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# Action nouns in Zenaga Berber of Mauritania

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## 1. INTRODUCTION

As in many languages, lexemes in Berber are divided into several syntactic classes. The two most important are verbs and nominals. The case of adjectives is more complex: in some varieties of Berber, adjectives behave like a subclass of nominals, while in others they constitute a particular syntactic class, intermediate between the two main classes (Taine-Cheikh 2014). Zenaga belongs to the second group and this is the reason why I have preferred to talk about conjugated adjectives rather than conjugation of qualitative verbs, as not all verbs with qualitative meaning have a conjugation distinct from that of other verbs.

Many verbs have nouns with more or less predictable meaning that can be called verbal nouns. Some of them, with a nasal prefix (usually *m*, more rarely *n*), mainly provide agent or habit nouns. Others, with a sibilant (or 'S') prefix, are the source, among others, of instrumental nouns. The most numerous, however, have intrinsic semantics linked to that of the conjugated form and mean 'the fact of...'. Although they concern action verbs as well as stative verbs and even, in the case of Zenaga, conjugated adjectives, I will call them action nouns (henceforth AN) to distinguish them from other verbal nouns.

Galand (2002) and Taifi (2006) have precisely described the syntactic uses of ANs and in particular the 'internal complement' constructions where the complement is a nominal derivative (AN) of the same root as the verb. The anteposition of the AN as in *tarewla irwel* 'the flight, he fled' and *tabexni ibexxin* 'the whiteness, he is white' (Taifi 2006: 245) is impossible in Zenaga. On the other hand, Zenaga allows the more frequent construction where the internal complement, postposed to the verb (transitive or not), itself bears a determiner, e.g. *ämūrih yuḍraḗ mārih aḍruḗ aḗuḗan* 'the employee seasoned the rice well' (lit. '...with a good seasoning'). On the other hand, Zenaga uses

ANs to express a high degree, in an exclamatory construction of the type *aḍ* + AN + *an...* which is specific to this language (Taine-Cheikh 2012: 280-283), e.g. *aḍ äymandḥ-an-k!* 'how beautiful you are!' (lit. 'with beauty-of-yourself').

While ANs seem to be used in almost all varieties of Berber,<sup>1</sup> a detailed description is not often available. I propose here to complete the study started in 2012 on the formation of ANs in Zenaga.

In the first part (2.), I inventory the different vowel patterns found, in relation to the gender of the AN and the properties of the verbs (semantics and/or bi- vs. plurisyllabic form). In the next part (3.) I analyse all the characteristics of the AN, in particular from the point of view of the root (gemination vs. de-gemination, realisation of certain radicals and of the feminine suffix) and in relation to the verbal patterns.

## 2. VOWEL PATTERNS OF ACTION NOUNS

In Zenaga, some basic principles underlie the functioning of the morphological system - especially that of verbs (see Cohen & Taine-Cheikh 2000, Taine-Cheikh 2009).

i) The vowel system has 3 short phonemes (*a*, *i* and *u* - with a frequent reduction of the /i/ vs. /u/ opposition to /ə/) and 3 long phonemes (*ā*, *ī* and *ū*), but the verbal morphology is based on an interplay of oppositions between 'a'-type vowels (*a* and *ā*) and 'non-a'-type vowels (*i*, *u*, *ə*, *ī* and *ū*).

ii) The aorist (A) and imperative (I) modes and the indicative aspects, perfective (P) vs. imperfective (IA) — positive vs. negative — of the verb are mainly determined by the vowel patterns, but a distinction must be made between basic ('bare') and derived (prefixed) verbs, and between bisyllabic and trisyllabic (or even quadrisyllabic) verbs.

iii) While passive forms of active verbs are derived by prefix, like causative and reflexive verbs, there are middle (or internal) verbs and stative verbs which constitute, by virtue of their vowel patterns, particular verbal sub-categories.

Since every non-passive verb (action, stative or internal) has a potential corresponding AN in Berber, it is questionable whether these three main principles have the same

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<sup>1</sup> Their presence is sometimes very discrete, as in Ghomara where the majority of ANs come from Arabic (Mourigh 2016: 123)).

importance for this area of nominal morphology, however there is still the distinction between 'a' and 'non-a' vowels.

I will start with the most frequent patterns and group together the rarest 2.9. For each vowel pattern, I will look at the masculine AN (MAN), then the feminine AN (FAN), generally less frequent.

Unless otherwise specified by (P) for perfective, the verbs will be given here in an imperative form (I) or, failing that, with the aorist pattern (A). The meaning of the AN, unless otherwise specified, corresponds to 'fact of...' or 'state of...'.  
2.9

There are many variants, often without any semantic difference (including between MAN and FAN), but when there is a difference, it is indicated (in particular by the use of UAN if one of the variants has the meaning of a unitary noun).

## 2.1. Bisyllabic ANs in 'non-a'

### 2.1.1. Masculine ANs

A very large number of bisyllabic verbs have a 'non-a' MAN. In this case, the AN has the same pattern as the negative preterite (which, for some verbs, is identical to the aorist). In a few rare ANs, one of the 'non-a' vowels (or even both) is an *a*, e.g. AN *əgəf* from *əgəf* 'be afraid'; AN *ugməš* from *əgməš* 'make a knot; be miserly'. However, the most common 'non-a' vowel is *u* (or *ū*). Examples: AN *ūnnəg* from *ūnnəg* 'be afflicted with ophthalmia'; AN *unkur* from *ānkur* 'stand up; explode (gun)' and *unkur* 'be scraped (bone)'; AN *užun* from the stative verb *ažun* 'be shared' and from the action verbs *užun* 'share (oneself)' and *ažun* 'share'. These examples show that this pattern can be that of an action or stative verb. *ərīh* 'be raw' is, however, the only case of an AN in 'non-a' corresponding to a conjugated adjective, that of *ārāh* 'raw'.

### 2.1.2. Feminine ANs

FANs are quite frequent (about thirty) but much less frequent than MANs of the same pattern. In some cases, they coexist with MANs, regardless of whether they have the same pattern. They can then be simple variants of the MAN, e.g. AN *təttəl* from *ättiy* 'be rolled up; roll up', variant of *ättiy*. They may have a more specialized meaning, e.g. AN *tuzzi'd* from *azzi* 'plait hair', while *uzzi* is also an AN from *azzi* in the sense of 'weave (a mat)'. Finally, they can have a clear sense of a one-time (or unitary) noun, e.g.

UAN *tīkih* (/AN *ukfī*) from *ākfi* 'give'; UAN *tu<sup>2</sup>ṁmuD* (/AN *u<sup>2</sup>ṁuḍ*) from *u<sup>2</sup>ṁuḍ* 'close of itself'.

In general, however, FANs are the only ones used, possibly with a unitary noun meaning, thus AN *tugguZ* from *yo<sup>2</sup>gəž* 'know'; AN *tumṁuZ* from *a<sup>2</sup>ṁuž* 'bite'; AN *tīrih/ti<sup>2</sup>rih* from *tīrih/i<sup>2</sup>rih* 'dictate'; AN *təd(d)rih* from *äddər* 'sting'; AN *ti<sup>2</sup>gərt/ti<sup>2</sup>grih* from *o<sup>2</sup>gər* 'fly'; UAN *tu<sup>2</sup>šbih* from *a<sup>2</sup>žuf* 'take a sip, a puff'; (U)AN *tīngəmt* from *tīngəm* 'have a craving (for a pregnant woman)'.

In three cases the verb is monosyllabic, thus AN *tīžih* from *ūž* 'be near parturition'.

## 2.2. Bisyllabic ANs in 'a'

### 2.2.1. Masculine ANs

*āwäy* 'speech, language' serves as the AN of the derived verb (*iš*)*šīwiy* 'speak', but MANs in 'a—a' are usually the ANs of bisyllabic verbs. These ANs may be the only variant in use (5 cases): AN *aṛaf(f)* from *ärəf(f)* 'cook in water'; AN *āyäs* from *āyäs* 'mow'; AN *a<sup>2</sup>gäs* from *agūs* 'clean'; AN *äybbäd* from *äḥbud* 'jump; leap'; AN *a<sup>2</sup>rār* from *a<sup>2</sup>rār* 'play'. But these are more often variants of an AN in 'non-a—non-a'. Sometimes the meaning differs, such as in AN *älläg* from *ällig* 'become calm; stand still' and AN *əlläg* from *ällig* 'be calm'. The meaning is more specific for AN *äynaž* from *äynuž* 'remove liquid from the pot' than for AN *uynuž* from *äynuž* 'decrease'. It is less so for *ašta* 'braiding hair; weaving (a mat)' than for *uzzi* and *tuzzi<sup>2</sup>d*, other ANs from *azzi*. More frequently (11 cases), the meaning is the same, e.g. AN *ağnäs/ugniš* from 'put on the fibulae'; AN *aynäs/ugnäs* from *ognäs* 'argue'; AN *aḥräd/ufḥuḍ* from *äḥruḍ* 'oblige'; AN *äyraud/ugruḍ* from *ägruḍ* 'scrape (to clean up)'; AN *äräž/ərəž* from *äriž* 'be late or make late'; *ättäy* variant from *əttiy* (and *təttəl*).

