Verb Classes in Nilotic: Evidence from Datooga (Southern Nilotic)[1]

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1. Introduction: Verbal classes in Datooga

Datooga is a Southern Nilotic dialect cluster of Northern and Central Tanzania[2]. According to Rottland (1982: 255) Datooga, together with Omotik, constitutes one of the two main branches of the Southern Nilotic languages, alongside the Kalenjin languages. The basic characteristics of verbal inflection in Datooga are described synoptically in Rottland (1982: 173-184, 189-192) and in Rottland (1983: 224-229). The dialect under discussion here is the Gisamjanga Datooga variety as it was spoken in the Dongobesh area in Mbulu district of Northern Tanzania in 1935.[3]

Datooga verbal morphology displays the typical Nilotic dichotomy of two morphologically defined verb classes (Tucker & Bryan 1966: 450ff.). Synchronically this distinction is reflected in the selection of different allomorphic sets (Rottland 1982: 182). In (1), adapted from Rottland 1982 as an example of "modern Gisamjanga", the verbs **dɛɛs** 'build' (class 1) and **ɲiid** 'fill' (class 2), take different allomorphs of the imperative prefixes and the 3sg aorist prefix which are distributed according to verb classes. The same holds for (2) with examples taken from Berger 1935/36, as a representation of "older Gisamjanga", a former stage in the historical development of this language.

(1) Verb classes in "modern Gisamjanga" (Rottland 1982):

class 1	*class 2*	*grammatical category*
dɛɛs 'build'	**ɲiid** 'fill'	
qwá-dɛ̂ɛs 'SHe builds'	**qɔ́-ɲîit** 'SHe fills'	3sg present / aorist
Ø-**dɛ̀ɛsa** 'build (sg.)!'	**ɔ́-ɲìida** 'fill (sg.)!'	imperative singular
ɔ́-dɛ̀ɛsa 'build (pl.)!'	**ɔ́ɔ-ɲìida** 'fill (pl.)!'	imperative plural

(2) Verb classes in "older Gisamjanga" (Berger 1935/36):

class 1	*class 2*	*grammatical category*
lood 'go away'	**naal** 'teach'	
qwá-lòota 'SHe goes away'	**qóo-nàal** 'SHe teaches'	3sg present / aorist
Ø-**lóoda** 'go away (sg.)!'	**á-nàala** 'teach (sg.)!'	imperative singular

[1] The present article is part of a project entitled "Descriptive Grammar of Gisamjanga Datooga 1935/36". For critical remarks, suggestions and encouragement I would like to express my gratitude to Franz Rottland and Ludwig Gerhardt.

[2] For maps see Rottland (1982: 43), Rottland (1983: 211), Tomikawa (1979: 17), Tomikawa (1970: 10).

[3] The data were collected by Paul Berger during the period from May 1935 to February 1936 in Mbulu and Dongobesh where Berger stayed after his separation from the German East Africa expedition 1934-36 under Ludwig Kohl-Larsen, whom he had accompanied as a linguistic adviser.

á-lòoda ‘go away (pl.)!’	**óo-nàala** ‘teach (pl.)!’	imperative plural

Semantically, there seems to be a preference of class 2 for transitive verbs[4], and in some rare cases of (zero) conversion there even holds a derivational bond between two otherwise identical verbs, one in class 1, the other in class 2 as is shown in (3) and (4) where **noos** (class 1) ‘be stuck’ is in contrast with **noos** (class 2) ‘stick, fasten’.

(3) Derivation by conversion:

class 1	*class 2*
noos 1- ‘be stuck’	**noos** 2- ‘stick, fasten’
qwá-nòos ‘SHe is stuck’	**qóo-nôos** “SHe fastens (something)”

(4) Derivation by conversion plus vowel quantity and final consonant alternations:

class 1	*class 2*
bar 1- ‘beat, kill’	**baad** 2- ‘give one blow’
qá-bàr ‘SHe beats’	**qóo-bâat** ‘SHe gives one blow’

This dichotomy permeates the verbal morphology, in that many allomorphic sets are arranged according to verbal classes in this way – e.g. the imperative prefixes, the 3rd-person subject prefix in the aorist aspect, and the verbal noun prefix are verb-class sensitive, as displayed in table (5).

