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Putten, M. van

Citation

Putten, M. van. (2014). Some notes on the Historical Consonantism of Awjila. *Folia Orientalia*, 51, 257-274. Retrieved from <https://hdl.handle.net/1887/54749>

Version: Not Applicable (or Unknown)

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

Marijn van Putten

Universiteit Leiden

SOME NOTES ON THE HISTORICAL CONSONANTISM OF AWJILA¹

Abstract: This article discusses three issues of the historical consonantism of Awjila: First, the origin of the *k* that corresponds to *y* in other dialects. Second, the origin of the phoneme *q* in native Berber words. Finally, it discusses the origin of the sibilants in Awjila and their Berber origins.

Keywords: Awjila, Berber, Proto-Berber, historical linguistics, historical consonantism.

1. Introduction

The Awjila language is a Berber language spoken in the Oasis of Awjila, in Libya, about 350 kilometers south of Ajdabiya, and 400 kilometers west of the nearest Berber-speaking oasis, Siwa in Egypt.

Awjila preserves several ancient features such as the Proto-Berber **β*, **ə* in open syllables and *a*, presumably ancient, phonemic accent. While these

¹ In this article a variety of Berber dictionaries are consulted to provide comparative evidence. The languages and their respective abbreviation and source are: Sokna (Sok.), Sarnelli (1924); Nefusa (Nef.), Beguinot (1942); Siwa, Naumann (2012, unpubl.); El-Foqaha (Fq.), Paradisi (1963); Mali Tuareg (Mali To.), Heath (2006); other Tuareg dialects (H.: Ahaggar, N.: Niger, W.: Iwellemeden, Y.: Ayer), Ritter (2009); Zenaga (Zng.), Taine-Cheikh (2008); Ghadames (Ghd.), Lanfry (1973); Kabyle (Kb.), Dallet (1982); Ouargla (Ouar.), Delheure (1987); Mzab (Mzab), Delheure (1985); Middle Atlas Berber (MA), Taifi (1992); Figuig (Fig.), Kossmann (1997); Tashelhiyt (Tashl.), Destaingu 1920.

The short vowel *ə*, sometimes written as <e> in these sources is always written as *ə*. The Ghadames transcription is based on the transcription used in Kossmann (2013).

Several other abbreviations are used: 3sg. for third person singular; sg. and pl. for singular and plural; m. and f. for masculine and feminine; impf. for imperfective. Unless stated otherwise, verbs are cited in the imperative; Stative verbs in the third person singular form.

I would like to thank Maarten Kossmann and Lameen Souag for commenting on early drafts of this paper.

features have received considerable attention (Kossmann 1999, Beguinot 1924, Prasse 1989), much is still unknown about the historical phonology of Awjila.

The most important source on the Awjila language are the word list and texts by Umberto Paradisi (1960a;b). The data presented here is all taken from these two sources unless explicitly stated otherwise. The transcriptions used here are a phonemic interpretation of Paradisi's highly phonetic transcriptions (for an analysis, see van Putten 2014).

The Awjila consonant system has not changed much from Proto-Berber. It has lost *ʔ (Kossmann 2001, Taine-Cheikh 2004) like many other Berber languages, but it has retained Proto-Berber *β as *v* (e.g. *avəʔ* 'night', cf. Kb. *iɖ* 'id.'). Most other consonants remain unchanged. It is worth noting that the emphatic dental stop is always a voiceless *t* and never a voiced *ɖ* and that a long *ww* does not yield *gg^w* as it does in other languages.

While these general features of Awjila are clear and well-established, three other features have a more subtle effect on the reflexes of Berber words in Awjila. These three features will be discussed in more detail in this article. The first feature is the retention of a velar stop **k* in Awjila where it has shifted to *y* in all other Berber languages. Secondly, Awjila has a short *q* that corresponds to *k* in other Berber languages. Finally, we will discuss the reflexes of Proto-Berber **s* and **z* which are variously reflected as *s* or *š* and *z* or *ž*.

2. Awjila **k* ~ *ø*/*y*

There are several words in Awjila which have a consonant *k* in a position where other Berber languages seem to have lost it.

Awj. *təkəmmušt* 'bundle of sticks', cf. Kb. *tayəmmust* (also *tawəmmust*) 'bundle';

Tashl. *taymmust* 'bundle'

Awj. *tkərrišt* 'knot', cf. Tashl. *tayrrist* 'id. '; Kb. *tiyərsi* 'knotting'

The two words listed above are both deverbal nouns, that have an initial root consonant *y* while their corresponding verb has an initial consonant *k*, cf. for example Kb. *əkməs* 'to tie in a bundle', and Kb. *əkrəs* 'to tie a knot'. These verbs are also attested in Awjila: *kmáš* 'to tie in a bundle', *kəráš*, *əkráš* 'to tie a knot'.

In several languages, the *k* is analogically reintroduced into these deverbal nouns on basis of the verb that retains the *k*, e.g. Ouar. *təkəmmust* 'small bundle, satchet'; To. *tekārrest* 'knot'.

Awj. *tkərzá* 'ploughing', ² cf. Kb. *tayərza* 'id. '; Tashl. *tayrza* 'id. '; Chenoua *hayrza* 'winter, second harvest' (Laoust 1912: 142); Zuara *tirza*, *tayərza* 'id. ' (Serra 1978: 332); Nef. *tirzâ* 'id. '; Ghd. *tərza* 'sowing'

² This word is not attested in Paradisi's material. It is only attested in Beguinot (1921: 384). Beguinot transcribes it as <tkirzâ>. This short vowel <i> probably stands for /ə/. We find two

This is a widely attested verbal noun formation derived from the well-known Berber verb for ‘to plough’, e.g. Kb. *əkrəz*. In Awjila the verb form is *kəṛāš*, *əkrāš* ‘to plough’ and it has a final root consonant *š* rather than the expected *z* or *ž*. This irregular correspondence causes this verb to be homophonous with *kəṛāš*, *əkrāš* ‘to tie, knot’, mentioned above.

These three words are discussed by Kossmann (1999: 192-193) and he suggests that they represent a Pan-Berber shift **V̄kə > *V̄jə* (Kossmann 1999: 202-204). It seems that Awjila has not partaken in this otherwise Pan-Berber shift.

