start in a voiced alveolar grooved approximant (*ẕ̱*) or a voiceless interdental fricative (*z̄*, *ẕ̱*); the latter corresponds to voiced sibilants in other Berber languages. It should be noted, however, that verbs with these consonants also appear in the group that has the reflex *-g*, e.g. *mäẓẓūg, yäžžig, yaẕ̱ṃug*.

8. -Cw verbs

8.1. -Cw = *-g#* (Z6)

- *yiddug* (A) / *yäddäg* (P) ‘accompagner’ [CTC95].

The Zenaga forms clearly show that this is a different etymon from *äbḏīh* ‘marcher, aller’ (see section 10 below); as a consequence, non-Mauritanian correspondents to these two verbs (e.g. Tashelhiyt *ddu* ‘marcher, aller’ vs. Tuareg *idaw* ‘accompany’) should be kept apart.

Cognates include Mali Tuareg *idaw* ‘accompany, go with, be associated with’; Niger Tuareg *idaw* ‘faire compagnie avec, se marier’; Ouargla *əddiw* ‘accompagner, aller, marcher avec’.
<NZ.II.407ff.; same etymology in Taine-Cheikh 2008>.

- *yəḏrəg* (A) / *yəḏräg* (P) ‘être polygame’ [CTC114].

The original meaning of the verb seems to be ‘possess something together, do something together’. The Zenaga meaning specialization is also found in Mali Tuareg. Mali Tuareg *idraw* ‘become a co-wife’; Niger Tuareg *ədrəw* ‘avoir en commun, s’associer, se mettre en commun, être possédé en commun’; Tashelhiyt *dru* ‘manger avec quelqu’un’.
<NZ. II.396ff., Taine-Cheikh (2008) compares, with a question mark, forms such as Mali Tuareg *ədrəǧ* ‘disappear form the view of (sb)’; Middle Atlas *drəg* ‘cacher, dissimuler’ [T]. In view of the semantics, I think a comparison with Tuareg *idraw* is to be preferred.>.

- *yäffäg* (P) ‘faire jour, se lever (jour)’ [CTC149].

Well-attested verb, e.g. Mali Tuareg *ifaw* ‘(day) break’; Niger Tuareg (W) *iḍaw* ‘faire jour’; Tashelhiyt *ifiw* (etc.) ‘être clair (eau, temps)’; Middle Atlas *iḍaw* [O], *ffu* (A=P) (Azdoud 2011) ‘faire jour’; Figuig *faw* ‘s’éclaircir, s’illuminer’; Mzab *ifaw* ‘être clair, faire clair, éclairer’; Ouargla *faw* ‘être clair, s’éclaircir’.

The verb is clearly connected to nouns for ‘fire’, such as Mali Tuareg *eḍew* ‘fire’. A connection with ‘sun’ is less clear, although still plausible. In the first place, most Berber languages have *k* (or something derived from *k) as their final consonant, e.g. Tashelhiyt *tafukt*; in the second place, Zenaga has forms with an initial glottal stop (alternating with forms without a glottal stop): *toʔ(ḍ)fukt* ~ *täwḍfukt* [CTC16], cf. Kossmann (1999, no 576).
<NZ. III.675; same etymology in Taine-Cheikh 2008>.

- *yärug* (A) / *yuräg* (P) ‘mettre bas, engendrer’ [CTC433].

Pan-Berber item: Mali Tuareg *arəw* ‘give birth, have offspring’; Niger Tuareg *aṛəw* ‘engendrer, enfanter’; Ghadames *arəw* ‘engendrer, mettre au monde, produire’; Tashelhiyt *aru* (P: *uru*) ‘accoucher’; Middle Atlas *arw* ‘enfanter’ [O]; Kabyle *arəw* ‘enfanter, mettre bas, accoucher, produire’; Iznasen *aṛəw* ‘enfanter, accoucher, mettre bas, pondre’; Figuig *aṛəw* ‘accoucher, enfanter, engendrer, pondre, mettre bas, produire’; Mzab *aṛu* ‘mettre au monde, mettre bas, enfanter, pondre, produire’; Ouargla *aru* ‘engendrer, accoucher, mettre au monde, enfanter, pondre, produire’; Nefusa *aru* ‘partorire, generare, produrre’; Awjila *əṛəw* ‘to give birth’.
<same etymology in Taine-Cheikh 2008>.

