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## **A Grammar of Awjila Berber (Libya) : based on Umberto Paradisi's material**

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# Chapter 2

## Phonology

Because of the limited material we have available for Awjila, it is impossible to give an account of the phonology as thorough as one would like. This means that we will have to deal with several *a priori* assumptions on the phonology.

It is assumed that the consonants that Paradisi distinguishes in his transcription, are mostly phonemic. For the vast majority of these consonants it is not possible to establish minimal pairs, so such assumptions cannot be confirmed. The system is quite typical for a Berber language, except for a few peculiarities. Awjila has a well-established contrast between *f* and *v*, not present in most other Berber languages, and it has a contrast between short *ɣ* and *q* in native words. In most Berber languages *qq* is the long counterpart of *ɣ*.

As for the vowels, the assumption that Paradisi's transcription represents the phonemic reality cannot be upheld. The vast amount of different vowel signs used in his transcription would imply that Awjila had one of the largest vowel inventories in the world. Considering that all Berber languages have between three (Tashelhit, see Dell & Elmedlaoui 1985) and seven (Touareg, see Kossmann 2011: 20) vowels, such a conclusion does not seem likely. Moreover, we find seemingly free variation between certain vowel signs, often within a single text.

### 2.1 Consonants

The following table shows the consonant inventory of Awjila. The consonants marked as emphatic in the table, are clearly distinct from the regular consonants, but it is unclear what this entails. In general the term emphatic refers to pharyngealized consonants. But in Awjila, we cannot be sure whether these consonants are truly pharyngealized. Therefore I have decided to stick to the less specific term emphatic.

|             | Lab. | Dent. | Pal. | Vel. | Uvul. | Phar. | Glott. |
|-------------|------|-------|------|------|-------|-------|--------|
| stop        |      | t, d  |      | k, g | q     |       |        |
| emph. stop  |      | ṭ, ḍ  |      |      |       |       |        |
| fric.       | f, v | s, z  | š, ž |      | x, ɣ  | ħ, ʕ  | h      |
| emph. fric. |      | ṣ, ḏ  |      |      |       |       |        |
| nasal stop  | m    | n     |      |      |       |       |        |
| emph. nasal | (ṁ)  |       |      |      |       |       |        |
| sonorant    |      | l, r  |      |      |       |       |        |
| emph. son.  |      | ḷ, ṛ  |      |      |       |       |        |
| semivowel   | w    |       | y    |      |       |       |        |

### 2.1.1 Consonantal contrasts

Different from most other Berber languages which have no voicing contrast of the labial fricatives, Awjila has a contrastive voiced labial fricative *v* that regularly corresponds to the Proto-Berber \**β* (Kossmann 1999: 61-135). There is, however, a certain amount of free variation between *b* and *v* in a number of words, as well as some variation between *v* and *f*.

Variation between *v* and *b* is found in *abíba*, *avíva* ‘smallpox’, *abán*, *aván* ‘to build, construct’, *anəbdúr*, *anəvdúr* ‘rope harness for animals’.

The variation between *v* and *f* is found in word-final position in *ágzəv*, *əgzáf* ‘to cut the bunches of dates from palms’ and *əɣəv*, *əɣf* ‘milk’. As a result of optional voicing assimilation to the following *x* it also occurs in the perfective, resultative and imperfective 1sg. of *arəv*, *úrəv* ‘to write’: *uráfɣ*; *urífxa*, *urívxa*; *tarəvx*, *taráfɣ*.

There is one example of variation between *v* and *f* in a different position: the plural of the word *təvúrt*, *təvvúrt* (?*təvvúrt*) is *dvurr*, *dfurr* ‘door’. Beguinot (1924) discusses this variation in detail, providing several examples collected during his own fieldwork. He cites a variation <tefuret> besides <tevûrt> for ‘door’ and also <əževû> besides <əževû> ‘hair’, whereas Paradisi only has <aževû, ažévû>.

A large percentage of the Proto-Berber consonants \**s* and \**z* have become *š* and *ž* respectively. The contrast between the dental and palatal sibilants has not been lost completely, even though the limited nature of the corpus does not provide for more than a couple of minimal pairs to support this claim. Nevertheless, the fact that the alveolar and the palatal sibilants occur in similar phonetic contexts strongly indicates that the difference is contrastive.

Two minimal pairs of *s* to *š* are found in Paradisi:

*təbəlɸùst* ‘eyeball’ ~ *təbəlɸùšt* ‘bulb of an onion’<sup>1</sup>

<sup>1</sup>The close semantic link between these two words suggests that the distinction may have come from a transcription error. Paradisi lists these words under the same lemma, with distinct transcription and meaning. This indicates that Paradisi perceived these two words as contrastive.

*ṭras* ‘to braid hair’ ~ *ṭraš* ‘to vomit’

There are only a few examples of apparent free variation between *s* and *š*, all to be found in the causative prefix: *š-əgzəl*, *s-əgzəl* ‘to shorten, lower’; *š-əyzəf*, *s-əyzəf* ‘to lengthen’; imp. sg. *š-ùkər*, impf. 1sg. *s-ukàrx* ‘to cause to steal’.

The contrast of the emphatic consonants *l*, *r* and *m* is not adequately marked in Paradisi’s transcriptions. One time, Paradisi transcribes *r* with a <ṛ>: <ṛábbī> ‘God’, while other times he does not for this same word. *l* and *m* are never marked in Paradisi’s transcriptions, and can only be inferred from the spelling of the surrounding vowels (see section 2.2).

### 2.1.2 Consonantal length

Consonants can be short or long,<sup>2</sup> length being indicated in the transcription by doubling of the consonant. Berber languages often have consonants that undergo changes when they are lengthened—a fact visible in morphological alternations. Notable changes are: *w* becoming *gg<sup>w</sup>* and *ɣ* becoming *qq*. In Awjila, however, there is no synchronic variation between *w* and *gg<sup>w</sup>*, nor is there any evidence for morphological variation between *ɣ* and *qq*. The long counterpart of *w* is *ww* and the long counterpart of *ɣ* is *γγ* as can be seen in the verbs *ərɰák* ‘to knead’, impf.3sg.m. *irəwwək* and *ənəɣ* ‘to kill’, impf.3sg.m *inəyya*.

There seems to be variation in consonant length with the consonant *ν*. Thus the verb *avár* ‘to close (from the inside)’ has fut.3sm *a-ivár*, *a-ivvár*, while the impf.3sm invariably is *itavvár*. We also find variation of consontal length in the word *təvíurt*, *tavvúrt* (?*təvvúrt*) ‘door’.

Simple consonants in front of long consonants are sometimes lengthened. This is most obvious in verbs of the patterns |cəcəc| and |cvċ| (see sections 4.3.3.14 and 4.3.3.18. Most verbs of this type are of Arabic origin, even though the Arabic forms do not have a lengthened initial consonant. The table below lists the verbs that show this alternation.

|  |  |
|--|--|
| <i>ddəwwàrnət</i> , <i>idəwwàr</i>                   | cf. ELA <i>īdəwwər</i> ‘to look for; to search’  |
| <i>yəkkəmməl</i> , <i>kəmməlx</i> ‘to finish’        | cf. Ar. <i>kammala</i> ‘to finish’               |
| <i>rrəwwəḥən</i> , <i>irəwwəḥ</i> ‘to return (home)’ | cf. ELA <i>īrowwəḥ</i> ‘to return (home)’        |
| <i>issəlləm</i> , <i>səlləmən</i> ‘to greet’         | cf. LA <i>səlləm</i> ‘to greet’                  |
| <i>yəmmùdd</i> ‘to extend’                           | cf. Ar. <i>madda</i> ‘to extend; to stretch out’ |
| <i>illùm</i> ‘to gather, to stay together’           | cf. Ar. <i>lamma</i> ‘to gather’                 |

<sup>2</sup>There exists a discussion on whether long consonants are mono-phonemic tense consonants or bi-phonemic geminates (Galand 1997). As this grammar aims to be a description of the language, and not a discussion on the theoretical analysis, the neutral term “long” consonant has been used.

Not all verbs of these types have lengthening, e.g. *yaxəmmám* ‘to think, ponder’ and *hussix* ‘to feel’ are only found with a short initial consonant; with the limited size of our corpus, it is possible that the absence of a lengthened form is accidental.

### 2.1.3 Affricates

It is unclear whether the affricates *č* and *ǵ* should be interpreted as separate phonemes, or as sequences of /tš/ and /dž/ respectively.

The sequences /tš/ and /tǵ/ (or /dž/) found in feminine plurals whose roots start with *š* or *ǵ* are always transcribed with affricates by Paradisi. These affricates can be readily interpreted as consonantal sequences.

In other cases, it is less easy to determine what the phonemic analysis of these fricatives should be.

In one case, *ǵǵ* in a root is treated as /dž/. The verb *əǵǵ, ədž* ‘to let go’ is clearly interpreted as a phonemic sequence /ədž/ as can be seen from its verbal noun formation *adəžžü*.

It is not possible to show that such a reinterpretation has taken place with the root *əčč* ‘to eat’ whose verbal noun is *əččü*.

## 2.2 Vowels

Paradisi has a complicated system of vowel notation (using over forty signs in total), which is highly explicit in phonetic detail, and does not aim at a phonemic representation or analysis. Beguinot (1942: 5), writing on Djebel Nefusa Berber, gives an explanation of this system. There are twelve basic vowel signs, which are presented in the table below and accompanied with their IPA equivalent.

|            | Front | Front Rounded | Back  |
|------------|-------|---------------|-------|
| Close      | i [i] |               | u [u] |
| Near close | ɛ [ɪ] |               | ũ [ʊ] |
| Close mid  | e [e] | ö [ø]         | o [o] |
| Open mid   | ɛ [ɛ] |               | ɔ [ɔ] |
| Near open  | ä [æ] |               |       |
| Open       | a [a] |               | å [ɑ] |

These basic vowel signs may be modified by five diacritics which denote length and accent. The available diacritics are:

|              |                  |
|--------------|------------------|
| v            | Short unaccented |
| acute accent | Short accented   |
| tilde        | Long unaccented  |
| circumflex   | Long accented    |
| breve        | Extra short      |

The transcription system allows in principle for every diacritic to combine with every vowel sign. However, Paradisi does not employ all possible combinations of vowel signs in his transcriptions. The vowel signs in use in Paradisi's transcriptions are displayed in the table below.

|               |               |
|---------------|---------------|
| i, í, î, ï, ı | u, ú, û, û, ı |
| ē, é, ê       | ũ, ũ, û       |
| e, é, ê, ě    | o, ó, ô, ǒ    |
| ē, é, ǒ       | ö             |
| ä, á, ā, â, ă | â, á, ā, â    |
| a, á, ā, â, ă |               |

There can be no doubt that this complicated system is a phonetic representation of a phonemically less elaborate system. Other Berber languages have between 3 and 7 vowel qualities and at most two length distinctions. The transcription system has 12 vowel types and 3 length distinctions. Through careful analysis we are able to uncover how these phonetic signs should be interpreted in terms of phonology.

### 2.2.1 Long vowel signs

In all Berber languages, we find a contrast between so-called plain vowels, and central vowels. The difference between these two sets of vowels can be identified in several ways. First, the plain vowels always have more contrasts than the central vowels. For example, Tuareg has five plain vowels: *a, i, u, e, o* and two central vowels *ə, ǣ* (Kossmann 2011: 20), while Figuig has three plain vowels: *a, i, u* and one central vowel *ə* (Kossmann 1997: 49ff.). Moreover, the quality of the central vowels, as the name suggests, is more central than the plain vowels. The plain vowels often take up the vowel slots of the periphery [a, i, u] the central vowels take up central values such as [ə, ɐ]. Usually, the plain vowels are also longer than the central vowels.<sup>3</sup>

It is safe to assume that Paradisi did not employ long vowel signs to write the central vowels. The long vowels <â, î, û, ā, ī, ū> are well-attested and they show a three-way contrast, and stand for the vowels [a:, i:, u:]. These features lign up perfectly with the

<sup>3</sup>For a general discussion on vowels and their phonemic status in Berber languages in general, see (Galand 2010: 73ff.).

definitions of Berber plain vowels, and therefore we may assume that these long vowel signs stand for the vowels /a/, /i/, /u/. Long vowels written with *e*- and *o*-signs only appear in their accented notations <ê> and <ô> and never as unaccented long vowels. They almost exclusively appear in words of Arabic origin.