One might consider that Awjila reintroduced these *k* consonants by analogy to the corresponding verb, which retains the consonant *k* in all Berber languages. In the case of *tkərzá* it is difficult to argue for such an explanation because the verb does not have a consonant *z*. If analogy played a role, one would expect that this consonant would have also been corrected to correspond to the verb.

Another reason why analogy does not seem to be the reason for the retention is the fact that there is one attested noun which is not derived from a verb. In all Berber languages we find that this word has undergone the shift **k > y*, except in Awjila, where *k* is retained:

Awj. *təkədirt* ‘ear (of a plant)’, cf. MA *taydər̄t* ‘ripe ear’; Kb. *tayədrətt* ‘id.’; Tashl. *taydr̄t* ‘id.’; Fig. *taydər̄t* ‘id.’; Foq. *tádr̄i* ‘id.’; Nef. *tiddért* ‘id.’; Mzab *taydər̄t* ‘ears’; Ouar. *taydər̄t* ‘id.’; Ghd. *tašaddart*³ ‘ear of grain’.

Because there is no analogical basis on which the presence of *k* could be analogically reintroduced, *k* cannot be the result of an analogy. We can therefore conclude that Awjila did not partake in this Pan-Berber shift, and retains a velar consonant *k* in a position where all other Berber languages have lost it.

3. *k > q

Most Berber languages have a phoneme *y* which, when lengthened, is reflected as *qq*, for example Figuig aor. *nəy* impf. *nəqq* ‘to kill’. Instances of short *q* are almost always the result of a loan from Arabic (e.g. MA *ssuq* ‘market’ <Ar. *sūq* ‘id.’). In Awjila however, *qq* is not the regular lengthened variant of *y* (e.g. aor. *ánəy* impf. *nəyya* ‘to kill’) and we find several examples of short *q* in native Berber words where other Berber languages have *k*, cf.

cases where Beguinot’s <i> corresponds to an <ə> or <e> in Paradisi’s transcription, where it is probably to be analyzed as a /ə/: Beguinot (1921: 386, 391; 1925: 330) <tagirīšt, tīgirīšt>, Paradisi <tegerīšt> for /təgərišt/ ‘winter’ and Beguinot (1921: 386) <tižīri>, Paradisi <težīr> for /təžiri/ ‘small rope’.

³ Ghadames has a *š* instead of the expected *y*. The origin of *š* in Ghadames is not well understood.

Awj. (*ə*)qləz ‘to lie’, cf. Foq. *ǒklaz* (/ǒkləz/? ‘to lie’, *tillāz*, *tillāz* ‘lie’; To. *əkləz* ‘to lie’; Siwa *taɫɫaz* ‘pretence, deceit’, *ləqluz* ‘lie’,⁴ *aqluzi* f. *taqluzət* ‘liar’; Sok. *ǒklez* /əkləz/? ‘to lie’, perhaps Ghd. *tullezt* ‘story’.

Awj. *qārəz* ‘to be narrow, tight’, cf. To. *ikraz* ‘to be tight’; Mzab *kruṣ* ‘to be narrow’

Awj. *tqárṭay* pl. *tqartīwīn* ‘paper’, cf. To. *tākərde* ‘id.’; Mzab *tkirḍa* ‘id.’; Ouargla *tkirḍa*, *tkurḍa* ‘id.’; Ghd. *takərḍa* ‘id.’; Siwa *tyarṭa* ‘id.’⁵

Awj. *tuqərṭa*, *tuqərṭá* ‘theft’, cf. Ghd. *tukərḍa* ‘theft’; Kb. *tukkʷərḍa* ‘theft’; Foq. *tukérḍā* ‘theft’; Sok. *tukərṭá* ‘theft’; Siwa *tikʷərṭa* ~ *tikurṭa* ‘stealing’

In these four examples listed above, we find that every time a consonant *k* attested in the other Berber languages it has shifted to *q* in Awjila. Each time, this *k* originally preceded an emphatic consonant. In case of the *t* in *tqárṭay* and *tuqərṭa* this emphatic consonant is still present. In case of (*ə*)qləz and *qārəz*, the emphasis on the *z* has not been transcribed in Awjila, but comparative evidence leaves little doubt that the emphasis was originally there.

It is not entirely clear whether the absence of the emphasis in these two words is a feature of Awjila, or whether this is an imperfection Paradisi’s transcription.

Paradisi’s transcriptions usually reflect Berber *z* as *z*, e.g.:

Awj. *zmək* ‘to sew’, cf. Ghd. *āzmək* ‘id.’; To. *əzməy* ‘to be sewn’; Zng. *ažmug* ‘to sew’

Awj. *timzín* ‘barley’, cf. Foq. *túmzīn* ‘id.’; Kb. *timzín* ‘id.’; Ghd. *təmzet* pl. *təmzén* ‘id.’; Nef. *ṭāmzín* ‘id.’; Sok. *tímzīn* ‘id.’; Siwa *tumzen* ‘id.’

Awj. *zum* ‘to fast’, cf. Ghd. *zúm* ‘id.’; To. *əzum* ‘id.’ Kb. *uzum* ‘id.’; Zng. *užum* ‘id.’

Awj. *zzák* ‘to be heavy’, cf. Ghd. *zak* ‘id.’; To. *izak* ‘id.’; Kb. *azay* ‘id.’; Zng. *ažz(ə)ag* ‘id.’

There are two other cases where *z* is absent, where we would expect it to be present due to the comparative evidence:

⁴ This is an Arabic *fuṣūl* Mašdar formation, derived from a Berber verbal root. The verb itself is no longer attested in Siwa, and has been replaced by a periphrastic construction *yəktər taɫɫaz* lit. ‘to bring deceit’. Siwa does not usually form verbal nouns with Arabic formations. There is one other instance of a *fuṣūl* formation from a Berber root: *ssmuṭ* ‘coldness, coolness (of weather)’ (Souag p.c.) from the Berber root SMT ‘to be cold’ also attested as an Adjective in Siwa *ašəmməṭ* ‘cold’

⁵ Perhaps this form of Siwa is an example of the **Vʔə > *Iʔə* shift, but all other Berber languages retain *k* which points to an original consonant **k*, rather than **k* (see also Kossmann 1999:197-199).