One more verb may also belong to this category. The semantic fit is far from perfect, which is no doubt the reason that Taine Cheikh (2008, l.c.) does not make the comparison:

- *yägrug* (A) / *yugräg* (P) ‘mettre de côté, conserver, verser, remplir par une orifice (entonnoir)’ [CTC213].

Cf. Mali Tuareg *əğrəw* ‘get, obtain, find’; Niger Tuareg *əgrəw* ‘trouver, obtenir, recevoir’. No doubt the same as the widely attested verb stem GRW ‘to gather’ (cf. NZ.III.893–895; Kossmann 1999, no 376).
<NZ.III. 895; no etymology in Taine-Cheikh 2008>.

8.2. -Cw = -v# (Z2)

There are two verbs that have a short final vowel in Zenaga corresponding to final -*w* elsewhere. Although there is no doubt about their relationship to the proposed cognates, both cases allow for other interpretations.

• *yūrih* (A) (-*än*, -*äyn*) / *yäwräh* ~ *yäwrih* (-*än*) ‘travailler’ [CTC 553].
The verb only has cognates in Tuareg, but a related noun ‘work’ is more widely attested (Kossmann 1999, no 211): Mali Tuareg *hărăw* ‘forge, produce, create’; Ahaggar Tuareg *harăw* ‘travailler’ (transcription following Ritter 2009).

The Zenaga form is somewhat difficult to interpret because of the unexpected presence of a semivowel *y* in a variant of the 3PL suffix in the Aorist and the Imperfective form. One cannot rule out that the vowel-final form of the verb in Zenaga is due to analogy with the corresponding noun: *täʷrih* ~ *tōrih* ‘fait de travailler, travail, occupation’. Taine-Cheikh (2008, l.c.), suggests that *yūrih* might represent a metathesis *HRW > *WRH. This is not necessary, as *w* (> *ū* under some conditions) is the regular outcome of *H before consonants (Taine-Cheikh 2005: 53).
<Kossmann 1999, no 211; same etymology in Taine-Cheikh 2008>.

• *yəmmənšəh* (A) / *yäṃṃunšah* (-*än*) (P) ‘dîner’ [CTC406].
The verb in question is a pan-Berber derivation related to *yänši (-aʔn)* ‘passer la nuit’ [CTC404]. Interestingly, the final glottal stop of the basic verb is not present in the derivation. In view of its semantics, the verb is probably not a medial verb derivation, but a denominal verb, based on the derived noun *əmənšəh* ‘dîner, fait de dîner’.

In other Berber languages, the denominative verb ends in -*w* (e.g. Iznasen *mmunsəw*), while the noun ‘dinner’ ends in a vowel (e.g. Iznasen *amənsi*); the consonant *w* appears in the plural, however (e.g. Iznasen *imənsiwən*), and may have been lost in the singular, a development that is quite commonly found in Berber (see, among many others, van Putten 2018).

Cf. the following attestations across non-Mauritanian Berber: Mali Tuareg *mănsăw* ‘eat supper’, *amənsi* ‘evening meal, supper’; Niger Tuareg (W): *măṇsăw* ‘prendre comme repas du soir’, *aməṇsu*, *ameṇse, aməṇsi* ‘repas du soir’; Ghadames *mănsaw* ‘souper’, *amisi* ‘souper, repas du soir’; Tashelhiyt *mmns* ‘dîner et passer la nuit’, *imnsi* ‘repas du soir’; Middle Atlas *mmənsəw* ‘dîner’, *imənsi* ‘repas du soir’; Kabyle *əmmənsu*, *əmmənsəw* ‘être mangé au repas du soir’, *imənsi* ‘souper’;

Iznasen *mmunsəw* ‘dîner’, *amənsi* ‘souper’; Figuig *mmunsəw* ‘dîner’, *amənsi* ‘dîner (noun)’; Mzab *mminsu* ‘prendre le repas du soir, souper’, *amənsi* ‘repas du soir, souper’. In a number of varieties only the noun is attested: Ouargla *amənsi* ‘repas du soir, de la nuit; dîner, souper’; Nefusa *mənsi* ‘cena’; Awjila *amišiw* ‘dinner’.

