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THE LOSS OF SYLLABLE-FINAL PROTO-NUBIAN

CONSONANTS

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1 INTRODUCTION

Nubian languages are scattered over a vast area comprising western Sudan, the Nile valley of northern Sudan, and southern Egypt. The Nubian language group includes Midob and Birgid of eastern Darfur, Kordofan Nubian spoken in the northern Nuba Mountains, and the languages of the Nile valley, Kenzi, Dongolawi, Nobiin, and its medieval predecessor, Old Nubian. As these languages share many lexical and grammatical similarities it is assumed that they are genetically related, i.e. that they are the descendants of a common ancestor language. This hypothetical ancestor language is called Proto-Nubian.

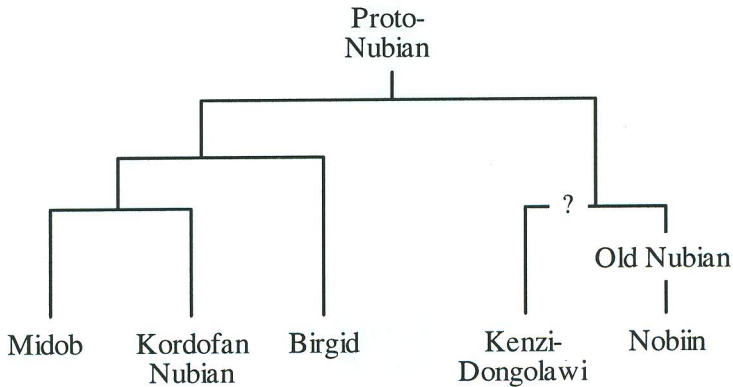
In order to gain insights into the different degrees of genetic relationship between the individual Nubian languages, several scholars have endeavoured to reconstruct the Proto-Nubian sound system. While ZYHLARZ's (1949/50) reconstruction is restricted to the consonant system, BECHHAUS-GERST (1984/85, 1989) and RILLY (ms 2003) deal with the consonant and the vowel system. Thanks to RILLY's thorough comparative study, the consonantal changes in initial position are fairly well understood now. Although he also accounts for the even more complex consonantal changes in non-initial position, the loss of consonants in syllable-final position has not been investigated in detail. These phenomena are in the focus of this paper.

RILLY's model of the Nubian language family and its subgroups (see Diagram 1) is based on phonological innovations, particularly on consonantal changes in word-initial position. The question mark indicates that the affiliation of Kenzi-Dongolawi is doubtful. Does it form a sub-group along with Old Nubian and Nobiin or, as BECHHAUS-GERST (1984/85, 1992) argues, does it rather belong to the Midob-Kordofan-Nubian-Birgid branch?

BECHHAUS-GERST assumes that the pre-Nobiin speakers were the first to split off from the rest of the Nubian group and that they immigrated to the Nile valley long before the pre-Kenzi-Dongolawi speakers did. The numerous lexical, phonological and morphological similarities between Kenzi-Dongolawi and Nobiin would then be due to close contact and borrowing rather than to close genetic relationship.

Diagram 1:

The Nubian language family (adapted from RILLY ms 2003: 264)



The data for this historical comparative study come from various published and unpublished sources: Kenzi data from MASSENBACH (1933), Dongolawi data from ARMBRUSTER (1965), Birgid data from THELWALL (1977) and IDRIS (ms 2004), Midob data from THELWALL (1983) and WERNER (1993), Nobiin data from LEPSIUS (1880) and WERNER (1987), and Old Nubian data from BROWNE (1996). The Kordofan Nubian data, particularly those drawn from the Tagle and Karko dialects, originate in my own mostly unpublished field notes which I collected in collaboration with Gumma Ibrahim Ghulfan and Ahmad Hamdan Farah (JAKOBI ms 2001). Among the languages mentioned above, Birgid is the least documented one. In the tables below, Birgid data are therefore often missing.

