How noun classes can fossilize into an inflection class system:

The case of Baga Pukur (Atlantic)
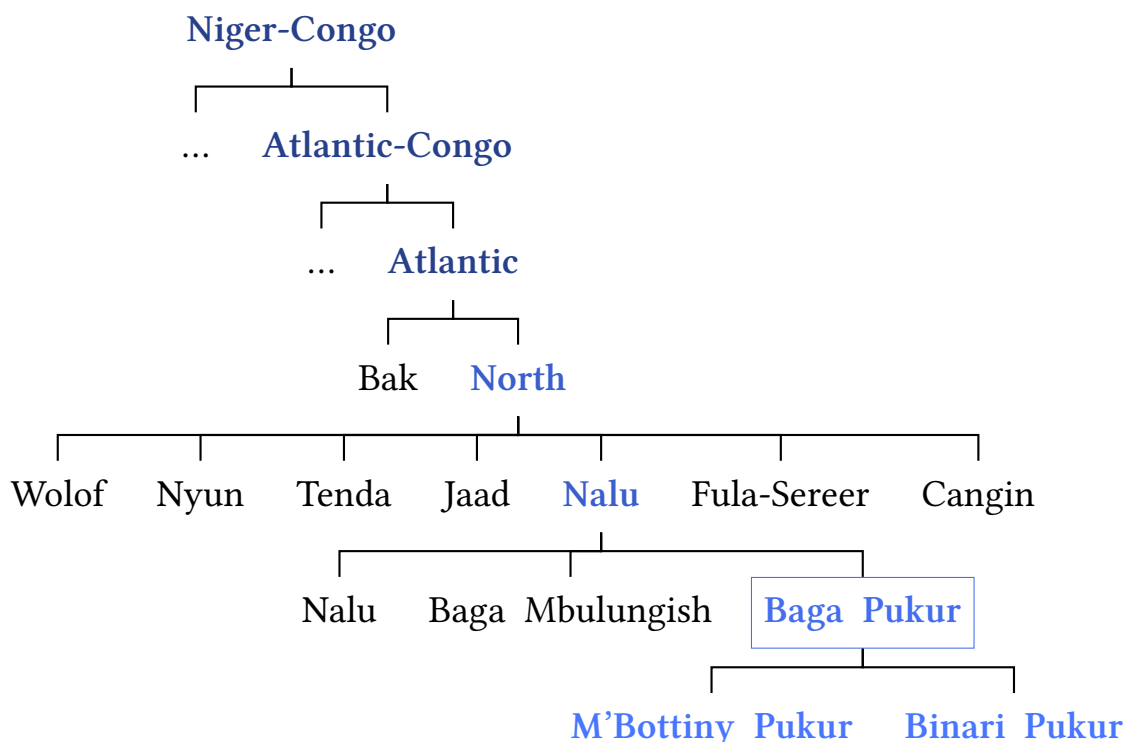
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0 Introduction

0.1 Metadata

Figure 1: Baga Pukur within Atlantic

- A few hundred speakers in 2 villages (= 2 dialects) of coastal Guinea

- Previously undescribed, critically endangered (status 7 'shifting' on Lewis and Simons (2010)'s scale), bilingualism with Susu (Mande)

2 field trips, 3,5 months

1055 nominal lexemes collected (Binari + M'Bottiny), including:

1

600 with a PL form

Talk based on M'Bottiny data.

0.2 Phonological basics

- Tonal (but seemingly no role in inflection classes)

- Affix vowels undergo height and roundedness assimilations, but probably no ATR harmony

- No voicing contrast (all consonants transcribed as voiceless)

0.3 Inflectional basics

- No class/gender agreement → ~~noun class system~~

- Markers on nominals alternating between SG and PL → number markers:
    - ◇ Prefixes, suffixes, apophony, infixes?
    - ◇ 1 nominal form can feature up to 2 (SG) or 4 (PL) markers
    - ◇ Which number markers a noun features = phonologically unpredictable → Categorization into inflection classes and subclasses

1 The noun inflection class system of Baga Pukur

1.1 Marker inventory

Table 1: Inflection class markers (excluding hapaxes)

