

Dental-bilabial initial correspondences in West Nilotic and their reconstruction

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NILOMORPH



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Theoretical background

Comparative Method

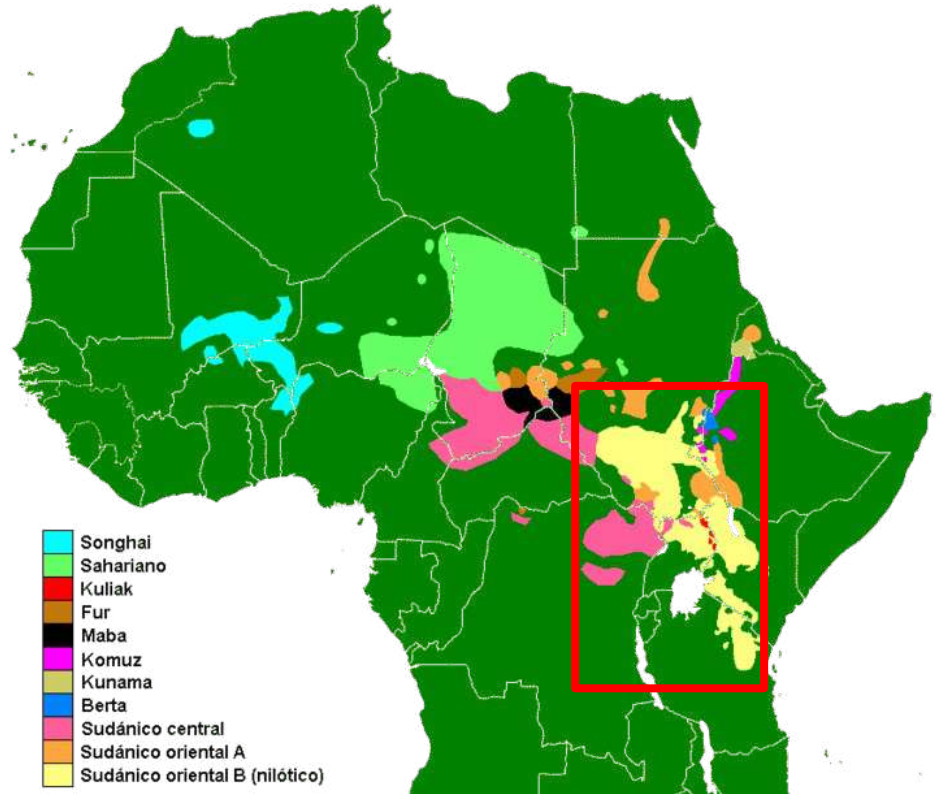
- Sound change is (mostly!) **regular**: in a given language, each occurrence of the same sound in the same environment will yield the same result
- Languages descended from a common ancestor thus show **regular correspondences** between related lexical items
- Correspondence sets in **complementary distribution** reflect **allophones** of the same proto-phoneme
- Words in different languages may appear similar due to common **ancestry**, **borrowing**, or **chance** resemblance

Nilotic

Well-established, but little reconstruction; cf. Köhler (1948, n.p.), Dimmendaal (1988)

< Eastern Sudanic < Nilo-Saharan, according to Greenberg (1963), Dimmendaal (2020)

- but cf. Güldemann (2025) for scepticism re Eastern Sudanic
- closest relationship with Surmic, Daju, Nyimang?



Nilotic

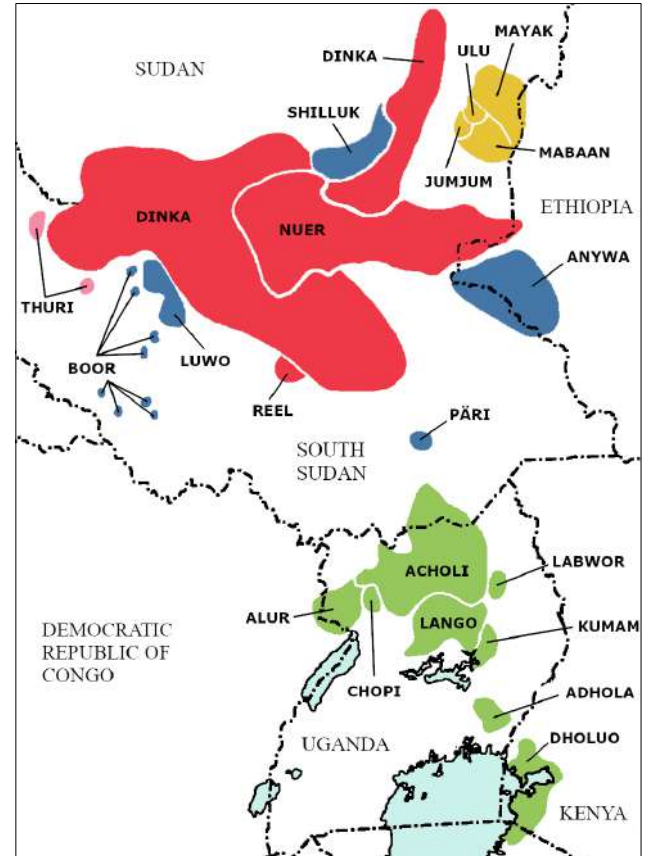
Nilotic consists of three branches,
two reconstructed:

- Eastern – reconstructed in Vossen 1982
 - e.g. Maasai
- Southern – reconstructed in Rottland 1982
 - e.g. the Kalenjin group
- Western – Reh 1985 remains unpublished



West Nilotic

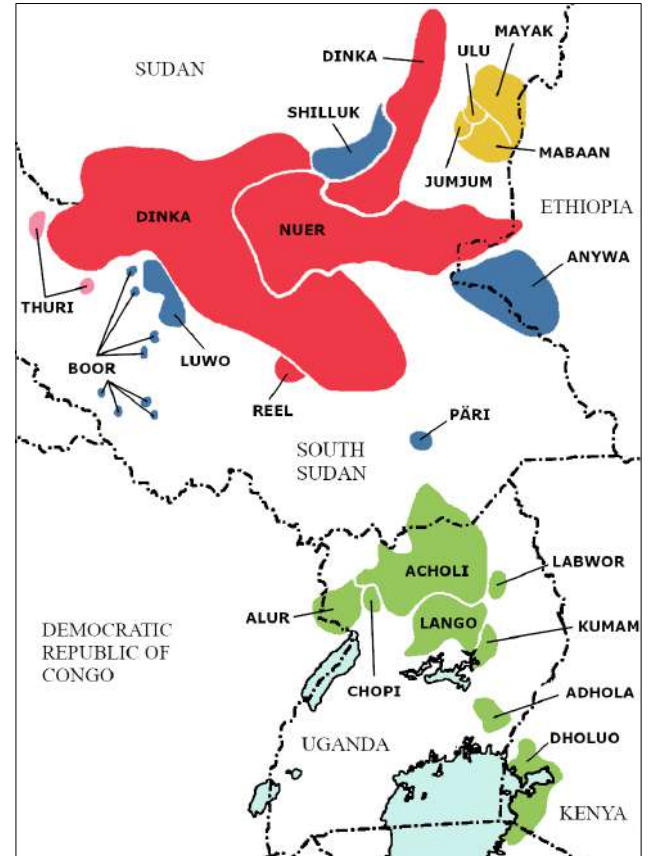
- Spoken by ~15 million? in inland East Africa
- Monosyllabic **C(G)V(:)C** roots + tone
- Three branches:
 - **Dinka-Nuer** (++internal)
 - **Lwoo**
 - Northern (suffixing/internal)
 - Southern (+suffixing)
 - **Burun** (++suffixing)
 - Northern
 - Southern



Adapted with permission from Storch (2005)

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- ERC Synergy Grant (2025-2031)
 - PIs: Matthew Baerman, Bert Remijsen
- Goal: Reconstruct how West Nilotic developed its typologically extreme internal morphology from earlier suffixation
- => reconstruct West Nilotic!



Adapted with permission from Storch (2005)

Proto-Nilotic > Proto-West Nilotic

- PN ***s** > PWN ***r** (Dimmendaal 1984)
- PN ***R** > PWN ***r** (Dimmendaal 1988)
- PN prefixes/proclitics lost (Dimmendaal 1988):
 - nominal ***k(V)-**, ***ma-** prefixes/proclitics in nouns
 - causative ***i-/*ɪ-**

PWN consonants: Reh (1985)

Reh (1985) has identified the following proto-consonants:

*p	*t̥	*t	*c	*k
*b	*d̥	*d	*j	*g
*m		*n	*ɲ	*ŋ
		*r	*y	*w *ʎ
		*l		
		*L		*R

Dimmendaal (1988)

Established regular initial changes

- ***R** (?) > Lwoo+Burun **ʔ**, Dinka-Nuer **ɣ** (Reh 1985)
- ***n** > ***[n̩]** / **{t̩|d̩}** (Reh 1985, Dimmendaal 1988)
- Burun innovations (Hall & Hall 1996):
 - ***c** > ***ʔ** / **#_**
 - ***w** > **∅** / ***C_** (Andersen 2006)
 - Northern Burun: ***ɲ** > **y** / **#_**; also ***d** > **ɗ** (Andersen 1999)
 - Southern Burun: ***r** > **y** / **#_**
- Southern Luo-internal changes (Heusing 2004):
 - ***t̩, *d̩** > ***t, d** in Acholi, Lango, Kumam

Debatable/tentative initial changes

- Voicing triggered by initial vowel loss? (Hieda 1983) – abandoned
- ***ɗ** > **d** (and ***ɓ** > **b**, ***ʝ** > **j**) everywhere except in Alur? (Dimmendaal 1988, Heusing 2004)
- ***r1**, ***r2**, ***l1**, ***l2** (Hieda 2006) – impressionistic, but roughly:
 - ***r1** > Lwoo **d/ɗ**, DN **w/j**; ***r2** > Lwoo **d/j**, DN **r**
 - ***l1** > Lwoo **g/w**, DN **l**; ***l2** > Lwoo **l**, DN **l**
- coronal > dental / [-ATR]
> alveolar / [+ATR] ? (Hieda 2017)
- Problem of coronal-labial correspondences...