(5) Allomorphic sets conditioned by the verb classes, as reported by Rottland 1982:

	verb class 1	*verb class 2*
imperative sg (Rottland 1982: 192)	**Ø**	**a-**
imperative pl (Rottland 1982: 192)	**ɔ-**	**ɔɔ-**, devoicing of initial plosives
verbal noun (Rottland 1982: 166f.)	**Ø**	**gi-**
subject prefix for referents in aorist (Rottland 1982: 180)	**qa- ~ qwa-**, **ga- ~ gwa-**[5]	**qɔ-**, **go-**[6]

In earlier Nilotic verb class 2 is reconstructed as having been marked by a prefix ***i-** or ***ɪ-** (Dimmendaal 1983, Rottland 1982: 244) with a transitivizing or causativizing function.

[4] There are quite a number of intransitive class 2 verbs which show that, from a strictly synchronic point of view, class 2 in Gisamjanga-Datooga has no semantic content and is a purely formal morphological class, as with most of the other Southern Nilotic languages, e.g. Kalenjin (cf. Dimmendaal 1983: 275).

[5] The allomorphic distribution within these sets is conditioned by vowel harmony and by coronality of the initial consonant of the verb stem (cf. Rottland 1982: 180f.).

[6] The allomorphic distribution within these sets is conditioned by vowel harmony.

2. Additional evidence for reconstructing a prefix *i- for verb class 2

The variety of Gisamjanga-Datooga, reported by Paul Berger for 1935/36 yields further morphophonological traces of a former prefix in class 2. As we demonstrate below, we find:

1. synchronic retention of the quality of the prefix vowel, as can be gathered from vowel quality alternations in the morphological paradigm;
2. synchronic retention of the vowel mora;
3. tonal reflexes of the original prefix;
4. a blocked assimilation rule;
5. sonority alternations of consonants.

This paper thus offers additional proof for the internal reconstruction of a prefix ***ɪ́-** for verb class 2 in Pre-Datooga; drawing on historical evidence from 1935/36, it confirms the linkage between Datooga and Southern Nilotic reporting on an intermediary stage of development.

2.1. Vowel quality alternations as a reflex of the prefix *ɪ́-

One of the most salient features in Datooga verbal morphology is the allomorphic variation of the aorist prefixes of 3rd-person subjects: Rottland (1982: 180) describes six allomorphs of this subject prefix in the affirmative aorist, the allomorphy being conditioned by three features: verb class, affiliation to ATR-harmonic set, and quality of initial consonant (grave vs. acute)[7], according to the paradigm in (6). The Gisamjanga variant reported by Berger 1935/6 deviates in the allomorphs of class 2.

(6) Synopsis of the allomorphic variation of the aorist prefixes for referent subjects, as reported for modern Gisamjanga (Rottland 1982) and older Gisamjanga (Berger 1935/36):

	class 1		*class 2*	
	Rottland 1982, Berger 1935/36		Rottland 1982	Berger 1935/36
	grave	acute		
closed [+ATR]	**ga-**	**gwa-**	**go-**	**goo-**
open [-ATR]	**qa-**	**qwa-**	**qɔ-**	**qoo-**

[7] To be more precise, the affiliation to verb class 1 or 2 conditions the vowel quality in the allomorph (**a** or **o**). The affiliation to the harmonic set (which is only rarely obvious from the vowel quality, but must be internally reconstructed) conditions the quality of the initial consonant of the allomorph (**g** or **q**). And, finally, the coronal quality of the initial consonant of the verbal stem conditions the presence or absence of labialization in the allomorph.

Historically, the different vowels in the allomorphs of class 1 and 2 could be explained by a coalescence rule, as shown in (7). According to Rottland's (1982: 244) reconstruction the PSN[8] 3rd-person verbal subject prefix ***kɔ-** developed by regular sound change into POD ***ka-** with a regular sound shift of PSN short ***ɔ** to POD ***a**. This was the scenario for class 1. For class 2, the PSN prefix ***kɔ-** merged with the prefix ***i-** for class 2, giving POD ***kɔɔ-**; the original vowel quality retained, because the shift of ***ɔ** to ***a** did not apply to long vowels.[9] Berger's Gisamjanga variant preserves the long quantity of the vowel in class 2 allomorphs, but merges **ɔ** with **o**, whereas Rottland's variant retains the quality (with harmonic alternation conditioned by the ATR feature of the verb stem), but seems to have undergone reduction to a short vowel.