<â, î, û, ā, ī, ū> are often interchangeable or in complementary distribution with <á, í, ú, a, i, u>. This clearly indicates that at least part of the signs written without indication of length also represent the plain vowels.

In monosyllabic words, the initial vowel of nouns is written long:

|                |           |
|----------------|-----------|
| āġëv, āġf, âġf | ‘milk’    |
| ām             | ‘mouth’   |
| ûl             | ‘heart’   |
| īzd            | ‘spindle’ |

An exception to this is the word for ‘day’ which is found both with a long and a short initial vowel: *išf, īšf, išf* ‘day’

Four monosyllabic prepositions that start with a long initial syllable seem to have free variation between the long vowel signs and the short vowel signs in word-initial position.

|        |                          |
|--------|--------------------------|
| ar, ār | ‘to, towards’            |
| id, īd | ‘with (comitative), and’ |
| i, ī   | Dative preposition       |
| ir, īr | ‘until’                  |

The unaccented long vowels /a, i, u/ are never written with the long vowel signs in the initial syllable of polysyllabic words. We only find <a, i, u>

|          |         |
|----------|---------|
| afīš     | ‘face’  |
| afīu     | ‘fire’  |
| agmâr    | ‘horse’ |
| tagmârëť | ‘mare’  |
| irīu     | ‘boy’   |
| tirīut   | ‘girl’  |
| tuqértā  | ‘theft’ |

The sign <a> is also found as the initial vowel of Arabic loanwords that have the Arabic article *al*-. This sign probably represents the phonetically long vowel /a/. In most cases, the Arabic article is represented by *al*- in Awjila.



|                  |                               |
|------------------|-------------------------------|
| albâșîret        | ‘willingly’                   |
| alîdâm           | ‘butter’                      |
| alhâžet          | ‘thing’                       |
| alégmet          | ‘friday’                      |
| alimam           | ‘imam’                        |
| al‘áded, el‘áded | ‘number’                      |
| alûlî            | ‘midday, noon; midday prayer’ |

In absolute initial position, the accented long vowels /a, i, u/ are only written as short accented <á, í, ú>. Cases of <á, í, ú> after an initial consonant are very rare, and they are the result of regular shortening of the long vowels in closed syllables in word-internal position (see below).

|        |                           |
|--------|---------------------------|
| ávot   | ‘night’                   |
| ísem   | ‘ear; handle of a basket’ |
| úmā    | ‘my brother’              |
| gmâren | ‘horses’                  |
| mîwɛn  | ‘mouths’                  |
| grûțân | ‘tree trunks’             |
| žárren | ‘abdomens, bellies’       |
| vírren | ‘walls’                   |

An exception is <túwög> /tùwəg/ ‘food, meal, plate’.

In word-final position, there is partly free variation and partly complementary distribution of the short and long vowel notations <ā, ī, ū, a, i, u>.

Word-final <ī> and <i> are interchangeable and represent /i/:

|                |         |
|----------------|---------|
| bâhi, bâhī     | ‘good’  |
| tfilli, tfillī | ‘house’ |
| tëgîli, tëgîlī | ‘head’  |

Word-final accented /i/ is rare and is written as <î>. The one exception to this is the verbal noun <arennú, arénnu, arenní> ‘increasing, adding, auction’.

|             |                  |
|-------------|------------------|
| tîsî        | ‘egg, genitalia’ |
| dděřî       | ‘thorn’          |
| izî n agmár | ‘horse fly’      |

The distribution of word-final /a/ and /u/ is more complex. /u/ appears to be written as <u> after a long accented vowel in an open syllable, in other environments it is written as <ū>.

|        |                          |
|--------|--------------------------|
| Gílu   | ‘Jalu’                   |
| klâbu  | ‘very thick animal skin’ |
| adérrū | ‘pressing’               |
| adéžžū | ‘letting go of’          |
| agérrū | ‘gathering, assembling’  |

There is one exception: <arennú, arénnu, arenní> ‘increasing, adding, auction’

Word-final accented /u/ is only found twice. One example is the word <arennú> cited above, the other word is <aževû><sup>4</sup> ‘hair’.

The distribution of <a> and <ā> in word-final position is not entirely clear. There are only two examples of vacillating notations like we find for /i/: pf. 3sg.m. <yúna, yûnā> ‘to enter’, impf. 3sg.m. <ittéttā, itétta> ‘to eat’. As a general rule it seems that /a/ is written as <a> after a vowel in an open syllable, and usually written <ā> after an accented vowel in a closed syllable. There are exceptions to this, for example the resultative clitic /=a/, which is always written <a>.

|                                  |                       |
|----------------------------------|-----------------------|
| abîba, avîva                     | ‘smallpox’            |
| res. 1sg. bnîḥa 3sg.m. ibnâya    | ‘to build, construct’ |
| res. 1sg. ěddírḥa 3sg.m. yeddîra | ‘to live’             |
| dîla                             | ‘here’                |
| tábġā                            | ‘tobacco’             |
| pf. 3sg.m. yéččā                 | ‘to eat’              |
| impf. 3sg.m. idéžžā              | ‘to let go of’        |
| impf. 3sg.m. igérrā              | ‘to read’             |
| wértnā                           | ‘my sister’           |
| sétmā                            | ‘my sisters’          |

But:

|                   |                    |
|-------------------|--------------------|
| tabérka           | ‘sesame (seeds)’   |
| bážža             | ‘penis (of a boy)’ |
| áčča              | ‘grave’            |
| res. 2sg. tudînta | ‘to wear’          |
| úmā               | ‘my brother’       |
| mámā              | ‘my older brother’ |
| nánā              | ‘my grandmother’   |

/i/ and /u/ clearly do not have phonemic length distinction in word-final position. This is not as obvious for /a/ as the distribution between <a> and <ā> cannot be fully

<sup>4</sup>This word is also found with penultimate accent: <ažévū>

explained. Nevertheless, there is no clear evidence in favour of a length distinction in this position, and the two examples with variation rather suggest the contrary.

Word-final accented /a/ is not very common, and mostly occurs in perfective 3sg.m. verbs with a final alternating vowel. In this position it is written both <â> and <á>, but never with the same verb. It is unlikely that some roots have a long vowel in this position whereas others have a short vowel. From a comparative perspective there is no reason to assume such a distinction either. Nevertheless, we only find free variation between <á> and <â> once, in the relative pronoun <alâ, alá>.

|                  |                        |
|------------------|------------------------|
| pf. 3sg.m. ibnâ  | ‘to build, construct’  |
| pf. 3sg.m. idrá  | ‘to press; to massage’ |
| pf. 3sg.m. yefká | ‘to give’              |
| pf. 3sg.m. yaqlâ | ‘to roast’             |

A similar irregular distribution is present in the impf. 3sg.m. of these verbs. Note that three of the imperfectives mentioned below correspond to the perfectives cited above, and that the length distinction does not correspond regularly.

|                     |                        |
|---------------------|------------------------|
| impf. 3sg.m. iderrâ | ‘to press; to massage’ |
| impf. 3sg.m. ifekká | ‘to give’              |
| impf. 3sg.m. igerrá | ‘to gather, assemble’  |
| impf. 3sg.m. iqallâ | ‘to roast’             |

Word-internally, there appears to be complementary distribution in the use of the long vowel signs and the short vowel signs. In open syllables, the long vowel signs are used, while in closed syllables the short vowel signs are used.

|                |                    |                  |               |
|----------------|--------------------|------------------|---------------|
| bâhi           | ‘good’             | tebāqûlt         | ‘jar, vase’   |
| bâlek          | ‘maybe’            | tebārût          | ‘way, street’ |
| ıpl. abbá-tnah | ‘our father’       | taqqîd, taqqîden | ‘fingers’     |
| bázza          | ‘penis (of a boy)’ |                  |               |

|        |                           |           |                     |
|--------|---------------------------|-----------|---------------------|
| adîrem | ‘masculine inflorescence’ | alîdâm    | ‘butter’            |
| tfigît | ‘animal excrement’        | ddrîwîn   | ‘thorns’            |
| dîmmen | ‘blood’                   | tfiggîşt  | ‘swallow’           |
| tîdnî  | ‘mortar’                  | tfillî-yî | ‘towards the house’ |

|                   |                     |                    |                   |
|-------------------|---------------------|--------------------|-------------------|
| 3sg.f. dërûšet    | ‘to be few, little’ | dbûš-énnes         | ‘his/her clothes’ |
| pl. grûţân        | ‘tree trunks’       | flûliš             | ‘inflorescences’  |
| kúll              | ‘all’               | čču-nnâḥ           | ‘our meal’        |
| pf. 3sg.m. işúmma | ‘to cook’           | imp. pl.m. llummât | ‘to gather’       |

There are several exceptions to this:

|          |                           |
|----------|---------------------------|
| tābazârt | ‘basket’                  |
| tfidîrt  | ‘lizard (monitor lizard)’ |
| funāsen  | ‘oxen’                    |

In accented word-final syllables with a plain vowel, usually the long notation is used.

|          |                     |
|----------|---------------------|
| tebîṭ    | ‘type of palm tree’ |
| elbâb    | ‘door’              |
| tebâqûlt | ‘jar, vase’         |

<â, â̂> and their accented counterparts <â̂, â̂̂> stand for the vowel /a/. Often both spellings alternate with the usual <â, â> spellings. There seems to be no obvious conditioning environment to the variants <â̂, â̂̂>. On the other hand, <â̂, â̂̂> are clearly conditioned by emphatic or uvular consonants (but <temmâya> appears to be an exception to this.<sup>5</sup>)

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| ġâr, ġâr                            | ‘but’                                |
| iwînân, iwînân                      | ‘one (m.sg.)’                        |
| res. 3sg.f. temmâya, 3sg.m. yemmâya | ‘to be cooked, be ready, be ripened’ |
| tmoqqârânt, tmoqqârânt              | ‘large (f.sg.)’                      |
| ëlmeġġâret, elmoġġâret(-î)          | ‘cave’                               |
| elqâḍî, ëlqâḍî                      | ‘judge’                              |
| wâllâhî, wâllâhî /wəllâhi/          | ‘by God (I swear)’                   |
| tâġâfi, tâġâfi                      | ‘palm leaf’                          |

The short accented counterparts <â̂> and <â̂̂> are occasionally used to denote /a/, although they more commonly stand for accented /ə/ (see below):

<sup>5</sup>This *mm* is the result of an assimilation of Proto-Berber \**nw*. In Ouargla it has become a long emphatic labial nasal *mm̐*. The value of the vowel may be an indication that in Awjila the cluster \**nw* has also yielded an emphatic *mm̐*.

|                                 |   |
|---------------------------------|---|
| štâf, štâf                      | ‘black (m.sg.)’                                   |
| ațâr, ațâr                      | ‘foot’  |
| ușâlen, ușâlen                  | ‘they arrived’                                    |
| impf. 1sg. qallâh 3sg.m. iqallâ | ‘to roast’  |
| ărrafâqâ-nnes, ărrafâqâ-nnes    | ‘companions’ (cf. Ar. <i>rufaqa</i> ‘companions’) |

Similarly, in a number of cases, unaccented <ă, â> correspond to /a/, Usually, however, they represent unaccented /ə/ (see below).

|                                 |         |
|---------------------------------|---------|
| țârîn, țârîn(-nûk)              | ‘feet’  |
| ağâst pl. gâstîn                | ‘bone’  |
| têkâbert, têkabêrt pl. tekâbrîn | ‘shirt’ |

Instances where the short notations <ă, â> demonstrably represent /a/ are rare (the examples above form an exhaustive list). Most instances of these vowel signs probably stand for the short vowel ə. As for <ă, â> the situation is more problematic. A considerable amount of instances of <ă> cannot be assigned with certainty to either /a/ or /ə/. Some feminine nouns have an initial <tă-> prefix. In Awjila, a feminine noun may either have the prefix /ta-/ or /tə-/. Nouns with this initial prefix could either stand for /ta-/ or for /tə-/.