Coronal-labial correspondences: Prior work

- Hall & Hall (1996):
 - ***m-** ~ ***ᵿ-** (~ ***p-**) interchanges < ***PV-** prefix?
- Hieda (2017):
 - ***t, *d, *n > *p, *b, *m / _{ia/ia/iε/ie}**
 - “Elucidation of how this process occurred is an aim of future research” – exceptions noted
- Further examination required...

Distribution of post-initial glides

- Burun: lost (cf. Andersen 1999)
- Proto-Dinka-Nuer:
 - ***Tj**{**a|ʌ|ɔ|o|(e|ɛ?)**} (T = dental, alveolar, labial)
 - ***Kw**{**i|ɪ|e|ɛ|ʌ|a**} (K = velar, alveolar, palatal)
 - Flego (2025): internal reconstruction of Dinka
 - Monich (2025): phonology of Nuer
- Lwoo: ***Cw** old; **Cj** from **EE > IE?** (Andersen 1990)
 - Shilluk: **CwV** (*rw, *ww), **Cj**{**a|ʌ|ɛ|e**} (*wj, *jj) (Gilley 1988)
 - Pări: **Kw**, no ***Tj** (Andersen 1989)

Distribution of /ŋ/

- Lwoo: absent, or secondary by dental harmony
- Burun: absent, except non-initially (Jumjum) or as an allophone of /n/ (Kurmuk, Mabaan)
- Dinka-Nuer: solidly well-attested in initial position, but relatively rare...

Distribution of /ŋ/: Dinka

Nebel 1979: 0.75 p./99

Ngul wei 65 Nyal

Ngul wei (piny), tear off, break off. Ngan A., threaten; R. whisper, speak secretly.

Nguok piny, aci wèt nguok piny, he pronounced the sentence.

Nguot, angut piny, spit down.

Nguot, pl. ngut, female, akòòn e nguot, an elephant-cow.

Ngút see Ngot, (still); ngút ba luü, shall I still work?

Ngur pl. nguur, heel.

Nhiaak, M., after tomorrow.

Nhiaam, testicle; ci nhiaan but, have. a swelling of testicles; hydrocele; hernia, elephantiasis etc. nhiaan ci weng ret, abi kòòc wiel miir, a testicle torn off by a cow will be sewn with giraffe-hair.

Nhiar, anhiar, love, like; e manhdien nhiaar a puoc cielic, he is my son I love from the depth (the middle) of my heart.

Nhiat, crush.

Nhiak, tomorrow, some day; na nhiaak, later; nhiaakdur, dawn; nhiaakrialic, tomorrow morning.

Nhiäl, pl. nhiöl, knee; gut yinhööl, kneel down.

Nhiäl n., above, sky, qon nhial, raised hut, higher store.

Nhialic, who is in the sky; God; Nhialic ató thin, there is a God.

Nhialic Wa, God my Father; see Aciék, Creator.

Nhiam, ci nhiam, capricious; proud; aköl nhiam, at the beginning; ka nhiam, by instinct.

Nhiangy, smell bad; stink; ring aci nhiany, the meat stinks.

Nhiar, see Nhiaar.

Nhiëër n., big river tortoise; nhiëër aci yenhom qok bei wir, the big tortoise peeped out from the river.

Nhieer, n., love; nhieer ekòc, love

of our neighbour.

Nhiem pl. nhim, hair; nhim weng, curled hair; nhim anyar, straight hair; nhim nyin, eye-lashes.

Nhier intr. v., wish to smb.; yin aca nhier kapath, I wish you happiness; anhier ke raan, be lucky in company with a person; ok anhier ok yin, I am lucky in your company.

Nhiër, loved; beloved; manh nhieër wun, the favoured child.

Nhiim, see Nhom.

Nhom pl. nhim, head, top; la nhom, to have, possess; ala nhom weng, he has a cow; aake cin nhim yath, they were without any totem; anhom, on my head; in front of me; im nhom, on the tree; ðaar nhom, crown of the head; nhom tau aqer, reproduce; kòc abi nhim looi, the people will see, know.

Nya pl. nyir; coll. nyal; girl, daughter; nyan bim, M. nyan cieng wal, (has straw in the earlap) marriageable girl; nyan mathiang, elderly girl; nyan kec thut, girl who did no love making; virgin; nyian-die (-du, -de), my (your, his) daughter; Ru. nyan thuode, his sister-in-law; nyan pan-de, her sister-in-law.

Nyaac Ru., inflammation of eye-lids (with loss of eyelashes).

Nyaai, fish at night with torches, catching fish with spears.

Nyaan, nyan kôu, see Nyian.

Nyacic, squeeze, bruise; gèn aci cien-die nyacic, I squeezed my finger.

Nyagino, gonorrhoea.

Nyai, anyël, take off, remove; acii yom nyai, it is forgotten, pardoned; tuil nyai, gratify one's desire (appetite).

Nyak, weary, habituated.

Nyal, new; coll. of nya, girl.

Duerksen 2005: 1.1 p./195

nhiaç nhom

nhiaç v. to squeeze something
nhiaç squeeze it! [Gram: 2SG]

nhiaç SWr v. crush.

nhiaç SWm n. after tomorrow. SWr: bak ðä.

nhiaç SWr n. tomorrow; someday. NWr: miak.

na nhiaç later.

nhiaçdur dawn. cf. mabok. SCA: dudur.

nhiaç rialic tomorrow morning.

nhiaçdur n. early morning, dawn. NWr: ruu.

SCA: dudur. SE: miakdur.

nhial NEB SWr SCA n. 1) cf. ðep. 2) heaven.

cf. tony hual ayöny. SWr: nyal. SCA: nyal.

nhial cielic zenith.

nhial NEB SWr SCA adj. up, above. cf. nhom. adv.

up.

yön nhial raised hut, higher store.

nhial NEB SWr SCA Pl: nhial. n. knee. NE: miäl.

Nhialic NE NW SWr SC SE n. God. Lit: sky-in.

Nhialic ató thin. There is a God.

Nhialic Wa God my Father. cf. aciek.

nhiam SWr Morph: ci nhiam. v. capricious, proud.

SCA: cf. miir. n. instinct.

aköl nhiam at the beginning.

ka nhiam by instinct.

nhiaan SWr n. testicle. Ant. böi. Nhiaan ci weng ret,

abi kòoc wiel miir. A testicle torn off by a

cow will be sewn with giraffe-hair.

ci nhiaan *but have a swelling of testicles.

nhiany SWr v. smell bad, stink, be raw (meat).

cf. guac. Rüj aci nhiany. The meat stinks.

nhiar NEB SWr v. love, like; want. cf. wic.

Morph: nhieër. apr: nhiasr. NWr: liek. Yin

anhiaar apuou. I love you with my heart.

Nhieër e këñë. Do you love it? Anhiäsr. I

love / you love. Ee manhdien nhiaar yapuou

cielic. He is my son I love from the depth

(the middle) of my heart.

nhiasr v. SWr love, like. prs: nhiaar.

nhieër v. love. Morph: nhieër, nhieër.

nhier SWr v. wish to somebody.

anhier ke raan be lucky in company with a person. Yook sanhier yok yin. I am lucky in your company.

nhieer raan kapath wish a person well. Yen aci yin nhieer kapath. / Yin aca nhier kapath. I wish you happiness.

nhieër SWr n. big river tortoise. cf. arau. Nhieër aci yenhom yok bei wir. The big tortoise peeped out from the river.

nhieër NEB SWr n. love. Morph: nhieër, nhieër.

Kede e nhieër. Is (it) love?

nhieer e koc love of our neighbour.

nhieëm SWr Pl: nhim. n. hair (sg).

nhier SWr adj. loved, beloved.

manh nhier wun the favoured child.

nhiesr v. love. Morph: nhiesr, nhieër. Acin raan bäny

karou luoi ë tök; tödë ka man bänyök ku

nhiesr bäny ðëttë, tödë ka thek raan tök ku

dhäl raan ðët. You cannot be a slave of two

masters; you will hate one and love the

other; you will be loyal to one and despise

the other. Mat 6:24

nhieër n. love. cf. nhiaar. Nhieër e këñë. Does he love

it? NEB

nhieër NEB v. love. Morph: nhieër, nhieër, nhiesr.

nhim SWr Sg: nhim. n. hairs.

nhim weng curled hair.

nhim anyar straight hair.

nhim nyin eyelash(es).

nhim NE SWr SCA Sg: nhom. n. heads. NWr

SEB: niim. Aake cin nhim yath. They were

without any totem. Koc aabi nhim looi. The

people will see (know).

nhim Sg: nhom. post. above (pl).

nhiol SWr SCA Sg: nhiaal. n. knees. NE: miäl.

gut yinhööl kneel down.

nhom SWr post. in front of, on top of, above.

cf. nhial.

yanhom on my head, in front of me.

tim nhom above the tree.

nhom / nhim

nhom / nhim NE SWr SCA n. 1) head. NE: aom

SEB: nom. 2) surface.

lanhom to have, possess. Ala nhom weng He has

a cow.

ðar nhom crown of head.

nhom tau ayer reproduce.

nhom / nhim

Distribution of /ŋ/: Dinka

11 roots excluding derived forms

	Nebel	Duerksen
testicle	nhiaam	nhiaan
like	nhiaar, anhiar	nhiar
crush	nhiai	nhiai
tomorrow	nhiak	nhiäk
knee	nhial, pl. nhiòl	nhiaal, pl. nhiol
above, sky	nhiâl	nhial
capricious, proud	nhiam, ci nhiam	nhiam
smell bad; stink	nhiany	nhiany
big river tortoise	nhiêêr	nhiëër
hair	nhiêm, pl. nhim	nhiëm pl. nhim
head, top	nhom pl. nhiim	nhom pl. nhïim



Nhiam, ci nhiam, capricious; proud;
akol nhiam, at the beginning; *ka
 nhiam*, by instinct.