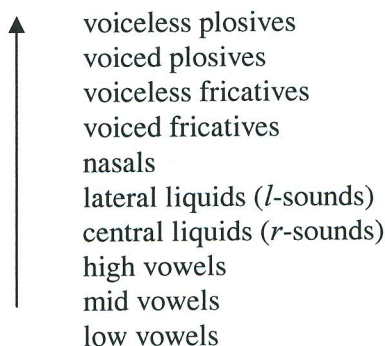
Historical linguists assume that all parts of a language may change in the course of time: the structure of phrases, the structure and meaning of lexical items and the sounds. Sounds are prone to change in certain positions, especially in syllable-initial and syllable-final position. Sounds in syllable-initial position tend to increase their consonantal strength – though weakening and loss do occur, too (see, for example, the loss of **k* in Midob, Table 5 below). Sounds in syllable-final position tend to decrease their consonantal strength (cf. VENNEMANN 1988 and his critic BERG 1990). The

extreme case of decreasing consonantal strength in syllable-final position – also called coda weakening – is the complete deletion or loss of a sound.

According to VENNEMANN (1988: 8) sounds have different degrees of consonantal strength. They may be arranged on a scale according to their “phonetic degree of deviation from unimpeded (voiced) air flow, called Universal Consonantal Strength”. The arrow in Diagram 2 shows the increase of consonantal strength, in reverse direction there is an increase in sonority; for this reason this scale is also known as “sonority hierarchy” (HOCK 1991: 22). It is a useful tool that helps determine the direction of sound change.

Diagram 2:

Increasing consonantal strength (adapted from VENNEMANN 1988: 9)



The basic syllable structure of Proto-Nubian is *(C)V(V)(C). This formula covers both an open syllable of the type (C)V(V) and a closed syllable of the type (C)V(V)C, each with a short or long vowel, V or VV, respectively. Two consonants may follow each other but solely in medial position of polysyllabics. Such a consonant sequence is always separated by a syllable boundary which is marked by a full stop (.) in the lexical items discussed in the tables below. It is the loss of the syllable-final consonant C with which this paper is concerned, X(C)V(V)C.CV(V)(C), where X may represent another syllable.

Some western Kordofan Nubian dialects have lost the final vowel V of polysyllabic Proto-Nubian lexical items. Proto-Nubian items having the structure X(C)V(V)C.CV are rendered in Karko, for example, by two consonants in final position, that is, with a X(C)V(V)CC syllable structure: *àráamb* ‘Arab’, *wéènd* ‘soil’, *kánda* ‘knife’, *kéènj* ‘four’, *jèld* ‘saliva’. As the examples show, the sequence of consonants is restricted, however, admitting a nasal or the liquid *l* plus a voiced plosive, only. Other sequences are reduced to one consonant by deleting the pre-final consonant (see Table 2

below).

Reconstructed Proto-Nubian items are marked by an asterisk *. They may consist of a mono- or polysyllabic root, only, e.g. **ur* ‘head’, **koŋ* ‘face’, **eeb* ‘tail’, **wiil* ‘yesterday’, **geele* ‘red’. But more often lexical items are composed of the root plus one or more suffixes, e.g. **kur-ti* ‘knee’, **Vs-kidi* ‘dust’, ‘sand’. The most frequent nominal suffix is **-ti*, which RILLY (ms 2003: 230) identifies as collective and dual marker.

Note: In this paper I am only concerned with changes of consonants. If I am not sure of the quality of a specific vowel, I will simply replace it with the symbol V.

2 LOSS WITHOUT COMPENSATORY LENGTHENING

Where a syllable-final consonant is lost, this change is either accompanied by compensatory lengthening of the preceding vowel or the consonant loss does not leave any apparent trace. I will consider the latter case first, dealing with the loss of syllable-final **s* in Tagle, Karko (Table 1) and in Midob (Table 3).

Table 1. Loss of syllable-final **s* in Tagle and Karko

| gloss | Proto-Nubian | Old Nubian | Nobiin | Ke-Do | Birgid | Tagle | Karko |
|-------------|-----------------|-------------------------|-----------------|----------------|--------|-------|-------|
| grand-child | * <i>as.ti</i> | – | a.si | as.si as.sa | – | á.tàn | át |
| horn | * <i>ŋVs.ti</i> | – | n̄i.ʃi | niʃ.ʃi | ŋis.ti | dó.tú | nèt |
| louse | * <i>is.ti</i> | – | is.si | is.si | – | í.tú | ít |
| water | * <i>Vs.ti</i> | εc.ci ac.ce εt.to | ès.sí 'soup' | es.si | ee.ji | ó.tù | ót |

The four reconstructed items in Table 1 share two structural features: they are all composed of a monosyllabic root ending in **s* and they exhibit the collective and dual marker **-ti*. The consonant sequence **st* is preserved only in Birgid *ŋisti* ‘horn’. In the other items there are some consonantal changes of which the geminated *ss* in Old Nubian *εcc*, *acce* Nobiin *issi*, *èssí*, and Kenzi-Dongolawi *assi*, *assa*, *issi*, *essi* is easily recognizable as resulting from perseverant or progressive assimilation, **st* > *ss*. Old Nubian *εtto*, in contrast, results from anticipatory assimilation, **st* > *tt*. The fact that Old Nubian has three phonetically similar lexical items *εcc*, *acce*, *εtto* denoting ‘water’ could be due to dialectal variation within Old Nubian.