Number	Marker	Example	Translation
SG	*wU-*	*wō-pákà*	Baga
	I-	*í-sù*	leg
	N-	*ntɛ́ŋg*	settlement
	O-stem	*cóŋ*	kernel
	-y	*āpʷɔ́-y*	house
	∅-	*ŋáp*	hen
PL	*pə-*	*pā̄-kísì*	women
	a-	*á-pò*	mosquitos
	N-	*á-m-pɔ̀nd*	eyelashes
	E-stem	*cɛ́ŋ*	kernels
	s(ə)-	*sā̄-lá*	stones
	-l/-ŋ	*é-m-fî-l*	goats

Table 2: Position of markers

-3	-2	-1	0	+1	+2	+3
s-	V-	N- pə-	**root**	-l / ŋ -y	-l / ŋ	-l / ŋ
		ó	n	**tùŋk**	ùl	òŋ	

Table 3: Features of the inflection class markers

Number	Marker	motivated	combines	reduplicates	exclusive
SG	*wU-*	y	n	n	n
	I-	y	n	n	n
	N-	y	n	n	y
	O-stem	y	n	n	y
	-y	n	n	n	y
	∅	n	n	n	n
PL	*p(ə)-*	y	n	n	y
	a-	y	y	n	n
	N-	y	y	n	n
	E-stem	y	y	n	y
	s(ə)-	y	y	n	n
	-l/-ŋ	n	y	y	n

1.2 Inflection classes

1.2.1 *wU-* SG class: human

Includes almost all nouns denoting human beings not characterized by a relationship.

- **Paired with *p(ə)-* PL class:**
    - ★ exclusive to *wU-* SG class
    - ★ morphologically determined: associated with derivation

Examples:

SG	PL	Meaning
wū-kónà	*pū-kónà*	person from *ó-kónà*
wɔ̄-ŋkɔ́ŋkɔ̀ɲ	*pō-ŋkɔ́ŋkɔ̀ɲ*	person from *ŋkɔ́ŋkɔ̀ɲ*
wō-kā-fáɲj áfàɲj	*pə̄-kā-fáɲj áfàɲj*	farmer (= person who farms)
wū-kú-sì	*pī-kí-sì*	woman (= person defined by being female)
wɔ́ː-màn	*pɛ́ː-màn*	other person (= HUM-DEM)
wū-fó	*pū-fó*	circumcised person

- **Paired with *a-* PL class:**
  - ★ non-exclusive to *wU-* SG class
  - ★ not associated with derivation

Examples:

SG	PL	Meaning
wō-pákà	*ā-pákà*	Baga
wū-cík	*ē-cík*	stranger
wú-pìlìm	*é-pìlìm*	white person
wú-wòy	*ó-wòy*	old person

- **Combined with *N-* PL marker**
  - ★ non-exclusive to *wU-* SG class
  - ★ not associated with derivation
  - ★ might be associated with age specification

Examples:

SG	PL	Meaning
wó-tàmb	*á-n-tàmb*	young man
wú-tèm	*é-n-tèm*	old person

1.2.2 *s(ə)-* PL class: roundish

- **Paired with ∅ SG class:**
  - ★ very large number of items
  - ★ semantics = 1) roundish; 2) manufactured
  - ★ also combines with *-l* / *-ŋ* (x1, x2) PL markers

★ Examples:

SG	PL	Meaning
lá	*sə̄-lá*	stone
cîr	*sí-cìr*	eye
lúmà	*sū-lúmà-l*	shirt
lə́nd	*sə́-lə̀nd-ə̀l-ə̀ŋ*	hole

◊ **combined with (*a-* +) *N-* PL markers**

– partly morphologically determined: associated with derived nouns or adjectives (long, short, big, large, red, white, black, snake, heat, food)

– also associated with seemingly non-derived items (place, way, building plot, tree, traditional mask, friend, Sitemu, sp. fish, breast, bone, head, head-carrying piece of fabric, stem, iron, thing) → semantics= ?

– Examples:

SG	PL	Meaning
cɛ́t	*s-ɛ̄-ɲ-cɛ́t*	road
kō-wūlákə̀n	*s-ā-ŋ-kā-wūlákə̀n*	snake
m-pál	*s-ā-m-pál*	black
fítpìt	*s-e-m-fítpìt*	long

• **Paired with *I-* SG class (long /thin)**

★ very restricted number of items

★ semantics = roundish + long / thin?