Distribution of /ŋ/: Nuer

Huffman 1929: 0.5 p./48

<p>nei ti bor — 31 —</p> <p>nei ti bor white people; Caucasians. nei ti dit adults. nei ti luek, helpers; partners; nei ti lue(k)ni helpers; partners. nei ti nath Nuers. nei ti wal people of long ago. nei ti yant yellow people. nenike descendants; generations yet to come. ner to salute. nen* to see. ner, nenni mirror. nie din dini immediately; now. nien sleep; to sleep. nien ke wil interrupted sleep. ci nienu, nien gaatku A gwaa greetings do you sleep well; are your children well. niei wax in ear; dirt which collects on body; rust. nie tame pany immediately; now. nieth to be senseless; obstinate; wrong. nin nights; to pass the time. niŋ very narrow; when one is smaller or undeveloped as at ouk Nyapini niŋ (the foot of Nyapini is undeveloped or smaller). noz- to sweep up dirt in dustpan. nomni bel when dura is very fine. nomptny- class of Nuers of long ago all dead now. noŋ- to bring. nor Old Nasser. nor- to pound it fine; to bruise. nok epilepsy. nuai meat and mush cooked together. nuan quite dirty; very bad.</p>	<p>nhir-rwac</p> <p>nuane tough as meat is tough. nuag palsy. nuar certain kind of white dura. nuat life. nuan thin. nuer- v. people of murdered person never eat with relatives of murderer. nur to never die; to live forever. nuk to fish with fishing spear. nuk, nukni blue heron. nuag to travel, same as uth. nuor to fall to pieces; tender. nuor; nuon tired. nuor- to kill. nuor, nar trunk of dom palm. nup flour; finely pounded dura. nup to invite; to send word.</p> <p style="text-align: center;">Nh.</p> <p>nhial heaven; sky; up. ran nhial, ji nhial angel. ci nhial dam to rain. nhial gil a dam to rain steadily. nhial ot mar to thunder and lightning. ci nhial ŋok rainy season stopped. nhiam face; forward; in front of; east; west. nhian well nourished. nhiem hair. nhiem pieth short hair; bobbed hair. nhiem thok mustache; whiskers. nhir, nhir water tortoise. nhir- lat perfect work; no mistakes; correct. nhir-rwac perfect words; no mistakes; correct.</p>	<p>nhit — 35 —</p> <p>nhit to use a cane. nhok to agree; to be willing; to acquiesce; to be satisfied. nhok* to love; to assent. nhök* n. love; assent; order.</p> <p style="text-align: center;">Ny.</p> <p>nyaal python. nyac harvesting season; teke nyac; to have but little vision. nyak to throw away something you are very fond of; to take away; n. jealousy, used with women only. nyakaŋ poisonous snake. nyakwar, daughter of chief; princess. nyal, nyier girl. nyal can girl who has never developed and cannot bear children. nyal co sterile woman. nyaleslual certain kind of white dura. nyalatkwok certain kind of white dura. nyal lual variegated red. nyal pam daughter of mountain. nyal pint slime on top of water. nyam, nyier; nyth (directly addressed), girl. nyam mi dik dik niece girl. nyam mi rier rier flirt. nya nyade, nya gatde girl grandchild. nya nyiman, nya deman niece. nyan testicles. nyaneek certain kind of white dura. nyanŋ to be saturated; soaked; to wallow in; brown. nyan, nyuŋ crocodile. nyangeri spears used by Annaks to pay for wives.</p>	<p>mi nyu nyu</p> <p>nyar gum of meath. nyawuthgul certain red dura, very tall. nyau, nyeum cat. nyeth to imitate; to mock; to echo. nyiam lower front teeth which Nuers take out. nyieany- mad; fighting. nyim fins. nyith, nyith mosquito. nyier dwil gerka schoolgirls. nyier ti jiet fully developed girls. nyik, nyikni the fellow wife. nyikaŋ certain kind of white dura. nyiman, nyimani sister; (my) nyimar; (your) nyimar. nyin property; belongings. nyin jala baggage. te nyin gathi where is your faith? nyin yar name of yellow cow. nyipati certain kind of white dura. nyir n. hate; to hate. nyireu certain kind of white dura. nyth to try. nyith person who has all they need but is continually asking for more. nyith nyith naughty. nyoc flood. nyor to warm a portion of body. nyok to repeat. nyak, nyök louse. nyak ke lep to reopen. nyole to cry repeatedly. nyanŋ to climb or twine as vine. nyap- to knead; to mix. nyap to be lazy; (fram mi) lazy person. nyot to stir; to mix. mi nyu nyu small, like small writing.</p>
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Distribution of /ŋ/: Nuer

12 roots excluding derived forms

	Huffman	Kiggen				
heaven; sky; up	nhial	nhial, -a; pl. nhili	on high, above, aloft; the sky, heaven, atmosphere; weather, rain; height			
face; forward; in front ▶	nhiam	nhiam ran, nhiem naath	face, front; in front, before; ahead			
well nourished	nhian					
hair	nhiem	<i>miem, mima / miem, nieemni</i>	hair			
water tortoise	nhir, nhɪr	nhiar, nhiaar	turtle			
perfect	nhɪr-	<i>nier</i>	perfection			
to use a cane	nhɪt	nhɪɛɛ, nhiaɪkɔ, nhiet, nhietɿ, nhied	to lean on, as old man on stick, to press down with hands, put earth or ashes on fi			
to love; to assent	nhɔk	nhɔɣɛ, nhɔakɔ, nhɔk, nhɔɣ, nhooy	love, like, agree to			
		nhiaɛ, nhiackɔ, nhiaɔ, nhiaɔ, nhiec	to squeeze out			
		nhian, -i	testicles			
		nhiaanyɛ, nhiaany, nhiaany	to decay of food, to dissolve, too dilute; to pall, make tired			
		nhiaar, -a	good appearance			

Distribution of /ŋ/: Reel

Cien et al. 2015: 1.5 p./87

70	71	nyal
nōŋ pl. of nooŋ ₁ wedding	nhian [ŋ ^h àn] { nhianē } <i>n</i> testicle	nhiim pl. of nhiem charcoal
nōōŋ pos.pl of nooŋ ₁ wedding	nhiaan [ŋ ^h aan] { nhiaanē }	nhiimē pos.pl of nhiem charcoal
nōōŋē [nōōŋē] <i>v.in</i> bring (nooŋ ₃ bring s.m.)	nhianē pos.sg of nhian testicle	nhīēr ₁ pl. of nhieer ₁ love
nək [nək] { naau } <i>n</i> feather noou [noo ^u] { noowē }	nhiaal ₁ [ŋ ^h ààl] { nhial } <i>n</i> god	nhīēr ₂ [ŋ ^h èr] { nhieer } <i>n</i> turtle
nək [nək] <i>v.tr</i> take away s.m. (nəkŋ take away)	nhialē [ŋ ^h alē]	nhieer ₂ [ŋ ^h eer] { nhieerē }
nəkŋ [nəkŋ] <i>v.in</i> take away (nəkŋ take away s.m.)	nhiaal ₂ [ŋ ^h ààl] { nhial } <i>n.sg</i> 1) sky 2) top (of something)	nhīēm pl. of nhiam front
nəkŋŋ [nəkŋŋ] <i>v.in</i> take away (nəkŋŋ take away s.m.)	nhiaal ₃ <i>adv</i> up	nhīēmē pos.pl of nhiam front
nōōŋŋōōŋŋ <i>adv</i> poorly	nhiaam ₁ loc.sg of nhiam front	nhīēēr pos.pl of nhieer ₁ love
nuāār pos.sg of nuēēr corpse, person	nhiaam ₂ [ŋ ^h àám] <i>prep</i> in front of, before (nhiam front (of something))	nhīēm [ŋ ^h ēm] { nhīmē } <i>n</i> fur, hair nhīēm [ŋ ^h ēm] { nhīēmē }
nuēēr [nuēēr] { nuāār } <i>n</i> 1) body, corpse 2) person nei [ne ⁱ] { neenē }	nhiaan pl. of nhian testicle	nhīēm pl. of nhīēm fur, hair
nhak [ŋ ^h ák] <i>v</i> let go of s.m.	nhiaanē pos.pl of nhian testicle	nhīēmē pos.pl of nhīēm fur, hair
nhial ₁ pos.sg of nhiaal ₂ sky, top	nhieer ₁ [ŋ ^h éér] <i>n</i> love nhīēr ₁ [ŋ ^h èr] { nhīēēr }	nhīmē pos.sg of nhīēm fur, hair
nhial ₂ pos.sg of nhiaal ₁ god	nhieer ₂ pl. of nhīēr ₂ turtle	nhək [ŋək] <i>v.tr</i> 1) accept, agree, admit s.m. 2) believe s.m. (nhou accept)
nhialē pl. of nhiaal ₁ god	nhieer ₃ pos.sg of nhīēr ₂ turtle	nhou [ŋ ^h ou] <i>v.in</i> 1) accept agree, admit 2) believe (nhək accept s.m.)
nhiam [ŋ ^h ám] / nhiaam / <i>n</i> front (of something) nhīēm [ŋ ^h ēm] { nhīēmē }	nhieerē pos.pl of nhīēr ₂ turtle	nyal [ŋál] { nyaal } <i>n</i> 1) girl 2)
	nhiem [ŋ ^h ēm] { nhimē } <i>n</i> charcoal nhiim [ŋiim] { nhiimē }	
	nhimē pos.sg of nhiem charcoal	

Distribution of /ŋ/: Dinka-Nuer

14 roots – all but one with /ŋj-/

	Dinka	Reel	Nuer
testicle	nhiaan	ŋⁱàn	nhian
like	nhiar	ŋⁱéér	
like, agree		ŋók	nhək
crush, squeeze	nhiai		nhiac
tomorrow	nhia̋k ~ miak		
knee	nhiaal ~ miaal		məl
use a cane, lean on			nhiet
above, sky	nhial	ŋⁱàal	nhial
hair	nhie̋m	ŋⁱè̋m	nhie̋m > miem
head face	nhom (nhiam)	ŋⁱám	nhiam
charcoal	mim	ŋⁱè̋m	> miem
well nourished			nhian
smell bad decay	nhiany		nhiaany
big river tortoise	nhie̋er	ŋⁱè̋r	nhiar

Distribution of /nj/

Synchronically doubtful, diachronically **not** reconstructible

No underlying cluster **/nj-/** in Dinka-Nuer (Flego 2025, Monich 2025); unattested in Reel (Cien et al. 2015); but...