|                             |                                       |                      |
|-----------------------------|---------------------------------------|----------------------|
| täkemmûšt                   | /takəmmûšt/ or /təkəmmûšt/            | ‘bundle (of sticks)’ |
| tâkrûmt                     | /takrûmt/ or /təkrûmt/                | ‘joint of a bone’    |
| tâmnît                      | /tamnît/ or /təmnît/                  | ‘jar, vase’          |
| tâmaqqušt                   | /taməqqûšt/ or /təməqqûšt/            | ‘dung, manure’       |
| tâvurît dvurîtîn            | /tavurît/ or /təvurît/                | ‘small plate, tray’  |
| tâbazârt                    | /tabazârt/ or /təbazârt/              | ‘basket’             |
| tâmûrt, temûrt, tmûrt       | /tamûrt/ or /təmərt/ or /tmûrt/       | ‘earth’              |
| tâvergât, dvergât, tavergât | /tavərgât/ or /dvərgât/ or /təvərgât/ | ‘dream’              |

Other words where <ă> cannot with certainty be determined to stand for either /a/ or /ə/ are:

|                      |  |
|----------------------|--|
| akârbûš              | ‘trunk of a palm tree’                     |
| kâššîn               | ‘cores of fruits’                          |
| amâsâl               | ‘crossbar between the two poles of a well’ |
| âzân                 | ‘next year’                                |
| fut. 3sg.m. aittâžot | ‘to be ground, be milled’                  |
| temêzbârt            | ‘a pot in which you burn incense’          |
| amâzzîn              | ‘sons’                                     |

<é> stands for accented /i/ in several cases. There appears to be no conditioning environment for this spelling.

|                         |               |
|-------------------------|---------------|
| illi, elli              | ‘millet’      |
| imp. sg. íreš, éreš     | ‘to descend’  |
| rwíḥḥa, rwéḥḥa, ərweḥḥa | ‘I am afraid’ |
| ízlef, ézlef            | ‘summer’      |

<ə> may stand for unaccented /i/, but it more commonly stands for /ə/.

|                  |  |
|------------------|--|
| tegešilt teštâft | ‘black beetle’ (cf. tegišilt tağzîft ‘viper, snake’) |
| timẓîn, temẓîn   | ‘barley’   |
| 1sg. mmúyeh      | ‘he died’ (see 4.1.5)                                |
| res. 1sg. weṭḥa  | ‘I arrived’ (see 4.3)                                |

In a few cases the sign <ə> is found in Arabic loanwords, where it corresponds to the Classical Arabic short vowel *i*. This is unusual, as the Arabic dialects of the region merged short vowels *i* and *u* to *a*. It seems as if Awjila was in contact with a dialect that kept Classical Arabic *i* distinct.

|   |  |
|---|--|
| elfəkr-énnes                            | ‘his thought’ (< Ar. <i>fikr</i> )         |
| agûr mēnn-ī, agûr mēnn-ek, agûr minn-es | ‘besides me, you, him’ (< Ar. <i>min</i> ) |
| lâken, lâkän                            | ‘but’ (< Ar. <i>lâkin</i> )                |

The actual length of this *i* that corresponds to the Classical Arabic *i* cannot be determined from the first two examples. The last example <lâken> could only have the accent on the penultimate syllable if the last syllable were short (/lakin/ would regularly have a final accent). But for <lâken> we also find the spelling <lâkän> which implies that we probably need to understand this as phonemically /lakən/, in which case <ə> does not represent Arabic short *i*.

<û> and <ú> stand for accented /u/ and <ũ> stands for unaccented /u/. The exact conditioning for this spelling is not entirely clear.

|                               |  |
|-------------------------------|--|
| ëbbûk                         | ‘stinging’ (v. verbal noun formation of ċc verbs.) |
| ẓût, ẓût                      | ‘above’  |
| pf. 1sg. llûzîḥ 3sg.m. yellûz | ‘to be hungry’                                     |
| šûrûrû                        | ‘weakling’   |
| úwû                           | ‘kneading (bread dough)’                           |
| tebedúqt                      | ‘cotton’   |

<ê> almost always stands for accented /e/. This vowel is mostly found in Arabic loanwords. Accented /e/ is represented once with <é>.

|                  |   |
|------------------|---|
| bêin             | ‘between’ (Ar. <i>bayna</i> )           |
| ba‘adên, ba‘adén | ‘afterwards, then’ (ELA <i>baʕdēn</i> ) |
| ssalâmu ‘alêikum | ‘peace be upon you’                     |
| itnên            | ‘two’                                   |

The sign <é> is also used to mark word-final *e* in the contracted forms if the resultatives <igâya> ‘he has done’, and <ivâya> ‘he has fallen’: <igé, ivé>. The deictic clitic <=é> (see section 7) is probably a contraction of the synonym <=âya>. Similarly, the unaccented deictic pronouns <wê, tê> are probably contractions of <wâya, tâya>. These two pronouns constitute the only examples of unaccented /e/ in Awjila.

In two instances, <ê> stands for accented /i/ in an emphatic environment: res. 3sg.m. <iwêṭa> ‘to arrive; to reach’, <mmên, mmîn> ‘when?’

The sign <ê> is attested twice and stands for accented /e/ or /i/: <aḥîr, aḥêṭ> ‘better’; <wên-mā> ‘as soon as’ (ELA *wên-mā*)

<ô> stands for accented /o/ and is only found in a few Arabic loanwords; <aḥôlî> ‘lamb’, <ërrôṣen> ‘window’.

<o> is used twice to denote unaccented /o/: <ḥolâwen> ‘lambs’, <taḥolît> ‘sheep’

<o> is also used once to denote unaccented /u/ in a pharyngeal environment: 1sg. <ḥossîḥ> ‘to feel’ (see section 4.3.3.18)

<ô> is used once to denote accented /u/ in a emphatic environment: <zôṭ, zût, zûṭ> ‘above’

Twice, <ö> is used to denote /u/: <kull, köll> ‘each’; <ëndú, úndu, undú, öndú, endú> ‘if’ (there appears to be phonemic variation of the initial vowel between /ə/ and /u/).

### 2.2.2 Short vowel signs

In the above section we have established that there are five plain vowels /a/, /i/, /u/, /e/, /o/ which may be represented with a variety of vowel signs. More often than not, they are written with long vowel signs. But sometimes short vowel signs are used to represent these long vowels.

Far from all short vowel signs in Paradisi’s transcriptions are employed to write plain vowels, however. These vowels must therefore be considered to represent actual short vowels.

The two most common short vowel signs are <e, ɛ> and their accented counterparts <é, ɛ́>. While <e> graphically has a long accented counterpart <ê>, the latter is exclusively found in Arabic loanwords, and it never alternates with <e>, nor is there a

long unaccented variant <ē> in Paradisi's transcriptions. The signs <e, ɛ> must therefore be considered exclusively short. The signs are 'neutral', in the sense that they are not conditioned by a specific phonetic environment, and therefore may appear in most environments, although they are less common in uvular, pharyngeal and emphatic environments. There is no complementary distribution between the two vowel signs, and they are often in free variation. <ɛ> is more common in word-final syllables than <e>. The table below shows some examples of free variation between the two vowel signs <e, ɛ>.

|                                 |                    |
|---------------------------------|--------------------|
| pf. 3sg.m. iǧélli, iǧélli       | 'he wants'         |
| pf. 3pl.m. ǧallīyen, ǧallīyen   | 'they want'        |
| ǧâr-ek, ǧâr-ɛk                  | 'to you, you have' |
| amédēn, amédēn                  | 'man'              |
| 3pl.m. nnīyen, ěnnīyen          | 'they are'         |
| impf. 3sg.m. itârev ptc. tâɛven | 'to write'         |
| pl. šǧîɛn, šǧîren               | 'firewood'         |

Prasse (1989) has suggested that Awjila, similar to Tuareg and Ghadames, may have retained a contrast between two short vowels *a* and *ǣ*. Careful examination of Paradisi's transcription shows that this cannot be the case. Indeed, several short vowel signs with an *a*-like quality are used to write short vowels such as <ǣ, ǣ, a>. However, these often show free variation with the signs <ɛ, e>, or are in complementary distribution with these signs. Similarly, there is frequent alternation between <e> and <ɛ>, which shows that they denote the same vowel phoneme. Therefore there is no basis for positing a contrast between *a* and *ǣ* in Awjila, and Paradisi's notations only point to a single short vowel /ə/. The cases of <ǣ, ǣ, a> are discussed below.

<ǣ> and its accented counterpart <ǣ̂> are found in emphatic and uvular environments. In these environments <e> is very rare, and <ɛ> is unattested. When <e> is found, it is in free variation with <ǣ>.

|                                     |                     |
|-------------------------------------|---------------------|
| yǣqqîm, yaqqîm, yǣqqîm              | 'he stays, remains' |
| ělmeǧǧâret, elmǧǧâret(-î)           | 'cave'              |
| imp. sg. nžǧǧ, nžǧǧ; pf. 1sg. nžehh | 'to pull'           |
| qǣttâ'an, qettâ'an                  | 'highwaymen'        |

<ǣ> sometimes represents a long vowel (see above), and the presence of <ǣ> is clearly determined by its emphatic or uvular environment. In cases where there is no variation in spelling with <e>, there are some means based on the morphology and word formation to determine with relative certainty that <ǣ> stands for /ə/ and not /a/. For verbs, it is often possible to determine a vowel is /ə/ rather than plain /a/ through certain patterns in the verbal morphology. Thus /ə/ becomes /i/ if it stands



in the penultimate syllable of the resultative form (see section 4.3.1.5). So if we find that an <â> in the perfective stem becomes an /i/ in the resultative, this is clear evidence for /ə/ rather than /a/.

There are other means to establish that <â> probably represents /ə/. For example, from other verbs in the corpus we know that the vowel pattern of ccc verbs is |əccəc|, thus, if we find a ccc verb with the vowel <â> we can safely suppose that it represents a /ə/.

#### Resultative gives an indication

|  |            |
|--|------------|
| pf. 3sg.m. išéntât; res. 3sg.m. išéntîta | ‘to join’  |
| pf. 3sg.m. yettât; res. 3sg.m. yettîfa   | ‘to seize’ |
| pf. 3sg.m. yaqqân; res. 3sg.m. yaqqîna   | ‘to tie’   |

#### ccc verbs have |əccəc| pattern

|                       |                       |
|-----------------------|-----------------------|
| 3sg.m. yélgâm, yelgóm | ‘to refuse’           |
| imp. sg. ɛntâr        | ‘to let go, put down’ |

Twice, <â> represents /ə/ in labial environments: <mîwɛn, mîwân> ‘mouths’, <âu> (probably /əww/ ‘to knead [bread dough]’).

<a> and its accented counterpart <á> are often used to denote /a/, but they may also denote /ə/, especially in a pharyngeal environment, and sometimes in emphatic and uvular environments. Different from <â> which only rarely denotes a long vowel, <a> very often stands for /a/. Therefore, if we find an <a> in the environment where it may be either /a/ or /ə/, it is often impossible to establish its phonemic value. /ə/ does not occur in word final position, nor in word initial position in front of |cv|, so in these cases <a> and <á> can safely be considered to represent /a/. Free variation between <a, e, â> can also help to determine the presence of /ə/. Moreover, morphological patterns of the verbs can give us further evidence.

#### Resultative gives an indication

|                                      |                       |
|--------------------------------------|-----------------------|
| pf. 3sg.m. iság; res. 3sg.m. isíga   | ‘to buy’              |
| pf. 3sg.m. yağáš; res. 3sg.m. yağîša | ‘to love’             |
| pf. 3sg.m. yerfá; res. yerfî’a       | ‘take away, to raise’ |
| pf. 3sg.m. yerwá; res. yerwî’a       | ‘to fear’             |
| pf. 3sg.m. ya’ádd; res. ya’ídda      | ‘to go’               |
| pf. 3sg.m. yefráh; res. yefrîha      | ‘to become happy’     |
| pf. 3sg.m. išelhám; res. išelhîma    | ‘to light (a fire)’   |
| pf. 1sg. šentátḥ; res. šentîṭha      | ‘to join, attach’     |

variation between <a, e>

|   |                        |
|---|------------------------|
| pf. 3sg.m. yaqq <sup>á</sup> án, yeqq <sup>á</sup> án(-t) | ‘to bind, tie, attach’ |
| 1sg. ġallîĥ, ġellîĥ                                       | ‘to want’              |
| tarezzât, terazzât  | ‘creak’                |

ccc verbs have |əccəc| pattern

|                   |                   |
|-------------------|-------------------|
| pf. 3sg.m. yaġrés | ‘to slaughter’    |
| yaħdef(-təneṭ)    | ‘he threw (them)’ |

ccc verbal nouns have |acəcac| pattern

|        |                            |
|--------|----------------------------|
| aġarâš | ‘slaughter’                |
| anaṭâr | ‘letting go, putting down’ |
| ažamâk | ‘sewing’                   |

Some examples of ambiguous cases of <a> are: <tebaqqûšt> ‘pan’, <taġmâi> ‘thigh’, <aġaslém> ‘lizard’.