### 2.2.2. Feminine ANs

The FAN in 'a—a' is very frequent. First of all, it is almost the rule for conjugated adjectives, whether they express a colour, a defect or some other quality. Examples: *tbäydağd* 'being blue or green (*bäyḍig*)'; *tbarbaD* 'being of two colours, other than white and black (*barbuḍ*)'; *tkäbbänt* 'state of being deep (*käbbun*)'; *tkägäS* 'being blind (*käygiš*)'; *tšäyf(f)aD* 'being unsightly (*šäyfä*)'; *ta<sup>2</sup>zzagt* 'being heavy (*a<sup>2</sup>Zag*)'; *täza<sup>2</sup>rt* 'being thick, fat (*žā<sup>2</sup>w(w)ur*)'; *tkäyäl* 'being short or dwarfed (*käyīy*)'; *taršaD* 'being stinky (*rašsuḍ*)'.

This FAN is very often used for both the conjugated adjective and the corresponding verb expressing becoming (in this case, the latter is most often a trilateral verb). Examples: *tādāL* 'be (*ādāy*) or become (*idīy*) black'; *tkaʹrās* 'be (*koʹriš*) or become (*ukkuʹriš*) active'; *ṭharfāft* 'be (*ḥarfuf*) or become (*uḥḥurfuf*) hard'; *tgäygāmt* 'be (*gäygum*) or become (*uggiygəm*) soft, smooth'.

Many other verbs have this same FAN, often as the only AN, e.g. AN *taḍah* from *aḍih* 'pant'; AN *taʹškākt* from *aʹzi* 'build'; AN *tgayät* from *aḡyih* 'wait'; AN *tānnāgt* from *īnnag* 'avoid'; AN *tāysākt* from *okši* 'graze' and *ätyši* 'dress'; AN *tkäsräh* from *okšar* 'go downstairs'; AN *tnäzād* from *änzih* 'sell'; AN *tärḍäh* from *äräd* 'bathe'; AN *träwyä* from *ärwiyi* 'flee'. This is often also a variant of a MAN (sometimes in 'a', but more often in 'non-a') like AN *tḍagräh* (/əḍgər) from *äḍgər* 'be decorated; decorate'; AN *tḍämnäh* (/əḍmən) from *äḍmən* 'let flour stand with yeast (so that it rises)'; AN *tgämkih* (/ugmuk) from *ägmuḡ* 'follow'; AN *tgänäh* (/ugun) from *ägun* 'barrack'; AN *tkäššäft* (/ukšuf) from *äkšuf* 'shame'; AN *täzyäh* (/əziy) from *äziy* 'be quick'.

Note that a number of trisyllabic verbs have a bisyllabic FAN, such as AN *tgaʹfät* from *əḡḡuʹfəh* 'go north'; AN *tḥärgaL* from *əffərgiy* 'be afraid'; AN *tfaʹgärt* from *uffüʹgər* 'be proud (of)'. The same applies to some derived verbs. Examples: AN *tšäffärt* from *aššəffər* 'be next to'; AN *tšaʹf(f)aD* (variant *äʹšuʹf(f)uḍ*) from *šuʹf(f)uḍ* 'accompany'; AN *tmaḡzäl~tmaḡzäyḍ* from *umḡuḡziy* 'be or become hungry'; AN *tämrärt* from *ämrrär* 'go quickly'.

## 2.3. AN in 'a—non-a'

### 2.3.1. Masculine ANs

Some verbs have a single AN in 'a—non-a'. Examples: AN *oʹdyub* from *uʹdyub* 'admire'; AN *aḍruḡ* from *aḍruḡ* 'be accompanied by milk, butter, sauce (dish, platter); add a condiment'; AN *aṛih* from *aṛih* 'overcome'; AN *äskər* from *äskər* 'make'; AN *ässən* from *ässən* 'know'; AN *ässir* from *ässir* 'veil'; AN *äsbiy* from *äsbiy* 'hinder'; AN *äwTʹuf* from *ätʹif* 'let go; lend money'; AN *äwtʹum* from *ätʹəm* 'enter'; AN *äʹziḡ* from *äziḡ* 'take sth and leave quickly with'; AN *aʹmäd* from *amid* 'finish'.

In other cases, this is one of the existing variants, often next to a AN in 'non-a'. Examples: AN *aḍḍih* (/uḍih) from *aḍih* 'fold'; AN *aḡəmḍ* (/rarer] uḡmuḍ) from *aḡmuḍ*

'close'; AN *äššumḍ~äʕšmuḍ* (/išmuḍ) from (*ä*)šmuḍ 'shower'; AN *äʕšnīy* (/išnīy) from *ašnīy* 'be smart'; AN *ažəməḍ* (/rarer] *užmuḍ*) from *užmuḍ* 'close'.

### 2.3.2. Feminine ANs

While *ažəDʷ* (variant *užmuḍ*) 'being sweet to the taste (*ažmuḍ*)' is the only AN in 'a—non-a' from a conjugable adjective, this pattern is quite common for FANs from conjugated adjectives and/or verbs 'become...'; see AN *toʕziḥ* from *oʕZuf~uʕz(z)uf* '(to be) long'; AN *tyäriʕḍ* (variant *tyärät*) from *yärä* '(to be) yellow'; AN *täšumḍ* (variants *t(ä)šmaḍ*/*t(ä)šammaḍ*) from *išmaḍ* 'become cold'; AN *taḡziḥ* (variant *uḡziḥ*) from *mazzūg* '(to be) small' and *uḡziḡ* 'become small'; AN *täšmimḍ* (variant *täššəmmih*) from *šəmuḡ* '(be) bitter' and \**ašməḡ* 'become bitter'.

However, this AN is attested in other cases. Examples: AN *tyäguḍ* from *äykuḍ* 'be ashamed'; AN *täzəl* from *awziy* 'sneak'; AN *tyägumḍ* from *ätʕkəm* 'reach (a place...)'; AN *täwriḥ~tōriḥ* (uncommon variant *ūriḥ*) from *ūriḥ* 'work'; AN *tagmiʕḍ* from *aḡmi* 'put on henna'; AN *tagžuz* from *aḡžuz* 'crush on the molars'; AN *tagriʕḍ* from *aḡri* 'read'; AN *tänəkt* from *änig* 'ride a horse; mount'.

Some FANs have a particular use, such as AN *toʕzuḡḍ* from *azzig* 'be milked' whereas *äʕziḡ* is the AN of *azzig* 'milk' or AN *täydʕəḡt~täyDʕəḡt* from *ädʕig* 'drive; spell' whereas *iDʕəḡ~ədʕig* is only the AN from *ädʕig* 'spell'. *tmankurt* is the AN from *unkur* '(get up)' and *traziḥ* the AN from *aḡzi* '(break) up'.

Finally, this pattern is attested for some trilateral or derived verbs such as AN *täyšbət~täyäšbət* (variant *oʕkušbih*) from *əkkušbih* 'grow'; AN *tgämkiḥ* from *ägämkih* 'spell out letters'; AN *täniz* (variant *äniz*) from *ənniz* 'be close, to approach'.

## 2.4. AN in 'non-a—a'

### 2.4.1. Masculine ANs

Only three MANs have this pattern: *uḍaš*, which serves as the AN from (*uḡ*)šumḡih 'sleep'; *əts(s)än*, a possible variant of *täysäkt* as the AN from *ätʕši* 'dress'; AN *užmah* (preferred to *ažmi*) from *ažmuḡ* 'sew'.

### 2.4.2. Feminine ANs

FANs in 'non-a—a' are less rare. Eight of them have no variant, thus AN *tuʕvräh* from *oʕḡar* in the sense of 'fill'; AN *tiʕšaḍ* from *äʕši* 'buy'; AN *tugāḥ* from *okkih* 'carry; be pregnant'; AN *tuyah* from *ällih* 'search'; AN *t(ə)närt* from *yinər* 'orient'; AN *tūḍad* from

*ūḍih* 'repudiate (one's wife)'. Two conjugated adjectives have an AN of this type: *tīnāT* 'be new (*āynāh*)'; *tuṣḥad* 'be strong (*aṣḥah*)' while 'strengthen' (the AN of *uṣḥih*) is pronounced *uṣḥih* rather than *tuṣḥad*.