Distribution of /nj/: Dinka

- May arise by mutation; not otherwise found by Flego (2025)
- May arise morphologically outside regular mutation, e.g. (Nebel 1979):
 - **nip** ‘very small’ :
 - **niop** ‘feeble’
- A couple of unexplained examples.....



(4) VOICE QUALITY SHIFT AND VOWEL GRADATION IN AGAR DINKA (ANDERSEN, 2017)

Modal 1° • 2° ~ 3°		Derived Breathy 2° ~ 3°		Inherently Breathy 1° • 2° ~ 3°
i ~ jε	→	i ~ jε		i ~ jε
ε ~ ɛ	→	ε ~ ɛ		ε ~ ɛ
a • ɛ ~ a	→	ɛ ~ a		a/ɔ • ɛ ~ a
wɔ (• jε) ~ ja	→			wɔ (• jε) ~ ja
ɔ (• ɛ) ~ a	→	ɔ ~ ɔ		ɔ ~ ɔ
ɔ ~ wɔ	→	u ~ wɔ		u ~ wɔ
jε ~ jε	→	jε ~ jε		jε ~ jε
ja • jε ~ ja	→			ja/jɔ • jε ~ ja
jɔ (• jε) ~ ja	→	jɔ ~ jɔ		jɔ (• jε) ~ ja
wi ~ wjε	→	wi ~ wjε		wi ~ wjε
wε ~ wɛ	→	wε ~ wɛ		wε ~ wɛ
wɔ • wɛ ~ wɔ	→			wɔ/wɔ • wɛ ~ wɔ

Distribution of /nj/: Nuer

- Absent according to Monich (2025), except by mutation
- Huffman (1929): only **niɛ-**
- Kiggen (1948):
(orthographic?) /ni-/ ~ /ɲ/:
 - **nyay maan** ‘jealousy of women’ vs. **niahɛ naadh** ‘to kill people with evil eye’
 - **nyadhɛ** ‘to be cold’ vs. **niadhɛ puɔny** ‘to shiver’

TABLE 3. NUER VOWEL GRADE SYSTEM

PWN	ROOT VOWEL	A-MUTATION	I-MUTATION	IA-MUTATION
*i	i	ie		
*ɪ	ɪ	ɪɛ	i	ie
*e	e	e		
*ɛ	ɛ	ɛa	e	e
*ʌ	ʌ	ɑ		
*a	a	a	ʌ	ɑ
*o	ɔ	ɔɑ	ɔ	ɔɑ
	ɵ	ɵ		
*ɔ	ɔ	ɔɑ	ɵ	ɵ
*u	u	uɔ		
*ʊ	ʊ	ʊɔ	u	uɔ

Distribution of /ŋ/

Complementary distribution in onset in PDN:

- *ŋ / _j, *n elsewhere

=> *n > *[ŋ] / _j in PDN

became phonemic once grade system developed
varies synchronically with /m/ in Dinka and Nuer

Correspondences of PDN [ɲ]

- PDN *ɲj- = Burun ɲ = Lwoo m < PWN *ɲj-?

	Dinka	Reel	Nuer	Mabaan	Jumjum	Shilluk	Alur
testicle	nhiaan	ɲ ⁱ àn	nhian			màaan-ò	màl
like	nhiar	ɲ ⁱ éér		ɲɛɲ pl. ɲɛrg 'friend'		màaar	màrò; mèr
like, agree		ɲók	nhək				
crush, squeeze	nhiai		nhiac	ɲɿc		mèɛɛc	
tomorrow	nhïäk ~ miäk						
knee	nhiaal ~ miaal		mɔl				
use a cane, lean on			nhiet				
above, sky	nhial	ɲ ⁱ ààl	nhial	ɲaalɔ	ɲaal	mâal	màlò
hair	nhïëm	ɲ ⁱ è̄m	nhïem > miem				
head face	nhom (nhiam)	ɲ ⁱ ám	nhiam	ɲamu 'forehead'	ɲɔm		
charcoal	mim	ɲ ⁱ è̄m	> miem				
well nourished			nhian				
smell bad decay	nhiany		nhiaany				
big river tortoise	nhïëër	ɲ ⁱ è̄r	nhiar				

Distribution of dental plosives

- Contrast with alveolar plosives everywhere except N Uganda
 - e.g. **Shilluk** (Remijsen et al. 2011), Reel (Reid 2010)

páaaP ‘spread\1SG’	bâaar ‘boldness’	máC ‘fire\SG\NOM’
táaal ‘cook\1SG’	ḍâl ‘boy\PL\NOM’	ṇjáaar ‘like\1SG’
ṭáaaṬ ‘build\1SG’	ḍáaw ‘distribute\1SG’	ṇáaw ‘kill\1SG’

/p/ pūut leave unfinished.DVNA	/b/ búuut(ɔ) decay.DVN	/m/ mút drown.DVNA
/ṭ/ á-ṭúut PAST-take offense	/ḍ/ á-ḍúuut PAST-rush	/ṇ/ ṇúuut manure
/t/ tūut tie together.DVNA	/d/ ḍúuut kind of loincloth.P	/n/ ṇút available

Distribution of dental plosives

- Trivial correspondence in most environments:
 - DN $\underset{\text{̣}}{\text{t}} =$ Lwoo $\underset{\text{̣}}{\text{t}} =$ Burun $\underset{\text{̣}}{\text{t}}$
 - DN $\underset{\text{̣}}{\text{d}} =$ Lwoo $\underset{\text{̣}}{\text{d}} =$ Burun $\underset{\text{̣}}{\text{d}}$ (rarer)
- Some poorly understood exceptions, e.g.
 - DN $\underset{\text{̣}}{\text{t}} =$ Lwoo $\underset{\text{̣}}{\text{d}} =$ Burun $\underset{\text{̣}}{\text{t}}$ ('mouth', 'suckle')
 - DN $\text{r} =$ Lwoo $\underset{\text{̣}}{\text{d}}$? ('person')
 - sporadic dental/alveolar variation (e.g. 'grandmother') – **not** well-correlated with +/-ATR

Dental plosive + glide clusters

- Regular correspondence:
DN **tʃ**- = Burun **c**- = Lwoo **p**-

	Dinka	Nuer	Jumjum	Mabaan	Shilluk	Anywa	Dholuo
ask	tʃèec	tʃe:c	<i>taac-</i>	<i>tac</i>	pjèec	pèerjò dtr. péeó	pe'njò
heavy	tʃèek	tʃek- 'weigh'		<i>ciɛg-</i>			pé'k
fill	tʃòoŋ	tʃe:ŋ-			p̀λλη	p̄λλη dtr. p̄λληό	po'ŋ
hide (v.)	<i>tʃan</i>			<i>cak</i>			pa'ndɔ , <i>peno</i>
spoon, shell	<i>tʃal / tʃal</i> pl. <i>tʃet / tʃet</i>			<i>caal</i> pl. <i>cjeɬ</i>	p̄aal	āp̄aal pl. āp̄at	<i>opal</i>

Dental plosive + glide clusters

- Regular correspondence:
DN **d̥j-** = Burun **ɟ-** = Lwoo **b-**

	Dinka	Nuer	Jumjum	Mabaan	Shilluk	Anywa	Dholuo
mosquito	<i>d̥jer</i>			<i>ɟiɛɲan</i> pl. <i>ɟiɛya</i>	<i>bʌ̃j-ɔ̃</i> pl. <i>bʌ̃j</i>	<i>bèejó</i> pl. <i>bèer</i>	
termite ("white ant")	<i>d̥jej</i>			<i>ɟɔn</i> pl. <i>ɟtka</i>	<i>b̥ii</i>	<i>b̥iej</i> pl. <i>b̥iejī</i>	<i>bi·ye</i> pl. <i>bí·cê</i>
five	<i>d̥jec</i>	<i>d̥jec</i>	<i>d̥uuc</i>	<i>d̥ɔɔɟɔ</i>	<i>á-bíc</i>	<i>ābīc</i>	<i>abí·c</i>

ḡ ~ b in Nuer (Kiggen)

- ‘beer strainer’: **biim** ~ **dhiim**
- ‘five’: **dhiec**, but **ba-** in 6-9

Lwoo influence, or internal development?

Distribution of dental plosive + glide

- DN: contrasts with alveolar plosive + glide
 - Dinka: **tjàan** ‘hide’ vs. **tjàam** ‘win’,
djàm ‘demolish’ vs. **djàŋ** ‘stir’
 - Nuer: **tjəŋ-** ‘pushing things around’ vs. **tjəp** ‘type of shield’
- DN: contrasts with bilabial plosive + glide
 - Luanyjang Dinka: **tjɔow** ‘guinea-worm’ vs. **pjɔow** ‘heart’;
djɔp ‘female in-law’ vs. **bjɔɔl** ‘hare’
 - Nuer: **pjɛr-** ‘scarification’ vs. **tjɛk-** ‘make worse, aggravate’
- Reconstructible for PWN?