The vowel sign <ä> has both short and long variants <ä, á, â, â>. There is never any variation between the long and the short vowels like we find with the vowel signs <â, î, û, â, î, û, á, í, ú, a, i, u>. This strongly suggests that <ä, á> basically represent a short vowel. However, as shown on page 23, there are a few ambiguous cases where it stands for either /a/ or /ə/. The notation <ä> appears mostly in a uvular and velar environments, but occurs in other environments too.

|                                     |   |
|-------------------------------------|---|
| pf. 3sg.m. i'âyēṭ, ya'âyät          | ‘to yell, scream’                         |
| imp. sg. édž, äġġ                   | ‘to let go of’                            |
| aġellâi pl. ġällâyen                | ‘circle, loop’                            |
| pf. 3sg.m. yäqqîm, yaqqîm, yâqqîm   | ‘to stay’                                 |
| imp. sg. aġâš; res. 3sg.m. yaġîša   | ‘to love’ (cf. resultative)               |
| tġâtṭen, tġítṭän                    | ‘goat’                                    |
| imp. sg. šéġzef; pf. 3sg.m. išäġzef | ‘to lengthen’                             |
| imp. sg. ɛħħâr, ħħér                | ‘to take off; to remove’                  |
| pf.3sg.m. yâħzér, yeħzér            | ‘to see; to look at (+af)’                |
| imp. sg. šäng, šénġ                 | ‘to extinguish’                           |
| arâšâk                              | ‘combing’ (ccc verbal nouns are  acəcac ) |

There are several other, more marginal vowel signs which are used to represent the short vowel /ə/. These are <o, ɔ, ũ, ö, ɛ, i, u>. They are discussed individually below.

The character <o> is found once representing unaccented plain /o/, as found in the word <aħôlî> pl.<ħolâwen> ‘lamb’, <aħolît> pl. <ħolîtîn> ‘sheep’. <ó> is never used

to represent a long vowel, and most instances of <o> clearly represent a short vowel. It shows some free variation with other vowel signs that denote /ə/, and it is mostly found in labial and uvular environments.

|  |   |
|--|---|
| ēlmeġġâret, elmoġġâret-ī                         | ‘cave’                                  |
| tamûrâġ, tamûroġ                                 | ‘grasshoppers (coll.)’                  |
| imp. sg. avot; impf. 1sg. tevvâtĥ 3sg.m. itevvât | ‘to swear (an oath, etc.)’              |
| pf. 1sg. mmeġġîĥ 3sg.m. yemmóg                   | ‘to become, to be, to turn into’        |
| pf. 3sg.m. yešwor; res. yešwîra                  | ‘to dance’ (cf. resultative)            |
| pf. 1sg. woĥ; res. weĥa                          | ‘to arrive; to reach’ (cf. resultative) |

<q> is only attested once, and seems to occur in the same environment as <o>:  
<ávot, avot(-idîn)> ‘night’

<û> and <ú> usually stand for /u/ but there are a few cases where they probably stand for /ə/:

|                                 |   |
|---------------------------------|---|
| alóġom, alôġom, alúġom          | ‘camel’                                 |
| impf. 1sg. tûwâtĥ 3sg.m. itâwót | ‘to arrive; to reach’ (â û points to ə) |
| Perhaps: tûéss, tawöss          | ‘bed’ (phonemically /təwəss/?)          |

<ö> is not a very common vowel sign, and it never occurs accented. It can be shown to represent /u/ in some cases and /ə/ in others. It certainly represents /ə/ in the verb imp.sg. <ázöt>; impf.3sg.m. <itežžât> ‘to grind, mill’ (cc verbs have a imp.sg. pattern |acəc|), and it probably represents /ə/ in <tûéss, tawöss> ‘bed’ /təwəss/.

The sign <ę> often represents /ə/. In most cases it is conditioned by a preceding /y/.

|                           |                   |
|---------------------------|-------------------|
| res. 3sg.m. yeġbîba       | ‘to mount, climb’ |
| yérden, írden, yérden     | ‘wheat’           |
| temígnî, temígnî, tēmígnî | ‘woman, wife’     |
| yeški, yeškî              | ‘to live’         |
| res. 3sg.m. yeṭeménna     | ‘to wish’         |

While <i, u> are usually used to write the plain vowels /i/ and /u/, they sometimes represent /ə/ in front of /y/ and /w/ respectively. The transcriptions usually do not distinguish /əw/ and /əy/ from /u/ and /i/, and the phonemic contrast may in fact be neutralized in speech. Imperfectives of ccc verbs regularly have the |cəcəc| pattern. ccc verbs with a medial /y/ or /w/ have an <i, u> in the position of the first /ə/.

|                                   |            |
|-----------------------------------|------------|
| impf. 1sg. diyyéžĥ 3sg.m. idiyyez | ‘to sing’  |
| impf. 1sg. síyyefĥ 3sg.m. isíyyef | ‘to bathe’ |
| impf. 1sg. ruwwélĥ 3sg.m. irúwwel | ‘to flee’  |

Finally, there is a small set of extra-short vowel signs <ě, ă, ĭ, ǫ, ŭ, ǣ>. These are never accented, and may represent /ə/. In many cases the elements represented by these extra-short vowels are employed as epenthetic vowels.

<ě> is found in most environments, <ă> is found in emphatic and pharyngeal environments. Sometimes we find <ă> as the initial vowel of the definite article in Arabic loanwords. This is often found besides a reflex of the article as <ěl->: <ělhûdī, ălhûdī> ‘jew’, <ěddellâl, ăddellâl> ‘auctioneer’.

<ě> is especially common at the beginning of words that would otherwise start with two consonants, but often varies freely with a form without this initial <ě>.

<ĭ> is only used once as a short epenthetic vowel before *y*, and <ŭ> is used as a short epenthetic vowel before *w*.

<ǫ> is found once as a short vowel /ə/ in front of uvular consonants.

Twice we find the vowel sign <ǣ>, which in the context quite clearly stands for /ə/ or epenthetic [ə]: <ăžvót> ‘to measure (cereals)’ and res. 3pl.f. <ănqășnîta, ęnqășnîta> ‘to be missing, to lack’.

The extra-short vowel signs are often used to write epenthetic vowels. The tabel below shows several examples where <ě, ă> alternate with *ø*, and cases where the accent, which cannot stand on the antepenultimate syllable, shows that these vowels must be epenthetic.

|                              |                   |  |
|------------------------------|-------------------|--|
| m. etčû, ęččû, ččû           | / (ə) ččú /       | ‘food, meal, plate’                          |
| ddĕrĭ                        | / dd (ə) rĭ /     | ‘thorn’                                      |
| imp. sg. ęffok, ffok         | / (ə) ffək /      | ‘to pour’                                    |
| tġĭli, tĕġĭli                | / t (ə) ġili /    | ‘head’                                       |
| tagmârĕt                     | / tagmâr (ə) t /  | ‘mare’                                       |
| imp. sg. ękkĕš, kkĕš         | / (ə) kkáš /      | ‘to take off, remove’                        |
| elbâĥâr, ălbâĥr              | / əlbâĥ (ə) r /   | ‘sea’  |
| imp. sg. ăqqân               | / əqqən /         | ‘to bind, tie, attach’                       |
| imp. sg. aġărăš, aġreš(-dĭk) | / aɣ (ə) ráš /    | ‘to slaughter’                               |
| elĥâġdârĕt                   | / əlxəd (ə) rət / | ‘vegetables’ (cf. Ar. <i>ḥuḍra(t)</i> ‘id.’) |
| qlâzen, ăqlâzen              | / (ə) qlâzən /    | ‘lies’                                       |
| f. sg. bâĥĭyet               | / bâĥ (ə) yət /   | ‘good’                                       |
| ŭwût                         | / əwût /          | ‘arriving; reaching’                         |
| imp. sg. šŭwôr               | / š (ə) wôr /     | ‘to dance’                                   |
| imp. sg. ǫqqûr, qqûr         | / (ə) qqûr /      | ‘to dry out’                                 |
| alógom, alǫgom               | / aləɣəm /        | ‘camel’                                      |

Note that not all instances of <ě> and <ă> are epenthetic vowels:

|        |   |
|--------|---|
| agĕwâl | ‘seeing’ (ccc verbal nouns have  acəcac  pattern)           |
| ațârâs | ‘braiding of hair’ (ccc verbal nouns have  acəcac  pattern) |

In two cases <ă> seems to stand for /a/: imp. sg. <ădér> ‘to press; to massage’: imp. of cc\* verbs have an |acəc| vowel pattern; <ăbugérfa> ‘clay’: /ə/ never occurs in an open syllable at the beginning of a word, the only other plausible remaining initial vowel of a masculine noun is /a/.

Once, <ĭ> is used to represent unaccented /i/: <wéttĭ(-dikkénĭ)> ‘prepare (sg.) (for us)’ cf. <wettîmet> ‘prepare! (pl.f.)’.

### 2.2.3 Diphthong signs

Another part of the vowel transcriptions are the transcriptions of the diphthongs. The system of the transcription of diphthongs is different from that of the monophthongs, and it is described separately by Beguinot (1942: 6) for Djebel Nefusa Berber.

Short unaccented diphthongs take a macron diacritic that spans both vowels of the diphthong. Short accented diphthongs take a macron diacritic with an acute accent on top that spans both vowels of the diphthong. Long unaccented diphthongs are represented by a succession of two vowels where the first one has a macron: *āu*, long unaccented diphthongs are unattested in Paradisi’s material. Long accented diphthongs are represented by a succession of two vowels where the first one has a circumflex: *âu*. For practical reasons, I have retranscribed the short diphthongs with two vowels, which both have a macron, and when accented, the accent is placed on the first of the two vowels, e.g. *ōū*, *óū*.

In Paradisi’s transcription long diphthongs are represented in two ways: either as *âi*, like Beguinot describes, but sometimes with *âĩ*. The examples below illustrate the three types of diphthongs present in Paradisi’s transcriptions.

|                 |                  |
|-----------------|------------------|
| érōū            | Short unaccented |
| iróūwah         | Short accented   |
| aziwâi, išeglâi | long accented    |

The most commonly attested diphthongs in Paradisi’s transcriptions are: <âu, âi, âĩ, îu, ûi, āū, ōū, āĩ, áĩ, óū>. Then there are some marginal diphthong transcriptions which will be discussed in more detail below: <ái, âĩ, ai, au, áĩ>

Many of the diphthong signs are phonemically transparent, but especially diphthongs of short vowels + semivowel need special examination.

The long accented diphthongs <âu, âi, âĩ, îu, ûi> almost certainly stand for the sequence vowel + semivowel. There is no reason within the system of morphology or phonology to assume that there are true vocalic diphthongs in the phonology of Awjila. Therefore we may posit that these diphthongs stand for accented /aw/, /ay/, /ay/, /iw/ and /uy/ respectively. All these diphthongs are only found in the final syllable of a word. The consonantal value of the second part of the diphthong becomes apparent when we look at the plural formations of nouns that end in diphthongs:

| sg.     | pl.      |                     |
|---------|----------|---------------------|
| abešhâu | bešhâwen | 'name of a sparrow' |
| ağellâi | ğällâyen | 'circle, loop'      |
| abeškîu | beškîwen | 'horn'              |
| irîu    | irîwen   | 'boy, child'        |

For the diphthong <ûi> we do not have any examples of plural nouns, but the consonant surfaces in the conjugation of the stative verb: 3sg. m. <ažûi> f. <ažuyî> pl. <ažuyî> 'to be bitter'.

The diphthong <âi>, while presumably phonemically identical to <âi>, is only found in notations of the imperfective of verbs. The list below is exhaustive:

|                       |                |                         |
|-----------------------|----------------|-------------------------|
| impf. 1sg. šeglâiḥ    | 3sg.m. išeglâi | 'to show'               |
| impf. 1sg. šembâiḥ    | 3sg.f. tšembâi | 'to suckle'             |
| impf. 1sg. šišâiḥ     | 3sg.m. išišâi  | 'to make (s.o.) sleep'  |
| impf. 1sg. šentâiḥ    | 3sg.m. išentâi | 'to make someone taste' |
| impf. 3sg.m. išerwâit |                | 'to speak, tell'        |

The one attestation of the diphthong <âi> probably belongs here too: impf. 3sg.m. <igâi> 'to cultivate'.