The geminated alveopalatal fricative *ʃʃ* in Kenzi-Dongolawi *niffi* ‘horn’, instead of the expected *ss*, is considered to be a secondary change triggered by the palatalizing influence of the adjacent high vowels. While *s* in Nobiin *asi* could be explained as the outcome of the degemination process *ss* > *s*, the fricative *ʃ* in Nobiin *nifi* appears to originate in four successive changes: 1) assimilation **st* > *ss*, 2) palatalization *ss* > *ʃʃ*, 3) loss of the first member of the geminate fricative, and 4) compensatory lengthening of the preceding vowel. Compensatory lengthening will be discussed in Table 4 and 5 below.

As for the Kordofan Nubian dialects, Table 1 shows that three of the four Tagle items end in *-tu* or *-tv*. These are regular reflexes of Proto-Nubian **-ti*, the appearance of either [+ATR] *-tu* or [-ATR] *-tv* being determined by the root vowel(s). The fourth Tagle item, *atàn* ‘grandchild’, in contrast, is extended by the suffix *-an* which marks terms of close relationship, e.g. *án-án* ‘aunt’, *bíkíd-án* ‘friend’, *ír-án* ‘master’. In Karko, the suffix **-ti* is regularly rendered as *-t* (or *-d* in case of assimilation) because the final vowel of polysyllabic items is lost. Since the Tagle and Karko items show no traces of Proto-Nubian **s*, and in view of the fact that **s* is the final consonant of the syllable, its loss can be attributed to decreasing consonantal strength.

It is clear that **s* is lost in Tagle and Karko only in syllable-final position. If **s* occurs as syllable-initial consonant, for example after the liquid **r*, it is not lost in Tagle and Karko but rather shifts to the dental plosive *t* (see Table 2 below). The shift **s* > *t* is, therefore, explainable in terms of syllable-initial strengthening.

In Tagle, **rs* is realized as *tt* which suggests that **rs* first shifted to *rt* which was then, due to anticipatory assimilation, realized as *tt*. In Karko, syllable-final **r* was lost before *t* as the sequence *rt* is not admitted.

The corresponding Kenzi-Dongolawi items *koris* and *urse* suggest that the sequence **rs*, and its metathesized variant *rVs*, is preserved. Metathesis of word-final segments is also attested in the Kenzi-Dongolawi numerals *kemis* ‘four’, *gorij* ‘six’ and *idiw* ‘eight’ which correspond to Nobiin *kemso*, *gorjo*, and *idwo*, respectively.

Table 2. Shift of syllable-initial **s* > *t* in Tagle and Karko

| gloss | Proto-Nubian | Ke-Do | Birgid | Tagle | Karko | Midob |
|-------|----------------|------------------------|----------------|------------------------------------|-----------------------------------|------------------------|
| | <i>*rs</i> | <i>*rs</i> > <i>rs</i> | - | <i>*rs</i> > <i>rt</i> > <i>tt</i> | <i>*rs</i> > <i>rt</i> > <i>t</i> | <i>*rs</i> > <i>rc</i> |
| shoe | <i>*kor.si</i> | <i>kor.is</i> | <i>koor.ti</i> | <i>kót.tù</i> | <i>kwát</i> | - |
| root | <i>*Vr.sV</i> | <i>ur.se</i> | - | <i>ít.tí.dà</i> | <i>í.tìlq</i> | <i>ĩr.cí.đi</i> |

Table 3 below shows the loss of syllable-final **s* in Midob. This can be

explained in terms of decreasing consonantal strength. Old Nubian, Nobiin and Kenzi-Dongolawi, in contrast, have retained *s.