Distribution of dental plosive + glide

- DN contrast with bilabial plosive+glide may go back to PWN – few cognates, but promising

	Dinka (LJ)	Nuer	Jumjum	Mabaan	Shilluk	Anywa	Dholuo
scar	pjǎaar	pjer-				pòòò pl. pòoc	
oil	<i>miok</i>		<i>ɲɔwnʊ</i> pl. <i>ɲɔwdi</i>	<i>ɲɔɲ</i> pl. <i>ɲɔdɔɔ</i>	<i>mɔ̄w</i> pl. <i>màllɔ̄</i>	<i>màaò</i> pl. <i>máđí</i>	<i>mɔ</i> pl. <i>mó·rê,</i> <i>mó·cê,</i> <i>mó·đí</i>

Distribution of dental plosive + glide

- DN contrast with alveolar plosive+glide may be innovative – few cognates, suspected loans

	Dinka	Nuer	Jumjum	Mabaan	Shilluk	Anywa	Dholuo
three	djâak	djɔ́k	<i>dʌk</i>	<i>dʌʌgɔ</i>	á-d̀k	ād́k	adé`k
(young) women	djôoor				jũr		
win, defeat	tjàam				tjàaam		

Bringing things together

- Dinka-Nuer initial dental nasals arise not from coronal harmony but from a sound law probably active in PWN:
 - $*n > [n̥] / \#_j$
- Hieda's (2017) pioneering sound law works better with a PWN dental-alveolar contrast, and should be amended to:
 - $*tj, *dj, [*n̥j] > \text{Lwoo } *p, *b, *m$
 $> \text{Burun } *c, *j, *ɲ$
- How do we motivate these unusual sound shifts?

Explanation

- Not feature spread, not auditory similarity...
- Perhaps reconstruct linguolabial ***t̟j-**, ***d̟j-**, ***n̟j-**?
 - but then why > bilabial *only* / **_j**?
 - why **n** > **n̟** / **_j**?
- Auditory enhancement (Garrett & Johnson 2012):
maximisation of contrast with palatal ***c**, ***ɟ**, ***ɲ**
 - bilabial+j is notably rare in DN; perhaps also in PWN?
 - cp. labial protrusion on palatalised sibilants (Garrett 2015)

Paths for the future...

- Known unknowns:
 - Sporadic initial voicing variation
 - Sporadic dental-alveolar variation
 - Western Mabaan pharyngeals (**ħ**, **ʕ** < *rj, *ɣ?)
- Unknown unknowns:
 - No published lexicon of any North Burun variety
 - No phonologically adequate dictionary of any Burun, Dinka-Nuer variety
- Much remains to be done!

Conclusions

- PWN complex initials (unlike PWN affixes!) are best preserved in Dinka-Nuer
- The dental-alveolar contrast (atypical for Nilotic) goes back to PWN
- WN sound change involves systemic motivations as well as articulatory and auditory ones

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Dental-bilabial initial correspondences in West Nilotic and their reconstruction

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Theoretical background

Comparative Method

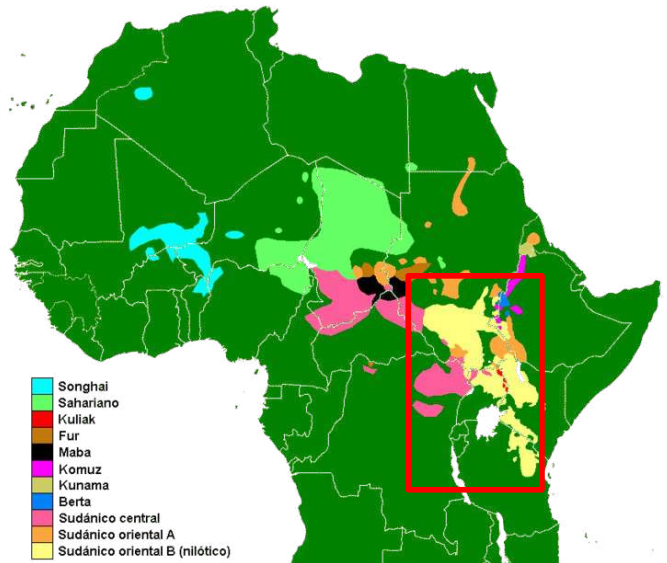
- Sound change is (mostly!) **regular**: in a given language, each occurrence of the same sound in the same environment will yield the same result
- Languages descended from a common ancestor thus show **regular correspondences** between related lexical items
- Correspondence sets in **complementary distribution** reflect **allophones** of the same proto-phoneme
- Words in different languages may appear similar due to common **ancestry, borrowing, or chance** resemblance

Nilotic

Well-established, but little reconstruction; cf. Köhler (1948, n.p.), Dimmendaal (1988)

< Eastern Sudanic < Nilo-Saharan, according to Greenberg (1963), Dimmendaal (2020)

- but cf. Güldemann (2025) for scepticism re Eastern Sudanic
- closest relationship with Surmic, Daju, Nyimang?



https://commons.wikimedia.org/wiki/File:Lenguas_nilo-saharianas.PNG

Nilotic

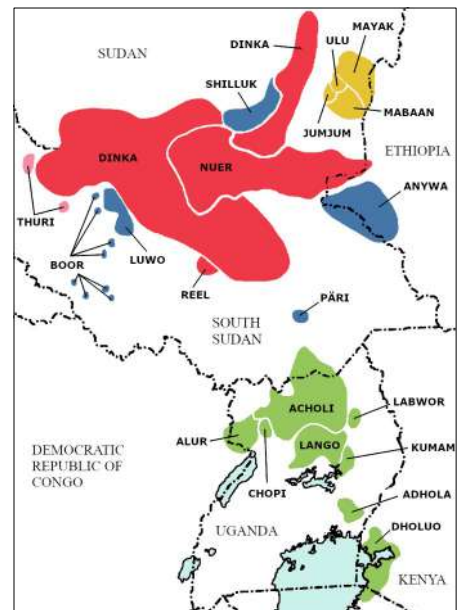
Nilotic consists of three branches,
two reconstructed:

- Eastern – reconstructed in Vossen 1982
 - e.g. Maasai
- Southern – reconstructed in Rottland 1982
 - e.g. the Kalenjin group
- Western – Reh 1985 remains unpublished



West Nilotic

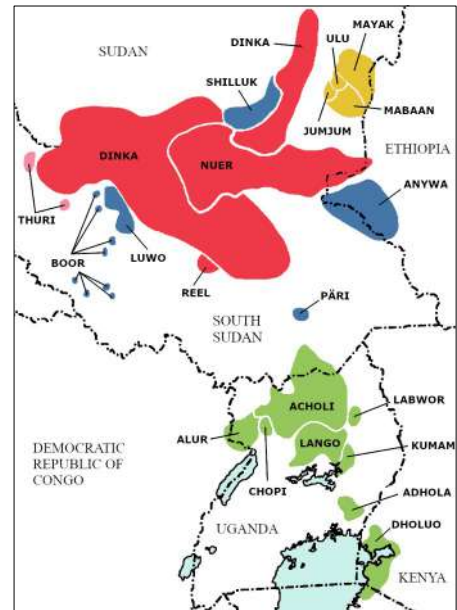
- Spoken by ~15 million? in inland East Africa
- Monosyllabic **C(G)V(:)C** roots + tone
- Three branches:
 - **Dinka-Nuer** (++)internal)
 - **Lwoo**
 - Northern (suffixing/internal)
 - Southern (+suffixing)
 - **Burun** (++)suffixing)
 - Northern
 - Southern



Adapted with permission from Storch (2005)

NILOMORPH

- ERC Synergy Grant (2025-2031)
 - PIs: Matthew Baerman, Bert Remijsen
- Goal: Reconstruct how West Nilotic developed its typologically extreme internal morphology from earlier suffixation
- => reconstruct West Nilotic!



Adapted with permission from Storch (2005)

Proto-Nilotic > Proto-West Nilotic

- PN ***s** > PWN ***r** (Dimmendaal 1984)
- PN ***R** > PWN ***r** (Dimmendaal 1988)
- PN prefixes/proclitics lost (Dimmendaal 1988):
 - nominal ***k(V)-**, ***ma-** prefixes/proclitics in nouns
 - causative ***i-/*ɪ-**

PWN consonants: Reh (1985)

Reh (1985) has identified the following proto-consonants:

*p	*t̥	*t	*c	*k
*b	*d̥	*d	*j	*g
*m		*n	*ɲ	*ŋ
		*r	*y	*w *ʎ
		*l		
		*L		*R

Dimmendaal (1988)

Established regular initial changes

- ***R** (?) > Lwoo+Burun **ʔ**, Dinka-Nuer **ɣ** (Reh 1985)
- ***n** > ***[ŋ]** / **{t|d}** (Reh 1985, Dimmendaal 1988)
- Burun innovations (Hall & Hall 1996):
 - ***c** > ***ʔ** / **#_**
 - ***w** > **∅** / ***C_** (Andersen 2006)
 - Northern Burun: ***ɲ** > **y** / **#_**; also ***d** > **ɗ** (Andersen 1999)
 - Southern Burun: ***r** > **y** / **#_**
- Southern Luo-internal changes (Heusing 2004):
 - ***t̥, *d̥** > ***t, d** in Acholi, Lango, Kumam

Debatable/tentative initial changes

- Voicing triggered by initial vowel loss? (Hieda 1983) – abandoned
- ***d** > **d** (and ***b** > **b**, ***f** > **j**) everywhere except in Alur? (Dimmendaal 1988, Heusing 2004)
- ***r1**, ***r2**, ***l1**, ***l2** (Hieda 2006) – impressionistic, but roughly:
 - ***r1** > Lwoo **d/d**, DN **w/j**; ***r2** > Lwoo **d/j**, DN **r**
 - ***l1** > Lwoo **g/w**, DN **l**; ***l2** > Lwoo **l**, DN **l**
- coronal > dental / _[-ATR]
> alveolar / _[+ATR] ? (Hieda 2017)
- Problem of coronal-labial correspondences...

Coronal-labial correspondences: Prior work

- Hall & Hall (1996):
 - ***m-** ~ ***m̥-** (~ ***p-**) interchanges < ***PV-** prefix?
- Hieda (2017):
 - ***t, *d, *n > *p, *b, *m / _{ia/ia/iε/ie}**
 - “Elucidation of how this process occurred is an aim of future research” – exceptions noted
- Further examination required...