Once, we find the diphthong <âi>, which appears to stand for accented /ay/: impf. 1sg. <šivâiḥ> 3sg.m. <išivâi> 'to cause to fall'.

The diphthongs <âū> and <âi> are generally found at the beginning of words and represent the future clitic *a* = +*u* in stems that start with /u/ or the future clitic *a* = + and the 3sg.m. prefix *i*-.

|                      |  |
|----------------------|--|
| fut. 1sg. âūğérḥ     | 'to get lost; to lose s.th. (s-ğār + s.th.)' |
| fut. 3sg.m. âisébbaḥ | 'to swim'                                    |
| fut. 3sg.m. aižîž    | 'to sell'                                    |

In the few cases where these unaccented diphthongs are not the result of the future clitic + vowel, it is an unaccented variant of the long diphthongs:

|                        |                     |
|------------------------|---------------------|
| tekšâimt pl. tekšâimîn | 'watermelon'        |
| yôm pl. âiyâm          | 'day' (< Ar. ayyâm) |
| i'âiyât                | 'to yell, scream'   |

The diphthongs <ai, au>, which are not described by Beguinot, are in free variation with <âi, âū>, and clearly do not represent a phonemically distinct diphthongs.

|                                |           |
|--------------------------------|-----------|
| fut. 1sg. aušáǵd, āūšáǵd       | ‘to come’ |
| fut. 3sg.m. ain-îs, āīni-(dík) | ‘to say’  |
| fut. 3sg.m. aižîž, āīžîžî-(t)  | ‘to sell’ |

The diphthong <ai> is found once in word-final position: <tqártai> ‘paper’.

The diphthong <âi> occurs once in Paradisi’s text, and presumably represents accented /ay/: <zzâi> ‘breast’.

As mentioned earlier, in front of /w/ , /ə/ is often represented by <u>. Therefore the phonemic sequence /əw/ is often represented with <uw>. This is the case in the verb <érwel>; impf. 3sg.m. <irúwwel> ‘to flee’, the imperfective of a ccc verb having the pattern |cəcəc| (cf. imp. sg. <édreš>; impf. 3sg.m. <idérreš> ‘to decrease [intrans.]’).

The diphthong <ōū>, and its accented variant <óū> also often stand for /əw/. The exact conditioning of these two reflexes is difficult to determine.

We find one verb that is structurally very similar to <érwel>: <erwá’>; impf. 3sg.m. <iróūwa’> ‘to fear’. Other verbs that have this diphthong include:

|  |                             |
|--|-----------------------------|
| impf. 3sg.m. idōūwâr                   | ‘to look around; to search’ |
| imp. sg. áu; impf. 3sg.m. itóūwa       | ‘to knead (bread dough)’    |
| 3sg.m. zóūwaǵ 3sg.f. zóūǵat pl. zōūǵît | ‘to be red’                 |

Some words have both reflexes: 1sg. <zurâḥ> 2sg. <zōūrât> 3sg.m. <zúwor>; 3sg.f. <zōūret, zûret> pl. <zuwirît> ‘to be large’.

The verb <érōū> ‘to give birth’ has the reflex <ōū> throughout the whole paradigm, except in the impf. 3sg.f.: imp. sg. <érōū> pl.m. <eróūmet>; pf. 1sg. <eróūḥ>; 3sg.f. <teróū>; res. 1sg. <iríuḥa> 3sg.m. <tiríwa>; fut. 1sg. <aěróūḥ> 3sg.f. <attirōū>; impf. 1sg. <tárōūḥ> 3sg.f. <tárū> ‘to give birth’

Other verbs always have the notation <uww>: imp. sg. <šūwór>; impf. 1sg. <šuw-wérḥ> 3sg.m. <išúwwer> ‘to dance’

While it is clear that <ōū, óū> stands for /əw/, there is no clear distribution of the two overlapping transcriptions <uw> and <ōū, óū>.

A possible (but only partial) explanation for the distribution is the presence of an emphatic /r/. While Paradisi transcribes this consonant once with <r>, he does not transcribe it consistently: <ṛábbī, rábbī, rábbī, rábbī> ‘God’.

Perhaps the roots containing <r> that have the notation <ōū> are in fact roots that contain the emphatic /r/. This cannot be seen directly, but many of the words that have a diphthong <ōū, óū> contain <r>. Considering the vowel-lowering effect of emphatic /r/ in both Arabic and Berber, it seems likely that the lowered reflex of the sequence /əw/ points to the presence of an emphatic /r/. Moreover, the uvular consonant /χ/ may have had a similar lowering effect. With these assumptions it becomes possible to explain the majority of the <ōū, óū> diphthongs. But it does not help us explain the verb imp. sg. <áu>; impf. 3sg.m. <itóūwa> ‘to knead (bread dough)’.

The diphthong <îö> occurs only in the word <aẓîöť> ‘donkey’ (unaccented: <aẓîöť-énnes>) where it alternates with the monophthong <î>. Phonemically it should probably be interpreted as the result of a transitional vowel between the high vowel /i/ and the emphatic stop /t̤/: [iə] = /i/, but with just a single example it is difficult to determine.<sup>6</sup>

The diphthong <ûă> is found only in <fankûăḥ> ‘big buttocks’. The diphthong probably represents a transition of the high vowel /u/ to the pharyngeal /ħ/. This diphthongization looks similar to the diphthongization in front of Pharyngeal consonants that we find in Hebrew known as Patah Male.

A small category of diphthongs are the rising diphthongs. These are written by Paradisi, simply as a sequence of <i, u> followed by another vowel. Some of these rising diphthong show free variation between vocalic writing, and the consonantal writing, cf.

|                |                  |            |
|----------------|------------------|------------|
| imp. sg. diéz; | pf. 3sg.m. idyéz | ‘to sing’  |
| imp. sg. siéf; | pf. 3sg.m. isyéf | ‘to bathe’ |

This variation indicates that the vowel <i> in this position must be considered to be a consonant *y*.

For rising diphthongs with the vowel sign <u>, this interpretation is less obvious. The consonant *w* is always written as <w> after a consonant and before a vowel, e.g. <érwel> ‘to sing’, <erwa‘, erwá‘> ‘to fear’, <erwók> ‘to knead’. But some passive verbs have a passive prefix <tu>, that is only found before long vowels (see section 4.2.2), cf.

|               |                                  |
|---------------|----------------------------------|
| ituáker       | ‘to be stolen’                   |
| ituār, yetuār | ‘to be opened; to open (trans.)’ |
| ituárev       | ‘to be written’                  |

There are three other words that have the rising diphthong <uâ>, namely <zuâġ> ‘red’ (also the feminine and plural formations have this diphthong) and the plural of <ẓûi, ẓẓûi> ‘palm’: <ẓuân>, and the pf. 3pl.m. of *šú* ‘to drink’: <šûân>.

<šûân> almost certainly points to *šwân* (cf. pf. 3sg.m. *yəšwa*). <zuâġ> appears to have the same |ccac| scheme as *šṭāf*, in which case it would stand for *zwāy*. Because the plural formation of <ẓûi, ẓẓûi> is irregular, it is difficult to determine whether it stands for *ẓuwân* or *ẓwân*.

As in the cases where we can tell what this rising diphthong stands for, it stands for a sequence *wa*, I have decided to transcribe it as such in all cases. Therefore the passive prefix is considered to be *tw-*.

<sup>6</sup>An argument that might speak against the hypothesis of a transitional glide, is the reconstruction of this word in Proto-Berber as *\*ezyed* (Kossmann 1999: 229-232). The diphthong found in Paradisi may somehow be related to the original sequence *\*ye*.



2.2.4 Overview

To conclude, Paradisi’s system of transcription gives us evidence for 6 contrastive vowels: /a/, /i/, /u/, /e/, /o/, /ə/.

/a/, /i/, /u/ can all be accented and occur in all positions of the word. Both /e/ and /o/ are rare and mostly found in Arabic loanwords. /e/ is never found unaccented, /o/ is only found unaccented in a single instance. /ə/ can be accented and it can occur in open syllable, but it is never found in word-final position.

|      | Front | Central | Back |
|------|-------|---------|------|
| High | i     |         | u    |
| Mid  | e     | ə       | o    |
| Low  |       | a       |      |

For reference an overview of the vowel notations is given in the tables on the next page. The first table below gives an overview of the vowel signs found in Paradisi, and to which phonemic vowel they correspond. The second table gives the reverse listing: It shows all the vowels found in the language, and what signs in Paradisi has used for these phonemes.

|             |           |     |           |          |
|-------------|-----------|-----|-----------|----------|
| i           | í         | ī   | î         | ï        |
| /i, (ə)/    | /í, (ə́)/ | /i/ | /í/       | /i, ə/   |
| ẹ           | é         |     | ê         |          |
| /ə/         | /í/       |     | /í, (é?)/ |          |
| e           | é         |     | ê         | ě        |
| /ə/         | /ə́/      |     | /é/       | /ə/      |
| ɛ           | é         |     |           |          |
| /ə/         | /ə́/      |     |           |          |
| ä           | á         | ā   | â         | ǎ        |
| /ə, a/      | /ə́, á/   | /a/ | /á/       | /ə/      |
| a           | á         | ā   | â         | ǎ        |
| /a, ə/      | /á, ə́/   | /a/ | /á/       | /ə, (a)/ |
| ö           |           |     |           |          |
| /ə, u/      |           |     |           |          |
| u           | ú         | ū   | û         | ǔ        |
| /u, (ə)/    | /ú (ə́)/  | u   | ú         | ə        |
| ũ           | ú         |     | û         |          |
| /u, (ə)/    | /ú, (ə́)/ |     | /ú/       |          |
| o           | ó         |     | ô         | õ        |
| /ə, (o, u)/ | /ə́/      |     | /ó/       | /ə/      |
| ɔ           |           |     |           |          |
| /ə/         |           |     |           |          |
| ǎ           | á         | ā   | â         |          |
| /ə, (a)/    | /ə́, (á)/ | /a/ | á         |          |

|      | Front                          | Central  | Back                            |
|------|--------------------------------|--|---------------------------------|
| High | i<br><i, í, ī, î, ï, é, (ê ?)> |  | u<br><u, ú, ū, û, ǔ, ú, û, (o)> |
| Mid  | e<br><ê, (ê ?)>                | ə<br><e, é, ẹ, é, ẹ, ě, (i, í, ĭ), ä, á, a, á, ă, (ö, u, ú, ũ), ǔ, ú, o, ó, ǒ, ǎ, ǎ> | o<br><o, ô>                     |
| Low  |                                | a<br><ä, á, ā, â, a, á, ā, â, (ǎ, ă, á), ǎ, â >                                      |                                 |

### 2.2.5 Schwa in open syllables

Awjila has many cases of schwa in open syllables. Most Berber languages that do not have a contrast between *ə* and *ǣ* do not allow schwa to stand in an open syllable. This section shows that these schwas cannot be explained phonetically, and therefore must be considered phonemic.