The main problem in interpreting the Zenaga form lies in the denominal nature of the verb. If one assumes that Zenaga *yəmmənšəh* simply represents the cognate of the pan-Berber verb form with a final *w*, the verb can be classified with the foregoing (*yūrih*) as a *-w#* verb. However, it is conceivable that the vowel-final form of the verb is due to analogical influence of the noun, which in most Berber languages does not have final *w*.
<same etymology in Taine-Cheikh 2008>.

8.3. Summary

-Cw = -g#	4 strong cases: *yiddug*, *yəḏrəg*, *yäffäg*, *yärug*
	1 uncertain case: *yägrug*
-Cw= -v#	2 problematic cases: *yūrih*, *yəmmənšəh*

9. -Ct verbs

There is a special group of verbs that has forms with word-final *-t* and forms lacking *-t* when followed by a suffix. In Tuareg, this is the case of a large group of verbs, and *-t ~ ø* seems to function as a kind of word-building suffix (augment in the terminology of Heath 2005: 294); its semantics remain unclear. Elsewhere in Berber, only traces of the *-t ~ ø* variation are found. Sometimes it appears in dialectal variants, where apparently one variety has generalized the *-t* form, while another variety lacks *-t*. Thus, for example, Figuig has a verb *ržit* ‘to dream’, while closely related Iznasen has *arži* without *-t*. Tuareg, on the other hand, has variation between *-t* and *ø* in this verb: Mali Tuareg *hurǧət* ‘see in dream’.

Moreover, the *-t ~ ø* variation appears in a small number of verbs in non-Tuareg varieties. Awjila has three such verbs (van Putten 2014: 95): ‘to die’ (1SG:P *mmuy-ix*, 3SG:M:P *i-mmut*), ‘to blow, hit’ (1SG:P *wi-x* 3SG:M:P *i-wit*) and ‘to speak’ (1SG:P *šərwi-x* 3SG:M:P *i-šərwit*). In Figuig, we have Perfective *i-mmut* ‘he died’, but *mmu-x* ‘I died’ (for full paradigms, see Kossmann 1997: 144), while similar forms are found with *mmət* ‘to die’ and *wwət* ‘to hit’ in Gourara (see below).

While there is little doubt that in the large majority of the Tuareg forms with *-t*, the *-t* is a suffix, this is less conspicuous in the case of short verbs such as *mmət* and *wwət*. Especially *mmət* has derived forms in which the final *-t* seems to function as a genuine root consonant, cf. the well-attested nominal

form *taməttant* ‘death’, in which a root MT seems to have been extended by an element *an*.

It is very well possible that the variation between *-t* and *ø* is the result of a sound law in which *-t* was lost intervocalically (van Putten fc.; Prasse 1972–1974 gives a different explanation). If this is the case, it is conceivable that in some verbs the final *-t* was a suffix, while in others it was part of the stem.

In Zenaga, the verbs ‘to die’ and ‘to beat’ consistently have forms without *-t*. This could be interpreted as a historical absence of the *-t* suffix, which then could be a non-Mauritanian Berber innovation; one remarks that there are no traces of the Tuareg-type suffixes at all in Zenaga. On the other hand, the *-t*-less forms of Zenaga can also easily be explained as a generalization from an earlier stage with paradigmatic variation between forms with and without *-t*. I think the latter solution is to be preferred for these short verbs, as other aspectual and nominal forms do have *t* in Zenaga, e.g. the Imperfective *yətmättäh* and the nouns *tmättänt* ‘mort, décès’ and *aṃtən* ‘mort, personne (déjà) morte (au cimetière, …)’ [CTC369].