About the same number have a variant. Sometimes there is a difference, like UAN *tazzād~təzād* and AN *əzīh* from *āzīh* 'remove the skin'. Most often there is no difference in meaning whether the variant is a MAN or FAN: AN *tuggāh* (variant *uggīh*) from *oggīh* 'end, dry up'; AN *t(i)yaṭS* (variants *uḥtiš*, *ḥattäS~ḥat(t)šāh*) from *aḥtiš* 'cut off'; AN *tumḍād* (variant *umḍih*) from *umḍih* 'be old; age, wear out'; AN *ti²wrāh* (variant *ta²rt*) from *u²wur* 'become dry'; AN *ti²grāh* (variants *ti²gärt~ti²grih*) from *o²gār* 'steal'. The same applies to the AN of two derived verbs including AN *tgi²Wärt* (variant *äzgi²Wər*) from *ižgi²wur* 'betray trust'.

## 2.5. Plurisyllabic AN in 'non-a'

### 2.5.1. Masculine ANs

Plurisyllabic ANs in 'non-a' are common for trisyllabic verbs, examples AN *i²gəTyi* from *i²gəTyi* 'be innumerable; increase (for noise)'; AN *əftəntər~uftəntər* from *uftəntər* 'swell, swell'; AN *ignəḍi* from *əgnəḍi* 'tremble with cold'; AN *ərgəgi* from *ərgəgi* 'shiver'; AN *ūzīrīh* from *ūzīrīh* 'be separated; part'; AN *iymundur* from *iymundur* 'be beautiful'.

They are also used for nasal derived verbs such as AN *unu²gər* from *unu²gər* 'run away in hiding; deny'; AN *umgəgi* from *umgəgi* 'collapse (for a well)'; AN *əməgyih* from *əmməgyih* 'lunch'. For verbs derived in 'S', however, they are exceptional. Let us nonetheless mention *əšmu²ḍi* (variant *ä²šmu²ḍi*) AN from *əšmu²ḍi* 'hide one's face' and *ižbumḅi* AN from *ižbumḅi* 'carry a child on one's back'.

### 2.5.2. Feminine ANs

A trisyllabic FAN appears for only two bisyllabic verbs: AN *təžəšših* from *ät²ši* 'eat' and AN *təžəšših* from *äšbi* 'drink'. *təžəšših* is in competition with *əžəšši* – one of the two MANs in this bisyllabic verb pattern.

## 2.6. Plurisyllabic AN in 'a'

### 2.6.1. Masculine ANs



This pattern is the only one attested for 9 bisyllabic verbs: *əḏræg* 'be polygamous' (AN *ādāräg*); *aġni* 'be rich' (AN *äyġanä*); *ämšuḏ* 'comb' (AN *ämäšaḏ*); *ässəf* 'pluck' (AN *ässäḏäf*); *aḏyuḏ* 'walk by night' (AN *äḏayaḏ~aḏaD'aḏ*); *äkfiy* 'climb' (AN *ägäffäy*); *äktub* 'write' (AN *ägättäb*); *ärtiy* 'cover (a dead person)' (AN *ärättäy*); *äzziy* 'swear' (AN *äzäddäy*).

But this trilateral pattern frequently alternates with a biliteral pattern:

— a FAN in 'a' for *ädġən* 'grease' (AN *ädäggän/täġnäh*), *ägwiḥ* 'bellow' (AN *ägäbbäh/tgäwät*) and *äyмуḏ* 'be thin' (AN *äyammaḏ<sup>o</sup>tyammaḐ*);

— a MAN in 'non-a' for *ädḡər* 'speak' (AN *ädämmär/əḏḡər*), *äfrəḏ* 'pick' (AN *äffäräd/ufrəḏ*), *ogri(i)ḥ* 'hear' (AN *ägäräh/ugriḥ*), *ägyub* 'be ravenous' (AN *ägäyāb/ugyub*),<sup>2</sup> *ägñih* 'be angry; anger' (AN *aġannäh/uġñih*), *aġyiḏ* 'forget' (AN *aġalläd~aġayäd/[rarer] uġyiḏ*), *änšuḏ* 'fall' (AN *anaḥḥaḏ/ünšuḏ*), *ärfən* 'make dirty' (AN *äräffän/ərən*), *ädḡmin* 'make commitments' (AN *aḏammän/uḏḡmin*), *äsḡəm* 'level' (AN *ässäräm/əsḡəm*), *ällig* 'be calm'<sup>3</sup> (AN *ättäyäg/älläg*).

Only a few ANs in 'a' correspond to trisyllabic or derived verbs: AN *äybaḏa* (irregular) from (*iš*)*šiybuḏ* 'entrust'; AN *äġaD'äḏ* from *aġaD'äḏäh* 'show laziness'; AN *äddäwäm* from *ädämäh* 'go on; be of permanence'; AN *ä'zza'war~ä'zza'war* from *äzzi'wur~äzzi'wur* 'render thick; ennoble'; AN *a'ġaḏah* (variant *ä'ġuḏih*) from *ägguḏih* 'be or become drowsy'.

### 2.6.2. Feminine ANs

*täffa'gäġt* is the AN of the adjective *fö'gug* and the verb *äffa'gäg* 'have buck teeth'. However, apart from AN *tärka'gämt* (variant *ərki'gim*) from *urku'guḡ* 'be calm' and AN *ta'maqqas* from the Arabicised verb *a'maqqas* 'struggle before death', the few plurisyllabic FANs in 'a' correspond to bisyllabic verbs, such as AN *tänändräh* (~*tnändräh*) from *ändər* 'burn'; AN *tagayäs* from *aġyiš* 'be safe and sound'; and AN *täzägärt* (one of four) from *äzġər* 'sprout'. Note AN *täsäkräh* from *äskər* 'relieve oneself' while its AN is *äskər* for the less specific sense of 'do'.

## 2.7. AN in 'a—a—non-a'

### 2.7.1. Masculine ANs

<sup>2</sup> As AN of *ägyub* 'having rabies', *ugyub* alternates with *tgäybäh*.

<sup>3</sup> With the meaning 'become calm; stand still', *ägyub* has for AN *ädäyäg* or *älläg*.

The ANs in the 'a—a—non-a' pattern are those of 17 bisyllabic verbs. This pattern is the only one attested for 6 verbs: *ānwi* 'cook; ripen' AN *ānābbi*; *aṛḏiy* 'lend' AN *aṛaḏiy*;<sup>4</sup> *ārkiy* 'be defiled; defile' AN *aṛaguy*; *āymi* 'be softened; soften' AN *āyāmmi*; *aṛi* 'find' AN *aṛāri*; *əṛrīh* 'hunger (animal)' AN *āṛārīh*.

They can alternate with other MAN patterns (most often in 'non-a'): *aṭsi* 'laugh' AN *aḏaṣṣi*/[less good] *uṭsi*; *ānki* 'smell' AN *ānākki/ānki*; *ānti* 'sting' AN *ānātti/ānti*; *aṣṣīg* 'strangle' AN *aṣṣāD'īg*/[less good] *uzzīg*; *aḡriš* 'be sure' AN *āttaḡrāš/uḡriš*; *aṛīh* 'increase' AN *āššārīh/aṛīh*; *ārwiḥ* 'be stirred up; stir' AN *ārāwiḥ/ārābbāh*.

In a few cases, this pattern has a FAN variant. This feminine provides a UAN for three verbs: *aṛzi* 'break' MAN *aṛāzi* and UFAN *ṭaṛāzīh*; *aṛzum* 'untie; pay' MAN *aṛāzəm* and UFAN *tāraṛāzīmih~t(a)raṛāzəmt*; *ātfi* 'spill' MAN *ādāffī* and UFAN *tādāffī'ḏ*. It is a simple variant for *ṣṣu'r* 'see' MAN *aṛāri*/FAN *tma'ḏārt~tāmmi'ḏrāh*. As for *āzri(i)h* 'follow', it has two MANs *āzāri/əzri* and one FAN *tzārāT*.

Only five plurisyllabic verbs have a MAN of this pattern: *ru'ri* 'vomit' AN *āra'ri*; *ižo'zi~ižo'Ži* 'shout' AN *a'žo'Ži~a'žāw'Ži*; *āmṣuḡnāh* 'get angry' AN *āymaḡnīh/ā'muḡnīh*; *əššəgi* 'miss a day' AN *ā's(š)əgi*/[better] *ā's(š)əgi*; *əddurḡiy* 'become one-eyed' MAN *ā'ḏārwiḡ* and UFAN *tḏārgāL*.