Examples :

SG	PL	Meaning
ī-ɲún	*sū-ɲún*	rope
ɛ́-lɛ̀ɲ	*sə́-lɛ̀ɲ*	lip
ɛ́-nɔ̀p	*só-nɔ̀p*	ear

1.2.3 *a-* PL class

• **Paired with I- SG class:**

★ the largest superclass

- ★ contains: tiny items; surfacy items; curvy items; long items (esp. associated with rounded stem vowels)
- ★ combines with *-l* / *-ŋ* x1 PL marker: associated with tiny / long items → adds 'sharp' feature?
- ★ combines with *-l* / *-ŋ* x2 PL marker → adds 'big / dangerous' feature? (cf. *-l* / *-ŋ* x2 class)
- ★ combines with *-N-* PL marker → among other items, associated with all curvy items.

Examples:

SG	PL	Meaning
í-sù	*ó-sù*	leg
è-sáp	*à-nsáp-àl*	vegetal/fish thorn
é-βò	*á-βò*	mosquito
ɛ̄-ʁálòŋ	*ā-ŋgálòŋ*	shrimp

- **Paired with ∅- SG class:**
  - ★ always combined with *-l* / *-ŋ* (x1, x2) PL marker (no specific or clear semantics)
  - ★ can combine with *N-* PL marker (no specific or clear semantics

Examples:

SG	PL	Meaning
nsɔ́	*ɔ̄-nsɔ́-l-òŋ*	frog
pɔ̂rl	*á-m-pòrl*	elder brother

1.2.4 N- SG class: attached to a surface?

- Exclusively paired with *-l/-ŋ* x2 PL class
- Very restricted number of items. Unique occurrences:

SG	PL	Meaning
n-têŋk	*téŋk-āl-èŋ*	settlement
n-tár	*tár-l-àŋ*	tail
n-tí	*tí-l-ìŋ*	tree
n-tôŋ	*tóŋ-òl-òŋ*	nose

1.2.5 -l / -ŋ x2 **PL** class paired with ∅- **SG** class: **big / dangerous / taboo**

- contains: big or dangerous animals (boa, another type of big snake, whale, shark, panther, elephant, porcupine fish etc.), taboo and fragile body parts (female genitalia, pubis, anus, eye, neck), large items (bed, palm tree, kapok tree), items associated with injury (fire, sword, wound) or that should not be consumed (wine)

- in combination with other **PL** classes, sometimes seems to keep semantic motivation.

Examples:

SG	PL	Meaning
sên	*séːn-ə́ŋ-ə̀l*	kapok tree
múr	*múr-l-òŋ*	fire

1.2.6 *cU-* class: **glottonyms**

Only with a limited number of glottonyms:

SG	PL	Meaning
cō-máníŋkà		Mandinka language
cū-kóləɲ		Baga Mbulungish language
cū-fútà		Pular language
cū-núnù		Nalu language
cū-yɔ̄lfέl		Wolof language

1.2.7 *E-*stem **PL** class: **seemingly unmotivated**

- Paired with *O-*stem **SG** class: ungrown?
  - ★ combines with *-l / -ŋ (x1)* **PL** marker for some items

SG	PL	Meaning
cóŋ	*céŋ*	kernel
yór	*yér*	teenage girl
yól	*sí-yèl*	coal
ō-yú	*ē-yí-l*	fiddler crab
t-úɲ-àŋ	*s-éɲ-ὲl*	small

- Paired with ∅- **SG** class:

★ might be a distinct ɛ-stem PL class

★ combines with -l / -ŋ (x1, x2, x3) PL marker for some items

★ combines with a -y SG suffix for some items

★ no clear semantics

SG	PL	Meaning
ánà	ɛ́nɛ̀-l	cow
ɲâ	ɲɛ́-l-ʌ̀ŋ	back
āpʷə́-y	ɛ̄pɛ́-l(-ʌ́ŋʌ̀l)	house
áwə̀-y	ɛ́wɛ̀-l	mouse
mfʷə́-y	ɛ̄-mfɛ́-l(-ʌ̀ŋ)	swamp fish

1.2.8 -l / -ŋ x1 PL class: seemingly unmotivated

Examples:

SG	PL	Meaning
ápɔ̀t	ápɔ̀t-l	dog
ácòŋ	ácòŋ-ə̀l	bat
īlíp	īlíp-ə̀l	porcupine

1.2.9 -l / -ŋ x3 PL class: seemingly unmotivated

SG	PL	Meaning
mbô	mbó-l-ōŋ-ùl	oil
àːsó	àːsó-l-ɔ́ŋ-ɔ̀l	water
yóː	yóː-l-óŋ-òl	forest (2)
ācɛ̄lfɛ́	ācɛ̄lfɛ́-l-ʌ́ŋ-ʌ̀l	knife

1.2.10 Hapactic classes

SG	PL	Meaning
nsûk	áàrl	palm tree (old form)
ēːlíɲ	ēːl<īk>íɲ	fish
fál	fál-ə̀m	child
ākɔc	āŋkɔ́c-ɛ̀l	bird

2 The origins: traces of a Northern Atlantic noun class system

All Atlantic languages but 4 (from 2 different groups of Northern Atlantic) have a noun class system, and even exceptions have markers that are close to agreement markers (Creissels 2015: 13, 50-51). Closely related Baga Mbulungish seems to have noun classes (Golovko n.d.), Nalu has only 4 classes (Pozdniakov 2015: 58) → noun inflection class system of Baga Pukur = result of advanced stage of decline of noun classes started before the Nalu split?

- Presence of overt markers on nouns (cf. Creissels (2015: 38))

- Multiple correspondences between SG and PL classes (cf. Creissels (2015: 27))

- Semantically motivated classes (to varying degree), esp. 2 salient human classes (cf. Creissels (2015: 44))

2.1 Traces of Northern Atlantic initial consonant alternations (typically related to the noun class system)

Northern Atlantic initial consonant alternations = the initial consonant of radicals alternates in phonological feature (voicing, plosivity, nasality, etc.), usually in addition to a more typically morphological class marker. Consonants typically feature 3 degrees of alternation. Each noun class is associated with one degree of alternation. Function = additional marking of number oppositions; create semantically motivated groups of classes (animate vs. dimensional vs. others). (Pozdniakov 2015: 60-62)

Figure 2: Reconstruction of consonant alternations in Proto-Northern-Atlantic (Pozdniakov 2015: 61)

degré	*sourdes						*sonores				
III	p	t	c	k	kw	q	mb	nd	nj	ng	ngw
II	p	t	c	k	kw	q	b	d	j	g	gw
I	f	r	s	h,x	xw	x	w	l	y	ɣ	ɣw

- **Baga Pukur inflection class marker _N-_ could be related to III degree**:
  - ◇ Combines with practically all other PL-marking morphemes.
  - ◇ Also exists in the singular. As a SG marker AND as part of the root in high number of lexemes.
  - ◇ Northern Atlantic III degree associated with dimensional classes. In Pukur, maybe some traces of dimensional value (cf. human class: age/size specification?), but problem: no productive derivational value of classes (no diminutives or augmentatives).

- **Hypothesis: /f/ = phonologization of I degree of alternation (vs. *p* II/III):**
  - ◇ Occurs almost only in root-initial position. Very rare in verbs.
  - ◇ Trace in /*fítpìt*/ [*fírpìt*] 'long' = reduplication of /*pit*/ (lenition-blocking only occurs in intensive adverbs and reduplicative adjectives: interpreted as expressivity marker)

- Trace of alternation /s/ I vs. /c/ II/III in: *wò-sɔ̀má* 'Susu person' vs. *sū-cɔ̄má* 'Susu language' < *sûl cɔ̄má* ('language of Susu')
  Maybe also in glottonym class prefix *cu-*: < *sûl* 'language' + II/III degree of initial consonant?