- *yäṃṃih* (pl. *äṃṃīn*) (A = P = PN) / *yətmättäh* (3PL:M *tmättäyn*) ‘mourir’ [CTC359].

All other Berber languages have, in the Aorist and the Perfective, at least some forms with final *t*. In the following list, 3PL:M forms are only given when *t* is absent; when the language has *t* everywhere in the paradigm, this is not indicated.

Mali Tuareg *ămmăt* (Imperative, A), *ămmut* (3PL:M *ămmun* ~ *ămmutăn*, Prasse & ăgg-Ălbosṭan ăg Sidiyăn 1985: 36) ‘die’, *tamăttat* (I), *tamăttant* ‘death’; Niger Tuareg *ăṃṃăt* (Imperative, A), *əṃṃut* (3PL:M *əṃṃutăn* ~ *ăṃṃen*) ‘mourir’, *taṃăttant* ‘mort’; Ghadames *əmmət* (Imperative), *ămmət* (A), *ămmut* (P), *əttămăttăt* (I), ‘mourir’, *tamăttant* ‘la mort’; Tashelhiyt *mmt* (A) *mmut* (P) *tmttat* (I) ‘mourir’; Middle Atlas *mmət* (A), *mmut* (P), *ttəmtat* (I) ‘mourir’, *tamətti* ‘la mort’ [O]; Kabyle *əmmət* (A), *əmmut* (P), *əṭməṭṭat* (I), *taməṭṭant* (verbal noun) ‘mourir’; Iznasen *mmət̲* (A), *mmut̲* (P), *tmətta* (I); Figuig *mmət* (3PL:M *mman*) (A), *mmut* (3PL:M *mman*) (P), *tmət̲tat* (3PL:M *tmət̲tan*) (I) ‘mourir’; Gourara[12] *əmmət̲* (3PL:M *əmmun*) (A), *əmmut̲* (3PL:M *mmun*) (P), *təmət̲t̲it̲* (3PL:M *təmət̲t̲in*) (NI) ‘mourir’; Mzab *mmət* (A), *mmut* (P), *tmət̲tat* (I) ‘mourir’, *tamət̲tant* ‘mort, décès’, *amənnitu* ‘mort, défunt’; Ouargla *mmət* (A), *mmut* (P), *tmət̲tat* (3PL:M *ttmət̲tan*) (I) ‘mourir’, *tamət̲tant* ‘mort, décès’; Nefusa *əmmət* (A), *əmmət* (P) ‘morire’, *tmət̲tənt* ‘morte’; Awjila *mmut* (Imperative), *mmut* (1SG *mmuyix*) (P) ‘die’, *təmət̲tint* ‘death’; Siwa *ṃut* (Imperative), *əṃṃut* (P), *ətṃata* (I) *aṃuti* (verbal noun) ‘die’.
<same etymology in Taine-Cheikh 2008>.

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[12] Lixta, André Basset, field notes on Gourara Berber (1936–1937), BULAC, Fonds André Basset, boîte 3/II-3, 225.

- *yäwih* (*-ān*) (A) / *yuwäh* (*-ān*) / *yuwih* (*-īn*) (NP) / *yukka(a)ʔ* (pl. *ukkiʔän*) (I) 'frapper' [CTC545].

In addition to the problems with final *-t*, this verb also has issues in the formation of the Imperfective, which seems to be suppletive. The Zenaga form of the Imperfective is problematic also on phonological grounds: it is one of the very few words that pronounce a glottal stop in word-final position; moreover, in the 3PL:M form *ukkiʔän* it occurs in intervocalic position, which is normally not allowed in Zenaga. An additional complication is the verbal noun *tiʔḏih*, whose relationship to the verb is far from clear (cf. Kossmann 1999: 199).

In non-Mauritanian Berber, the final *-t* is stable in all varieties except Awjila and Gourara. Both these varieties have innovated their Imperfective; as a result there are no *t*-less correspondents to Zenaga *yukka(a)ʔ*.