One of the clearest examples of a contrast between a simple |cc| cluster and the sequence |cəc| can be found in the verbal noun of |ccc| verbs.

| Imperative | Verbal noun |  |
|------------|-------------|--|
| dyáz       | adəyaz      | ‘to sing’                                |
| əgzəv      | agəzàv      | ‘to cut the bunches of dates from palms’ |
| əlməd      | aləmàd      | ‘to learn’                               |
| mžár       | aməžàr      | ‘to reap, mow’                           |
| əndəl      | anədàl      | ‘to be covered’                          |
| ənsəg      | anəsàg      | ‘to whistle’                             |
| ənṭər      | anəṭàr      | ‘to let go’                              |
| qləz       | aqəlàz      | ‘to lie’                                 |
| ršək       | arəšàk      | ‘to comb’                                |
| ərwák      | arəwàk      | ‘to knead’                               |
| ərwəl      | arəwàl      | ‘to flee’                                |
| srəf       | asəràf      | ‘to weave (palm leaves)’                 |
| syáf       | asəyàf      | ‘to bathe’                               |
| šfəṭ       | ašəfàṭ      | ‘to clean’                               |
| tkər       | atəkàr      | ‘to fill up’                             |
| ṭrəs       | aṭəràs      | ‘to braid’                               |
| zmək       | ažəmàk      | ‘to sew’                                 |

The contrast between |cc| in an open syllable and |cəc| can also be seen in other environments.

|        |                          |          |                           |
|--------|--------------------------|----------|---------------------------|
| ədrəš  | ‘to decrease (intrans.)’ | dərùš    | ‘to be few, little’       |
| flališ | ‘inflorescence’          | təfəlùšt | ‘large spoon for cooking’ |
| təfšəš | ‘lightness’              | fəšùš    | ‘to be light, agile’      |
| yəlyəm | ‘he refused’             | aləyəm   | ‘camel’                   |
| aməzùn | ‘pin or hinge’           | tamzəzza | ‘bee’                     |
| ərgìg  | ‘to shake’               | arəgàz   | ‘person’                  |
| šbəḥ   | ‘tomorrow’               | šəbəṭ    | ‘yesterday’               |
| ažəvú  | ‘hair’                   | izvìn    | ‘palm fibres’             |

Schwas may also be placed in open syllables through morphological suffixation. For example the verb *àker*, *ùker* ‘to steal’ in the pf. 3pl.m. adds the suffix *-ən* to form

*ukàrən*. No resyllabification of the schwa in the open syllable takes places, and the *a* that is found in this open syllable is accented.

The schwas that are found in open syllables in the cases discussed above cannot be explained as a result of epenthesis, and are phonemic. This does not mean that the position of the schwa is completely unpredictable. There are several instances where we do find resyllabification of an (apparently) epenthetic schwa before the last consonant of the word. There also appears to be a phonetic rule that determines the position of schwa at the beginning of a word. The next two sections discuss these phenomena separately.

### 2.2.5.1 Epenthetic schwa

There are indications that some of the schwas are (at least, historically) epenthetic in nature. This can be seen either from their absence and ensuing resyllabification, or from variation in transcriptions.

As will be discussed in more detail in section 4.3.3.2, some verbs of the type *cc\** have the shape |əcc|, while others have the shape |acəc| (or |əcəc|) in the imperative and future stems. The choice is governed by the the shape of the root. Whenever verbs with the shape |əcəc| are followed by a suffix that would open the final syllable of the stem, schwa is dropped, for example:

imp. sg. *əvəl*, *avəl*; fut. 1sg. *avlàx*, 3sg.m. *ayəvəl*.

Interestingly, in spite of their apparent epenthetic nature, these schwas can take the lexical accent in the imperative, which is an indication that in the current stage of the language, they are completely phonemic.

Another case of is found in Arabic loanwords with the stem shape CVCC. There appears to be free variation between the presence of the epenthetic schwa between the last two consonants, and its absence. However, it is different from the schwa epenthesis formulated above, as suffixation of, for example, the possessive pronominal suffix, does not cause the schwa to be elided.

<elbáhär, älbáhr> ‘sea’ < Ar. *baħr* ‘id.’

<elgedër> ‘cooking pot’ < LA *gidr* ‘id.’

<elháml, elħamël-(énnes)> ‘load, burden’ < Ar. *ħaml* ‘id.’

<elhāđđärät> ‘vegetables’ < Ar. *xuđra(t)* ‘id.’

<l’ášâr> ‘afternoon prayer’. < Ar. *šaṣr* ‘id.’

This type of vowel epenthesis is not limited exclusively to CVCC nouns. It is also found in several instances in native Berber words and Arabic loanwords of different stem shapes. Notice that in these words, the epenthetic vowel is invisible to the accent,

and that accent falls on the antepenultimate syllable, which would otherwise be forbidden. The table below shows several examples of epenthetic vowels, in the phonemic analysis, the epenthetic vowels are given in brackets. This type of epenthetic schwa appear to be non-phonemic.

| Transcription | Phonemic analysis               |
|---------------|---------------------------------|
| <fárĕtek>     | <i>f̂ar(ə)tək</i> 'to unstitch' |
| <āġĕv, āġf>   | <i>aɣ(ə)v</i> 'milk'            |
| <árba'a>      | <i>arb(ə)sa</i> 'four'          |
| <séba'a>      | <i>səb(ə)sa</i> 'seven'         |
| <tésa'a>      | <i>təs(ə)sa</i> 'nine'          |

### 2.2.5.2 Initial schwa

The prefixes *y-*, *t-* and *n-* mark subject agreement on the verb. They all occur in two forms: *yə-/i-*, *tə-/ət-*, *nə-/ən-*. The distribution of these forms is determined by phonetic conditioning. I will discuss the three prefixes individually.

The 3sg.m. prefix *i-/yə* is the best attested agreement prefix. The *yə-* allomorph occurs in a closed syllable, i.e. in front of a |cc| cluster or a long consonant |c̄|, while the *i-* allomorph occurs in open syllables, i.e. in front of a |cv| or |cə| sequence.

*yər̄fisa* 'he carried'  
*yəfriḥa* 'he was happy'  
*yəkrí* 'he returned'  
*yənyá* 'he killed'  
*a-yəqləz* 'he will lie'  
*igá* 'he did'  
*a-išú* 'he will drink'  
*isəlla* 'he is hearing'  
*ivərga* 'he dreamt'

There is a significant amount of exceptions to the conditioning suggested above.

The cc\* verbs have a few anomalous forms in the future: *a-yəqəl*, *a-yəsəl*, *a-yəvəl*. As discussed in section 2.2.5.1 above, and in more detail in section 4.3.3.2, the *ə* in the second syllable historically must have been an epenthetic vowel. Apparently, for the vocalisation of the PNG-prefixes this epenthetic vowel is irrelevant. This contrasts sharply with the status of the epenthetic vowel in the accentual system, where it is treated as a full vowel and can take lexical stress (for example, imp. sg. *əvəl*, *avəl*).

The other group of verbs that form an exception to the rule are passive and imperfective verbs that have a stem prefix *-tt-*. The passives that belong to this group are: pf. *ittəny* res. *ittinya* 'to be killed', pf. *ittərz* res. *itt-irza* 'to be broken', res. *ittižita* fut.

*aittāžəṭ* ‘to be ground, be milled’, pf. *ittəmt* res. *itĩmta* (sic) fut. *aittəmt* ‘to be buried’, pf. *ittəwwəyəl* ‘to be dumbfounded, amazed’, pf. *ittūwi*, res. *ittuwīya* ‘to forget’<sup>7</sup>. The imperfects with prefix *-tt-* are: *ittàtta* ‘to eat’, *ittərrəš* ‘to descend’; other imperfects regularly have the short consonant prefix *-t-*.

Paradisi almost consistently transcribes the passive prefix with long *-tt-*, so we must conclude that the *i-* prefix found here is correct and that it is an exception to the rule. The imperfective prefix is usually written with the short prefix *-t-*, we find only a few cases with long prefix *-tt-*. Perhaps these must be considered transcriptions errors.

The passive *itzəwīta* ‘to be thrown on the ground’ and the imperfective *itq̣q̣ima* ‘to remain, stay, sit’ have the prefix *i-*, where *yə-* is expected. The prefixes in both cases are *-t-* instead of *-tt-*.

There are a number of verbs that show variation between *yə-* and *i-*. Verbs that have variation where *yə-* is expected are *yənni/inni* ‘to be (in a place)’, res. *immūta/yəmmūta* ‘to die’, pf. *imməktá* res. *yəmməktāya* ‘to remember’, *ifk-(ísin)/yəfk-(is)* ‘to give’, *inšəṭ-(t)/yənšəṭ-(t)* ‘to ask’, *yəggàda/iggàda* ‘to bring’, *<itùar/yətuàr>* ‘to be opened; to untie’.

Verbs that have variation where *i-* is expected are pf. *izik* fut. *a-yəzik* ‘to become well, recover, heal (intrans.)’, *ixəṭṭəm/yəxəṭṭam*<sup>8</sup> ‘to drop by someone, visit, to meet with’.

Finally, there are a few verbs that show no variation that have an unexpected form. Verbs that have *yə-* that are expected to have *i-* are *yəyəs* ‘to love’, *yənəddəl* ‘to be covered’, *yəbəlbiša* ‘to form a bulb’, *yəxəmmám* ‘to think, ponder’, *yəṣádd* ‘to go’. Verbs that have *i-* that are expected to have *yə-* are *issùdda* ‘to be enough’, *izzila* ‘to run’, *iššan* ‘to know’.

A group of verbs that have the shape *c̄c̄c* often have a variant *c̄c̄c̄*; this length variation is discussed in section 2.1.2. Verbs of this type, often have an unexpected form of the 3sg.m. prefix. For example, we find both *ikkəmməl* and *yəkkəmməl* ‘to finish’.

The 1pl. prefix *n-/nə-* is far less commonly attested. The distribution is less clear in this form. Below are the six verbs that are found with a 1pl. prefix.

*nči(ti)ya* ‘we have eaten (it)’  
*nəyəlli* ‘we want’  
*nəšummi(ti)ya* ‘we have cooked (it)’  
*nni* ‘we are’  
*a=nnəṣádd* ‘we will go’  
*a=nmḥəsəb* ‘we will be responsible’

Notice that the prefix *n-/nə-* is assimilated completely in front of the *nn* of the verb

<sup>7</sup>Synchronically, the *-tt-* prefix of *ittūwi* appears to be part of the stem, but historically it probably was a passive prefix.

<sup>8</sup>One would expect variation in length on the onset of the stem, which may be the cause of the prefix variation (see section 2.1.2)

*anni* ‘to be’. Further conditioning can not be found; *nə-* is found in front of  $|cv|$  sequences, and *n-* is found in front of  $|cv|$ ,  $|ccv|$  and  $|v|$  sequences.

The prefix *t-/tə-* is used in several PNG-markers. First of all it is used on its own as the 3sg.f. marker. In combination with a suffix *-t* it marks the 2sg. In combination with *-im* it marks the 2pl.m. and in combination with *-met*, it marks the 2pl.f.

The *t-/tə-* allomorphs are more clearly distributed than those of the prefix *n-/nə-*.

In front of the sequences  $|cv|$  and  $|v|$ , we find the allomorph *t-*, while in front of the sequences  $|ccv|$  and  $|\bar{c}v|$  we find the allomorph *tə-*, cf. *taxzár* ‘she saw’, *ətn-ís* ‘she said (to him)’, *tìva* ‘she fell’, *tàkkər* ‘she stood up’.

The *t-* allomorph is voiced to *d-* before voiced consonants: *dgulit* ‘you saw’, *džížit* ‘you sold’.

The prefix *tə-* is lengthened to *ttə-* in the future, *t-* is also lengthened in the future if it is found in front of a vowel, cf. *attàm* ‘it (f.) will be cooked’, *attirəw* ‘she will give birth’, *attəqimam* ‘you (m.pl.) will give birth’. *t-* is not lengthened in preconsonantal position: *adgát* ‘you will do’.

The prefix is dropped completely in front of imperfectives that have the prefix *t-*: *tattá* (< *\*t-tattá*) ‘she is eating’, *taggit* ‘you are doing’, *tàrəw* ‘she is giving birth’.

There are only a few exceptions to the rules formulated above. Three verbs have a prefix *tə-* while one would expect *t-*: *təqəlləzt* ‘you are lying’, *təṣəddit* ‘you went’, *təyənni* ‘it (f.) hurts’.

One verb has the prefix *t-* while one would expect *tə-*: *tknità* ‘you are beautiful’.

Two verbs have both the prefix *t-* and *tə-* attested, while one would expect the form *t-*: *tyəllit*, *təyəllit* ‘you want’, *tnəd-dik-ká* ‘you did not say to me’, *tənəd-dik* ‘you said to me’.

One imperfective with an initial *t-* retains the *t-* prefix: *ttəkərt* ‘you are stealing’.

While there are several exceptions to the rules, the distribution of the allomorphs *yə-/i-* and *tə-/t-* are largely predictable. The predictable nature of the *ə* in these forms, implies that it is automatically inserted to break up cluster, and is therefore not phonemic.

## 2.3 Assimilations

Affixation of PNG-marking and object clitics may cause consonants to come in contact. We find assimilation of voice of two subsequent consonants, where the voice of the second consonant is always dominant.