Table 3. Loss of syllable-final *s in Midob

| gloss | Proto-Nubian | Old Nub. | Nobiin | Ke-Do | Birgid | Tagle | Karko | Midob |
|------------|--------------|-----------------|--------------------|-------------------------|--------------------|---------|--------|-------------------|
| dust, sand | *Vs.kidi | Ḳ.ḲṚ 'earth' | ṣ.kíid | es.ked 'loose earth' | iz.zidi 'earth' | (ùrû) | (òld) | ù.kúdí |
| nine | *Vs.kVdi | OC.ḲOTA | òs.kòd, òs.kòdì | is.kood | (ijijòoldi) | (wíidù) | (wéed) | ú.fúdí, ú.kúdí |

The geminate *zz* in the Birgid item *izzidi* originates in the sequence **sk of *Vskidi*. Two consonantal changes are assumed: i) The shift of *s > z is regular and attested in several other items (e.g. *tiizi* 'oil' in Table 4 and *keemzi* 'four' in Table 5). ii) The geminate *zz* results from a perseverant assimilation of the adjacent consonants, *zg* > *zz*. The velar *g* is the initial of the suffix *-gidi* which is attested in several other Birgid items, e.g. *nigidi* 'mosquito', *kulagidi* 'ostrich', *fergidi* 'vein', *mergidi* 'worm'.

The free alternation of the labial *f* and the velar *k* is restricted to the Midob items *úfúdí* and *úkúdí* 'nine'. This is probably due to the fact that they both share the acoustic feature [+ grave]. In other languages this alternation is said to be restricted to syllable-final position (cf. Hock 1991: 96), e.g. German *lach-* [lax], English *laugh* [la:f].

Tagle *ùrû*, Karko *òld*, Birgid *ijijòoldi*, Tagle *wíidù*, and Karko *wéed* 'nine' are put into parenthesis because they are not considered to be genetically related to the other items in the corresponding sets. While the origin of the first three items is yet unknown, *wíidù* and *wéed* appear to be borrowings based on Nyimang *wèdù* 'nine'.

3 LOSS WITH COMPENSATORY LENGTHENING

If a consonant is lost and the preceding vowel is lengthened this process is termed compensatory lengthening. It can be depicted in the following formula: *XVCY* > *XVVY*. The motivation behind this process is to preserve the original syllable weight, because a heavy syllable can both have the shape (C)VC and (C)VV. DE CHENE and ANDERSON (1979), however, propose another interpretation of the emergence of a long vowel after the loss of a postvocalic consonant. According to their analysis, the consonant is first weakened to a glide. The sequence of vowel plus glide then goes through a transitional stage of a diphthong which is finally re-analysed as a

long monophthong. This interpretation appears to be confirmed by the Nubian data presented in Table 4 and – though less clear – in Table 5 below.

Table 4. Loss of syllable-final **b* and **s* in Birgid

| gloss | Proto-Nubian | Old Nub. | Nobiin | Ke-Do | Birgid | Tagle | Karko | Midob |
|-------|------------------|-------------------------|------------------|--------|--------|--------|-------|----------|
| sand | *sib, *sib.di | Ⲙⲓⲛ <i>clay</i> | síw | siw | ʃee.ʃi | ʃùd | ʃwiid | sà.wì.dí |
| green | *des.si | ⲉⲤⲘⲘⲉⲚ | dés.sí | des.se | tee.ze | ʃéj.jè | ʃéj | tès.sé |
| oil | *nVs, *nVs.ti | ⲠⲜⲟⲓ | nóoy 'butter' | des | tii.zi | ʃín | ʃéej | tès.sí |
| water | *Vs.ti | ⲉⲤⲘⲘⲉ ⲁⲤⲘⲘⲉ ⲉⲤⲘⲘⲉ | ès.sí 'soup' | es.si | ee.ji | ótù | ót | és.cí |

In the preceding table there are four sets of cognates. Three of the reconstructable Proto-Nubian items have a first syllable ending in **s*, one of the items has a first syllable ending in **b*. The set of cognates denoting 'sand' suggests that two reconstructions are possible, i) the plain root **sib* as reflected in Old Nubian *Ⲙⲓⲛ*, in Nobiin *síw*, and in Kenzi-Dongolawi *siw*, and ii) the root **sib* extended by the suffix **-di* as reflected in Midob *sàwìdí*, Karko *ʃwiid*, Tagle *ʃùd*, and Birgid *ʃeeʃi*.