(7) Historical development of class 1 and class 2 allomorphs of 3rd-person subject prefixes on verbs (aorist):

class 1: PSN ***kɔ-** → POD ***ka-** → CD **qa-** ~ **qwa-** ~ **ga-** ~ **gwa-**
class 2: PSN ***kɔ-i-** → POD ***kɔɔ-** → CD **qoo-** ~ **goo-**

2.2. Vowel quantity alternations as a reflex of the prefix *ɪ́-

In contrast to Rottland's data, Berger's Gisamjanga 1935/36 shows that the prefix vowel ***ɪ́-** is assimilated, but not totally deleted; instead its mora is retained in the allomorphs of quite a number of subject prefixes, as summarized in table (9) and illustrated in (8) and (10-15). The illustrations provide a morphosyntactic context along with internal reconstructions. In (8), for example, the class 2 allomorph of the aorist morpheme for 3rd-person subjects preserves the mora of the original vowel prefix in the long vowel of **qoo-** (~ **goo-**): **qwánòos** "it is stuck" is made up of three morphemes, whereas **qóonôos** "sHe fastens sth." has four morphemes underlyingly, the long vowel in **qoo-** being a result of the merger of the subject prefix and the **ɪ́**-morpheme of class 2.

(8) Allomorphy of the aorist (Rottland's "present") prefix of 3rd-person subject: **qa-** ~ **ga-** ~ **qwa-** ~ **gwa-** (verb class 1) vs. **qoo-** ~ **goo-** (verb class 2)

[8] Abbreviations: AND andative, AOR aorist, APL applicative, CD Common Datooga, PF perfect, PLUR pluractional, POD Proto Omotik-Datooga, PSN Proto Southern Nilotic, VEN ventive. Andatives and ventives could be further differentiated morphologically with respect to the mobility of the centre of orientation (see Rottland 1982: 186). Thus, VEN1 and AND1 indicate orientation towards or away from a *stationary* deictic centre, whereas VEN2 and AND2 apply to *moving* deictic centres. ! indicates that the morpheme in question exerts a devoicing effect on preceding stops. The shorthand notations 1+, 1-, 2+ and 2- after verbs indicate verb class categorization (1 and 2) and harmonic set affiliation (+ATR and –ATR). Note that the latter are "abstract" or "functional" ATR qualities that often do not surface phonologically but only morphologically, in that they trigger vowel alternations in adjacent morphemes. For further details see Rottland (1982: 157ff.) and Creider and Rottland (1996: 257ff.).

[9] Later, in Common Datooga, the voiceless velar consonant of the prefix shifted to ***q** or ***g**, depending on vowel harmonic environment.

noos 1- ‘be stuck’; **noos** 2- ‘stick, fasten’

qwá-nòos ‘It is stuck.’	***qo-noos**
qóo-nôos ‘SHe fastens (something).’	***qo-í-noos**

The same allomorphic reflex of vowel length alternation occurs with the aorist prefix for 2sg subject, with the allomorphs of the perfect tense for 3rd-person subjects, 2sg subject and 1pl subject, with the allomorphs of the 1sg subject prefix of the subjunctive (future and perstitive), and with the negative aorist for 3rd-person subject. All of these long-vowel realizations seem to be on the verge of reduction, as they sometimes appear to alternate freely with short vowel allomorphs. Table (9) summarizes the allomorphies observed.

Table (9): allomorphies of subject prefixes according to verb class

	class 1	*class 2*
aorist (Rottland's "present") of 3rd-person subjects	**ga-** ~ **qa-** ~ **gwa-** ~ **qwa-**	**goo-** ~ **qoo-**
aorist of 2sg subjects	**gí-** ~ **gú-**	**gíi-**
perfect of 3rd-person subjects	**nì-** ~ **nù-**	**níi-**
perfect of 2sg subjects	**ní-** ~ **nú-**	**níi-**
perfect of 1pl and 3pl subjects	**sí-** ~ **sú-**	**síi-**
subjuncitve of 1sg subject	**dá-**	**dáa-**
negative aorist of 3rd-person subjects	**mà-**	**màa-**

Examples in morphosyntactic context:

(10) Allomorphy of the aorist prefix of 2sg subjects: **gí-** ~ **gú-** (1) vs. **gíi-** (2):

buud 2- ‘leave’

gíibùudi ‘You leave (it).’	***gi-í-buud-i**

(11) Allomorphy of the perfect prefix of 3rd-person subjects: **nì-** ~ **nù-** (1) vs. **níi-** (2):

noos 1- ‘be stuck’; **noos** 2- ‘stick, fasten’

nìnôos ‘SHe has been stuck.’	***nì-noos**
níinôos ‘SHe has fastened (something).’	***nì-í-noos**

bumbuniit 1+ ‘be soft’; **bumbuun** 2+ ‘soften’

nùbúmbùnɪɪt ‘It has been soft.’	***nì-bumbuniit**
níibùmbûun ‘SHe has softened (it).’	***nì-í-bumbuun**

bit 2- ‘fall down’

níibît ‘It has fallen down.’	***nì-í-bit**

(12) Allomorphy of the perfect prefix of 2sg subjects: **ní-** ~ **nú-** (1) vs. **níi-** (2):

bumbuniit 1+ ‘be soft’; **bumbuun** 2+ ‘soften’

nɪ́ibʊ̀mbʊ̀unɪ̀ ‘You have softened (it).’ ***nɪ́-ɪ́-bumbuun-i**

(13) Allomorphy of the perfect prefixes for 1pl and 3pl subjects: **sɪ́-** ~ **sʊ́-** (1) vs. **sɪ́i-** (2):

guuy 2+ ‘mix’

sɪ́ikʊ̂uyi ‘They have mixed (it).’ ***si-ɪ́C-guuy-i**

hid 1- ‘arrive’, **hiid** 2- ‘make arrive, bring; finish’

sɪ̀hɪ́tɪ̀ ‘We have arrived.’ ***si-hid-!i**

sɪ́ihɪ̀itɪ̀ ‘We have made (her/him) arrive.’ ***si-ɪ́-hiid-!i**

ʃaal 2+ ‘be finished, expire, com to an end’

sɪ́iʃɪ̀alɪ̀ ‘We have been finished.’ ***si-ɪ́-ʃaal-i**

haagwatiis ‘tend cattle’ PLUR, APL, AND1

sɪ́iháagwɪ̀atɪ̂isa ‘They used to tend their cattle.’ ***si-ɪ́-haagwatiis-a**

(14) Allomorphy of the 1sg subject prefix of the subjunctive (which is used for future and perstitive[10] as well): **dá-** (1) vs. **dáa-** (2):

daawiit 2+ "trouble s.o."

qáamʊ́uscɪ́ dáadɪ̀awɪ̂it sɪ̂ida ‘I can trouble a person.’ ***da-ɪ́-daawiit**

biid 2 ‘sit down’

nʊ́ŋwɪ̀ dáabɪ́idá ‘Let me sit!’ ***da-ɪ́-biid-a**

tin 2+ ‘untie’

gɪ̀ydátɪŋɪ̀ ‘I shall untie you.’ ***gay-da-ɪ́-tin-ŋi**

laj 1- ‘cut’

qáamúuscɪ́ dálâc fʊ̀uáandá qʊ̀wâaŋda ‘I can cut a bowstring.’ ***da-laj-ci**

(15) Allomorphy of the negative aorist for subject referents: **mà-** (1) vs. **màa-** (2):

dawun 2- ‘give’ VEN1

màadáwnà ‘They didn't give it to him.’ ***m-à-ɪ́-dawun-a**

Older Gisamjanga-Datooga thus involves a situation which is very close to that found in the Kalenjin languages, where the mora of the original class 2 prefix **ɪ-** is retained morphophonologically in the long vowels seen in one allomorph of the imperative plural prefix and some subject markers (Rottland 1982: 121, 123f., 134; Creider and Creider 1989: 81f., 93).

[10] The perstitive notion indicates that the action or process in question still continues at the time of reference.

2.3. Tonal reflexes of the prefix *ɪ́-

The class 2 prefix ***ɪ́-*** must be reconstructed as bearing a high tone, simply because this high tone surfaces in a number of subject/tense prefixes. For example, the tonal opposition of the perfect tense prefixes for 2sg **nɪ́-** vs. 3sg **nɪ̀-**, as illustrated in (16), is neutralized with class 2 verbs, as in (17), in favour of the high tone. This is an indication that then prefix ***ɪ́-*** was originally high-toned: the tonal opposition of these prefixes, **nɪ́-** vs. **nɪ̀-**, is then overridden by the high tone of the ***ɪ́-*** prefix.