Distribution of post-initial glides

- Burun: lost (cf. Andersen 1999)
- Proto-Dinka-Nuer:
 - ***Tj**{**a|ʌ|ɔ|o|(e|ɛ?)**} (**T** = dental, alveolar, labial)
 - ***Kw**{**i|ɪ|e|ɛ|ʌ|a**} (**K** = velar, alveolar, palatal)
 - Flego (2025): internal reconstruction of Dinka
 - Monich (2025): phonology of Nuer
- Lwoo: ***Cw** old; **Cj** from **EE > IE?** (Andersen 1990)
 - Shilluk: **CwV** (***rw**, ***ww**), **Cj**{**a|ʌ|ɛ|e**} (***wj**, ***jj**) (Gilley 1988)
 - Pãri: **Kw**, no ***Tj** (Andersen 1989)

Distribution of /ŋ/

- Lwoo: absent, or secondary by dental harmony
- Burun: absent, except non-initially (Jumjum) or as an allophone of /n/ (Kurmuk, Mabaan)
- Dinka-Nuer: solidly well-attested in initial position, but relatively rare...

Distribution of /ŋ/: Dinka

Nebel 1979: 0.75 p./99

Ngul wei

65

Nyal

Ngul wei (piny), tear off, break off.
Ngun A., threaten; R. whisper, speak secretly.
Nguok piny, *aci wét nguok piny*, he pronounced the sentence.
Nguot, angut piny, spit down.
Nguot, pl. *ngut*, female, *akòon e nguot*, an elephant-cow.
Nguot see **Ngot**, (still); *nguot ba lui*, shall I still work?
Ngur pl. *ngum*, heel.
Nhaak, M., after tomorrow.
Nhaam, testicle; *ci nhian but*, have a swelling of testicles; hydrocele; hernia, elephantiasis etc., *nhiaan ci weng ret*, *abi kòoc wèl miir*, a testicle torn off by a cow will be sewn with giraffe-hair.
Nhiisar, *anhiaar*, love, like; *ee manhdier nhiaar a puu cielic*, he is my son I love from the depth (the middle) of my heart.
Nhiai, crush.
Nhiak, tomorrow, some day; *na nhiaak*, later; *nhiaakdur*, dawn; *nhiaakriatic*, tomorrow morning.
Nhiol, pl. *nhìol*, knee; *gut yinhìol*, kneel down.
Nhiäl n., above, sky, *qon nhial*, raised hut, higher store.
Nhiäle, who is in the sky; God; *Nhiälic atò thin*, there is a God.
Nhiälic Wa, God my Father; see **Aciek**, Creator.
Nhiäm, *ci nhiam*, capricious; proud; *akol nhiam*, at the beginning; *ka nhiam*, by instinct.
Nhiäny, smell bad; stink; *ring aci nhiaary*, the meat stinks.
Nhiar, see **Nhiaar**.
Nhiëer n., big river tortoise; *nhieër aci yenhom gok bei wuir*, the big tortoise peeped out from the river.
Nhieer, n., love; *nhieer ekòc*, love

of our neighbour.
Nhiëm pl. *nhim*, hair; *nhim weng*, curled hair; *nhim anyar*, straight hair; *nhim nyin*, eye-lashes.
Nhiler intr. v., wish to smb.; *yin aca nhier kapath*, I wish you happiness; *anhier ke raan*, be lucky in company with a person; *ok anhier ok yin*, I am lucky in your company.
Nhiër, loved; beloved; *manh nhieër woun*, the favoured child.
Nhiim, see **Nhom**.
Nhom pl. *nhim*, head, top; *la nhom*, to have, possess; *ala nhom weng*, he has a cow; *aake cin nhim yath*, they were without any totem; *anhom*, on my head; in front of me; *im nhom*, on the tree; *daar nhom*, crown of the head; *nhom tau ager*, reproduce; *kòc abi nhim loo*, the people will see, know.
Nya pl. *nyir*; coll. *nyal*; girl, daughter; *nyan bin*, M. *nyan cieng wal*, (has straw in the ear) marriageable girl; *nyan mathiang*, elderly girl; *nyan kee thut*, girl who did no love making; virgin; *nyan-die (-du, -de)*, my (your, his) daughter; *Ru. nyan thuede*, his sister-in-law; *nyan pan-de*, her sister-in-law.
Nyaas Ru., inflammation of eye-lids (with loss of eyelashes).
Nyaal, fish at night with torches, catching fish with spears.
Nyaan, *nyan kòu*, see **Nyian**.
Nyaci, squeeze, bruise; *gèn aci cien-die nyacic*, I squeezed my finger.
Nyagino, gonorrhoea.
Nyai, anyèi, take off, remove; *acii nyai nyai*, it is forgotten, pardoned; *tul nyai*, gratify one's desire (appetite).
Nyak, weary, habituated.
Nyal, new, coll. of *nya*, girl.

Duerksen 2005: 1.1 p./195

Nhiac

Nhiac v. to squeeze something.
Nhiac squeeze st. (Cuzim: 28G)
Nhiäl SWr v. crush.
Nhiak SWm *a* after tomorrow. SW: bak ðä.
Nhiäk SWr *a* tomorrow; someday. NW: miäk.
na nhiaik later.
Nhiäkkur dawn. *cf* *mabok* SCa: *dudur*.
Nhiäk riatic tomorrow morning.
Nhiäkkur *a* early morning, dawn. NW: *ruu*.
SCa: *dudur*. SE: *määkkur*.
Nhiäl NEB SWr SCa *n* 1) *cf* *dep*, 2) heaven. *cf* *teey* *hul* *nyey*. SW: *nyal*. SCa: *nyal*.
Nhiäl cielic testis.
Nhiäl NEB SWr SCa *adj* up, above. *cf* *nhom*. *adv*. up.
yin nhial raised but, higher store.
Nhiäl NEB SWr SCa *Pf* *nhial* *a* knee. NE: *miäl*.
Nhiälic NE NW SWr SC SE *a* God. *Lit*: sky-in. **Nhiälic atò thin**. There is a God.
Nhiälic Wa God my Father. *cf* *aciek*.
Nhiäm SWr *Mogoh* *ci nhiam*. v. capricious, proud.
SCa: *cf* *miir*. *a* instinct.
Nhiäl *nhiam* at the beginning.
ka nhiam by instinct.
Nhiäm SWr *a* testicle. *Ant*: *bot*. **Nhiäm** *ci weng ret*, *abi kòoc wèl miir*. A testicle torn off by a cow will be sewn with giraffe-hair.
ci nhiam *but have a swelling of testicles.
nhiaary SWr v. small head, stink, be raw (meat). *cf* *quac*. *Rij* *aci nhiaary*. The meat stinks.
nhiaar NEB SWr v. love, like; want. *cf* *wic*.
Mogoh *nhiaar*. *ap*: *nhiaar*. NW: *liek*. *Yin anhar* *apuu*. I love you with my heart.
Nhiäer *a* *kèak*. Do you love it? **Nhiäier**. I love / you love. *Èe manhdier nhiaar yagouu* *cielic*. He is my son I love from the depth (the middle) of my heart.
nhiaar v. SWr love, like. *par*: *nhiaar*.
nhiaër v. love. *Mogoh* *nhieër*, *nhieër*.
nhiaer SWr v. wish to somebody.

Nhom

anhier *ke raan* be lucky in company with a person. *Yook anhier yok yin*. I am lucky in your company.
nhiaer *raan kapath* wish a person well. *Yin aci yin nhiaer kapath*. / *Yin sca nhiaer kapath*. I wish you happiness.
nhieër SWr *a* big river tortoise. *cf* *aran*. **Nhiëer** *aci yenhom yok bei wuir*. The big tortoise peeped out from the river.
nhieër NEB SWr *a* love. *Mogoh* *nhieër*, *nhieër*. *Kede* *a* *nhieër*. Is (it) love?
nhiaer *a* *kòc* love of our neighbour.
nhim SWr *Pf* *nhim*. *a* hair (sg).
nhier SWr *adj* loved, beloved.
manh nhier wun the favoured child.
nhier v. love. *Mogoh* *nhier*, *nhieër*. *Acin raan bëny karou lui* *a* *tök*; *tädé ka man bënyök ku nhiaer bëny dëti*, *tädé ka thak raan tök ku dhäl raan dët*. You cannot be a slave of two masters; you will hate one and love the other; you will be loyal to one and despise the other. *Mit* 6:24
nhier *a* love. *cf* *nhiaer*. **Nhiëer** *a* *kèak*. Does he love it? NEB.
nhieër NEB v. love. *Mogoh* *nhieër*, *nhieër*, *nhiaer*.
nhim SWr *Sg* *nhim*. *a* hairs.
nhim weng curled hair.
nhim anyar straight hair.
nhim nyin eyelash(es).
nhim NE SWr SCa *Sg* *nhom*. *a* heads. NW: SEB: *nhim*. *Aske cin nhim yath*. They were without any totem. *Kòc sabé nhim loo*. The people will see (dawn).
nhim *Sg* *nhom*. *post* above (pl).
nhìol SWr SCa *Sg* *nhial*. *a* knees. NE: *miäl*.
gut yinhìol kneel down.
nhom SWr *post*. in front of, on top of, above. *cf* *nhial*.
yanhom on my head, in front of me.
tin nhom above the tree.

nhom / nhim

nhom / **nhim** NE SWr SCa *n* 1) head. NEB: *nom*. SEB: *nom*. 2) surface.
la nhom to have, possess. *Ala nhom weng*. He has a cow.
dar nhom crown of head.
nhom tau anyer retrograde.

nhom / nhim

12/17/2005

Dinka — English Dictionary

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12/17/2005

Dinka — English Dictionary

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Distribution of /ŋ/: Dinka

11 roots excluding derived forms

	Nebel	Duerksen
testicle	nhiaam	nhiaan
like	nhiaar, anhiar	nhiar
crush	nhiai	nhiai
tomorrow	nhiak	nhiäk
knee	nhiâl, pl. nhiòl	nhiaal, pl. nhiol
above, sky	nhiâl	nhiâl
capricious, proud	nhiam, ci nhiam	nhiam
smell bad; stink	nhiany	nhiany
big river tortoise	nhiêêr	nhiëër
hair	nhiêm, pl. nhim	nhiëm pl. nhĩm
head, top	nhom pl. nhiim	nhom pl. nhĩm



Nhiam, ci nhiam, capricious; proud;
akol nhiam, at the beginning; *ka nhiam*, by instinct.