Awj. *yəllúz* ‘to be hungry’, cf. Ghd. *laṣ* ‘id.’; Kb. *əllaṣ* ‘id.’; Siwa *luṣ* ‘to be hungry’
Awj. *azarif* ‘alum’, cf. Kb. *aṣarif* ‘alum’; Ghd. *aṣarif* ‘alum’

It is difficult to decide whether Paradisi sometimes failed to record emphasis of *ṣ* or whether the emphasis was actually lost after the shift **k > q* had taken place.

3.1. An Arabic loanword with *q < *k*

The Eastern Libyan Arabic word *kabbūt* ‘coat’ (Panetta 1964: s.v. Capotto) has been borrowed into Awjila as *əlqəbbūt* ‘coat’. Just like the native words listed above, this word has undergone the shift of **k > q* in front of an emphatic consonant.

3.2. Other consonants that changed to *q*

There are several examples of *q* where other Berber languages have a consonant that is not *k*, nor *q* or *ɣ*. For some of these words, Awjila may have had a consonant *k* in an earlier stage of development, e.g.:

Awj. *taqəzzəlt* pl. *taqəzzəlin* ‘kidney’, cf. Kb. *tigəzzəlt* ‘id.’; Nef. *tigezzelt* ‘id.’; To. *tagəzzəlt* ‘id.’; Ghd. *tagəzzəlt* ‘id.’; Siwa *taggəlt* ‘id.’

Awjila *q* appears to correspond to Berber **g*. This unexpected correspondence may be understood as an early widespread voicing assimilation of **k* to the following voiced **zz* in the other Berber languages: **takəzzəlt > taqəzzəlt*. If such an assimilation has indeed taken place, this shift can be understood as a regular **k > q* shift in front of an emphatic consonant.

Awj. *aqəttūs* pl. *qəttūsən*; f. *taqəttūšt* pl. *taqəttūštīn* ‘cat’; *tqəttas* ‘cats (coll.)’, cf. Ghd. *takaṭṭust* ‘id.’; Nef. *qattūs* ‘cat’; Sok. *yattūs* ‘cat’; Siwa *yattus* ‘cat’.

The variation of Berber *ɣ~k* in this word is irregular (Kossmann 1999: 198). Ghadames has the variant with the consonant *k*. If the original consonant was also *k* in Awjila, the presence of *q* can be considered the regular result of the sound shift **k > q*. Note that Nefusi, surprisingly, also has *q* as its initial consonant. This may perhaps be explained as expressive use of the *q* as described by Kossmann (1999: 243).

However, this word for ‘cat’, is also attested in the Maghrebi Arabic dialects, e.g. Benghazi Ar. *gattūs*, Takroûna Ar. *qattūs*, Djerba Ar. *qattūsa* (Behnstedt & Woidich 2011: 327), and as Kossmann (2013: 67) suggests, the forms with initial *q* in Awjila and Nefusi may be re borrowings from Arabic back into Berber, in which case the *q* in Awjila would not be an example of the **k > q* shift.

Awj. *aqāžīt* pl. *qužīt* ‘rooster’ f. *təkažīt*, *təgažīt* pl. *təkažītīn*, *təgažītīn* ‘chicken’, cf. Foq. *yazīt*, *yazīd* ‘rooster’; Ghd. *ažīd* ‘rooster’; Kb. *ayazīd* ‘rooster’, *tayazīt* ‘chicken’; Zng. *āwāžūd*, *āwāyžūd* ‘rooster’, *tāwāžūD* ‘chicken’; Siwa *yazīt* ‘rooster’, *tyazətt* ‘chicken’

This root has a lot of variation in the initial consonant across the various Berber languages. Basset (1959) provides a detailed discussion, and also Kossmann (1999: 212) shows that this root seems to have variation of the initial consonant between *y~g~ø~b*. While the historical development of this word is unclear, we may perhaps understand the Awjila form when we compare its masculine and feminine forms.

For reasons that are not entirely clear, the feminine form lacks the final emphatic consonant *t*. A similar loss of *t* in the feminine is found in *azīt* pl. *ziṭān*; f. *təzīt*, *tizīt* pl. *tzittīn* ‘donkey’. The feminine form does not have the initial *q* instead it has a variable initial consonant *k~g*. It seems likely that Awjila *q* originally came from the *k* variant that is also found in the feminine, which then shifted to *q* under influence of the emphatic consonant *t* found in the masculine form which is absent in the feminine form.⁶

There is one instance of *q* which seems to come from an earlier *w* that precedes the emphatic consonant *t*, cf.

Awj. *aqəttāt* pl. *qəttātən* ‘nit’, cf. To. *āwəḍ* ‘nits’; Zng. *ūḍ(d)an* ‘nit(s)’; Kb. *iwətt* ‘nit’; Ghd. *aṭṭāḍ* ‘nit’; Siwa *aqṭəṭ* ‘nit’

It is perhaps possible that root initial *w* also shifted to *q* in front of emphatic consonants, but there is no other evidence, or counterevidence for such a development within the available Awjila material. Notice that Siwa, like Awjila, has *q* in position of *w*. Perhaps this form is better explained as an expressive formation with *q*.

3.3. Conclusions

From the above examples it seems that all instances of **k* shifted to *q* in front of emphatic consonants *t* or *z*.

This has an interesting implication on the historical phonology of *q* in Awjila. The *q* in this shift behaves as if it is an allophone of the velar *k* in an emphatic environment, thus functioning as an emphatic velar *ḳ*. While in Berber languages, *q* often causes other consonants to become emphatic, there are no examples in other Berber languages where emphatic consonants cause a *k* to shift to *q*.

⁶ But consider Kossmann (1999:212⁴) who suggests that the masculine and feminine forms come from two different roots, where the feminine is to be compared to To. *tekāzitt* ‘chicken’. This explains the lack of emphasis, but it fails to explain the variation of *k~g* in the initial consonant which rather resembles the broad variations found in the masculine forms.