(16) Tonal opposition of perfect tense prefixes for 2sg and 3sg with **rad** 1- "bind, tie":

2sg.PF	**nɪ́ràdi** 'You have tied.'	***nɪ́-ɪ́-rad-i**
3sg.PF	**nɪ̀rátɪ** 'SHe has tied.'	***nɪ̀-ɪ́-rad-!i**

(17) Tonal opposition of perfect tense prefixes for 2sg and 3sg, neutralized with **luul** 2+ "put up for the night":

2sg.PF.O1sg	**nɪ́ɪ̀lùuljàan** 'You have put me up for the night.'	***nɪ́-ɪ́-luul-j[i]-aan[i]**
3sg.PF.O1sg	**nɪ́ɪ̀lùulàn** 'He has put me up for the night.'	***nɪ̀-ɪ́-luul-!-aan[i]**

In addition, there are tone classes in Datooga verbs which correspond to the morphological dichotomy of class 1 and 2, a situation that resembles that found in most Eastern and Southern Nilotic languages (cf. Dimmendaal 1983: 277). A synopsis that correlates the verb class and the tonal behaviour of the initial syllable of the verb stem is given in table (18). It shows that verb class 1 has a tense / aspect sensitive tone on the initial syllable of the verb: roughly speaking, the aorist bears a low tone, the other paradigms a high or falling tone. By contrast, verb class 2 is characterized by a low tone throughout. What does this mean? This, again, is a case of neutralization, with verb class 2 overriding the initial grammatical high tone on verbs in the perfect and, thus, neutralizing the tonal opposition of aorist / present vs. perfect observed in verb class 1. Neutralization in the future and perstitive paradigms is not so clear, the least one could say is that class 2 generally seems to cause a lowering in the initial syllable of the verbal stem. One possible explanation for this is that the original high-toned prefix ***ɪ́-*** in class 2 probably had a polarizing effect on the tones of the immediately following verb-initial syllable, turning them into low tones throughout the paradigms.

(18) Correlation of the verb class and the tonal behaviour of the initial syllable of the verb stem, based on the paradigms given in Rottland (1982: 198ff.):[11]

	Aorist / Present		*Perfect*		*Future*		*Perstitive*	
	cl. 1	cl. 2	cl. 1	cl. 2	cl. 1	cl. 2	cl. 1	cl. 2
1sg	L	L	F/H	L	F	L	F	F/L

[11] Abbreviations: L low tone, H high tone, F falling tone.

2sg	L	L	F	L	H	F/L	F	F/L
1pl	L	L	F/H	L	F	F/L	F/H	F/L
2pl	L	L	F/H	L	F	F/L	F/H	F/L
3	F	F	F	F	L/F	F/L	F	F

A similar picture of neutralization clearly affecting also the future paradigm emerges in an analysis of some 50 verbs from Berger's Gisamjanga data.

(19) Correlation of the verb class and the tonal behaviour of the initial syllable of the verb stem, based on the paradigms of some 50 verbs from Berger's Gisamjanga data[12]:

	Aorist / Present		*Perfect*		*Future*	
	cl. 1	cl. 2	cl. 1	cl. 2	cl. 1	cl. 2
1sg	L	L	H	L	H/F	L
2sg	L	L	H/F	L	H/F	L
1pl	L	L	H	L	T	L
2pl	L	L	H	L	H	L
3	L	L/F	H/F	L	H	L

2.4. Blocked labial assimilation rule

Still more morphophonological evidence for the reconstruction of a vowel prefix in class 2 verbs comes from the interaction with an assimilation rule reported for Berger's Gisamjanga variety. A number of subject prefixes, such as **nì-** for 3.PF, **ní-** for 2sg.PF, **si-** for 1pl.PF and 3pl.PF and **gi-** for 2sg.AOR, are subject to a vowel assimilation rule: If the following verb stem starts with a grave consonant (labial or velar) and if the stem vowel is **u** at the same time, then the vowel **i** in the prefix is totally assimilated to **u**. If only one of these two conditions is fulfilled, the assimilation is optional. For example, in (20) we have the class 1 verb **guur**; it is inflected for the 2sg in the aorist by the prefix **gi-**, which is assimilated to **gu-** under the influence of the root vowel **u** and the initial grave consonant **g**.