The syllable-final labial plosive of **sib* has been retained in Old Nubian where it is represented by the letter *ⲛ*. As RILLY (ms 2003: 224-226) convincingly argues, this letter represents the voiced labial plosive *b* rather than its voiceless counterpart *p*. In Nobiin, Kenzi-Dongolawi, and Midob, syllable-final **b* is weakened to the labial approximant *w*. In Midob *sà.wì.dí* one also notices a change of the syllable structure from **CVC.CV* to *CV.CV.CV*, being motivated by the optimal syllable structure with alternating consonants and vowels (VENNEMANN 1988: 69). Presumably the weakening of **b > w* occurred when this consonant was still in syllable-final position.

Tagle *ʃùd* and Karko *ʃwiid* are monosyllabic items suggesting that they result from several consonantal and structural changes including metathesis. It is conceivable that Karko *ʃwiid* has developed in the following way: **sibdi > *ʃiwdi > *ʃiwid > ʃwiid*. While the labialization *ʃ > ʃw* is a secondary development, labialization of obstruents in Karko and in several other Kordofan Nubian dialects is otherwise triggered by the shift of Proto-Nubian **o > wa*, e.g. **kolod > kwalad* 'seven', **nob- > ɖwab-* 'stir', **korsi > kwat* 'shoe'. As for Tagle *ʃud*, the following development is assumed: **sib-di > *ʃiw-di > *ʃiw-d > *ʃuw-d > ʃud*. The prefinal stage

**fuw-d* – realized with a long vowel – is, in fact, attested in *fùud*, which I have recorded in two neighbouring dialects, Ghulfan and Dilling. The shortening of the vowel in Tagle *fud* is probably motivated by the syllable structure CVC because a closed syllable tends to promote vowel shortening (HOCK 1991: 140).

In view of the various reflexes of syllable-final **b*, it is assumed that the long vowel in Birgid *seeḥi* results from the following processes: **b* has weakened to the labial glide *u*, and after a transitional diphthongal stage, the unattested sequence *iḥ* has been re-analysed as the long monophthong *ee*. Moreover, as a result of distant assimilation, the reflex of the suffix-initial **d* has adopted the features of the initial alveopalatal fricative *ʃ* so that **d* is realized as *ʃ*. In short, the changes are assumed to have included the following steps: **sib-di* > **ʃib-di* > **ʃiḥ-di* > **ʃee-di* > *see-ḥi*.

The loss of syllable-final **s* in Birgid *teeze* ‘green’ has probably been preceded by the following changes including syllable-initial strengthening **d* > *t* and the regular shift **s* > *z* motivated by consonant weakening in syllable-final position. After the perseverant assimilation of the adjacent consonants *zs* to *zz*, the syllable-final *z* has weakened to the unattested palatal glide *ʃ*. This development has been followed by the emergence of the long monophthong *ee*. In brief: strengthening **des.si* > **tes.si*, assimilation **tez.si* > **tez.zi*, weakening to a glide **tez.zi* > **teʃ.zi*, and finally emergence of a monophthong **teʃ.zi* > *tee.ze*.

As for Birgid *tiizi* ‘oil’, I assume that it originates in Proto-Nubian **nVs-ti* which exhibits the collective and dual marker **-ti*. This suffix is also reflected in the final syllable of Midob *tès.sí*. The syllable-final voiceless fricative **s* of the reconstructed root **nVs-* has been retained in Midob *tès-* and in Kenzi-Dongolawi *des*. The other cognates suggest that syllable-final **s* has successively weakened to the voiced palatal plosive *ʃ* as attested in Karko *téej*, then to the palatal nasal *ɲ* as attested in Tagle *tɲn*, and finally to the palatal approximant *y* as attested in Nobiin *nóoy* and Old Nubian *ʎoɛi*. The weakening of syllable-final **s* to the Old Nubian and Nobiin palatal approximant *y* is also documented in **os-ti* > Nobiin *óoy* ‘foot’. Nobiin *nòoy* and Old Nubian *ʎoɛi* have preserved the initial nasal **n*. The correspondence of the initial consonants Old Nubian *ʎ* : Nobiin *n* : Kenzi-Dongolawi *d* : Birgid *t* : Kordofan Nubian *t* is “irregular” and not attested in any other sets of cognates. I believe, however, that it provides evidence of the distinct position of Old Nubian/Nobiin within the Nubian language family.