4. The sibilants *s*, *z* and *š*, *ž*

Awjila has six sibilant consonants *s*, *š*, *ʃ*, *z*, *ž*, *ʒ*, the emphatic consonants mostly have a predictable origin, *ʃ* comes from Arabic loanwords, while *ʒ* comes from the Berber *ʒ*. The origin of *s*, *š*, *z*, *ž* is less clear. As Kossmann (1999) convincingly shows, Proto-Berber only had two sibilant phonemes **s* and **z* and perhaps a marginal phoneme **š*. His conclusions on the Berber sibilants can be summarized as follows:

- Instances of *ž* either comes from Maghrebine Arabic *ž* or from Proto-Berber **ǵ*
- Long *žž* may come from the Proto-Berber or Pre-Proto-Berber cluster **zy*.
- *š* comes from Proto-Berber **ḳ*, and may occasionally come from a Proto-Berber marginal phoneme **š*
- Long *šš* may also be marginally phonemic in Proto-Berber, but may come from **sy*.
- *s* and *z* come from the well-attested Berber **s* and **z*.

In Awjila, the origin of the palatal *š* and *ž* cannot be readily attributed to the developments as listed above. The following section will discuss the various origins of the Awjila sibilants.

4.1. *š* and *ž* from Proto-Berber palatovelars **ḳ* and **ǵ*

Generally, the Proto-Berber palatovelars **ḳ* and **ǵ* are reflected as *k* and *g* in Awjila, e.g.

Awj. *əfk* ‘to give’, cf. Ghd. *ākf* ‘id.’; Kb. *əfk* ‘id.’; Mzab *uš* ‘id.’; Ouar. *uš* ‘id.’; Fig. *weš* ‘id.’; Foq. *aš* ‘id.’

Awj. *kəm* ‘you (f.)’, cf. Ghd. *šāmm* ‘id.’; Kb. *kəmm* ‘id.’; MA *kəm* ‘id.’; Fig. *šem* ‘id.’; Foq. *šēmmi* ‘id.’; Sokna *šēm* ‘id.’

Awj. *kíra* (or: *kāra*) ‘thing’, cf. Ghd. *kara* ‘id.’; Ouar. *šra* ‘id.’; Mzab *šra* ‘id.’; Foq. *šíra* ‘id.’; Zng. *kārā(h)* ‘id.’

Awj. *twəllkin* ‘lice’, Ghd. *təllkén* ‘id.’; Kb. *tilkin* ‘id.’; Mzab *tilšin* ‘id.’; Ouar. *tilšin* ‘id.’ *təvərgát*, *tvərgát* ‘dream’, cf. Ghd. *taḃārgot* ‘id.’; Kb. *targit* ‘id.’; MA *tawargit*; Ouar. *tiržet* ‘id.’; Mzab *tiržet* ‘id.’; Fig. *tiržett* ‘id.’

Awj. *agəllid* ‘head of a tribe’, cf. Kb. *agəllid* ‘king’; MA *agəllid* ‘id.’; Ouar. *Ažəllid* ‘id.’; Mzab *ažəllid* ‘id.’; Ghd. *ašəllid* ‘id.’

Awj. *agətīt* ‘bird’, cf. Ghd. *agədiḃ* ‘id.’; Zng. *agḃud* ‘id.’; To. *ejādeḃ* ‘id.’; Fig. *aždiḃ* ‘id.’; Mzab *aždiḃ* ‘id.’; Ouar. *aždiḃ* ‘id.’; Foq. *žadiḃ* ‘id.’; Sokna *aždit* ‘id.’

But there are three cases where **ḳ* and **ǵ* are reflected as *š* and *ž*, the first is the word for ‘village’ which in most other languages means ‘earth’ or ‘land’:

Awj. *ašāl* ‘village’, cf. Ghd. *ókāl* ‘earth’; Kb. *akal* ‘id.’; Zng. *aḡgäy* ‘id.’; Siwa *šal* ‘country’; Rif. *šar* ‘earth’

The word *əmžər* ‘to reap, mow’ has a *ž* for **ǵ*, but notice that the noun *imgər*, *yəmgər* ‘sickle’, derived from the same root has a reflex *g*. Ghadames also has an unexpected reflex *ž* in the verb.

Awj. *əmžər* ‘to reap, mow’, cf. Foq. *émžer* ‘id.’; Nef. *émger*, *ámger* ‘id.’; Siwa *əmžər* ‘id.’; Ghd. *əmžər* ‘id.’; Kb. *mgər* ‘id.’; Ouar. *mžər* ‘id.’; Mzab *mžər* ‘id.’

Awj. *imgər*, *yəmgər* ‘sickle’, cf. Kb. *amgər* ‘id.’; Foq. *amžér* ‘id.’; Nef. *měžér* ‘id.’; Sokna *amžér* ‘id.’; Siwa *amžīr* ‘id.’; Ouar. *amžer* ‘id.’; Mzab *amžer* ‘id.’

Another word where Awjila reflects **ǵ* as *ž* is *taržàlt* ‘wing’. Also here, Ghadames has the unexpected *ž* reflex.

Awj. *taržàlt* ‘wing’, cf. Sokna *taržàlt* ‘feather’; Ghd. *taržalt* ‘id.’; Zng. *tärgäL* ‘id.’

From the evidence above it is clear that there is a marginal tendency in Awjila to reflect the **k* and **ǵ* as *š* and *ž*. Even within the same root of one of the words we find variation. The geographically closest Berber languages of Awjila (El-Foqaha, Sokna and Siwa) all have the reflexes *š* and *ž*. Perhaps contact with these languages has caused this irregular sibilant reflex to appear in some of the words in Awjila.

4.2. *ž* from Proto-Berber **z*

There are three cases where *ž* appears to correspond to Berber *z*, there are too few examples to determine whether there is any conditioning behind this development. The regular reflex of **z* is *z* (see section 3).

Awj. *əžž* ‘to plant’, cf. Nef. *əžžā*, *éžžā* ‘id.’; Sokna *ö*žžu* ‘id.’; Ghd. *əžž* ‘id.’; Kb. *əžžu* ‘id.’

Awj. *əžəḷ* ‘to grind, mill’, cf. Foq. *əžəd* ‘id.’; Nef. *ežd* ‘id.’; Siwa *zṭay* ‘id.’; Ghd. *əžəḷ* ‘id.’; To. *əžəd* ‘id.’