(20) Some examples of class 1 verbs with grave initial consonants and a high round stem vowel, displaying labial assimilation:

guur 1+ 'call'
2sg.AOR **gúgùurì** 'You call (him).' ***gi-guur-i**

muŋaw 1+ 'flee'
2sg.AOR **gúmŋàwi** 'You run away.' ***gi-muŋaw-i**

[12] For the perstitive there is no representative data available in Berger's Gisamjanga materials.

2sg.PF	**nú́mŋá́wi** ‘You have run away.’	***ní́-muŋaw-i**
3sg.PF	**nú́mŋà́w** ‘SHe has run away.’	***nì́-muŋaw**
1pl.PF	**sú́mŋà́wjì** ‘We have run away.’	***si-muŋaw-ji**
3pl.PF	**sú́mŋà́w** ‘They have run away.’	***si-muŋaw**

mul 1+ ‘hide o.s.’

2sg.PF	**nû́mli** ‘You have hidden yourself.’	***ní́-mul-i**
1pl.PF	**sù́mú́llì** ‘We have hidden ourselves.’	***si-mul-ji**

But this assimilation only holds for class 1 verbs; in class 2 it is blocked with the prefixes mentioned, even when the verbs in question display a stem vowel **u** and initial grave consonants. Why should this be so? The reason, again, is that in class 2 there was an intervening vowel prefix that blocked the assimilation, as is shown in the internal reconstructions in (21).

(21) Examples of class 2 verbs with initial grave consonants and a high round stem vowel, with the labial assimilation rule blocked because of the intervening prefix vowel:

guul 2+ ‘scream with pain’

2sg.AOR	**gíigù́uli** ‘You scream with pain.’	***gi-í́-guul-i**

muuw 2+ ‘terrify’

2sg.AOR	**gíimù́uwì** ‘You terrify (him).’	***gi-í́-muuw-i**

buud 2- ‘leave’

2sg.AOR	**gíibù́udi** ‘You leave (it).’	***gi-í́-buud-i**
3sg.PF	**nɪ́ɪbốot** ‘SHe has left (it).’	***nì́-í́-buud**

2.5. Sonority alternations as reflexes of a prefix ***ɪ́C- ~ *Cɪ́-** in the plural of class 2 verbs

There is yet another peculiarity of class 2 verbs. Rottland (1982: 184) mentions a devoicing of initial plosives for class 2 verbs in the imperative plural for all Datooga dialects, and for the plural of class 2 verbs in general in the Bianjida dialect. Berger’s data clearly show that this also holds for the Gisamjanga variety spoken in Dongobesh area around 1935: initial plosives of class 2 verbs are devoiced in the plural. Thus table (23), drawn from Berger’s data, shows that the verb stems **bal** ‘rule’, **daw** ‘give away’, **guul** ‘announce’ and **jaakt** ‘send’ alternate with **pal**, **taw**, **kuul** and **caakt**, respectively, in the plural. This alternation could be the morphophonological trace of an additional consonant that was present in the plural of class 2 verbs. The reconstruction of class 2 prefixes would then be: ***ɪ́-** (sg), ***ɪ́C-** (pl). It is a very common rule in Datooga grammar for

consonants in contact to totally assimilate and for geminated voiced stops that arise in this way to further reduce to simple voiceless ones[13] (cf. Rottland 1982: 156; Kießling 1998), as shown in (22):

(22) Reduction of consonant clusters:

$$*C_1\text{-}C_2 \rightarrow C_1C_1 \sim C_2C_2 \rightarrow C_{1[\text{-voiced}]} \sim C_{2[\text{-voiced}]}$$

The following is a list of class 2 verbs that display this number sensitive voicing alternation in initial plosives:[14]