---

|                       |                                |
|-----------------------|--------------------------------|
| $\gamma x > xx (> x)$ |                                |
| nžəɣ-x                | > nžəxx [P: attingere, tirare] |
| $dt > tt$             |                                |
| d-tànnəs              | > t-tànnəs [PT:V]              |
| $tg > dg$             |                                |
| t-gì-t-a              | > dgìta [PT:II]                |

---

When an emphatic consonant comes in contact with a non-emphatic consonant, emphasis spreads to the other consonant.

---

|                       |                      |
|-----------------------|----------------------|
| $t\dot{t} > t\dot{t}$ |                      |
| yəmḥəṭ-tət            | > yəmḥəṭ-tət [PT:XV] |

---

The collision of the pharyngeal fricative  $\text{ʕ}$  with the 1sg. fricative  $x$  causes an incomplete assimilation of both consonants. The  $\text{ʕ}$  undergoes voice assimilation according to the normal assimilation rule, while the  $x$  assimilates to the point of articulation of the  $\text{ʕ}$ , resulting in a sequence  $h\dot{h}$ .

---

|                              |                  |
|------------------------------|------------------|
| $\text{ʕ}x > h\dot{h} (> h)$ |                  |
| ərwìʕ-x-a                    | > ərwìḥḥa [PT:X] |

---

There is one example where the consonant  $n$  is completely assimilated to a following  $r$ .

---

|                       |                    |
|-----------------------|--------------------|
| $n\dot{r} > r\dot{r}$ |                    |
| ən-rəbbi              | > ər-rəbbi [PT:VI] |

---

The 3sg.m. prefix  $y-$  assimilates completely when a vowel  $i$  follows it.

---

|                |          |
|----------------|----------|
| $\#y-i > \#i-$ |          |
| y-iša          | > iša    |
| y-irìd=a       | > irìd=a |

---

## 2.4 Syllable structure

With the phonemic quality of the schwa established, we can now determine which syllable structures are available in Awjila. Not all syllable structures are permitted in every position. We must distinguish between initial, medial and final positions. The table below summarizes the different permitted syllable structures.  $|c|$  stands for any



consonant, |v| stands for any long vowel (*a, i, u, e, o*) and |ə| stands for the short vowel ə. Long consonants, marked with |c̄|, are heterosyllabic, and can be both the coda of one syllable and the onset of the next.

| Initial | Medial | Final |
|---------|--------|-------|
| əc      |        |       |
| vc      |        |       |
| ccə     |        |       |
| ccv     |        |       |
| cə      | cə     |       |
| cv      | cv     | cv    |
| cəc     | cəc    | cəc   |
| cvc     | cvc    | cvc   |
|         |        | cəcc  |
|         |        | cvcc  |

For the position of the accent (discussed in Section 2.5), syllable weight is important. Syllables that end in |-vc|, |-əcc| and |-vcc| are all considered heavy. All other syllables are considered light.

Initial |əc| often varies with |c| in Paradisi’s transcriptions.

When in morphology a |cv| syllable clashes with a clitic that starts with a vowel *a, i, u*, the vowel of the clitic is retained. When the clitic starts with *ə*, the vowel of the suffix is elided.

## 2.5 Accent

Awjila has distinct phonemic accent which has never received an in-depth study, despite being remarked before (e.g. Lux 2011: 257). This chapter aims to clear up the accentual system of Awjila.

Accent spans over multiple elements, which is called an *accent unit*. Nouns, accompanying possessive markers and deictic markers all form a single accent unit. Verbs, with their PNG-marking, object markers and peripheral tense markers also form a single accent unit. The accent unit is discussed in more detail in section 1.3.1

There are two types of Awjila accent:

1. Default accent
2. Phonological accent

Henceforth, default accent will be marked with *̀* (grave accent), while phonological accent will be marked with *́* (acute accent).

### 2.5.1 Default accent

Default accent applies to all accent units in the language. Default accent falls on the final syllable when the accent unit ends in a heavy syllable  $[-vc(c)\#]$  or  $[-\acute{a}cc\#]$ , e.g. *aqəštim* ‘antimony’, *tamirt* ‘beard’, *tərakəft* ‘caravan’ and *tisənt* ‘salt’; otherwise it is on the penultimate syllable, e.g. *iləs* ‘tongue’, *tfilli* ‘house’.

Suffixation of plural suffixes, possessive clitics and demonstrative clitics can therefore lead to the movement of accent, e.g.

|                  |                        |                               |
|------------------|------------------------|-------------------------------|
| <təğarît>        | <i>təyarît</i>         | Singular                      |
| <təğarîwîn>      | <i>təyari-wîn</i>      | Plural                        |
| <təğarîwîn-îyäk> | <i>təyari-win=îyäk</i> | Plural with pl. demonstrative |

### 2.5.2 Phonological accent

A small amount of words do not follow the rule defined above. The place of the accent is still on one of the final two syllables, but not on the syllable that is predicted by the rule above. Within the nominal system, this only concerns a small group of nouns. Within the verbal system, phonological accent is used morphologically for distinguishing the perfective from the sequential perfective (see sections 10.5.2 and 10.5.3).

A noun with a phonological accent loses the phonological accent and gets default accent when a plural suffix, deictic clitic or possessive clitic is added to the word.

Verbs with a phonological accent lose it when PNG-marking follows the verbs, or if a object clitic follows the verb.

The following two sections discuss the nominal phonological accent and verbal phonological accent separately.

#### 2.5.2.1 Nominal phonological accent

Within the nominal system there are several words that have phonological accent. Somewhat unexpectedly, in a number of cases Paradisi’s texts give forms with default accentuation, while the word list has a phonological accent. For example: <təkábərt> ‘shirt’ is found in Text XIII as <təkabért>, <arennú> ‘bidding, auction’ is found in Text VIII as <arénnu>. Other nouns are found in the texts with the phonological accent as presented in Paradisi’s word list, e.g. <ušû>, the verbal noun of ‘to come’ is found as such in text XV.

An important group of nouns with have phonological stress are verbal nouns of the  $c^*$ ,  $vc^*$  and  $\bar{c}^*$  type (see sections 4.3.3.9, 4.3.3.12, 4.3.3.6).<sup>9</sup>

<sup>9</sup>This distribution is of particular interest from a historical point of view. The verbs of these types have all lost the final Proto-Berber consonant  $*\gamma$  which can still be found in Zenaga (Cohen & Taine-Cheikh 2000, Taine-Cheikh 2008; 2010).

|             |                     |     |
|-------------|---------------------|-----|
| <i>agú</i>  | ‘doing’             | c*  |
| <i>əččú</i> | ‘food, meal, plate’ | č*  |
| <i>əssú</i> | ‘spreading (a mat)’ | č*  |
| <i>əggú</i> | ‘bringing’          | č*  |
| <i>əžžú</i> | ‘planting’          | č*  |
| <i>ufú</i>  | ‘finding’           | vc* |
| <i>uyú</i>  | ‘taking’            | vc* |
| <i>ušú</i>  | ‘coming’            | v*  |

Other nouns with phonological accent on the final syllable are *təžžár* ‘moon’, *təvəl* ‘sheep’<sup>10</sup>, *avú* ‘smoke’, *atalá* ‘linseed’, *izí n agmàr* ‘horse fly’.

There are only two examples with lexical stress on the penultimate syllable: *tǝfǝyit* ‘animal excrement’ and *tqǝrtay* ‘paper’.

### 2.5.2.2 Verbal phonological accent

Within verbal morphology, phonological accent plays an important role, as the perfective receives phonological accent on the final syllable in a large number of verb classes.

The perfective is differentiated from the sequential perfective by this final phonological accent. This situation is, unfortunately, rendered opaque by the fact that Paradisi seems to confuse the two forms in his word list, giving perfective for one verb and sequential perfective for another.<sup>11</sup>

---

The accent of these verbal nouns in Awjila, behaves as if the consonant was still there. A similar situation is found in Tuareg (Kossmann 2011: 50).

|             |                |
|-------------|----------------|
| <i>agú</i>  | * <i>agú?</i>  |
| <i>əččú</i> | * <i>əččú?</i> |
| <i>əssú</i> | * <i>əssú?</i> |
| <i>əggú</i> | * <i>əggú?</i> |
| <i>əžžú</i> | * <i>əžžú?</i> |
| <i>ufú</i>  | * <i>ufú?</i>  |
| <i>uyú</i>  | * <i>uyú?</i>  |
| <i>ušú</i>  | * <i>ušú?</i>  |

Besides the verbal noun there seems to be one other noun with an irregular accent that reflects an old PB \*ʔ, *izí n agmár* ‘horse fly (litt. fly of horse)’ cf. Zng. *iʔžǝi(ʔ)* ‘fly’. For further literature on the development of the PB \*ʔ v. Taine-Cheikh (2004) and Kossmann (2001), Prasse (2011).

<sup>10</sup>These two words both seem to have had a final \*e or \*i in Proto-Berber cf. To. *tehǎle* ‘sheep’ and Ghd. *tazíri* ‘full moon’. This loss of the final syllable is probably the background to the irregular accent.

<sup>11</sup>This confusion is difficult to understand. It is not easy to elicit sequential forms. Without further information about Paradisi’s methods of elicitation, we cannot say more about the unusually high amount of sequential perfectives in the word list.

The difference is much clearer once one turns to the texts, however (see sections 10.5.2, 10.5.3)

As an example, one may take the verb *uf* ‘to find’, which is well-attested in the texts and gives us some insight into the distribution of the accent in the verbal system.

|           |                 |  |
|-----------|-----------------|--|
| <yufâ>    | <i>yufá</i>     | Perfective, 3sg.m. [PT:VII]                          |
| <tûfa>    | <i>tûfa</i>     | Sequential perfective, 3sg.f. [PT:XV]                |
| <yufiten> | <i>yufi=tən</i> | Perfective, 3sg.m. with 3pl.m. Direct Object [PT:II] |

### 2.5.3 Reliability of Paradisi’s accent transcriptions

In this study, we assume that the accent notations of Paradisi are reliable. While there is an obvious rule that governs the placement of accent, we find several exceptions. To confirm that these exceptions are to be considered meaningful, we must get a sense of the quality of Paradisi’s transcriptions in terms of accent. To do so, there are two different approaches. First we compare Paradisi’s transcriptions with others, of better-known Berber languages, and see to what extent they match up with other data.

Second we will compare Paradisi’s transcriptions to those by Beguinot. While Beguinot has not written much on Awjila, we have about 50 words that also occur in Paradisi’s material. The transcription system of Beguinot and Paradisi are similar, therefore it allows us to closely examine the two transcriptions, and see whether they correspond in the ways that we would expect.

#### 2.5.3.1 Paradisi’s accent transcriptions of Zuara Berber

We only have very few publications by Paradisi with transcribed texts in other Berber languages. There is one word list with texts on the language of El-Foqaha (Paradisi 1963a), for which it constitutes the only source. Therefore this publication does not allow us to check the accuracy of Paradisi’s transcriptions. There is one publication by Paradisi which does discuss a better-known variety, Paradisi (1964), which describes a Zuara rite known as *awússu*.

Zuara Berber, spoken in a fishing port in western Libya, has been described and documented by Terence Frederick Mitchell, who collected an autobiography entitled *Ferhat* (Mitchell 2007). This text was republished, along with a grammatical introduction in Mitchell (2009). These publications provide us with a large corpus to check Paradisi’s transcriptions. In addition, I transcribed Paradisi’s text (without accents), and asked a native speaker of Zuara Berber (Fathi N Khalifa) to read it out.

The original text in Paradisi (1964) is as follows.

Télt iyyâm m uwússu āitémm dīs ělmizân g uženná. Īḍ amezwâr ayeḥḥôḡ  
 îtrî, tânî ayeḥḥôḡ tânî n îtrân, ěttâlet ayeḥḥôḡ ttâlet n îtrân. Ba’dên elmîzân.  
 Sébâ’a u ḥamsîn g unébdū ayeḥḥôḡ lmîzân.