### 2.7.2. Feminine ANs

Among the dozen or so bisyllabic verbs with this FAN, there is *aṛzum* 'untie; pay' and *ātfi* 'reverse' which have (cf. 2.7.1) a UAN in 'a—a—non-a'. In four cases, the FAN is attested alongside a MAN in 'non-a': *əḏbi* 'do penance' FAN *tā'ḏābi'ḏ* (*uḏbi~əḏbi*); *ābḏīh* 'walk' FAN *ta'wāḏīh* (*ibḏīh/iḏīgž~i'žigž*); *āzgi* 'take' FAN *tāzōggi'ḏ~tāzāwggi'ḏ* (*izgi*); *āddīh* 'go astray' FAN *ta'wāḏīh*).<sup>5</sup>

In six cases, the verb has only one FAN (or two): *āza'r* 'be impregnated (female)' FAN *tāzā'rih*; *ānši* 'extinguish' FAN *tānāssi'ḏ*;<sup>6</sup> *ānzi* 'forgive' FAN *tānāzzi'ḏ*; *āttar* 'ask' FAN *ta'wāḏrih~tāwāḏrih*; *āzyih* 'throw away' FAN *tāzāyāT~tāyāT*; *āykuḏ* 'be ashamed of' FAN *tāyāguD~tyāguD*.

Only two trisyllabic verbs have an AN in 'a—a—non-a': *aṣṣalli* 'pray' FAN *ta'zālli'ḏ* and *əkkušbih* 'be great; grow' FAN *tāyāšbāT~tāyšbāT* (*o'kušbih*).

<sup>4</sup> *urḏiy* means 'made to measure', but this meaning has not been noted for the verb *aṛḏiy*.

<sup>5</sup> It is *əḏbi* in the sense of 'die' which has for AN *uḏbi/əḏbi*.

<sup>6</sup> *ānši* 'spend the night' has for AN *tānsākt*.

## 2.8. AN in 'a—non-a—non-a[—non-a]'

### 2.8.1. Masculine ANs

Two cases can be distinguished, depending on the presence or absence of a laryngeal after the initial *ä*-.

a) This pattern is very frequent with a laryngeal.

For trisyllabic verbs and nasal derivatives, this pattern may be either a variant of another pattern, usually the one in 'non-a', or the only pattern used. Examples: AN *ä<sup>2</sup>mugrih* (*/um̩mugrih*) from *um̩mugrih* 'return'; AN *ä<sup>2</sup>muḍriš* (*/muḍriš*) from *um̩muḍriš* 'die without having one's throat slit'; AN *ä<sup>2</sup>nu<sup>2</sup>maš* (*/ənu<sup>2</sup>maš*) from *ənnu<sup>2</sup>miš* 'love'; AN *ä<sup>2</sup>mənšəh* (*/əmənšəh*) from *əmmənšəh* 'dine out'; AN *ä<sup>2</sup>ḥurgiy* from *ubḥurgiy* 'give zrig or very diluted tea'; AN *o<sup>2</sup>burbuḍ* from *ubburbuḍ* 'become spotted'; AN *ä<sup>2</sup>muktər* from *u<sup>2</sup>muktər* 'ride on the rump'; AN *ä<sup>2</sup>fugiyih* from *uffugiyih* 'be bald'; AN *o<sup>2</sup>fušsi* from *affašsi* 'be silent'; AN *o<sup>2</sup>kušbih* from *əkkušbih* 'become tall'; AN *ä<sup>2</sup>nəram* from *ənnəram* 'writhe in pain'; AN *ä<sup>2</sup>gūḍər* from *uggūḍər* 'invite oneself to eat'; AN *ä<sup>2</sup>gəngiyi* from *əggungiy* 'itch'; AN *ä<sup>2</sup>ki<sup>2</sup>giš~ä<sup>2</sup>kugīgiš* from *ikkīgəš* 'become blind'; AN *ä<sup>2</sup>kugīh* from *əkkugīh* 'burn (food)'; AN *ä<sup>2</sup>kənfih* from *əkkənfih~ukkunfih* 'take a rest'.

For 'S' derivatives, the *ä<sup>2</sup>*- pattern is practically the rule, e.g. AN *ä<sup>2</sup>šfugiyih* from *əšfağyäh* 'make bald'; AN *ä<sup>2</sup>ski<sup>2</sup>giš* from *əška<sup>2</sup>gäš* 'make blind'; AN *ä<sup>2</sup>zguḍih* from *əzguḍih* 'put to sleep'; AN *ä<sup>2</sup>šquffih* from *əšru<sup>2</sup>giy* 'anger'; AN *ä<sup>2</sup>šwuḍih* from *əšwuḍih* 'send'; AN *ä<sup>2</sup>šnūḍih* from *əšnūḍah* 'separate'; AN *ä<sup>2</sup>škunfih* from *əškənfih~əškunfih* 'force to take a break'.

Note that this *ä<sup>2</sup>*-prefixed pattern is sometimes used as an AN in *m* of bisyllabic verbs, such as AN *ä<sup>2</sup>mərdih* from *urḍih* 'be happy' and AN *ä<sup>2</sup>mundug* (*/undug*) from *andug* 'taste'.

b) This pattern is very rare without a laryngeal. It is found for some bisyllabic verbs, but never as the only variant: AN *ättūkiy* (*/ūkiy*) from *ūkiy* 'love'; AN *äzəggər* (*/əzɡər*) from *əzɡər* 'go out'; AN *äššəlli(i)h* (*/[better] əšt<sup>2</sup>ig*) from *əšt<sup>2</sup>ig* 'curdle (for milk)'. For trisyllabic verbs, on the other hand, it is the only AN used in two out of three cases: AN *äffi<sup>2</sup>ri* from *əffi<sup>2</sup>ri* 'fall apart (for a hole)'; AN *äzəzrih* from *əzəzrih* 'make follow'; AN *äzgi<sup>2</sup>Wər* (variant *tgi<sup>2</sup>Wärt*) from *izgi<sup>2</sup>wur* 'betray trust'.

### 2.8.2. Feminine ANs

This pattern is attested for some bisyllabic verbs, but without the laryngeal in the first syllable (note that three times out of four there is one in the second syllable): AN *taḏuʳih* (/uḏur) from *aḏur* 'fall; raid'; AN *täguʳih* from *ägur* 'draw water from a well; rise (star)';<sup>7</sup> AN *tämuʳi* from *umuʳ* 'get older'; AN *täš(š)əddih* from *əštiḏ* 'become slim' and UAN *tändiywih* (AN *unḏuy*) from *ändiy* 'entomb'.

Besides *tässəḏbəd*, the AN of the 'S'-derived verb (*əs*)*səḏbih* 'leave in the afternoon', two other ANs correspond to both a trisyllabic verb and an adjective AN: *täššəmmih* (/təšmim) from (*ət*)*təšmim* 'become bitter (*šəmmum*)' and AN *täzibbiʳḏ* from *izibbi* 'turn red (*žəḫḫä*)'.

## 2.9. Other cases

### 2.9.1. Monosyllabic in 'non-a'

Eight MANs are in 'non-a', but only one corresponds to a monosyllabic verb: AN *ūr* (/tārt) from *ūr* 'associate'. Apart from *grər* which serves as AN for *əssigrəd* 'drive', all the others correspond to bisyllabic verbs: AN *əbg* (/uḫḫug) from *uḫḫug* 'be far away; move away'; AN *ədʳg* (/iDʳəg/täydʳəgt) from *ädʳig* 'spell'; AN *fkun* from *ufkun* 'grow old'; AN *məd* (/aʳməḏ) from *amid* 'finish'; AN *šhur* from (*ə*)*šhur* 'absorb sth at daybreak (when fasting)'; MAN *ūktʳ* (/ūkiy/ättūkiy) from *ūkiy* 'love'.

Only two FANs are in 'non-a': AN *tīgt~tīkt* from *tīg* 'hurt; make hurt' and AN *tītš* (/t(i)yaṯS/tḫattäS/uḫtiš) from *aḫtiš* 'cut'.

### 2.9.2 Monosyllabic AN in 'a'

The only MAN in 'a' is *ṛkaʳz̄z̄*, AN of the trisyllabic verb (P) *yaṛkaʳz̄a* 'grill (meat)'.

Nine FANs are in 'a'. Four of them correspond to monosyllabic verbs and five to bisyllabic verbs: on the one hand, AN *taʳD* (/taʳäḏt/tuʳuḏ) from *aʳḏ* 'tend'; AN *tārt* (variant *ūr*) from *ūr* 'join'; AN *toʳft* from *uʳf* 'swell'; AN *taʳft* from *aʳf* 'yawn'; on the other hand, AN *taʳrt* (/tiʳwräh) from *äʳwur* 'be dry' and *uʳwur* 'become dry'; UAN *trämt* from *ärəm* 'open' (AN *ərəm*); AN *trämS* from *ärməš* 'take'; AN *tyamZ~tʳämZ* from *äymuž* 'swallow'; UAN *tžamD* (/tžamḏah) from *ažmuḏ* 'close' (AN *ažəḫḏ/užmuḏ*).

### 2.9.3. ANs in 'non-a—a—non-a'

<sup>7</sup> *täguʳih* has for variant *təgrih* in the first sense and for variant *toʳgurt* in the second sense.