Awj. *žin* ‘to divide’, cf. Foq. *izin* ‘id.’; Nef. *zūn* ‘id.’; Siwa *zan* ‘id.’; Ghd. *əžən* ‘id.’; Zng. *ažun* ‘id.’; To. *ùžan* ‘to divide, share’

Note that for *žin* ‘to divide’ we find a non-emphatic form in El-Foqaha too. Kossmann (1999: 210) also cites Zuara and Zenaga as lacking emphasis in the verb. But Taine-Cheikh (2008) confirms emphasis for Zenaga and Mitchell (2009) confirms Zuara to have emphasis, as it is attested in the text with emphasis several times, e.g. *at=twázu-n* ‘they would be divided’ (p. 292).

4.3. š and ž from Proto-Berber *s and *z

The vast majority of the instances of š and ž come from Proto-Berber *s and *z, but not all cases of *s and *z have shifted to š and ž. There are three roots which seem to have variation between š~s and ž~z in the root.

The first example is the word *ísəm* ‘ear’, which only has a cognate in Ghd. *ésəm* ‘id.’, Bynon (1984: 255) suggests that this word is originally Proto-Berber, and that it related to the common Berber word for *tasumta* ‘pillow’ (through a semantic development ‘thing one places his ear on’ > ‘pillow’, cf. French *oreiller*). But, unlike the word *ísəm*, the word for ‘pillow’ has a š in the root in Awjila: *tašúmt* ‘pillow’, cf. Kb. *tasumta*, *tasummta* ‘id.’; Nef. *tsūmtā* ‘id.’; Sokna *tsūmti* ‘id.’; Siwa *tsənti* ‘id.’⁷

If these two words indeed come from the same root with root initial consonant *s*, Proto-Berber **s* becomes both *s* and š.

In a similar manner, we find a pair of nouns from the same root, one with *z* and the other with ž: *tkənzírt* ‘nose’ (cf. Foq. *tinzért* ‘id.’; Kb. *tinzərt* ‘id.’; Nef. *tinzért* ‘id.’; To. *tīnšārt* ‘id.’; Siwa *tanzārt* ‘id.’; Sokna *tunzā*rt* ‘id.’; Zng. *tīnžārt* ‘id.’) and *fənzər* ‘to bleed from the nose’ (cf. Ghd. *fənzər* ‘id.’; Kb. *ffunzər* ‘id.’; To. *hūnšər* ‘id.’; Zng. *ūnžər* ‘id.’; Siwa *izənfār idammən* ‘id.’)

There is one more words that shows alternation within a single root: *ažəydiš* ‘rib’, which is a well-attested compound word in Berber, cf. MA *aṣədis* ‘rib’; Mzab *asəydis* ‘side of the chest, flank’.

Originally, this word was a compound of *iyəs* ‘bone’ and *adis* ‘belly’. Awjila has undergone metathesis, similar to Mzab, moreover, the sibilant has been voiced, probably due to its original proximity to the voiced consonant *d* before the metathesis occurred. But, the Awjila word *aṣəst* ‘bone’, has an *s* instead of š. In the compound this *s* seems to have become š and then voiced to ž.

4.4. š~s variation in the causative prefix

In the verbal system, we find some alternation between *s* and š from original **s*. For some verbs the causative prefix can either be *s-* or the regular *š-* this seems to be motivated by the presence of a *s*, *z* or *ž* in the root:

š-*əgzəl*, *s-əgzəl* ‘to shorten, lower’, derived from the stative verb *gəzzəl* ‘to be short, low’. The verbal noun derived from this verb only has the form with *s*: *asəgzəl*
š-*əyzəf*, *s-əyzəf* ‘to lengthen’, derived from the stative verb *yəzzəf* ‘to be long’
š-*əts*, *s-əts* ‘to make someone laugh’ derived from *əts* ‘to laugh’
s-əzik, *s-əgzək* ‘to heal someone’ does not have a variant with š-, it is derived from the verb *zik* ‘to become well’

⁷ Also note Figuig *samu* ‘pillow’, and To. *sumə-t* ‘place one’s head or feat on (cushion)’. The element *-t-* in the *tasumta* and *tasumti* words is perhaps related to this final *-t* found in the Tuareg verb.

s-əzwər ‘to make swell’ also lacks an *š-* variant. It is derived from the stative verb *zəwwər* ‘to be large’.

s-əzzík ‘to make heavy’, derived from the stative verb *zzák* ‘to be heavy’.

One time we find a verb with only the causative prefix *š-* while there is a *z* (from **z*) in the root: *š-əqrəz* ‘to make narrow’ from the stative verb *qárəz* ‘to be narrow’

There is one other word that does not have an *s*, *z* or *z* in the root that has the causative prefix variant *s-*: imp. sg. *š-úkər*; impf. 1sg. *s-ukár-x* ‘to cause to steal’

The presence of *s-* as the causative prefix seems to be present as the result of sibilant harmony between the prefix and the root. This does not explain the presence of the consonants *s* and *z* in the roots, rather than the more common *š* and *ž*. The alternation between the *š-* and *s-* causative prefix is probably the result of analogy. *š-* is the regular form of the causative prefix. Paradigmatic pressure must have caused the words that have *s-* due to sibilant harmony to adopt the more common form with *š-*.

4.5. Lack of distribution of *s* and *š*

The variation between *s* and *š* from etymological **s* does not appear to be conditioned in any way. The matrix below lists the environment in which the consonant **s* can occur in Berber. As can be seen from these examples, words with the reflex *š* and *s* are found in the same environment in most cases. There are some environments where we do not find reflexes, but this seems to be due to the rarity of the environment or scarcity of data rather than a true distribution. Environments where the reflex listed is the only word in this environment have been marked with an (1x) behind the word.