Mali Tuareg *əwət* (A), *əwăt* ~ *wăt* (P), *təwwat* ~ *təggat* (I) 'hit, strike, beat'; Ghadames *ăwət* (A), *wăt* (P), *əkkot* (I) 'frapper'; Tashelhiyt *ut* (A = P) *kkat* (I) 'frapper'; Middle Atlas *wt* ~ *wwat* (A = P), *kkat* ~ *ččat* (I) 'frapper' [O]; Kabyle *wət* (A = P), *kkat* (I) 'frapper'; Iznasen *wwəṯ* (A), *wṯi~a* (P), *ččaṯ* (I); Figuig *wət*[13] ~ *wwət* (A), *wti~u* (P), *ttšat* (I); Gourara *ᵘwəṭ* (2PL:M *ᵘwiṭ*, 2PL:F *ᵘwiməṭ*) (Imperative), *wwəţ* (3PL:M *uwwin*) (A = P), *iţţuwət* (3PL:M *ţţuwin*) (NI) 'frapper'[14]; Mzab *əwət* (A=P), *ššat* (I) 'frapper'; Ouargla *əwət* (A = P), *ššat* (I) 'frapper'; Awjila *awit* (Imperative), *wit* (1SG *wix*) (P), *təwwəyt* (1SG *təwwix*) (I) 'to blow, hit'.
<Kossmann 1999: 199; same etymology in Taine-Cheikh 2008>.

In addition to these two clear examples of short verbs with *t* ~ *ø* alternation, there is one more verb that may belong to this class:

- *yoktīh* (*-ān*) (A) / *yuktāh* (*-ān*) 'se souvenir' [CTC317].

This verb is well attested in non-Mauritanian Berber, often as a middle derivation with the prefix *mm-*. There is considerable variation as to its final element: some languages have *-y*, others have a plain vowel. In a number of varieties, forms with a final *-t* are found, e.g. Ghadames *ăktət*. This suggests that the verb originally ended in alternating *-t* (whether a suffix or part of the stem is impossible to decide), and that different forms were generalized depending on the language.

Zenaga long vowels normally correspond to *H (see section 6 above). There is no indication that this is the case in this verb, as Mali Tuareg has a final

[13] Benamara (2013: 580) gives forms with *ut* instead of *wt*. This is due to the dialectal change in Lower Figuig of *w* when followed by a syllable with a single consonant and a plain vowel (Kossmann 1997: 46); in Upper Figuig, *w* is preserved.

[14] Lixta, André Basset, field notes on Gourara Berber (1936–1937), BULAC, Fonds André Basset, boîte 3/II-3, 209.

vowel instead of *h*, and Figuig has final *y*, while its regular correspondent of *H is *i* in this position.

Mali Tuareg *əktu* 'to remember'; Ahaggar Tuareg *əktu* 'se souvenir de'; Niger Tuareg *ăḳtu* ~ *əḳtu* ~ *əḳtət* 'se souvenir de'; Ghadames *ăktət* 'se souvenir'; Tashelhiyt *kti* 'se souvenir de'; Middle Atlas *štəy* 'se rappeler' [O]; Kabyle *mməkti* (final /y/) 'se souvenir, se rappeler'; Figuig *mmitəy* 'se souvenir, se rappeler'; Zwara *mmita* (Mitchell 2009: 36); Awjila *(ə)mməkt* ~ *əmməkti* 'to remember'. <Kossmann 1999, no 562; same etymology in Taine-Cheikh 2008>.

Summary

-Ct= -v/-v̄#	2 strong cases: *yämmih*; *yäwih*
-Ct=-v̄#	1 possible case: *yoktīh*

10. One difficult case: 'to walk, to go'

One Zenaga verb is problematic as to its reconstruction. As it is well-attested in northern Berber, it will be treated in some detail.

- *yäbḏīh* (A) / *yäbḏāh* (*-ān*) (P) ~ *yäḏbīh* (A) / *yäḏbāh* (*-ān*) (P) 'marcher, aller' [CTC77; CTC94].