Presumably Birgid *tiizi* ‘oil’ has passed through several stages including consonantal strengthening in syllable-initial position **nVs.ti* > **dVs.ti* >

**tis.ti*. In syllable-final position, consonant weakening has changed **tis.ti* to **tiz.ti*. Perseverant assimilation has changed **tiz.ti* to **tiz.zi*, followed by the weakening of syllable-final *z* to the unattested palatal glide *y* in **tiy.zi*, or rather **tij.zi*, which finally has given rise to the long vowel in *tiizi*.

Birgid *eeji* and Midob *áaci* ‘water’ will be discussed in connection with Table 5 below.

Table 5 below contains 10 sets of cognates. Before I discuss the various Proto-Nubian consonants that are lost in syllable-final position in Midob, I will comment on the intricate consonant changes in initial position.

Table 5. Loss of syllable-final **m*, **n*, **l*, **g*, **b*, and **t* in Midob

| gloss | Proto-Nubian | Old Nub. | Nobiin | Ke-Do | Birgid | Tagle | Karko | Midob |
|--------------------------|--|-------------------------|--------------------|---------------------------|----------|-----------------|------------------|-------------------------------|
| four | *kem.si | ΚΕΜCO | kém.só | ke.mis | keem.zi | kíŋ.nù | kéèŋ | èe.jí |
| knife | *kVn.di | ΚΑΝΔ- ‘thorn’ | kán.dí | kan.di | (nupiŋi) | (kàt̪àr) | kónɗ | óə.dí |
| hair | *del.ti | – | (ŋigírtí) | dil.ti | til.de | t̪il | tèel | tèe.dì |
| millet Penni setum | *en.dee | (ĒMEΛ) | or.ree | er.dee en.de | – | è.nè | ènd | óə.dí |
| shade, shadow | *nug.di | FOYP | nùur | nuur, nuu | nɔ.gɔ.di | dù.wá à | dúk.líí | təə.dì |
| slave | *nog.di | – | – | nu.gud ‘male slave’ | – | dúd.dù | dó.gòd | tòo.dì ‘female slave’ |
| stir | *nob- ‘stir, cook’ *nob.di ‘stirring stick’ | – | nif.fir- ‘cook’ | nob- ‘stir, cook’ | – | d̪ɔi- ‘stir’ | d̪wab- ‘stir’ | tòo.dí ‘stirring stick’ |
| horn | *ŋVs.ti | – | n̪i.f̪i | n̪i.f̪i | ŋis.ti | dó.tú | nət | kóə.cí |
| louse | *is.ti | – | is.sí | is.sí | – | í.tú | ít | ii.dì |
| water | *Vs.ti | ĒC.CI AC.CE ET.TO | ès.sí ‘soup’ | es.sí | ee.ji | ó.tù | ót | óə.cí |

Contrary to the aforementioned tendency of syllable-initial strengthening, **kemsí* > Midob *èejí* ‘four’, **kVndi* > Midob *áadi* ‘knife’ provide evidence of initial weakening to loss. That is, initial Proto-Nubian **k*, which is

otherwise retained in the Nubian languages, is regularly lost in Midob. Because of the lost initial **k*, originally distinct items may be neutralized in Midob: The reflexes of **kVndi* ‘knife’ and **endee* ‘millet’, for example, have an identical segmental realization, *əədi*. According to my own (very limited) Midob data, however, there is a tonal distinction: The reflex of **kVndi* ‘knife’ is realized with a high-high pattern, the reflex of **endee* ‘millet’ with a high-low pattern. This tonal distinction is not recorded in Werner’s Midob data.

Initial Proto-Nubian nasals have been retained in Old Nubian and Nobiin (**nVgdi* > *ⲉⲟⲩⲡ*, *nùur* ‘shade’, ‘shadow’, **nVb-* > *nif-fir-* ‘cook’), Kenzi-Dongolawi (**nVgdi* > *nuur*, *nuu* ‘shade’, ‘shadow’, **nogdi* > *nugud* ‘male slave’), and Birgid (**nVgdi* > *nəgədi* ‘shade’, ‘shadow’, **ηVsti* > *ηisti* ‘horn’). In the Kordofan Nubian dialects and Midob, however, the Proto-Nubian initial nasals have been successively strengthened and realized as voiced and voiceless plosives, respectively. Thus in Tagle and Karko initial **n* is reflected by the voiced apico-alveolar retroflex *ɖ* as attested in *ɖùwâ*, *ɖúklii*, *ɖɔi-*, and *ɖwab-* and in Midob by voiceless *t* as attested in *təədi* and *tòodi*. Initial Proto-Nubian **η*, however, is regularly reflected in Midob by *k*, but in Tagle and Karko, by *ɖ*. This suggests that the distinction between the Proto-Nubian alveolar **n* and the velar **η* is neutralized in Tagle and Karko *ɖ*.