Distribution of /ŋ/: Nuer

Huffman 1929: 0.5 p./48

nei ti bor	— 34 —	nhir-rwac	nhit	— 35 —	ni nyu nyu
nei ti bor white people; Caucasians.		nuaae tough as meat is tough.	nhit to use a cane.		nyar gun of mouth.
nei ti fit adults.		nuaŋ paley.	nhiok to agree; to be willing; to acquiesce; to be satisfied.		nyawuthgel certain red dura, very tall.
nei ti luk, helpers; partners; nei ti lue(k)ni helpers; partners.		nuaŋ certain kind of white dura.	nhiok ² to love; to assent.		nyax, nyaxan oat.
nei ti nath Nuaes.		nuaŋ thin.	nhiok ³ n. love; assent; order.		nyeth to imitate; to mock; to echo.
nei ti wal people of long ago.		nuer- v. people of murdered person never eat with relatives of murderer.			nyiam lower front teeth which Nuaes take out.
nei ti yani yellow people.		nur to never die; to live forever.			nyiozy- mad; fighting.
nenike descendants; generations yet to come.		nuk to fish with fishing spear.			nyim fins.
ner to salute.		nuk, nuket blue henae.			nyith, nyith mosquito.
ner ² to see.		nuaa to travel, same as uth.			nyer ² to have but little vision.
ner, nernt mirror.		nuer to fall to pieces; tender.			nyer to throw away something you are very fond of; to take away:
nie din dnt immediately; now.		nuer; nuon tired.			n. jealousy, used with women only.
nien sleep; to sleep.		nuer- to kill.			nyakan poisonous snake.
nien ke wil interrupted sleep.		nuer, nar trunk of dom palm.			nyakwar daughter of chief; princess.
ci nienu, nien ganku a gwaa greetings do you sleep well; are your children well.		nup flour; finely pounded dura.			nyal, nyier girl.
niet wax in ear; dirt which collects on body; rust.		nup to invite; to send word.			nyal can girl who has never developed and cannot bear children.
nie lame pany immediately; now.					nyal to sterile woman.
nieth to be senseless; obstinate; wrong.					nyalokual certain kind of white dura.
nin nights; to pass the time.					nyalokwak certain kind of white dura.
niŋ very narrow, when one is smaller or undeveloped as ci uk Nyapini niŋ (the foot of Nyapini is undeveloped or smaller).					nyal lual variegated red.
noz- to sweep up dirt in dustpan.					nyal pam daughter of mountain.
nomat bel when dura is very fine.					nyal pin slime on top of water.
nompy- class of Nuers of long ago all dead now.					nyam, nyer; nyith (directly addressed), girl.
non- to bring.					nyam ni dik dik nice girl.
nor Old Nuaes.					nyam ni rier rier flirt.
nor- to pound it fine; to bruise.					nya nyede, nya gade girl grandchild.
nos- to play.					nya nyiman, nya deman niece.
nual meat and much cooked together.					nyan testicles.
nuan quite dirty; very bad.					nyanoek certain kind of white dura.
					nyang to be saturated; soaked, to wallow in; brown.
					nyang, nyuŋ crocodile.
					nyanperi spears used by Anaks to pay for wives.
					3*

Distribution of /ŋ/: Nuer

12 roots excluding derived forms

	Huffman	Kiggen					
heaven; sky; up	nhial	nhial, -a; pl. nhili	on high, above, aloft; the sky, heaven, atmosphere; weather, rain; height				
face; forward; in front	nhiam	nhiam ran, nhiam naath	face, front; in front, before; ahead				
well nourished	nhian						
hair	nhiam	<i>miem, mima / miem, nieemni</i>	hair				
water tortoise	nhir, nhir	nhiar, nhiaar	turtle				
perfect	nhir-	<i>nier</i>	perfection				
to use a cane	nhit	nhiedε, nhiaŋkɔ, nhiet, nhiet, nhied	to lean on, as old man on stick, to press down with hands, put earth or ashes on f				
to love; to assent	nhɔk	nhɔye, nhɔakɔ, nhɔk, nhɔy, nhooy	love, like, agree to				
		nhiaie, nhiackɔ, nhiaɔ, nhiaɔ, nhiec	to squeeze out				
		nhian, -i	testicles				
		nhiaanyε, nhiaany, nhiaany	to decay of food, to dissolve, too dilute; to pall, make tired				
		nhiaar, -a	good appearance				

Distribution of /ŋ/: Reel

Cien et al. 2015: 1.5 p./87

70	71	nyal
nōŋ pl. of nooŋ, wedding	nhian [ŋ'an] {nhianē} <i>n</i> testicle	nhīm pl. of nhīem charcoal
nōōŋ pos.pl of nooŋ, wedding	nhiaan [ŋ'aan] {nhiaanē}	nhīmē pos.pl of nhīem charcoal
nōōŋē [nōōŋē] <i>v.in</i> bring (nooŋ, bring s.m.)	nhianē pos.sg of nhian testicle	nhīēr, pl. of nhīeer, love
nōk [nòk] {naau} <i>n</i> feather noou [noo'] {noowē}	nhiaal, [ŋ'àal] {nhial} <i>n</i> god	nhīēr, [ŋ'ēr] {nhīeer} <i>n</i> turtle
nōŋ [nōŋ] <i>v.tr</i> take away s.m. (nōŋ take away)	nhialē [ŋ'alē]	nhīeer, [ŋ'eer] {nhīeerē}
nōŋŋ [nōŋŋ] <i>v.in</i> take away (nōŋ take away s.m.)	nhiaal, [ŋ'àal] {nhial} <i>n.sg</i> 1) sky 2) top (of something)	nhīēm pl. of nhīam front
nōōŋōōŋ <i>adv</i> poorly	nhiaal, <i>adv</i> up	nhīēmē pos.pl of nhīam front
nuäär pos.sg of nuēr corpse, person	nhiaam, loc.sg of nhīam front	nhīēr pos.pl of nhīeer, love
nuēr [n'ēr] {nuäär} <i>n</i> 1) body, corpse 2) person nei [ne'] {neenē}	nhiaam, [ŋ'ám] <i>prep</i> in front of, before (nhīam front (of something))	nhīēm [ŋ'ēm] {nhīmē} <i>n</i> fur, hair nhīēm [ŋ'ēm] {nhīēmē}
nhak [ŋ'ák] <i>v</i> let go of s.m.	nhiaan pl. of nhīan testicle	nhīēm pl. of nhīēm fur, hair
nhial, pos.sg of nhiaal, sky, top	nhiaanē pos.pl of nhīan testicle	nhīēmē pos.pl of nhīēm fur, hair
nhial, pos.sg of nhiaal, god	nhīeer, [ŋ'éér] <i>n</i> love nhīēr, [ŋ'ēr] {nhīēr}	nhīmē pos.sg of nhīēm fur, hair
nhialē pl. of nhiaal, god	nhīeer, pl. of nhīēr, turtle	nhok [ŋók] <i>v.tr</i> 1) accept, agree, admit s.m. 2) believe s.m. (nhou accept)
nhīam [ŋ'ám] /nhīaam/ <i>n</i> front (of something) nhīēm [ŋ'ēm] {nhīēmē}	nhīeer, pos.sg of nhīēr, turtle	nhou [ŋ'ou] <i>v.in</i> 1) accept agree, admit 2) believe (nhok accept s.m.)
	nhīeerē pos.pl of nhīēr, turtle	nyal [ŋál] {nyaal} <i>n</i> 1) girl 2)
	nhīem [ŋ'ēm] {nhīmē} <i>n</i> charcoal nhīm [ŋīm] {nhīmē}	
	nhīmē pos.pl of nhīem charcoal	

Distribution of /ŋ/: Dinka-Nuer

14 roots – all but one with /ŋj-/

	Dinka	Reel	Nuer
testicle	nhiaan	ŋ ⁱ àn	nhian
like	nhiar	ŋ ⁱ éér	
like, agree		ŋók	nhok
crush, squeeze	nhiai		nhiac
tomorrow	nhia̋k ~ miak		
knee	nhiaal ~ miaal		mɔl
use a cane, lean on			nhiet
above, sky	nhial	ŋ ⁱ ààl	nhial
hair	nhie̋m	ŋ ⁱ è̋m	nhie̋m > miem
head face	nhom (nhiam)	ŋ ⁱ ám	nhiam
charcoal	mim	ŋ ⁱ è̋m	> miem
well nourished			nhian
smell bad decay	nhiany		nhiaany
big river tortoise	nhie̋er	ŋ ⁱ è̋r	nhiar

Distribution of /nj/

Synchronically doubtful, diachronically **not** reconstructible

No underlying cluster **/nj-/** in Dinka-Nuer (Flego 2025, Monich 2025); unattested in Reel (Cien et al. 2015); but...

Distribution of /nj/: Dinka

- May arise by mutation; not otherwise found by Flego (2025)
- May arise morphologically outside regular mutation, e.g. (Nebel 1979):
 - **nip** 'very small' :
 - **niop** 'feeble'
- A couple of unexplained examples....