	C	V	ə	#
C		<i>təkšáymt</i> ‘watermelon’ <i>ksúm</i> ‘meat’	<i>šəkšek</i> ‘to winnow’ <i>ənsəg</i> ‘to whistle’	<i>aʔs</i> ‘to laugh’ (1x)
V	<i>tədúšt</i> ‘belly’	<i>tašúmt</i> ‘pillow’		<i>fəšúš</i> ‘to be agile’
	<i>tammást</i> ‘in the middle’	<i>temasút</i> ‘boil, pimple’	<i>ásəy</i> ‘to buy’	<i>afús</i> ‘hand’
ə	<i>təšlít</i> , <i>təšlilt</i> ‘bride’	<i>fəšúš</i> ‘to be agile’ (1x)		<i>əyrəs</i> ‘to slaughter’
	<i>tamásna</i> ‘the outside’		<i>əsəl</i> , <i>ásəl</i> ‘to hear’ (1x)	<i>trəs</i> ‘to braid hair’
#		<i>šu</i> (or <i>šəw</i> ?) ‘to drink’ <i>sas</i> ‘to beg’	<i>šəkšək</i> ‘to winnow’ (1x)	

There are only a few examples where a long consonant *ss is reflected, but in the few cases we have, both the reflexes ss and šš appear in similar environments.

ššən ‘to know’, cf. Ghd. šsən ‘id.’ ~ (ə)ssən ‘to send’, cf. perhaps Ghd. ázən ‘id.’
fšssən ‘hands’, cf. MA *afus* ‘hand’ ~ wššən ‘swords’, cf. Siwa *awəss* ‘sword’.
tnəššát ‘sleep’, cf. To. *āns* ‘to sleep’ ~ itəssá ‘to spread a mat’ (impf.3sg.m.), cf. Nef. *éssa* ‘id.’

4.6. Lack of distribution of z and ž

Similar to the two voiceless sibilants, there seems to be no distribution between the two voiced sibilants.

	C	V	ə	#
C		<i>twəžít</i> ‘root (plant)’ <i>tkirzá</i> ‘ploughing’	<i>fənžər</i> ‘to bleed (nose)’	
V		<i>aqažít</i> ‘rooster’ <i>abazín</i> ‘flour dish’	<i>ažəvú</i> , <i>ažəvu</i> ‘hair’ <i>azədúz</i> ‘hammer’	<i>iž</i> ‘to be sold’ < *ənz <i>ayíz</i> ‘necklace’
ə	<i>(ə)žvə́t</i> ‘to measure’ <i>əzmər</i> ‘to be able’	<i>təžíri</i> ‘small rope’ <i>agəzán</i> ‘cutting dates’	<i>təžər</i> ‘moon’	<i>žígəž</i> ‘to walk’ <i>agəz</i> ‘to cut’
#		<i>žígəž</i> ‘to walk’ <i>zík</i> ‘to become well’	<i>zəwəy</i> ‘to be red’	

There are only a few cases of žž from *zz in Awjila, they appear in similar environments as zz:

gəzzəl ‘to be short’, cf. Ghd. *gəzzəl* ‘id.’ ~ *inəžžəy* ‘to draw water’ (impf.3sg.m.), cf. Ghd. *ānzəy* ‘to pull’.
agəzzún ‘orphan’, cf. Siwa *agzun* ‘id.’ ~ *inəžža* ‘to be sold’ (impf.3sg.m.), cf. Ghd. *ānz* ‘to sell’.

Due to space limitations, it is not possible to give a full account, with etymological notes for all the words that contain an s, š, z or ž in Awjila. In the appendix at the end of this article, a list of words that contain these sibilants has been included, together with a single Berber cognate. For more complete etymological notes on these words, I refer to the lexicon in my grammar of Awjila (van Putten 2014).

4.7. Conclusion

As is visible from the examples above, there is no obvious conditioning of the development from Proto-Berber *s to s ~ š or *z to z ~ ž. Because there are no conditioning factors, we must consider whether the contrast is retention in Awjila, rather than an innovation.

Such an idea does not seem unreasonable. Berber is an Afro-Asiatic language, and Afro-Asiatic is sometimes reconstructed with as many as 12 different sibilant and affricate consonants (e.g. Takács 2011: 6). Berber only retains three sibilants and no affricates, so one expects that a large amount of these consonants have merged into the present sibilants. The possibility that one Berber language retained some contrasts where all other Berber languages have merged these sounds is not outside the realm of possibility.

But the hypothesis of a retention of contrast between a Proto-Berber *s and *š and *z and *ž in Awjila cannot be the sole origin of the double reflexes of the Proto-Berber sibilants. We have several examples where we find variation between *s and *š and *z and *ž within the same root. Thus, we must conclude that the phonemic contrasts of s ~ š and z ~ ž cannot exclusively represent a historical retention. Instead, there must have been an irregular shift of s, z > š, ž.

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Appendix

This appendix present the data that has been collected for the research on the distribution of š ~ s and ž ~ z. All the lexical items have been categorized by their environment, and a single Berber cognate has been included, whenever possible, references to the comparative data in Naït-Zerrad (1998-2002) and Taine-Cheikh (2008) have been included.

CsV: 1x š, 4x s

təkšáymt pl. *təkšaymín* ‘watermelon’, cf. Siwa *taməksa* ‘watermelon’
ksúm ‘meat’, cf. Kb. *aksum* ‘meat’
tsígit, *tsígi* pl. *tsigitín* ‘rib’, cf. Kb. *tasga* ‘side’
t(ə)sili pl. *tsiliwín* ‘sandal’, cf. Ghd. *tasile* ‘sandals for traveling’
tíxsi ‘head of a sheep or goat’ pl. *tíxsiwín* ‘flock, cattle’, cf. Kb. *tíxsi* ‘sheep’

Csə: 3x š, 1x s

tšəllišt ‘shadow’, cf. Ouar. *tsallast* ‘darkness’
tšərímt ‘gut’ pl. *tšərmín* ‘intestine’, cf. Mzab *tasrəmt* ‘bowels’
šəkšək ‘to winnow barley’, cf. To. *səksək* ‘sift couscous’
ənsəg ‘to whistle’, cf. MA *sinseg* ‘to whistle’

Cs#: 0x š, 1x s

aʃs ‘to laugh’, cf. Zng. *aʃsi(?)* ‘to laugh’ (TC:140 [259])