Télt iyyâm m uwéssu kmélɛn At Willûl áflɛn l-ílel a'úmmeṇ u ba'dên arôuḥan s ílel. Sá'a árbá'a bá'd úzgɛn n ɛḍ áflɛn l-ílel, qábɛl yeqqâs n tɛuît, a'úmmeṇ. Lbá'd mmídden ggáien g ilogmân dî yîsân d iğyâl l-ílel. Kull l'âilet at'úmm wáḥdes af imānîs. Argâz ayátef l-ílel gɛ ṭhazammît nağ g tɛkmîst, taməṭṭût atátɛf l-ílel gɛ tkəmîst. Aqqîmeṇ g ílel sa'át nnağ sa'át d úzgen. Lbá'd n mídden āifât ɛlmûžet sébá'a marrât. Kull iğğɛn itkéttaḥ g áman af tânî. U ba'dên arôuḥan ɛl-tiddârt. Arékkebeṇ úččû d údi ḥaṣṣ y uwéssu. Atrekkébed amân u ba'dên astâmbɛred tîsent u ba'dên ayâizeg u ba'dên atémbɛred áreṇ u ba'dên āīḍâb, bá'd llî āīḍâb athárrɛked s ũğāṅğâ u ba'dên attâmbɛred g ɛžžɛwâ ɛn qāšqûš u ba'dên atenágled afellâs údi. Aččɛn úččû bá'd llî arôuḥan s ílel, tálğî qabl uzgɛn mm ass. Azgɛn mm ass adîgeṇ améklî, késksû nnâğ d ɛlmakrûnt; Tameddît adîgeṇ améssî.

'Arâbeṇ ennân g télt iyyâm m uwéssu dîs ɛlgáltet, wa lâkeṇ tikerkáas laínna kull l'âilet ta'úmmu wáḥdes. Netnîn qálldeṇ ɛl'âdet n imežwâreṇ. At Willûl fâleṇ l-ílel g uwússu laínna ɛlmufittis g ɛlgéseṇ.

The transcription that I sent Mr. N Khalifa was adapted to agree with general transcription practices of Berber, which allowed him to understand it and read it quite fluently. Nevertheless, reading aloud a text is highly artificial—especially in a Berber context—and one can imagine that different realizations of the text could have occurred if it had been recorded from spontaneous speech.

The transcription below is my rendering of the recording, which I have checked together with Maarten Kossmann.<sup>12</sup> Words in italics represent false starts and similar phenomena, and underlined words indicate phonetic and grammatical deviations from the original text.

Télt iyyám n uwéssu áytəmm dis əlmizán g užənnə. Íḍ aməzwár ayəffəy ítri, táni ayəffəy táni n itrán, əttálət ayəffəy ttálət n itrán. Baʕdín əlmizán. Səbʕa u xamsín g unəbdu ayəffəy əlmizán.

Télt iyyám n uwéssu kmələn At Willul áfləl l íləl aʕúmmən *da...* u baʕdín arəwwəḥən s íləl. Saʕ(a) árbʕa baʕd əzɡən n íḍ áfləl l íləl, qabl yəqqas n təfəwt, aʕúmmən. Lbáʕd nmíddən əggáyən g iləymán d yisán d iğyál [x] íləl. Kúll lʕáyələt atʕúmm wəḥəḍəs af imanís. Árgaz ayátəf g íləl g ṭhazamít nəy əg tkmíst, taməṭṭút atátəf l íləl əg tkmíst. Aqqímən g íləl ssáfət nnəy ssáfət d wəzɡən. Lbáʕd n míddən *ayátəf əlmúžət...* áyfat əlmúžət səbʕa mərɾát. Kull íḍən ikəttəḥ g áman af ttáni. U baʕdín arəwwəḥən l tíddart. Arəkkebən útsu d údi xəṣ y uwéssu. Atrəkkebəd áman u baʕdín astəmbəd

<sup>12</sup>It should be stressed that neither of us has much experience with western Libyan varieties. Therefore our transcription may present similar problems as Paradisi's. This puts considerable weight on the comparison with Mitchell's material.

tísənt u baʕdín *ada...* ayáyzəg u baʕdín atəmbəð árən u baʕdín aydáb, báʕd lli aydáb, athərrəkəd s uyəndʒa u baʕdín attəmbəð g ədʒiwa n qəšquš u baʕdín *asən*— atnəyləd *fəll fəll* áfəllas údi. Átšən útšu báʕd lli arəwwəhən s iləl, talʒí qabl *iq*— ázgən mm áss. Ázgən mm áss adígən amákli, kəksu nnəy d əlmakarúnat; taməddít adígən aməssi.

ʕArábən nnán g *tálət yúm mm...nn...* n uwəssu dis əlyəlʔət, walákin tíkərkas laʕinna kull lʕáyʔət tʕúmm wəhədəs. Nətnín qəlldən lʕádət n iməzwárən. At Wíllul *fáləl* l iləl g uwəssu laʕinna əlfáyttis g əldʒisəm.

Mr. N Khalifa's speech differs somewhat from what Paradisi recorded. The genitive particle *n* does not become *m* before *u* like it does in Paradisi's text, although it does change to *m* in front of *w*. Mr. N Khalifa consistently assimilates the final *n* of the 3pl.m. ending to a following *l*, an assimilation not recorded by Paradisi.

Some lexical items are slightly different, and Mr. N Khalifa consistently has the *État Libre ázgən* after *báʕd* and *qábl* where Paradisi consistently has the *État d'Annexion úzgən*.

With these differences addressed, we can now look at differences in accent. The vast majority of the words have the same accent in my notations, but several differ. The most commonly attested incorrect accents are found with words that end in a |cvc| syllable. Paradisi usually places the accent on this final heavy syllable, also where my data and Mitchell's data have another accent.

*áytamm* corresponds to Paradisi's *āitémm*, this difference is not easily explained. According to Mitchell (2009: 20) the verb *təmm/təmma/ttəmma* belongs to conjugation 8,<sup>13</sup> which has accentuation agreeing with my recording:

yəbədd — yttəbədda — áybədd (dependent yəbədd) — əbədd<sup>14</sup>

*ayəffəy* corresponds to Paradisi's *ayəffəy* which is consistently written with a final accent four times. According to Mitchell (2009: 20) this verb belongs to conjugation 7, which has accentuation agreeing with my recording:

yəlləm — yttəlləm — (a)yəlləm — əlləm

*yəqqas* corresponds to Paradisi's *yəqqās*. My recording disagrees with what Mitchell (2009: 232) gives: *dyəqqās*, which agrees with that of Paradisi.

*áyfat* corresponds to Paradisi's *āīfāt*, this is a conjugation 9 verb in Mitchell (2009: 21), which agrees in accentuation with my recording:

<sup>13</sup>I refer here to the numbers given to the different verb classes by Mitchell (2009). They are different from the conventions in the present book.

<sup>14</sup>The overview of the verbs provided by Mitchell follow the order: perfective-imperfective-aorist-imperative.

yyáb — yttáyab — áyyab (dependent yáyab) — éyab

Interestingly, *ayḏáb* corresponds to Paradisi's *āīḏāb*, where my accent corresponds to that of Paradisi. Because this is also a conjugation 9 verb, both Paradisi and I disagree with Mitchell.

*atrákkabəd* corresponds to Paradisi's *atrekkébed*. My recording agrees with Mitchell's conjugation 2. The aor. 3pl.m. *arékkebeṇ* attested in Paradisi's text also has the correct accent:

yráqqəf — y(ə)ttráqqəf — (a)yráqqəf — ráqqəf

Nominal forms also occasionally differ in accent from what I have recorded, and from what is found in Mitchell's texts.

*užánna* corresponds to Paradisi's *uženná*, this final accent is certainly not present in my recordings, and disagrees with Mitchell's material: *alwžánna* (Mitchell 2009: 232)

*əlmizán* occurs twice in Paradisi's text: *elmîzān* and *lmîzān*. Once it corresponds with my recording, the other time it does not.

The tribal name *At Willul* occurs twice in the text, both times Paradisi transcribed it as *At Willûl*, which disagrees with my data.

*yisán* corresponds to Paradisi's *yîsān*, the accent in my recordings disagrees with Paradisi's transcription.

*Árgaz* corresponds to Paradisi's *Argâz*. Mitchell (2009: 282) has *dárgaz* which agrees with my recordings.

*ssáfat* corresponds to Paradisi's *sa'át* twice, both times with the accent on the final syllable. My transcription corresponds to *gəssáfat* in Mitchell (2009: 252).

*tiddart* corresponds to Paradisi's *tiddârt*. The accent in my transcription has the same position as Mitchell (2009: 256): *ltiddart*.

*áman* occurs twice in the recording, once corresponding to *amân* and once corresponding to *áman* in Paradisi's transcription.

*uyándža* corresponds to Paradisi's *ûgāṅǵâ*. My recordings disagree with Paradisi's transcription.

*qášquš* corresponds to Paradisi's *qášquš*. Once again my recordings disagree with Paradisi's transcription.

*talží* corresponds to Paradisi's *tálǵī*. My recordings disagree with Paradisi's transcriptions, but Mitchell (2009) has this word many times as *tálǵi*, which thus agrees with Paradisi. Mitchell records a few instances where both *tálǵi* and *talží* appear to be possible (Mitchell 2009: 260).

Both my transcription *tíkarkas* and Paradisi's *tikerkâs* disagree with Mitchell, who has this word several times as *tikárkas* (Mitchell 2009: 228).

Twice we find that Paradisi writes *uzgén* and *azgén* where I have recorded *ázgən*. In two other instances in the text, Paradisi has initial accent on this word, transcribed

as *úzgĕn, úzgen*. Both in the État Libre and État d'Annexion, Mitchell always has this word with initial accent (Mitchell 2009: 216, 248).

My *áfallas* disagrees with the corresponding *afellâs*, but it occurs right after a false start of this word, after which Mr. N Khalifa corrects himself. This may have affected the position of the stress. This construction is not attested in Mitchell's material.

As can be seen from the discussion above, there are many examples where Paradisi correctly heard the accent, but also many words where he did not. The most commonly returning incorrect accentuation in Paradisi can be narrowed down to a single type: he often writes an accent on word-final CVC syllables. 10 out of 25 differences in accent between Paradisi's and my transcriptions are cases where Paradisi recorded the accent on the final CVC syllable, where I recorded it on another syllable.

This has several implications for the interpretation of the Awjila material. As has been discussed in section 2.5.1, in Paradisi's transcription of Awjila the accent always falls on the final heavy syllable (either *cvc(c)*, or *cæcc*).

This rule must therefore be treated with some care, as Paradisi seems to apply the same rule to Zuara Berber, where it certainly does not apply. Paradisi's accent notations in cases where no final heavy syllable is available, seem to be more reliable.

### 2.5.3.2 Paradisi's accent compared to Beguinot's

Beguinot (1921; 1924; 1925) recorded several examples of Awjila Berber words, many of which are also attested in Paradisi's material. By comparing the material of these two sources, whose transcriptional methods are very similar, we can get a sense just how accurate Paradisi's transcriptions are.

There are 49 lexical items that Beguinot has in common with Paradisi, they are included in Appendix B. Nine of these lack accentuation in one of the sources. Most of these nine words are monosyllabic words.

35 lexical items have the accent in the same position in Beguinot and Paradisi. Even words that have the accent in an irregular position, are found both in Paradisi and Beguinot, cf. Beguinot <tiſî> and Paradisi <tiſî> 'egg', Beguinot <tevél, tvel> and Paradisi <tevél> 'sheep', Beguinot <yurév> and Paradisi <yurév> 'he wrote'. Some of these words are monosyllabic, which means that the accent, of course, could not have been on another syllable in one of the two sources. There are two monosyllabic nouns, three if you count <āġĕv, āġf, âġf> 'milk'.

While the majority of the lexical items have the same accent, there are three items that differ in accent between Beguinot and Paradisi, cf. Beguinot's <ġîdeven> and Paradisi's <ġîdêven> 'wolves, jackals', Beguinot's <tnebrét> and Paradisi's <tenébret> 'needle', Beguinot's <āġareš> and Paradisi's <aġărăš> 'to slaughter'.

There is one word where Beguinot lists two accentual variants, where Paradisi has one form, that agrees with one of the two variants: Beguinot <aġîdev, eġîdév> Paradisi <aġîdev> 'wolf, jackal'.



Finally, there is a form where Beguinot only has one variant, while Paradisi has two: Beguinot <ežefû, eževû, eževû> Paradisi <aževû, ažévû> ‘hair’.

While Paradisi’s transcriptions of Zuara may raise the suspicion that Paradisi was not particularly strong at hearing the place of the accent, the material of Awjila appears to be consistent with what Beguinot has. Paradisi obviously had a much deeper knowledge of Awjila than he did of Zuara, and his transcriptions may therefore be much more reliable.