(23) Number sensitive voicing alternation in initial plosives with class 2 verbs:

singular	*plural*	*verb class*	*meaning*
bal	**pal**	2+	rule, decide
baray	**paray**	2-	show teeth
baar(d/s)	**paar(d/s)**	2-	ask for
baar	**paar**	2-	beat up
baad	**paad**	2-	knock
beed ~ bɛɛd	**pɛɛd**	2-	fall
bidææd	**piitpiit**	2+	sit down, be seated
bidæædaw	**pidaadaw**	2+	settle at a place
bit (< ***bid-d**)	**pit**	2-	enter, dive in, dip in
bitiis	**pitiis**	2-	attack, jump at
buud	**puud**	2-	leave
bumbuun, **bʊʊmbʊʊn**	**pumbuun**	2+	soften
buun	**puun**	2+	drive (arch.)
buut (< ***buud-d**)	**puut**	2-	knock head onto sth.
dalayʃ	**talayʃ**	2+	be fed up with
daraam	**taraam**	2-	compete
daw	**taw**	2-	give away
daay, **daaŋ**	**taay**	2+	walk side by side
dɛɛl, **deel**	**teel**	2-	give back; hinder; withhold
deelis	**teelis**	2-	answer

[13] The statement of this cluster reduction rule is very simplified, since most dental stops seem to be exempted from the terminal degemination rule. Rottland (1982: 153) even observes that most voiceless dental stops in Datooga are in fact geminated. From Berger's data it appears that there are simple dental stops as well as geminated ones, both of which seem to go back to geminated voiced stops. Historically, this situation could be explained by the assumption of at least two different waves of diffusion of this cluster simplification rule in Pre-Datooga, the first one operating degemination on all stops, the second one still under way with the dentals still exempted. Further work needs to be done on this.

[14] No explanation could be found for the initial permutation of the class 1 verb **gees** (sg.) → **kees** (pl.) 'vomit'.

deen	**teen**	2+	estimate; be equal
dindiil	**tindiil**	2+	shake
diiŋd	**tiiŋd**	2+	lift, move sth. upwards
dɪɪw, **diiw**	**tiiw**	2+	put
doobɪɪw, **dɔɔbɪɪw**	**toobiiw**	2-	walk home; bring on the right way
duuks	**tuuks**	2+ (1+?)	lie down; be o.'s turn
gaac, **gaaceew**	**kaac**	2+	greet
giisay	**kiisay**	2+	represent PLUR
guul	**kuul**	2+	announce, inform; scream with pain
guuy	**kuuy**	2+	mix
jaakt	**caakt**	2+	send
jaam	**caam**	2-	take a wife (ceremonially)
wɪɪd	**wwɪɪd**[15]	2+	make smooth

This suspected consonant could possibly be identified with the **g** in the prefix **gii-** ~ **gɪɪ-** for deriving verbal nouns from class 2 verbs[16], which is absent in class 1 (cf. Rottland 1982: 161f.); thus class 2 verbs such as **naal** 2- 'teach' and **rgwaag** 2+ 'hold council' nominalize to **gɪɪnaalda** and **giirgwaageeda** in (24), whereas class 1 verbs such as **nal** 1- 'know' and **wadææn** 1+ 'play' nominalize to **nalita** and **wadæændа**, respectively, that lack the **gii**-prefix:

(24) Nominalizations of class 1 and class 2 verbs:

verbal base	*nominalization*
nal 1- 'know'	**nal-ita** 'knowledge'
wadææn 1+ 'play'	**wadææn-da** 'game, playing'
naal 2- 'teach'	**gɪɪ-naal-da** 'teaching, lesson'
rgwaag 2+ 'hold council'	**gii-rgwaag-eeda** 'council'

2.6. Semantic evidence from relics of a causative derivation

It appears likely that class 2 originally represented a causative formation. This semantic reconstruction as a causative is justified by the general observation that class 2 verbs tend to be transitive; there are even some cases of (zero) conversion from class 1 to class 2, relics of a once regular and productive derivational process, as shown in (25):

[15] The geminated consonant is the last relic of the assimilated consonant of the plural morpheme.
[16] Probably cognate with the morpheme **kɪ́-** in Eastern Nilotic, cf. Dimmendaal 1983: 280ff.