VsC: 8x š, 3x s

išf ‘day’, cf. Zng. *aʃ* ‘day’ (TC:506 [928])
təməqqúšt ‘dung, manure’, cf. To. (D N WE Y) *taməqqost* ‘dung’
išyər pl. *šyírən* ‘firewood’, cf. Zng. *äššaʔr* ‘tree’ (TC: 473 [880])
iškər pl. *škirən* ‘nail’, cf. Zng. *əskär* ‘nail’ (TC: 463 [860])
ištən pl. *ištínən* ‘a shoemakers awl’, cf. Kb. *tistənt* ‘awl’
təgərišt ‘winter’, cf. Zng. *tgärS* ‘cold season, winter’ (TC: 219 [434])
təništ pl. *tniš*, *tnišin* ‘key’, cf. Ghd. *tonest*, *tonéss* ‘key’
tədušt ‘belly’, cf. Kb. *tadist* ‘stomach, belly’
ayást ‘bone’, cf. Zng. *iʔsi(?)* ‘bone’ (TC: 52 [85])
tíst n agəwál ‘mirror’, cf. To. *tisset* ‘mirror; eyeglasses’
tammást ‘in the middle’, cf. To. *ámmas* ‘middle, center, inside’

VsV: 2x š, 3x s

pf. *yušá=d* ‘to come’, cf. Zng. *äšši(?)* ‘to come, arrive’ (TC: 471 [878])
tašúmt pl. *tašumín* ‘pillow’, cf. Kb. *tasumta*, *tasummta* ‘pillow’
tísi ‘liver’, cf. Zng. *taʔšāh* ‘liver’ (TC: 52 [87])
asín pl. *sínən* ‘tooth’, cf. To. *ésen* ‘tooth’
təmasút pl. *təmasutín* ‘boil, pimple’, cf. Kb. *timmist* ‘boil, carbuncle, pimple’

Vsə: 0x š, 5x s

ásəy ‘to buy’, cf. Zng. *ǎʔši(?)* ‘to buy, pay’ (TC: 54 [89])
asək, usək ‘to take away’, cf. MA *asy* ‘to take’
əsəl, ásəl ‘to hear’, cf. Kb. *səl* ‘to listen’
isəm pl. *smiwən* ‘ear; handle of a basket’, cf. Ghd. *ésəm* ‘ear’
tisənt ‘salt’, cf. Ghd. *tésənt* ‘salt’

Vs#: 7x š, 5x s

anış ‘nickel’, cf. Tashl. *anas* ‘copper’.
iš ‘to sleep’, cf. Zng. *ǎnši(?)* ‘to spend the night’ (TC: 404 [758])
flalış pl. *flulış* ‘inflorescence’, cf. Nef. *teftillést* pl. *teftillās* ‘inflorescence’
fəšúš ‘to be agile’, cf. Kb. *ifsus, ufsus* ‘to become light’
awiš pl. *wiššən* ‘sword’, cf. Siwa *awəss* ‘sword’ (Naumann unpubl.)
ažəydiš ‘false rib?’, MA *ayəsdis* ‘rib’
aqatış ‘cat’, cf. Siwa *yatış* ‘cat’ (Naumann unpubl.)
ařus pl. *fissən* ‘hand’, cf. Zng. *ǎvuʔš* ‘hand’ (TC : 143 [266])
sas ‘to beg’, cf. Nef. *sāsa* ‘to beg’
ařunās pl. *funasən* ‘ox’, cf. Kb. *tafunast* ‘cow’
anařus ‘right’, cf. Ghd. *anřus* ‘right’; Kb. *ayeffus* ‘right’
ařfus, infus pl. *ařfusən, infusən* ‘sleeve’, cf. To. H. *ahānfous* ‘sleeve’

əsC: 1x š, 1x s

təšlīt, təšlilt ‘bride’, cf. Sok. *taslīt* ‘bride’
taməsna ‘the outside’, cf. Ghd. *tamasna* ‘desert’

əsV: 1x š, 0x s

fəšúš ‘to be agile’, cf. Kb. *ifsus, ufsus* ‘to become light’

əsə: 0x š, 2x s

əsəl, ásəl ‘to hear’, cf. Kb. *səl* ‘to listen’
twəss (or *təwəss?*) ‘bed’, cf. To. *təwsett* ‘simple mat for sleeping’

əs#: 9x š, 3x s

kəřáš ‘to tie a knot’, cf. Kb. *əkrəs* ‘to tie in a knot’
iráš ‘to descend’, cf. Kb. *ərs* ‘to descend’
ədráš ‘to decrease’, cf. Zng. *ǎdráš* ‘to be discrete’ (TC: 118 [216]; NZ: DRS 1)
gəbáš ‘to gird’, cf. Zng. aor. 3sg.m. *yəwgəš* ‘to gird, put on a belt’ (TC: 258 [555])
əy(ə)řáš ‘to slaughter’, cf. Zng. *ořráš* ‘to be slaughtered’ (TC: 51 [82])
ayáš ‘to love’, cf. Siwa *xəs* ‘to love, want’ (Naumann unpubl.)
kmáš ‘to tie together a bundle’, cf. Zng. *ǎgmáš* ‘to be in a knot’ (TC: 196 [375])
(ə)kkáš ‘to take off, remove’, cf. Zng. *ǎkkáš* ‘to remove, take off’ (TC: 304 [610])
qqəšš / qqəš/? ‘to close’, cf. Siwa *qqəs* ‘to lock a door with a key or bar’ (Naumann unpubl.)
řrəs ‘to braid hair’, cf. Siwa *řrəs* ‘to plait’ (Naumann unpubl.)
twəss (or *təwəss?*) ‘bed’, cf. To. *tawsett* ‘simple mat for sleeping’
iləs pl. *ilsən, ilsánən* ‘tongue’, cf. Zng. *əTʔši(?)* ‘language’ (TC: 522 [945])

#sV: 1x š, 1x s

šu (or *šəw?*) ‘to drink’, cf. Zng. *āšbi(?)* ‘to drink’ (TC: 474 [881])
sas ‘to beg’, cf. Nef. *sāsa* ‘to beg’

#sə: 2x š, 0x s

šákšək ‘to winnow barley’, cf. To. *sāksāk* ‘sift’
ššən ‘to know’, cf. Zng. *āssən* ‘to know’ (TC: 467 [869])

#sC: 2x š, 0x s

šfət ‘to clean’, cf. Kb. *sfəd* ‘to wipe, clean’
šmút ‘cold’, cf. Zng. *šāmmud* ‘to be cold’ (TC: 485 [896])

əss#: 0x š, 2x s

əss ‘to spread a mat’, cf. Nef. *éssa* ‘id.’
təwəss ‘bed’, cf. To. *tāwsett* ‘simple mat for sleeping’

əssə: 1x š, 2x s

ššən ‘to know’, cf. Ghd. *āssən* ‘id.’
(ə)ssən ‘to send’, cf. perhaps Ghd. *ázən* ‘id.’
inəssəg ‘to whistle’ (impf.3sg.m.), cf. ma *sinsəg* ‘id.’