Only two ANs belong to this pattern: on the one hand, MAN *əffotih* (*/uftəg*) from *oftəg* 'undo'; on the other hand, FAN *təđärmih* from *ədrəm* 'cut fresh milk with a little water; burst (a button), pierce'.<sup>8</sup>

#### 2.9.4. ANs in 'a—non-a[—non-a]—a'

Six MANs have this pattern, with half corresponding to bisyllabic verbs: AN *ägurah* (*/ugrug*) from *əgrug* 'preserve; pour through an orifice'; AN *ätturgäš* (*/urguš*) from *urguš* 'be or become cheap; become easy'; AN *äžid<sup>v</sup>d<sup>v</sup>ađ* (*/əžžud*) from *äžuđ* 'catch scabies'. The other half corresponds to derived verbs: AN *ä<sup>v</sup>Sərfän~ä<sup>v</sup>sərfän* from *əssərfän~əšsərfän* 'make dirty'; AN *ä<sup>v</sup>žburgän~ä<sup>v</sup>žburgän* from *əžburgən* 'wrap up completely'; AN *ämšəgšäg* from *əməšəgšəg* 'appear, become visible'.

Five FANs are in 'a—non-a—a', three of which have no variant: AN *täšiddäh* from *šädiđ* '(be) weak (tea)'; AN *täniykāD* from *äykāh* 'despise' and *to<sup>v</sup>gudāh* which serves as the AN of *əžžugđth* 'send'. One AN is in 'a—non-a—non-a': *tälgu<sup>v</sup>điyäh* 'do poorly with one's hands, bad handiwork' (with only one nominal match: *älgu<sup>v</sup>đi* 'clumsy person').

#### 2.9.5. ANs in 'non-a—a—a'

Only two ANs have this pattern: on the one hand, MAN *əşşagađ* (*/uşkuđ*) from *aşkuđ* 'crush; prune; pull out'; on the other hand, FAN *təffa<sup>v</sup>gärt* (*/tfa<sup>v</sup>gärt*) from *uffu<sup>v</sup>gər* 'be proud (of)'.

#### 2.9.6. ANs in 'non-a—non-a[—non-a]—a'

Only two FANs have this pattern: AN *əžid<sup>v</sup>d<sup>v</sup>ađ* (*/äžid<sup>v</sup>d<sup>v</sup>ađ/əžžud*) from *äžuđ* 'catch scabies' and AN *ərəzgän* from *iruzgih* 'be blessed; bless'.

Nine FANs have this pattern, four of which are for bisyllabic verbs: AN *təmmiđah* from *əmīđ* 'long for'; AN *tummu<sup>v</sup>riyyäh* from *äma<sup>v</sup>r* 'be taller, older'; AN *tənnuhđah* (variant of *unhuđ*) from *unhuđ* 'become king, rule'; AN *təžəD<sup>v</sup>ägt* from *äžžig* 'heal'.

The other five are FANs from trilateral or nasally derived verbs: AN *tugut<sup>v</sup>käh* from *ägayäg* 'create'; AN *tummuğräh* from *ummuğri* 'be the leader'; AN *tummunđrah* from *əşmunđur* 'come in the evening'<sup>9</sup>; AN *təmdukt<sup>v</sup>ä* (*/əmdukkiy*) from *umdukkij* 'become friends (with)'; AN *tunnugräh* (variant *ä<sup>v</sup>nugär*) from *unnugur* 'keep secret'.

#### 2.9.7. Borrowings from Arabic

<sup>8</sup> *ədrəm* is the AN of *ədrəm* only in the sense of 'burst (a button), pierce'.

<sup>9</sup> In the sense of 'coming back' *əşmunđur* has for AN *ä<sup>v</sup>şmunđur*.

Three FANs in '*a—*' are clearly borrowings from Arabic: AN *käyyä* from *äkwäh* 'cauterise'; AN *raqqa* from *ärgah* 'blather' and AN *šarṭa* from *äšṛaṭṭah* 'scarify'.

There are also a number of borrowings from Arabic, but these do not constitute non-integrated borrowings.

## 2.10. Summary table of the main patterns

The frequency (Fq) of each of the vowel patterns is given according to the gender of the AN, but it is relative and takes into account the fact that FANs are much less numerous than MANs. The frequency is then specified in each column according to the number of syllables of the verb. Here again, it must be taken into account that bisyllabic verbs (Bi) are more numerous than trisyllabic or derived verbs (Tri), and monosyllabic verbs (Mo) are very few in number.

AN	M/F	Frequency	Mo	Bi	Tri
'non- <i>a—</i> non- <i>a—</i> '	M	Fq+++	—	+++	2~3
	F	Fq <sup>+</sup>	3	27	—
' <i>a—</i> <i>a—</i> '	M	Fq	1	17	1
	F	Fq++	1	++	9 T+
' <i>a—</i> non- <i>a—</i> '	M	Fq+	—	26	—
	F	Fq+	—	23	3
'non- <i>a—</i> <i>a—</i> '	M	very rare	—	3	—
	F	Fq	—	16	2
'non- <i>a—</i> non- <i>a—</i> non- <i>a—</i> '	M	Fq++	—	—	++
	F	very rare	—	3	—
' <i>a—</i> <i>a—</i> <i>a—</i> '	M	Fq+	—	29	5
	F	rare	—	5	3
' <i>a—</i> <i>a—</i> non- <i>a—</i> '	M	Fq	—	17	4
	F	Fq	—	12	2
' <i>a—</i> non- <i>a—</i> non- <i>a—</i> [—non- <i>a—</i> ]'	M	Fq+++	—	4	+++
	F	rare	—	5	3

The only relatively frequent patterns in all cases are the 'non-*a—*' patterns: 'non-*a—*non-*a—*' for MAN/FAN from bisyllabic verbs and 'non-*a—*non-*a—*non-*a—*' for MAN from trisyllabic and derivative verbs.

With the exception of rather average frequency patterns such as '*a—*non-*a—*' and '*a—**a—*non-*a—*' — which are attested almost equally for both genders but almost exclusively as ANs from bisyllabic verbs — all other frequent patterns (Fq++ and Fq+++ ) are only so

compared to a particular gender ('a—a' for FANs and 'a—a—a' for MANs from bisyllabic verbs), or compared to a particular type of verb ('a—non-a—non-a[—non-a]' for trisyllabic or derived verbs, and especially for 'S' derivatives).

### 3. ANALYSIS AND COMMENTS

I will come back to the prevalence of certain patterns in 3.2. and will end with some syntactic observations. Before that, I will look at the variations in some ANs from the point of view of radical consonants.

#### 3.1. From the point of view of the root

ANs tend to exhibit significant irregularities. I will discuss some aspects here.

##### 3.1.1. Degemination

The AN often has the same geminate root as the corresponding bisyllabic verb, e.g. *uggih* 'need', AN *uggi*; *äggur* 'pull' and *uggur* 'be barren', AN *uggur*. But this is not always true. In about fifteen cases, the AN (or one of its variants) has a simple radical and not a geminate as in the imperative, examples: *uḃḃug* 'be far away...', AN *əbg/uḃḃug*; *äd'ig* 'spell', MAN *əd'g/iD'əg* — a variant [rarer] of *täyd'əgt/täyD'əgt*.

Correspondences such as *d/dd*, *g/gg*, *y/ll* are consistent with Zenaga phonology, thus in: *äddəm* 'set (star); fall (drop)', AN *uḏum/əddəm*; *äddəž* 'grind', AN *uḏəž*; *aḏduḏ* 'be suckled; suckle', AN *uḏuḏ*; *aḏduf* 'possess', AN *uḏuf*; *aqqiy* 'look at' AN *uḡiy~uḡuy*; *älli* 'lick up', AN *uyi/əlli*; *tuyah* [irregular] FAN from *ällih* 'seek, to search'.<sup>10</sup> The *z/zz* correspondence is also regular in *zzu'r* 'see', AN *ažari* (>*ažari*<sup>2</sup>-n...), but it does not directly explain the shift in position of the laryngeal.

The *g/kk* alternation is not regular in Zenaga but it regularly accompanies degemination, cf. AN *ugi* from *äkki* 'pass (through)'; AN *uguḏ* from *äkkuḏ* 'be smooth; lose one's hair; remove hair'; AN *ugum* from *äkkum* 'be sunken; drive (a stake); strike'; FAN *tugāh* from *okkīh* 'carry; be pregnant'; FAN *tugāh* from *oggīh* 'end up' (MAN *uggīh*).

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<sup>10</sup> The geminate is frequently found in other Berber dialects, but with exceptions — such as *uḏum* 'ooze' in Rif and *idim~udum* in Kabyle (Naït-Zerrad 1998-2002: II, 336-7). We also sometimes find the same alternations between the verb and the AN (see under DF, Naït-Zerrad *id.*: III, 447-8).

To all these relatively simple cases, we should also add those which correspond to de-assimilation as in FAN *taʷwad̄ih* from *äddih* 'go astray' and FAN *taʷwädrih-täwädrih* from *ättar* 'ask', suggesting on the one hand  $w+d>dd$ , and on the other  $w+t>tt$  (with AN forms less 'evolved' than the verbal forms).