(4) VOICE QUALITY SHIFT AND VOWEL GRADATION IN AGAR DINKA (ANDERSEN, 2017)

Modal 1° • 2° ~ 3°	Derived Breathy 2° ~ 3°	Inherently Breathy 1° • 2° ~ 3°
i ~ jɛ	i ~ jɛ	i ~ jɛ
ɛ ~ ɛ	ɛ ~ ɛ	ɛ ~ ɛ
ɑ • ɛ ~ ɑ	ɛ ~ ɑ	ɑ/ɔ • ɛ ~ ɑ
wɔ (• jɛ) ~ jɑ		wɔ (• jɛ) ~ jɑ
ɔ (• ɛ) ~ ɑ	ɔ ~ ɑ	ɔ ~ ɑ
ɔ ~ wɔ	u ~ wɔ	u ~ wɔ
jɛ ~ jɛ	jɛ ~ jɛ	jɛ ~ jɛ
jɑ • jɛ ~ jɑ		ja/jɔ • jɛ ~ ja
jɔ (• jɛ) ~ jɑ	jɔ ~ jɔ	jɔ (• jɛ) ~ ja
wɪ ~ wjɛ	wɪ ~ wjɛ	wɪ ~ wjɛ
wɛ ~ wɛ	wɛ ~ wɛ	wɛ ~ wɛ
wɑ • wɛ ~ wɑ		wɑ/wɔ • wɛ ~ wɑ



Distribution of /nj/: Nuer

- Absent according to Monich (2025), except by mutation
- Huffman (1929): only **niε-**
- Kiggen (1948):
(orthographic?) /ni-/ ~ /nj/:
 - **nyay maan** ‘jealousy of women’ vs. **niahε naadh** ‘to kill people with evil eye’
 - **nyadhε** ‘to be cold’ vs. **niadhε puɔny** ‘to shiver’

TABLE 3. NUER VOWEL GRADE SYSTEM

PWN	ROOT VOWEL	A-MUTATION	I-MUTATION	IA-MUTATION
*i	i	iε	i	iε
*ɪ	ɪ	ɪε		
*e	ε	e	ε	e
*ɛ	ε	εa		
*ʌ	ʌ	ɑ	ʌ	ɑ
*a	a	a		
	ɔ	ɔɑ	ɔ	ɔɑ
*o	o	o	o	o
*ɔ	ɔ	ɔa		
*u	u	uɔ	u	uɔ
*ʊ	ʊ	ʊɔ		

Distribution of /ŋ/

Complementary distribution in onset in PDN:

- *ŋ / _j, *n elsewhere

=> *n > *[ŋ] / _j in PDN

became phonemic once grade system developed
varies synchronically with /m/ in Dinka and Nuer

Correspondences of PDN [ŋ]

- PDN *ŋj- = Burun ɲ = Lwoo m < PWN *nj-?

	Dinka	Reel	Nuer	Mabaan	Jumjum	Shilluk	Alur
testicle	nhiaan	ŋ ⁱ àn	nhian			màaan-ò	màl
like	nhiar	ŋ ⁱ éér		ɲɛɲ pl. ɲɛrg 'friend'		màaar	màrò; mèr
like, agree		ŋók	nhək				
crush, squeeze	nhiai		nhiac	ɲɔc		mèɛɛc	
tomorrow	nhia̋k ~ miak						
knee	nhiaal ~ miaal		mɔl				
use a cane, lean on			nhiet				
above, sky	nhial	ŋ ⁱ ààl	nhial	ɲaalɔ	ɲaal	mâal	màló
hair	nhie̋m	ŋ ⁱ è̋m	nhie̋m > miem				
head face	nhom (nhiam)	ŋ ⁱ ám	nhiam	ɲamu 'forehead'	ɲɔm		
charcoal	mim	ŋ ⁱ è̋m	> miem				
well nourished			nhian				
smell bad decay	nhiany		nhiaany				
big river tortoise	nhie̋r	ŋ ⁱ è̋r	nhiar				

Distribution of dental plosives

- Contrast with alveolar plosives everywhere except N Uganda
 - e.g. **Shilluk** (Remijsen et al. 2011), Reel (Reid 2010)

	páaaP ‘spread\1SG’	bâaar ‘boldness’	máC ‘fire\SG\NOM’
	táaal ‘cook\1SG’	d̥âl ‘boy\PL\NOM’	ɲjáaar ‘like\1SG’
	táaaT ‘build\1SG’	d̥aw ‘distribute\1SG’	ɲáaw ‘kill\1SG’
/p/ pūut leave unfinished.DVNA	/b/ būut(ɔ) decay.DVN	/m/ mút drown.DVNA	
/ʈ/ á-ʈūut PAST-take offense	/ɖ/ á-ɖūut PAST-rush	/ŋ/ ŋūut manure	
/t/ tūut tie together.DVNA	/d/ dūut kind of loincloth.P	/n/ nūt available	

Distribution of dental plosives

- Trivial correspondence in most environments:
 - DN $\underset{\text{̣}}{\text{t}}$ = Lwoo $\underset{\text{̣}}{\text{t}}$ = Burun $\underset{\text{̣}}{\text{t}}$
 - DN $\underset{\text{̣}}{\text{d}}$ = Lwoo $\underset{\text{̣}}{\text{d}}$ = Burun $\underset{\text{̣}}{\text{d}}$ (rarer)
- Some poorly understood exceptions, e.g.
 - DN $\underset{\text{̣}}{\text{t}}$ = Lwoo $\underset{\text{̣}}{\text{d}}$ = Burun $\underset{\text{̣}}{\text{t}}$ ('mouth', 'suckle')
 - DN r = Lwoo $\underset{\text{̣}}{\text{d}}$? ('person')
 - sporadic dental/alveolar variation (e.g. 'grandmother') – **not** well-correlated with +/-ATR

Dental plosive + glide clusters

- Regular correspondence:
DN **tj-** = Burun **c-** = Lwoo **p-**

	Dinka	Nuer	Jumjum	Mabaan	Shilluk	Anywa	Dholuo
ask	tjèec	tjɛ:c	taac-	talɔc	pjèeec	pèɛŋhò dtr. pééó	pe'ŋjo
heavy	tjèek	tjek- 'weigh'		ciɛg-			pé'k
fill	tjòoŋ	tjɛ:ŋ-			pállŋ	pállŋ dtr. pállŋó	po'ŋ
hide (v.)	tjan			ɔak			pa'ndɔ, peno
spoon, shell	tjal / tjat pl. tjɛt / tjɛt			caalɔ pl. cjetɔ	pâal	āpāal pl. āpat	opal

Dental plosive + glide clusters

- Regular correspondence:
DN **ɖj-** = Burun **ɟ-** = Lwoo **b-**

	Dinka	Nuer	Jumjum	Mabaan	Shilluk	Anywa	Dholuo
mosquito	<i>ɖjer</i>			<i>ɟiepan</i> pl. <i>ɟieya</i>	<i>ba̱j-ḵ</i> pl. <i>ba̱j</i>	<i>bèejó</i> pl. <i>bèer</i>	
termite ("white ant")	<i>ɖjej</i>			<i>ɟon</i> pl. <i>ɟtkɔ</i>	<i>biii</i>	<i>biej</i> pl. <i>biejī</i>	<i>bi'ye</i> pl. <i>bí'cê</i>
five	<i>ɖjec</i>	<i>ɖjec</i>	<i>ɖuuc</i>	<i>ɖɔɔɔ</i>	<i>á-bíc</i>	<i>ābiic</i>	<i>abi'c</i>

ḡ ~ b in Nuer (Kiggen)

- ‘beer strainer’: **biim** ~ **dhiim**
- ‘five’: **dhiec**, but **ba-** in 6-9

Lwoo influence, or internal development?

Distribution of dental plosive + glide

- DN: contrasts with alveolar plosive + glide
 - Dinka: **tjàan** ‘hide’ vs. **tjàam** ‘win’,
djàm ‘demolish’ vs. **djàŋ** ‘stir’
 - Nuer: **tjɛŋ-** ‘pushing things around’ vs. **tjɛp** ‘type of shield’
- DN: contrasts with bilabial plosive + glide
 - Luanyjang Dinka: **tjɔ̃ow** ‘guinea-worm’ vs. **pjɔ̃ow** ‘heart’;
djɔ̃p ‘female in-law’ vs. **bjɔ̃ɔl** ‘hare’
 - Nuer: **pjɛr-** ‘scarification’ vs. **tjɛk-** ‘make worse, aggravate’
- Reconstructible for PWN?

Distribution of dental plosive + glide

- DN contrast with bilabial plosive+glide may go back to PWN – few cognates, but promising

	Dinka (LJ)	Nuer	Jumjum	Mabaan	Shilluk	Anywa	Dholuo
scar	pjǎaar	pjer-				pòòò pl. pòoc	
oil	<i>miok</i>		<i>ᵛᵛᵛᵛᵛ</i> pl. <i>ᵛᵛᵛᵛᵛᵛᵛ</i>	<i>ᵛᵛᵛᵛ</i> pl. <i>ᵛᵛᵛᵛᵛᵛ</i>	<i>ᵛᵛᵛᵛ</i> pl. <i>ᵛᵛᵛᵛᵛᵛᵛ</i>	<i>màaᵛ</i> pl. <i>máᵛᵛᵛ</i>	<i>mᵛ</i> pl. <i>mó·rê,</i> <i>mó·cê,</i> <i>mó·ᵛᵛ</i>

Distribution of dental plosive + glide

- DN contrast with alveolar plosive+glide may be innovative – few cognates, suspected loans

	Dinka	Nuer	Jumjum	Mabaan	Shilluk	Anywa	Dholuo
three	djâak	djɔ́k	<i>dɔk</i>	<i>dɔɔgɔ</i>	á-d̀k	ād́k	adé`k
(young) women	djôoor				ɟ̥r		
win, defeat	tjàam				tjàaam		

Explanation

- Not feature spread, not auditory similarity...
- Perhaps reconstruct linguolabial ***t̟j-**, ***d̟j-**, ***n̟j-**?
 - but then why > bilabial *only* / **_***j?
 - why **n** > **n̟** / **_j**?
- Auditory enhancement (Garrett & Johnson 2012):
maximisation of contrast with palatal ***c**, ***ɟ**, ***ɲ**
 - bilabial+**j** is notably rare in DN; perhaps also in PWN?
 - cp. labial protrusion on palatalised sibilants (Garrett 2015)

Paths for the future...

- Known unknowns:
 - Sporadic initial voicing variation
 - Sporadic dental-alveolar variation
 - Western Mabaan pharyngeals (ħ , ʕ < $*rj$, $*y?$)
- Unknown unknowns:
 - No published lexicon of any North Burun variety
 - No phonologically adequate dictionary of any Burun, Dinka-Nuer variety
- Much remains to be done!

Conclusions

- PWN complex initials (unlike PWN affixes!) are best preserved in Dinka-Nuer
- The dental-alveolar contrast (atypical for Nilotic) goes back to PWN
- WN sound change involves systemic motivations as well as articulatory and auditory ones

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Dinka audio: <https://www.youtube.com/@Dinka-EnglishTV5>

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