In these dialects initial *ɖ* may undergo another change. Due to distant anticipatory assimilation, the initial *ɖ* is realized as dental *d* if it is followed by a dental *t* or *d*. It is therefore assumed that Proto-Nubian **nogdi* has first been reflected in Tagle by **ɖúddu* which then has changed to *dúddù*, and in Karko first by **ɖógòd* which then has changed to *dógòd*. As for **ηVsti* ‘horn’, we notice in Tagle the regular reflex **ɖótu* > *dótú* but instead of the expected Karko reflex *dət* there is *nət* with an initial nasal. I assume that the nasal is an irregular reflex. Its presence is due to analogy to the plural form *nə-n* where the original nasal feature of **η* has regularly been retained if it is followed by another nasal. In this case the nasal is represented by the plural suffix *-n*. It is comparable to the Tagle suffix *-ni* of *néni*, the plural form of *dótú* ‘horn’.

As for consonant changes in non-initial position, Nobiin *nùur* and Kenzi-Dongolawi *nuur*, *nuu* ‘shade’, ‘shadow’, can be recognized as reflexes of **nugdi* if it is assumed that several changes have occurred. These changes have included metathesis of the final segments: **nugdi* > **nugid*, perseverant vowel assimilation, **nugid* > **nugud*, the loss of the intervocalic velar **nugud* > **nuud* and the weakening of the final **d* > *r*, **nuud* > *nuur*. The loss of the voiced velar **g* in intervocalic position is well-known from other Nubian languages, for instance, **agil* which is

reflected by Midob *aal* ‘mouth’, **ugud* by *uul* ‘day(light)’ as well as **nigidi* by Birgid *niidi* ‘clay’.

The reflexes of Proto-Nubian **kemsi* ‘four’ show various changes conditioned by the mutual assimilation of the voiced labial nasal **m* and the alveolar(-palatal) fricative **s*. In Tagle and Karko, **s* is regularly reflected by the voiced palatal plosive *j*. Tagle *kíjɲù* suggests a reciprocal assimilation, i.e. the nasal **m* has adopted the place of articulation of the following palatal *j*, and this consonant has adopted the mode of articulation from the preceding nasal. In Karko *kěɲɲ* the nasal has adopted the place of articulation of the following palatal. Midob *ěejí* shows that the regular reflex of **s* > *s* has not been retained but has shifted to *j*. This is, no doubt, because of the loss of the preceding nasal whose feature [+ voice] has been adopted by the following consonant. The same assimilatory process is assumed in respect to the shift of **t* > *d* from **delti* to Midob *tèedi* ‘hair’.

The reflexes of **endee* ‘millet’ show an alternation of the nasal *n* and the liquid *r* which is not attested in any other set of cognates. The geminate *rr* of Nobiin *orree* results from a perseverant assimilation (**nd* >) *rd* > *rr*. The regular loss of **d* in Tagle *ènè* is a characteristic feature of this dialect, compare Tagle *mánù* to Karko *mánd* ‘grass’.

As for the deletion of syllable-final consonants, the Midob items suggest that the voiced plosives **b* and **g*, the nasals **m* and **n*, the lateral **l*, and the dental **t* (rather than the fricative **s*, see below) are lost. In each case, the loss is accompanied by compensatory lengthening of the preceding vowel. The assumed transitional diphthongal stage through which the vowel plus the weakened consonant have passed before they have been re-analysed as long monophthong is, however, attested in three items only. i) The high vowel *i* of Tagle *d̥ɔi-* ‘stir’ can be regarded as the glide *j* that reflects the weakened labial **b* of the root **nob-* although one would rather expect the glide *ɥ* to reflect the labial **b*). ii) In Tagle *d̥ùwáà* ‘shadow’ the labial approximant *w* can be considered as the glide *ɥ* reflecting the velar **g* of **nVgdi*. After the weakening the syllable structure has changed from **CVC.CV* to *CV.CV.CV*, that is from **d̥Vw.di* to **d̥V.wV.di*, a change that is also attested in Birgid *nɔ.gɔ.di*. The final change from **d̥V.wV.di* to *d̥ùwáà* is probably due to contraction of the two final syllables resulting in the low vowel *aa* with a falling tone. A comparable case is presented by **nigidi* ‘clay’ which is reflected in Tagle by *diddáà*.