### 3.1.2. Gemination

Gemination, on the other hand, which is absent from the 'non-augmented' forms of the verb (I, A, P and NP), is sometimes present in the AN. This is notably the case of MANs in 'a—a' such as AN *äggäy* (variant *ugiy*) from *ogiy* 'hang' and AN *äbbäš* (variant *uʷwəš*) from *äwuš* 'help'; in 'a—a—a' such as AN *äzäddäy* from *äzziy* 'curse' or AN *ässäräm* (variant *əsrəm*) from *əsrəm* 'clear, level'; in 'a—a—i' such as AN *ädäffī* from *ätfi* 'topple over'. This is also the case for some FANs in 'a—a' like AN *tgämmärt* from *äg̃mur* 'be narrow' (MAN *ug̃mur*).

Other cases of gemination appear more isolated, these are for example, for MANs: AN *äzəggər* (variant *əzgər*) from *əzgər* 'go out'; AN *aḍḍih* (variant *uḍḍih*) from *yaḍḍih* 'fold'; AN *əššagaḍ* (variant *uškūḍ*) from *aškūḍ* 'pound; prune'. For FANs, besides AN *tum̃muZ* (without ?) from *aʷmuḗ* 'bite'; UAN *tuʷmmuḌ* from *uʷmuḍ* 'close (of itself)' and AN *täw̃mmuL* from *äm̃iy* 'move towards' (more frequent MAN *um̃uy*), also see FANs with geminate *m* or *n* (such as AN *təmmīḍah* from *əmīḍ* 'long for') in section 2.9.6.

I will return to some cases of gemination in 3.2.2.

### 3.1.3. Velars

Sometimes a voiceless velar (*k*) in common Berber corresponds to a voiced velar (*g*) in Zenaga, in the various lexemes of the root, e.g. in AN *ugruf* from *ägruf* 'retract' for GRF (Berb. KRF) or AN *ugyi* from *ogyi* 'pass the meridian' for GY? (Berb. KL).

However, there is often an alternation between *g* and *k* (or even *g*, *k* and *w* as in FAN *tärwäh/tärukt* from *ärug* 'give birth'). The following cases are further examples of degeminations: FAN *tänəkt* from *änig* 'ride a horse'; AN *ägäffäy* from *äkfiy* 'go up'; AN *ägättäb* from *äktub* 'write' (< ar. KTB); ANs *ug̃muk* and *tgämkäh* from *äg̃mug* 'follow' (berb. GMK).<sup>11</sup>

At times the velar *k/g* disappears in ANs. In final position it seems to change to *h* in AN *um̃ziḥ* from *um̃ziḡ* 'become small' and in AN *uḗmah* from *aḗmug* 'sew' (FAN

<sup>11</sup> With the exception of the last case, the others are explained either by the tendency to unvoice in contact with a voiceless consonant, or by the tendency to voice between vowels.



*t̄zammägd̄*);<sup>12</sup> AN *ägurah* (/ugrug) from *ägrug* 'preserve; pour through an orifice'. The change of the first radical in *y* (cf. Kossmann 1999: 192-3) is attested in: AN *äynäš* (/ugnäš) from *ognäš* 'argue' (Berb. KNS); AN *äyrađ* (/ugruđ) from *ägruđ* 'scrape (to clean)'; FAN *täyšbət~täyäs̄bət* from *əkkušbih* 'grow' and FAN *täysäkt* from *okši* 'graze'. The *k* in *täysäkt*, more surprisingly, is found in the FANs of three other verbs with a final laryngeal root: AN *täysäkt* from *ät'ši* 'dress'; AN *tänsäkt* from *änši* 'spend the night' and AN *taʔškäkt* from *aʔzi* 'build'. This *k* is explained, for the last root, by a *k* (/q) attested in some Berber languages. This is not the case for the other roots, however the *k* may be related to the final *-u* of <sup>W</sup>*äksu* 'graze' and <sup>WY</sup>*äḥsu* 'spend the night' in Tuareg (Prasse & al., 2003).<sup>13</sup>

#### 3.1.4. Glottal stop

As the final radical, the glottal stop has a few particularities: absent in absolute final position, it normally reappears before a suffix, e.g. (ŠGʔ) *äʔš(š)əgi* 'be absent, absence' but *äʔš(š)əgi<sup>2</sup>-n-k* 'your absence'; (NTBʔ) *əntəbi* 'calmness, tranquillity' but *əntəbi<sup>2</sup>-n-š* 'its calmness'.<sup>14</sup> All MANs end in *-i* except two irregular ANs which end in *-a*: *ašta* 'braiding of hair; weaving (of a mat)' (ZZʔ, Berb. ZD/ZD) and *äyganä* (*äyganä<sup>2</sup>-n-š* 'his wealth'), AN from *aḡni* 'be rich; grow rich' (ĠNʔ < Ar.).

In contrast, the presence of the glottal stop is less regular word initially, sometimes appearing in the AN while absent in the verb. In AN *iʔriš* (/iriš) from *ärəš* 'be torn; tear (from itself)' (Berb. ĠRS), it represents a missing radical. The same is probably true of AN *uʔwəš* (/äbbäš) from *äwuš* 'help' and AN *aʔməđ* from *amid* 'finish'. There may be assimilation with derivatives, especially in 'S', with prefix *aʔ-*, as in AN *äʔšmuđ* (/äššumđ /išmuđ) from (*ä*)*šmuđ* 'shower' or AN *äʔžīg* from *äžīg* 'pick up sth and quickly leave with'. Finally, the presence of the glottal stop may remain unexplained as in AN *aʔḡāš* from *aḡūš* 'clean' (< Ar. ĠBŠʔ).

#### 3.1.5. Other cases

<sup>12</sup> Note that we find both *k* (Ghadamsi *ezmāk*, Lanfry, 1973: n° 1806) and *y* (Tuareg <sup>WY</sup>*əzməy*, Prasse & al., 2003: 921) in other Berber dialects. For the alternance *y/k* in the last radical, see Kossmann 1999: 186-192).

<sup>13</sup> There is no *-u* in *ls* 'dressing' in Tuareg, but in Zenaga there could be contamination between the ANs 'grazing' and 'dressing', as they have become homonyms.

<sup>14</sup> For FANs, see below.

Some rare forms are more or less integrated borrowings from Arabic, such as *äl-faraḍ* > *ätʰfaraḍ* (/afɾaḍ/ufɾuḍ) 'obligation' (< Ar. FRḌ); *äl-däwām* > *äddäwām* 'continue; be of permanence' (< Ar. ḍāmma); *ätturgäš* (/urguš) 'be cheap' (< Ar. RḤṢ).

Some irregularities pertain to more or less pan-Berber substitution phenomena, such as AN *innih* (same root as P *yənnäh*) from *əzzən* 'say'; FAN *tmättänt* (theme partly similar to that of IA *yətmättäh*) from *əmḡih* 'die'; AN *ižigž~iʰzigž* (variant *ibḏih*) from *äbḏih* 'walk, go';<sup>15</sup> AN *iʰḏi* from *äwih* 'bring in' (WH/H\*, Berb. WY) and *äwih* 'strike' (WH/H\*, Berb. WT).

The presence of an *m* is reminiscent of a borrowing from a nasal derivation theme. From this point of view, the MANs *äʰməḗḏih* (from *urḑih* 'be happy') and *äʰmunḑug* (from *anḑug* 'taste') are regularly formed, as is the UFAN *tmankurt* (from *änkur* 'stand up'), while the FANs *tmaʰḏärt~tämmiʰḏräh* (from *zzuʰr* 'see'), *tmäntänt* (from *aʰni* 'kill'), and *täniykāD* (from *äykīh* 'despise') are not.

In some cases, the evolution can be explained quite simply: emphatization of *ss* (geminate counterpart of *š*) by *d* for AN *anaššaḍ* (/unšuḍ) from *änšuḍ* 'fall'; double derivation of TLG (>LLG) — with or without gemination of the 1st radical T<sup>16</sup> — for *ättäyäg* (/əlləg) 'be calm' and *äḏäyäg* (/əlläg) 'become stable'.

In other cases, the evolution is more complex and pertain to Kossmann's (1999: 120-125) observations on the realizations of \**Ĥ* (\**b*). In Zenaga a long vowel can alternate either with *f* as in UFAN *tīkih* from *äkfi* 'give' (MAN *ukfi*), or with *w* as in AN *āddäž/īddiž* from *äwdəž* 'lie down', AN *āggäš* (/ūgəš) from *äwgəš* 'gird' and AN *īddih* (/īddih) from *äwdəḏ* 'stand up; halt' (cf. Taine-Cheikh 2015: 303-304).