2.2 Relation of Baga Pukur inflection class markers to (Proto-)Altantic class markers

- ◇ Human PL prefix *pə-* could be related to Proto-Atlantic **bɛ-* (Niger-Congo class **1: plural human) reconstructed by Pozdniakov (2015: 76)
- ◇ Maybe *s(ə)-* 'roundish' class PL prefix could be related to Proto-Atlantic class **si* (Niger-Congo class **10: plural animals) reconstructed by Pozdniakov (2015: 76), but real historical comparison needed to know if Baga Pukur /s/ can be related to Proto-Atlantic **s*
- ◇ PL suffix *-l* / *-ŋ*:
  - ★ Shared by closely related Baga Mbulungish (Golovko n.d.)
  - ★ <u>Hypothesis</u>: determinative > collective > plural. OR collective > plural
  - ★ Possible cognates:
    - – Postposed definite articles in Basari (Northern Atlantic): *-ɔl*, *-ɛl*, *-aŋ*, *-ɔŋ*, *-ɛŋ*, *-iŋ* (among others) (Perrin 2015: 507 513-514), postposed demonstratives in CL-*ŋ* in biafada (Bassène 2015: 561)
    - – PL / associative suffix *-Vŋ* in Gunyamolo Nyun (Bao Diop 2015: 395, 399) & Djifanghor Nyun (Quint 2015: 425-227) that Pozdniakov (2015: 79-82) related, along with other morphemes in Wolof, Limba, Sua & **plural suffixes of Baga Mbulungish**, to a Proto-Atlantic associative / collective suffix connected to Niger-Congo 2A class ('personal plurals').
  - ★ Allomorphy *ŋ* / *-l* → possibly mix of historically different morphemes (innovation in Nalu branch / Baga subgroup of Nalu branch)

★ Arguments in favour of **determinative** origin:

- It reduplicates (cf. Vaan (2015))

- Many nominal stems end in -V*l* or -V*ŋ* (even reduplicated), e.g. *é-pòŋkɔ̀lòŋ* PL *ɔ́-m-pòŋkɔ̀lòŋ* 'eyebrow' → hyp. of lexicalization. Historically disconnected from number?

- Idiosyncratic value in the lexeme 'house'? According to speaker YTB (2019): *ɛ̄pɛ́-l* 'houses' = "when you can't see them" vs. *ɛ̄pɛ́-l-�́ŋ-ʎl* = "when you see them"

◇ Difficulty to relate other inflection classes to Proto-Atlantic noun classes is not a valid counter-argument: very divergent family, with large-scale internal borrowings (Segerer and Pozdniakov forthcoming), doubts on its unity as a family (Creissels 2015: 7-8), very diverse noun class systems, + other problems shared by other Niger-Congo branches → very difficult to reconstruct Proto-Atlantic noun class system, still work-in-progress (Pozdniakov 2015: 59-60)

3 Is it live or is it dead?

Is this inflection class system a dead fossil of a former noun class system (a frozen noun class system simply disconnected from any agreement patterns), or has it evolved after the loss of agreement and does it continue to evolve?

3.1 Signs of decline

Apart from loss of agreement patterns:

- **Loss of semantically motivated class alternations**, e.g. diminutive and augmentative, typical of Atlantic noun class systems (Creissels 2015: 30)

- Probably a few frozen former class markers, such as SG *a-* (e.g. *ánà* 'cow' < Pular *nagge*)

- Simplification of consonant alternation system (ternary > binary distinction), + probable lexicalization of many *N-*

3.2 Signs of life after the loss of agreement

- Combinations of markers → High complexity hardly imaginable in correlation with agreement patterns (+ in Atlantic, class markers only combine with initial consonant alternations, and rarely with one suffix, cf. (Pozdniakov and Creissels 2015))

- Diverse & very atypical markers in addition to prefixes: suffixes (only exist in 1 Atlantic language: Pular, cf. Creissels (2015: 20-21)), apophony, infixe(s) (+ suppletion).

- Reduplication of suffix *-l* / *-ŋ* → several classes.

- Several atypical hapactic classes

- Same amount of PL class markers and SG markers (if excluding reduplicates of *-l* / *-ŋ*), whereas all Atlantic class system feature more SG than PL classes (Creissels 2015: 27)

- Many item belong to two or more different PL classes because of alternative PL markers.

3.3 Signs of current life

- Some classes are clearly associated with transparent, probably productive derivation: human classes SG *wU-* / PL *pə-*; PL *s-a-N-*

- Ongoing inflection class shifts that are semantically motivated and multidirectional:

Table 4: Ongoing reclassifications

SG	Old PL	New PL	Meaning	Reclassification
ī-ɲún	*sū-ɲún*	*ō-ɲún*	rope	ROUNDISH → LONG
n-tí	*tí-l-ìŋ*	*sē-ntí-l-ìŋ*	tree	ATT. TO SURFACE → ROUNDISH
pɔ́t	*sū-pɔ́t-ɔ̀l*	*pɔ́t-ɔ̀l*	pot	ROUNDISH → -lx1
nsûk	*áàrl*	*nsúk-ūl-òŋ*	palm tree	suppletion → BIG/DANGEROUS
āpʷɔ́-y	*ɛpɛ́-l*	*ɛpɛ́-l-ɕ́ŋ-ɕ̀l*	house	*E*-stem + -lx1 → *E*-stem + -lx3
mfʷɔ́-y	*ɛ̄-mfɛ́-l(-ɕ̀ŋ)*	*mvʷɔ́-y-l-ɕ̀ŋ*	swamp fish	*E*-stem → BIG/DANGEROUS

→ A few classes probably in decline because atypical & rare (ATTACHED TO SURFACE, GLOTTONYMS), and non-concatenative: suppletion, *E*-stem, probably others.

→ But seemingly semantically motivated shifts both to and from ROUNDISH class evince undergoing 'healthy' restructuring (in addition to less 'healthy' shifts involving decline of some classes)

Unique situation within Atlantic: complete loss of class agreement, **but preservation of overt class marker alternations on nouns** (cp. with other Atlantic languages which have lost class agreement: Creissels (2015: 49-50)). → Hence development into a lively inflection class system?

4 Conclusions

- Strong evidence that Baga Pukur noun inflection class system < Northern Atlantic noun class system.

- Signs of decline, but also signs of health: system that continues to undergo "healthy" evolutions

- However, any signs of "healthy" restructuration to be put into perspective:

  ◇ Baga Pukur no longer passed on to younger generations.
  ◇ Some time since **new loanwords have stopped being integrated into Baga Pukur phonological and morphological system** (more akin to code-mixing than to borrowing).

→ Problably no class can be considered 'productive' to this day.
→ **Lively noun inflection class system 'shot dead' by language shift rather than progressively expired from old age**

References

Bao Diop, Sokhna (2015). "Les classes nominales en nyun gunyamolo". In: *Les classes nominales dans les langues atlantiques*. Ed. by Denis Creissels and Konstantin Pozdniakov. Rüdiger Köppe Verlag, pp. 384–420.

Bassène, Alain-Christian (2015). "Les classes nominales du biafada". In: Grammatical Analyses of African Languages 49. Ed. by Denis Creissels and Konstantin Pozdniakov, pp. 460–485.

Creissels, Denis (2015). "Typologie des classes nominales dans les langues atlantiques". In: *Les classes nominales dans les langues atlantiques*. Ed. by Denis Creissels and Konstantin Pozdniakov. Vol. 49. Grammatical Analyses of African Languages. Rüdiger Köppe Verlag, pp. 6–57.

Golovko, Ekaternia (n.d.). work document.

Lewis, Melvyn Paul and Gary F. Simons (2010). "Assessing endangerment: expanding Fishman's GIDS". In: *Revue roumaine de linguistique* 55.2, pp. 103–120.

Perrin, Loïc-Michel (2015). "Les classes nominales en basari". In: ed. by Denis Creissels and Konstantin Pozdniakov, pp. 521–566.

Pozdniakov, Konstantin (2015). "Diachronie des classes nominales atlantiques: morphophonologie, morphologie, sémantique". In: *Les classes nominales dans les langues atlantiques*. Ed. by Denis Creissels and Konstantin Pozdniakov. Rüdiger Köppe Verlag, pp. 54–102.

Pozdniakov, Konstantin and Denis Creissels, eds. (2015). *Les classes nominales dans les langues atlantiques*. Cologne: Rüdiger Köppe Verlag.

Quint, Nicolas (2015). "Les classes nominales en nyun de Djifanghor". In: *Les classes nominales dans les langues atlantiques*. Ed. by Denis Creissels and Konstantin Pozdniakov. Vol. 49. Grammatical Analyses of African Languages. Rüdiger Köppe, pp. 405–443.

Segerer, Guillaume and Konstantin Pozdniakov (forthcoming). "A Genealogical classification of Atlantic languages". In: *The Oxford Guide to the Atlantic languages of West Africa*. Ed. by Friedrike Luepke. Oxford: Oxford University Press. URL: https://halshs.archives-ouvertes.fr/halshs-01671284.

Vaan, Michiel de (2015). "Reduplicated demonstratives in ancient Indo-European languages". In: *Transactions of the Philological Society* 113.1, pp. 38–52.