(25) Conversion from class 1 to class 2:

intransitive (verb class 1)	*transitive/causative (verb class 2)*
noos 1- 'be stuck'	**noos** 2- 'stick, fasten'
ɲɪɪd 1- 'be full'	**ɲɪɪd** ~ **ɲiid** 2- 'fill'
quumban ~ **qʊʊmban** 1- 'swell	**quumbaan** 2- 'make swell'
bumbunɪɪt 1+ 'be soft, be smooth'	**bumbuun** 2+ 'make soft, smoothen'
daawiit 1+ 'be worried'	**daawiit** 2+ 'worry s.o.'
dɔɔbɪɪw 1- 'be straight'	**dɔɔbiiw** 2- 'walk home, accompany; instruct s.o., put in order, bring s.o. on the right way'

In some cases this transitivizing conversion is accompanied by a process of internal lengthening of the stem vowel[17], as shown in (26), or by an infixation of **-uu-** as in (27), both of these probably represent an intrusion of the mora of the original class 2 prefix vowel ***ɪ́-** into the root.

(26) Causative derivation by internal vowel lengthening and conversion to verb class 2:

intransitive (class 1)	*transitive/causative (class 2)*
ɲas 'get, obtain'	**ɲaas** 'court'
hid 'arrive'	**hiid** 'bring'
ŋat 'pass by, walk past'	**ŋaat** 'pass, let pass, make pass'
nal 'know, understand'	**naal** 'teach'
sik 'walk by, walk along'	**siik** 'lead past, carry along'
diŋd <AND1> 'climb up'	**diiŋd** <AND1> 'make climb, lift'
galun <VEN1> 'compete'	**gaalun** <VEN1> 'provoke a competition'

(27) Causative derivation by infix **-uu-** and conversion to verb class 2:

intransitive (class 1)	*transitive/causative (class 2)*
rit 'come out'	**ruut** 'take out'
lil 'sleep'	**luul** 'put s.o. up for the night'
bit 'bend down'	**buut** 'knock onto'
riiq 'be full'	**ruuq** 'fill up'

[17] Also described in Rottland (1982: 188) as a sporadic derivational process, and for Kipsikiis by Dimmendaal (1983: 274).

3. Conclusion

Berger's Gisamjanga data of 1935 link Rottland's modern Datooga data perfectly to what must be reconstructed for Southern Nilotic. Rottland (1982: 182) suggested that some of the morphophonological processes observed in modern Datooga (e.g. blocked vowel shifts) could lead to an analysis of class 2 verbs as containing a prefix **í-**. For synchronic purposes this analysis was too abstract for him. But as an internal reconstruction it fits well into his Southern Nilotic framework, because it has parallels in some Kalenjin languages, e.g. Nandi, which still displays a prefix **i-** in some environments, sometimes merged with a preceding vowel (Rottland 1982: 123f.; Creider and Creider 1989: 81ff.), and it could also be fit neatly into Dimmendaal's (1983) general Nilotic reconstruction. Now we have evidence that former Gisamjanga actually preserved a situation similar to that of modern Nandi. It shows an intermediary stage of reduction of the original class 2 transitivizing prefix ***í-** to a vowel mora which, merging with subject-tense prefixes, gave rise to a whole set of allomorphs with long vowels, before these vowels were ultimately reduced to short ones and the class 2 prefix was lost segmentally in modern Gisamjanga, as reported by Rottland 1982. This historical process is illustrated in (28) and (29).

(28) Reduction of class 2 prefix:

***í-** → **V́-** → Ø

(29) Comparison of class 2 allomorphs and internal reconstruction:

**Pre-Datooga*	*Gisamjanga (Berger 1935)*	*Gisamjanga (Rottland 1982)*	*function*
***kɔ-í-**	**qóo-** ~ **góo-**	**qɔ-** ~ **go-**	verbal prefix for 3sg and 3pl in aorist
***nɪ́-ɪ́-**	**nɪ́i-**	**nɪ́-**	verbal prefix for 2sg in perfect
***nɪ̀-ɪ́-**	**nɪ́i-**	**nɪ́-**	verbal prefix for 3sg in perfect
***si-ɪ́-**	**sɪ́i-**	**sɪ́-**	verbal prefix for 1pl and 3pl in perfect
***gi-ɪ́-**	**gɪ́i-**	**gɪ́-**	verbal prefix for 2sg in aorist
***da-í-**	**dáa-**	**dá-**	verbal prefix for the 1sg in future, perstitive and subjunctive

The final point here is that we have traces of an original consonant in class 2 plurals which is responsible for the devoicing of plosives and which could possibly be linked to a former prefix ***gi-** ~ ***gɪ-** for class 2 verbs, probably cognate to the prefix **kɪ-** of class 2 in Eastern Nilotic.

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