The last three sets of cognates in Table 5 are reconstructed as **ɲVsti* ‘horn’, **isti* ‘louse’, and **Vsti* ‘water’. The reconstruction is based on the rather regular reflexes in the Old Nubian, Nobiin, Kenzi-Dongolawi, Tagle, and Karko items discussed in connection with Table 1 above. The

corresponding Midob items *káǎcí*, *ìidì*, *ǎǎcí*, and Birgid *eeji* ‘water’ however, pose a problem. The Midob palatal plosive *c* is usually a reflex of **j* or, after *r*, of **s* (see *ìrcídì* in Table 2). I suppose, therefore, that the original sequence **st* has metathesized to **ts*. The syllable-final segment of the resulting consonant sequence **t.s* has been weakened to the unattested glide *ɨ* which has first given rise to a transitional diphthong and then to the long monophthong as attested in *káǎcí* and *ǎǎcí*. The syllable-initial segment of **t.s* has been strengthened and is therefore reflected by *c*. In Midob there are several examples of metathesis, compare: i) Kenzi *toski*, Birgid *tizzig*, Midob *taasi* < **tagsi* < **tasgi* ‘three’, ii) Kenzi *ulug*, Birgid *oηel*, Midob *ulgi* ‘ear’.

In regard to the assumed development of Midob *káǎcí* and *ǎǎcí*, one would expect *ìidì* ‘louse’ to be realized as *ìicì*. As there are no other items attesting the shift from **st* > *d* with compensatory lengthening, the reflex *d* cannot be explained yet.

Birgid *eeji* ‘water’, in turn, does not appear to be a regular reflex of **Vsti* because Birgid *ηisti* ‘horn’ suggests that the consonant sequence **st* of **ηVsti* is retained. I therefore assume that Birgid *eeji* is a borrowing from the neighbouring Midob language, the borrowing being based on Midob *ǎǎcí* ‘water’. As the central vowel *ə*(*a*) and the palatal *c* do not belong to the phoneme inventory of Birgid, these sounds have been replaced by (*e*)*e* and *j*, respectively.

4 SUMMARY

This study of the loss of syllable-final consonants shows that each Nubian language is characterized by a distinctive pattern and amount of consonant loss. Midob is certainly the language in which the largest variety of Proto-Nubian consonants are deleted: Thus **s* is lost before **k* without compensatory lengthening (Table 3), and – in connection with compensatory lengthening – the voiced plosives **b* and **g*, the nasals **m* and **n*, and the lateral **l* are lost. Moreover, I assume that **t* is deleted in Midob if **t* occurs in the metathesized sequence **st* > **ts* (Table 5). In Birgid, syllable-final **b* and **s* are lost, the loss being accompanied by compensatory lengthening (Table 4). In the Kordofan Nubian dialects, **s* is always lost before **t* but, in contrast to Birgid, compensatory lengthening does not occur (Table 1). The loss of other syllable-final consonants is a characteristic feature of individual Kordofan Nubian dialects, such as the deletion of **d* in Tagle or the loss of **r* in Karko. As for Kenzi-Dongolawi, very few examples of consonant loss are found, the loss being restricted to liquids. Their deletion is accompanied by compensatory lengthening, e.g. **salmee* > *saamee*,

saama ‘beard’ and **marg-* > *maag-* ‘steal’. These findings confirm RILLY who states that Kenzi-Dongolawi is the least innovative (or most conservative) Nubian language (RILLY ms 2003: 265). Old Nubian and Nobiin basically show the same pattern as Kenzi-Dongolawi, with one noteworthy exception as pointed out in the commentary on **nVs-ti* ‘oil’ (Table 4).

Many Nubian sets of cognates support DE CHENE and ANDERSON’s interpretation of compensatory lengthening as a process in which a syllable-final consonant is first weakened to a glide and then, after a transitional diphthongal stage, gives rise to a long monophthong. Two questions still remain to be answered, however: i) Which factor determines the loss of a syllable-final consonant with or without compensatory lengthening? ii) Does the loss of consonants trigger tonal changes?

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