In Zenaga, the verbal noun is highly irregular, as it features a glottal stop and a semivowel *w* instead of *b*: *taʔwaḏīh* (similar forms are found elsewhere, e.g. Tashelhiyt *tawada*). In Zenaga, the latter form functions both as the verbal noun of *yäbḏīh* 'to go, to walk' and of *yäddīh* 'to get lost' [CTC96].

Zenaga has two different forms of the verb, one with *b* preceding *ḏ*, the other with *b* following *ḏ*. The presence of *b* in pre-consonantal position in Zenaga is somewhat unexpected, therefore *yäḏbīh* may very well be the original form.

A similar verb is found in northern Berber: Tashelhiyt *ddu* 'marcher, aller'; Middle Atlas *ddu* 'aller'; Kabyle *ddu* 'aller, marcher'.

Naït-Zerrad (II.407ff.) links the Zenaga and northern Berber verb to a group of verbs with final *w*, which mean 'to accompany'. As these are clearly cognate to another Zenaga verb, *yiddug* 'accompagner' (see section 8.1 above), this etymology cannot be maintained as such.

An alternative would be to link it to Tuareg verbs meaning 'to walk during the afternoon', such as Mali Tuareg *adəw* (P: *odwa*) 'leave in mid-afternoon'; such forms are related to terms for 'afternoon', well-attested elsewhere in Berber, e.g. Middle Atlas *tadəggʷatt* 'après-midi' [O] and Zenaga *təḏäbbäḏ* ~ *tdäbbäḏ* 'après-midi' [CTC93][15] (Basset 1955).

[15] The plural is *təḏäbbäyn* with the relatively common feminine plural suffix *-äyn* (Taine-Cheikh 2006: 256). While the *y* in this form no doubt goes back to ancient *y, the fact that *y* is also the regular

If *adəw* is indeed cognate with the Zenaga form, one may surmise that *yäḏbīh* represents ancient *yaḏwī with *w > *b*. Such occlusivization is attested in clusters where *w follows a sibilant, e.g. *yäšbi* 'boire' [CTC474] from the root *SWʔ and *yäẓbər* 'devancer' [CTC616] from the root *ZWR. It is very well possible that the process occurred in a broader range of phonetic contexts, but examples are rare; in any case there is no counter-evidence to a rule *dw > *ḏb*. The main problem with this derivation is that the Tuareg verb is also attested in Zenaga, albeit in a derived form: *yəssəḏbih* (pl. *aʔn*) 'partir l'après-midi' [CTC93]. The latter form has an unexplained variation between vowel-final and glottal-stop-final forms; however, the vowel is never long like in *yäbḏīh* ~ *yäḏbīh*. One may note that in *yəssəḏbih* (pl. *-aʔn*), a reconstruction with a glottal stop would fit the Tuareg verb well, which has the variation in the final vowel typical of -C* verbs.

Zenaga long vowels often correspond to *H, and this could very well be the case of *yäbḏīh* ~ *yäḏbīh*. Unfortunately, the verb *ddu* is not with certainty attested in the varieties that provide evidence for the presence of ancient *H in final position, viz. Ghadames (> *ḇ*), Mali Tuareg (> *h*), Awjila (> *v*) and the Zenatic varieties (> *i*).
<NZ.II. 407; Taine-Cheikh (2008: 94) compares it with Tashelhiyt and Middle Atlas *ddu*>.

11. Conclusions

In the foregoing paragraphs, Zenaga final-weak verbs have been compared to their non-Mauritanian counterparts. A summary of the results, based on the etymologies that were judged to be strong, is presented in table 2.

Table 2. Strong etymologies linking Zenaga and non-Mauritanian final-weak verbs

	-CV	**-CH**	**-Cy**	**-Cw**	**-Ct**
Z2 -v#	3	1	2		
Z3 -v̄#	2	7	1		
Z4 -v/-v̄#			4		2
Z5 -v~-v̄#	2	1			
Z6 -*g*#			11	4	

outcome of *l has lead to a variant *tḏäbbäll* [CTC93] in the singular with back-formation showing non-etymological *ll* (normally < *lt).