Many ANs seem irregular in Zenaga, and comparison with other languages is often enlightening. To the previous cases we can add that of *tugguZ*: although the *z* of the FAN is absent in the verb *oʰgəž* 'know', it appears elsewhere (cf. Tuareg <sup>WY</sup>*agəz* 'protect', Prasse & al. 2003: 260).

<sup>15</sup> Cf. *əžəgəž* 'trip' in Tətsərret (Attayoub 2001: 97).

<sup>16</sup> In Zenaga, *d* is not only the non-geminate correspondent of *dd*, but also that of *tt*, especially when /t/ is intervocalic.

### 3.2. From a morphological point of view

AN patterns will first be considered in their relationship with similar verbal patterns. The study will then focus FAN endings.

#### 3.2.1. Negative preterite (NP) patterns

Among the most frequent AN patterns, there are those of ANs in 'non-*a*' and foremost those of bisyllabic verbs. Unlike FANs, ANs in 'non-*a*—non-*a*' are extremely numerous and share the same pattern as the NP of verbs. For the vast majority of bisyllabic verbs, only the NP is in 'non-*a*' as opposed to the '*a*—non-*a*' pattern of I=A, and the (inverted) 'non-*a*—*a*' pattern of P. For internal verbs, this pattern is also that of I=A (see AN *uḅḅug* from *uḅḅug* 'be away; go away').

For trisyllabic and derived verbs, there are almost only ANs with 'non-*a*' thematic vowels, but they fall into two groups: either the pattern includes only 'non-*a*'s, or the prefix vowel is replaced by *a*<sup>2</sup>-. When it includes only 'non-*a*'s (prefix + thematic vowels), it regularly merges with the common NP=I=A pattern, e.g. AN *ərgəgi* from 'shiver' I *ərgəgi* A=NP *yərgəgi* (as opposed to P *yərgägä* and IA *yəttərgəgi*) and AN *əmdukkiy* from 'become friends' I *əmdukkiy* A=NP *yəmdukkiy* (as opposed to P *yəmdukkäy* and IA *yəttəmdukkiy*). These include the ANs of 'S' derivatives beginning with *a*<sup>2</sup>-, e.g. AN *ä<sup>2</sup>səḍrər* from 'cut into strips' I *səḍrər* NP=A=IA *yässəḍrər* (as opposed to P *yässəḍrär*); AN *ä<sup>2</sup>fugüh* from 'be bald' NP=A *yuffüh* (as opposed to P *yäffagüh* and IA *yətfüh*).

These 'non-*a*—non-*a*' thematic vowels are common to the ANs of nasal derivatives and to the most frequent pattern of habitual nouns in *m/n* (Taine-Cheikh 2019: 191-200) such as *ämu<sup>2</sup>gər* 'thief' and *änfərgiy* 'fearful, always afraid'.

The glottal stop present in *a*<sup>2</sup>- tends to function in Zenaga as a specific (M)AN marker for trilateral and derived verbs, as if the subspecification of the NP-scheme made it necessary to add a distinguishing marker.

#### 3.2.2. IA patterns

The patterns of the IA seem to have influenced those of some ANs. The IA of bisyllabic verbs (among others) is mostly formed with the prefix *t(t)*-. However, it is also formed by gemination (doubly) of a radical (IA-D), and the two processes can coexist: *əgniš* 'put on fibulae', IA-t *yəttəgnäš*/IA-D [more frequent] *yägannäš*; *āyāš* 'mow', IA-t *yəttāyāš*/IA-D *yälläš*. Sometimes there is also no gemination but only addition of a

vowel after the 1st radical (IA-v): *əḍræg* 'be polygamous', IA-t *yittäḍræg*/IA-v *yidäräg* and *ogri(i)h* 'hear', IA-v *yəgäräh*.

While *ättükiy*, the AN from *ükiy* 'love well' and *əttü<sup>h</sup>ih*, the AN from *ü<sup>h</sup>ih* 'be awake; awaken', owe their form to those of IA-t *yəttükiy* and *yəttü<sup>h</sup>ih*, these can only be exceptions (perhaps due, at least in the second case, to Arabic influence). On the other hand, there are many cases of convergence between ANs in 'a—a[—a]' and IAs in 'a' (or, more precisely, in 'a—a[—a]' like *yägännäš* and *yälläš*, or in 'non-a—a—a' like *yidäräg*). These convergences appear in the respective ANs of the examples given above: *ağnäš* (/uğniš); *äyäs*; *ädäräg*; *ägäräh* (/ugrih). They are also found in: AN *äynaž* from 'remove liquid' (IA-D *yivännaž*); AN *ämäšaḍ* (/imšuḍ) from 'comb' (IA-D *yimäššaḍ*); AN *aḫraḍ* (/uḫruḍ) from 'be obliged; oblige' [< Ar.] (IA-D *yiffaraḍ*/IA-t *yəttuḫruḍ*); AN *ašta* 'braid hair' (IA-D *yışṣatta*); AN *äynäš* (/uğnäš) 'argue' (IA-D *yikkännäš*); AN *äyraḍ* (/ugruḍ) 'scrape (to clean)' (IA-v *yigaraḍ*). They are still found in the following cases where a *y* appears rather irregularly in IA and/or AN: AN *äybbäd* from 'jump' (IA-y *yäybbäd*); AN *äyganä* from 'be rich' (IA-D *yigännä*).

Feminines in 'a—a' regularly provide, as I have shown, (F)ANs from conjugated adjectives and, possibly, from corresponding quality verbs, such as *ṯharfäft* FAN from *ḫarfuf* '(be) hard' and *uḫḫurfuf* 'become hard'. However, other FANs in 'a—a' (often variants of MANs in 'non-a' not repeated here) can be correlated with an IA other than IA-t.

These are IA-Ds for: UAN *tžamḍah* from 'close', AN *tžamḡägḍ* from 'sew', AN *tmäntänt* from 'kill', AN *tḍägräh* from 'be decorated; decorate', AN *tḍämnäh* from 'let flour rest with yeast', AN *tğayät* from 'wait', AN *täysäkt* from 'graze' (IA-D *yikässä*) and 'dress' (IA-D *yiyässä*); AN *tgamžäh* from 'scrape', AN *tganäh* from 'barrack', AN *tkäššäft* from 'shame', AN *tkäsräh* from 'go down'; AN *tänsäkt* from 'spend the night', AN *tnäžäd* from 'be sold', AN *traššaḍ* from 'stink', AN *täžägärt* (/täžəgräh) from 'go outside', AN *täsäkräh* from 'relieve oneself', AN *tagayäS* from 'be alive', AN *tžäyät* (/täžäyət) from 'throw away'.

These are IA-v for two verbs [< Ar.]: AN *tğayät* (/tägyi<sup>h</sup>ḍ) from 'become expensive, difficult' (IA-v *yigayä*), AN *tğayäb* from 'become dizzy' (IA-v *yigayäb*).

These are IA with rare prefixation in *y-* (IA-y) or *n-* (IA-n) for: AN *tgämkih* from 'follow' (IA-y *yäygmäg*), AN *träwyä* from 'run away' (IA-y *yäyrwäy*), AN

*tänändräh/tnändräh* from 'burn' (IA-n *yinändär*), AN *tnändrah* from 'steal' (IA-n *yinanđar*/IA-y *yäyndař*).

By their exceptional character, the last two examples support the correlation between the form of the IA and that of the AN. However, there are many counter-examples: on the one hand, about twenty ANs in 'a' whose IA is in *tt-* and, on the other hand, a much larger number of verbs which do not form their IA in *tt-* but also do not have an AN in 'a'.

The second set of counterexamples may be partly explained by the decline of a less productive pattern, especially for MANs. But there is also the fact that (with two exceptions: *ařta* and *äyganä*) the final vowel of MANs is always *-i* in the case of the last laryngeal radical, which explains the replacement of 'a—*a*—*a*' by 'a—*a*—non-*a*' in: *ädäffi* AN from 'spill', *ađařsi* AN from 'laugh', *änäkki* AN from 'smell', *änätti* AN from 'sting', *änäbbi* AN from 'cook, ripen', *ařazi* AN from 'break', *äyämmi* AN from 'be softened; soften', *ažari* AN from 'find'.<sup>17</sup> This also explains, besides *tädäffi*?*đ* UFAN vs. MAN *ädäffi*, some feminines like *tänässi*?*đ* AN from 'extinguish' (IA-D *yinässä*), AN *tänäzzi*?*đ* from 'forgive' (IA-D *yinäzzä*), AN *tä*?*đäbi*?*đ* from *əđbi* 'do penance' (IA in *tt-*), as well as AN *ta*?*žalli*?*đ* from the trisyllabic verb *ařřalli* 'pray'.<sup>18</sup>

### 3.2.3. Imperative and aorist patterns

The 'a—non-*a*' pattern, which is the most common I=A scheme for bisyllabic verbs, is also an AN scheme (see 2.3.). However, rare are the cases where the AN merges with I=A, even among MANs.