Vssə: 1x š, 1x s

wīššən ‘swords’, cf. Siwa *awəss* ‘sword’.
fīssən ‘hands’, cf. MA *afus* ‘hand’

əssV: 1x š, 0x s

tnəššát ‘sleep’, cf. To. *āns* ‘to sleep’

CzV: 1x ž, 3x z

twəržít pl. *twəržín* ‘root of a plant’, cf. Zng. *tāguržāh* ‘underground root’
gzín pl. *gzínən* ‘dog’, cf. Ghd. *əgzén* ‘puppy, small dog’
tkənzírt pl. *tkənzirín*, *tkənzír* ‘nose’, Berber, cf. Zng. *tīnžärt* ‘nose’ (TC: 273 [559])
tkirzá ‘ploughing’, cf. Kb. *tayərza* ‘ploughing’

Czə: 2x ž, 0x z

fənzər ‘to bleed (from the nose)’, cf. Zng. *ūnžər* ‘to bleed from the nose’ (TC: 551 [993])
nžáy ‘to pull; to draw (water without an animal)’, cf. Ghd. *ānzəy* ‘to pull’

VzV: 2x ž, 5x z

ažikər ‘large rope (also made of *ižvín*)’, cf. Nef. *zukér*; *zukár* ‘rope’
aqažít pl. *qužít* ‘rooster’, cf. Kb. *ayaziđ* ‘rooster’
abazín ‘tagliatelle made of flour of wheat’, cf. Kb.
abazin ‘dish made of flour, tubers, arum and several herbs’
izi n agmár ‘horse fly’, cf. Kb. *izi* ‘fly’

azáləq pl. *zuliq* ‘billy goat’, cf. Siwa *zalaq* ‘billy goat’ (Naumann unpubl.)
aziṭ pl. *ziṭán* ‘donkey’, cf. Ghd. *ažéd* ‘donkey’
aziwáy pl. *ziwáyən* ‘a bunch of dates’, cf. Fig. *aziwa* ‘stem of a female palm’

Vzə: 1x ž, 5x z

ažəvú, ažəvu pl. *ažəvúwən* ‘hair’, cf. Ghd. *azaw* ‘hair’
azəlmát ‘left’, cf. Zng. *žäymuḍ* ‘left-handed’ (TC: 728 [1140])
ázən ‘next year’, cf. Siwa *azən* ‘id.’
azərg pl. *zərgən* ‘stone’, cf. MA *azerg* ‘handmill’
zúžər ‘to winnow’, cf. Fig. *zzuzzər* ‘to winnow’
azədúz ‘(wooden) hammer’, cf. Kb. *azduz* ‘mallet’

Vz#: 1x ž, 4x z

iž ‘to be sold’, cf. Ghd. *ānz* ‘to sell’
ayíz pl. *yízzən* ‘necklace’, cf. Siwa *ayez* ‘necklace’ (Naumann unpubl.)
təmiṭást pl. *təmiṭaz* ‘scissors’, cf. Ghd. *tamiḍást* ‘scissors’
arəgáz pl. *rəgázən* ‘individual’, cf. Zng. *ärägäž* ‘man’ (TC: 438 [810])
azədúz ‘(wooden) hammer’, cf. Kb. *azduz* ‘mallet’

əzC: 1x ž, 1x z

(ə)žvət ‘to measure (cereals)’, cf. Ghd. *āzβəḍ* ‘to measure’
əzmór ‘to be able’, cf. Ghd. *āzmər* ‘to be able (physically)’

əzV: 1x ž, 1x z

təžiri pl. *tžiriwín* ‘small rope’, cf. Ghd. *tazara* ‘rope’
agəžáv ‘cutting the bunches of dates from palms’, cf. Ghd. *ağəžāβ* ‘a palm whose leaves have been cut off’

əzə: 1x ž 0x z

təžər ‘moon’, cf. Kb. *tiziri* ‘moonlight’

əz#: 1x ž, 2x z

žígəž ‘to walk’, cf. Zng. *ižīgž* ‘walking’
dýəz ‘to sing’, cf. Ghd. *díz* ‘to dance’
agəž ‘to cut’, cf. Ghd. *gəzgəz* ‘to be torn out, torn up with teeth’

#zV: 1x ž, 2x z

žígəž ‘to walk’, cf. Zng. *ižīgž* ‘walking’
žik ‘to become well, recover, heal (intrans.)’, cf. Zng. *āžžig* ‘to heal’ (TC: 629 [114])
zúžər ‘to winnow’, cf. Siwa *zuzər* ‘to winnow’; Fig. *zzuzzər* ‘to winnow’

#zə: 0x ž, 2x z

zəwwəy ‘to be red’, cf. Zng. *žəbhä(?)* ‘to be red’ (TC: 615 [1114])
zəwwər ‘to be large’, cf. Ghd. *zuwwər* ‘to be thick’

əzzə: 0x ž, 3x z

gəzzəl ‘to be short, low’, cf. Ghd. *ǧəzzəl* ‘to be short’

ɣəzzəf ‘to be long, be high’, cf. Zng. *oʔZuf* ‘to be long’ (TC: 63 [105])

zərr, zzər pl. *zərrən* ‘back’, cf. perhaps Kb. *azagur* ‘back’

Vzzə: 0x ž, 2x z

ázzəl ‘to run (imperative only); to have bowel movement’, cf. Kb. *əzzəl* ‘to run’

(ə)zzV: 0x ž, 1x z

zzíl ‘iron’, cf. Zng. *uzzäy* ‘iron’ (TC: 612 [1109])