As is clear from this table, there are in most cases strong tendencies as to the correspondences, both if one takes the non-Mauritanian Berber categories as the point of departure and if one starts from the Zenaga categories:

(a) The most common correspondence of *-CH has a stable long vowel in Zenaga (-v̄#)
(b) The most common correspondence of *-Cy has final -*g* in Zenaga (-*g*#), except if there is another (labial)-velar consonant in the stem. In the latter case, one often finds variation between short vowels in suffixless forms and long vowels in suffixed forms (-v/-v̄#).
(c) *-Cw verbs correspond to -*g*# verbs in Zenaga
(d) The two strong examples of the *-Ct group both have Zenaga cognates with variation between short vowels in suffixless forms and long vowels in suffixed forms (-v/-v̄#).

The *-CV group, however, shows an erratic distribution in its cognates, corresponding to three Zenaga types in roughly equal numbers (see below).

If one starts from the Zenaga categories, the following image arises:

(a) The large majority of Z3 (-v̄#) verbs have cognates with *H in other Berber varieties.
(b) The cognates of Z4 (-v/-v̄#) verbs have *-Cy or *-Ct.
(c) The cognates of Z6 (-*g*#) verbs have a semivowel, *-Cy or *-Cw.

The situation is less clear with Z2 (v#) verbs and Z5 (v~v̄#) verbs.

If one assumes that the reconstructed non-Mauritanian categories go back to proto-Berber, one can rephrase the preceding observations as rules,[16] keeping the *-CV verbs apart for the time being:

Proto-Berber *-H#	> Zenaga -v̄# (Z2)
Proto-Berber *-y#, *-w#	> Zenaga -g# (if no labial-velar or velar is present) (Z6)
	> Zenaga -v/-v̄# (if a labial-velar or velar is present) (Z4)
Proto-Berber *-t#	> Zenaga -v/-v̄# (Z4)

[16] These are rules concerning morphological correspondences. No doubt part of them are in fact phonological rules (as has been shown for *H in Kossmann 2001b). Still I prefer to remain agnostic about other cases, as long as the historical phonology of Zenaga is full of question marks.

One may assume that the verbs that do not follow these rules – in all categories less than a quarter of the verbs that were studied – have undergone a change of category. In view of the similarity between many of the categories, sporadic change of this kind are far from unexpected.

There is another interesting observation to be made. Zenaga has two categories where short and long final vowels are in variation. In one category, -v/v̄# (Z4), this variation is morphologically predictable, in that suffixless forms have short vowels and suffixed forms a long vowel. In the other category, there is unpredictable (possibly free) variation in suffixless forms, while forms with an inflectional suffix have the long form. This is category Z5, v~v̄#. If one only looks at the form, it would be logical to consider Z5 a sub-class of Z4, in which the long vowel of the suffixed forms has been introduced to the suffixless forms as a free variant. However, the study of the cognates of these verbs shows that there is little overlap between the two categories. Z4 is a minor pattern found mainly with verbs that end in a semivowel or *-t* elsewhere. The three strong etymologies with pattern Z5, on the other hand, all belong to the verb types -CV and -CH. This suggests that Z4 and Z5 have entirely different histories.

This brings us to the -CV verb type. Among the *-CV-verbs that have strong etymologies, three belong to Z2 (-v#), two belong to Z3 (-v̄#) and two belong to Z5 (-v~-v̄#). Probably the easiest way to understand this is that the Z2 (-v#) is the regular correspondent of *-CV verbs, but that they are in a process of being integrated into Z3 (-v̄#), i.e. the category that corresponds to final *H verbs. Z5, which is restricted to *-CV and *-CH as far as strong etymologies are concerned, would in fact reflect the variation due to this ongoing process. It would not be a category on its own, but a statement of the fact that a verb has two correspondents due to this conflation. Interestingly, and maybe detrimental to this proposal, a number of *-Cy verbs belong to Z2 (-v#) rather than to expected Z4 (v/v̄#). Assuming that the morphologically conditioned variation between short and long vowels represents the original correspondent of this class, this would mean that they were levelled out in favor of a pattern that is in the process of being obliterated itself.

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