### 3.2.4. FAN endings

In principle, ANs are characterised in the singular by the addition of two *t*-affixes, a prefix and a suffix. While the prefix dental is regularly realised [t], the realisation of the suffix is more complex as it depends on the final radical consonant (Taine-Cheikh 2002: 430-434). It is added after the radical consonants *r*, *f*, *m*, *n*, *k* and *ʔ*. It is realized *t~đ* after *g*, *ğ* and *T* or *đ* in lexemes ending in *h*.<sup>19</sup> Finally, in other cases, it assimilates to the

<sup>17</sup> All verbs, apart from the last ('find', IA-v *yəžara*) form their IA by geminating (IA-D).

<sup>18</sup> There are very few 'a—non-*a*' ANs for roots with a final glottal stop (let us nonetheless quote FAN *tagmi*?*đ* from *ağmi* 'be dyed with henna; put henna', IA-D *yigammä* and *tagri*?*đ* AN from *ağri* 'read', IA-v *yigarä*). In roots with final radical H/T, H\* or Y, the AN is quite often in 'a— [a—]non-*a*', but without the regularity observed for *ʔ*.

<sup>19</sup> There has been some confusion between \*T and \*H on the one hand, and \*H and \*H\* on the other. I leave this problem aside here.

final radical consonant giving rise to a geminate realised as a tensed consonant (noted by a capital letter) thus:  $\dot{d}+t>D$ ,  $\dot{d}+t>D$ ,  $y+t>L$ ,  $\dot{s}+t>S$ ,  $\dot{z}/\bar{z}+t>Z$ ,  $\bar{z}+t>Z$ .

Among the FANs, a number of them follow these formation rules. This is especially the case for FANs from (conjugated) adjectives in 'a—a' such as *tbäyḏagḏ*, *tbarbaD*, *tkäbbänt* etc. (see under 2.2.2.). This is also the case with many other FANs, whether they correspond to (conjugated) adjectives, such as *tinäT* 'being new (*äynäh*)' and *tuṣḥad* 'being strong (*aṣḥah*)', or not, such as AN *tukkuṃt* 'running'; AN *təddəS* from 'prick'; AN *tagḏuZ* from 'crunch'; AN *tūḏad* from 'repudiate (one's wife)'; UAN *tgäwät* from 'bellow'; AN *tḡayät* from 'wait' and AN *tuzzi'ḏ* from 'be braided; plait (hair)'.

Many others, however, have a single vowel (usually short: /a/ or /i/, never /u/), followed by a more or less reduced *h* which is deleted when annexed. These endings are likely to occur with all radicals. Examples of FAN in *-ah/-äh* are AN *tḏamḏah* from 'close'; AN *tgämkäh* from 'follow'; AN *tḏagräh* from 'be decorated; decorate'; AN *tḏämnäh* from 'let flour rest with yeast'; AN *tgämkäh* from 'follow'; UAN *tgamžäh* from 'scrape'; AN *tgänäh* from 'barrack'; AN *tkäsräh* from 'go down'; AN *t(ä)nändräh* from 'burn'; AN *tnändrah* from 'steal'; AN *tärḏäh* from 'bathe'; AN *ətḏäwḡäh* from 'exile'; AN *täzyäh* from 'be quick'; AN *tu'vräh* from 'fill'.

Here are some others in *-ih*: AN *tīḏgih* from 'be wet; (get) wet'; AN *tīḏrih* from 'mention'; FAN *ti'nwih* from 'tie up; repair'; AN *ti'rših* from 'slit the throat'; UAN *tu'ṣbih* from 'take a sip, a puff'; AN *təDrih/təd(ḏ)rih* from 'prick'; AN *təgrih/täḡu'rih* from 'pull up the delou, draw water from a well'; AN *taḏu'rih* from 'fall down; raid'; AN *täš(š)əddih* from 'become thin'; UAN *tändiywih* from 'bury'.

The patterns of these FANs vary, but the absence of a vowel between R<sup>2</sup> and R<sup>3</sup> is regular.<sup>20</sup> there is rearrangement of the scheme in relation to FANs in *-t*. This could explain the doublets *tärwäh/tärukt* (AN from 'put down'), *täzəgräh/täzəḡärt* (AN from 'go out'), *ḥat(t)šäh/ḥattäS~t(i)yaṭS* (AN from 'be cut off; cut'), *tḏi'wrah/täzə'rt* ('be or become fat'), *ti'gräh~ti'grih/ti'ḡärt* (AN from 'fly').

Among the FANs of this type, some arise from roots with a radical final laryngeal. In the case of H or H\*, one may hesitate between the absence of the radical or the absence of the feminine ending, cf. AN *tīrih/ti'rih* from 'dictate'; FAN *taḏah* from 'pant'; AN

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<sup>20</sup> Like between R<sup>1</sup> and R<sup>2</sup> as in *tärḏäh*, *täzyäh*, *tärwäh* and *təgrih* when the root has only two radicals (except for *tgänäh*).

*tuyah* from 'search' (*ällih*); AN *tugāh* from 'carry; be pregnant'. But in the case of the glottal ʔ, there is clear shortening of the radical, cf. UAN *tīkih* from 'give'; AN *təžəšših* from 'drink'; AN *tiʔnwiḥ* from 'kill'. This shortening is visible with annexation: compare the MAN (with ʔ) *əžəššiʔ-n...* 'drinking from...', *iʔdiʔ-n...* 'striking with...' and the UFAN (without ʔ) *təžəšši-n...* 'the drinking (once) of...', *tiʔdi-n...* 'striking (once) with...'.

#### 4. CONCLUSION

ANs are probably the least regular domain of derivational morphology. In Zenaga, the situation is all the more complex as basic verbs (generally bisyllabic) often have several ANs, sometimes of the same gender, sometimes of both genders. There are cases of specialisation, as the form of ANs can vary depending on the meanings of the verb. Moreover, FANs can be unitary nouns, but oppositions with MANs are rare and not always well established.<sup>21</sup> In total, MANs are much more numerous and their most frequent patterns show 'non-*a*' thematic vowels: 'non-*a*—non-*a*' for bisyllabic verbs; 'non-*a*—non-*a*-non-*a*' for trisyllabic and derivative verbs (except for those bearing the prefix *a*<sup>2</sup>-).

In Berber the 'non-*a*' patterns regularly correspond to the patterns of negative verbal forms (especially the NP of bisyllabic verbs). They may thus appear as the basic — unmarked — vowel patterns of Berber. While the prevalence of this pattern for ANs (especially MANs) is clear in Zenaga, this is not often the case elsewhere. Heath (2005: 517), however, gives AN *'udəh* from *'əddəh* 'pound' as an example of one of the three main types for verbs with a consonant final radical. Kossmann (2013: 87-88) notes the frequency in Ghadames of ANs with an *a*- marker and vowels in *ə* (e.g. NA *akənnəf* from 'roast') and stresses the proximity to the negative IA pattern (*əkənnəf*). The *a*-marker is very reminiscent of the Zenaga *a*<sup>2</sup>-, except that the presence of this *a*- is not limited in Ghadamsi to the AN of certain trisyllabic or derivative verbs (nor among the Aït Seghrouchen, see Bentolila 1981: 398-403).

In Zenaga, ANs corresponding to conjugated adjectives are regularly FANs in '*a*—*a*'. In Tashlhit Galand (2002:228) also notes the specificity of ANs from verbs expressing

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<sup>21</sup> The situation seems to be comparable in Tuareg (see Prasse 1974: 85).

qualities: FANs with initial *t-* and final *-i* (e.g. NA *talugyi* from *ilwiġ* 'become soft'). The final may correspond to the *-t*-less endings observed in Zenaga FANs and reported elsewhere, notably by Heath and Bentolila.

Vowel patterns in '*a*' are found for verbs other than quality verbs, especially for bisyllabic verbs which form their AI by means other than prefixation of *tt-* (by doubling the radical, inserting a vowel, prefixing *y* or *n*). The existence of ANs with an IA pattern (in '*a*') alongside ANs with a PN pattern (in 'non-*a*') is reminiscent of Prasse's (1974: 83) distinction between 'perfective' and 'imperfective' ANs, but the similarity of the latter, in Zenaga, with ANs expressing a quality makes it difficult to classify them as themes with dynamic content, as opposed to the former, which are static.

For roots with a glottal final, one observes in Zenaga that the corresponding AN bears a final *-i*. This is convergent with other Berber languages, for example in Ghadamsi the ANs of verbs with alternating vowels like *aləssi* AN of 'wear' (Kossmann 2013: 88). This confirms the non-negligible, but complex, role of radicals in NA formation.

#### Abbreviations

A=aorist, AN=action noun, FAN=feminine action noun, Fq=frequency, IA=intensive aorist (or imperfective), MAN= masculine action noun, NP=Negative preterit, P=preterit (or perfective), U[F]AN=unitary [feminine] action noun.

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