

Michael Schulze
 PhD student
 Humboldt-Universität zu Berlin

Linguistic Colloquium, 02/02/2021
 Seminar für Afrikawissenschaften
 Humboldt-Universität zu Berlin

Morphosyntactic patterns of nominal classification marking in Mel

1 Introduction

1.1 The Mel languages

- **Countries:** Sierra Leone, Guinea, Liberia (see Eberhard et al. 2020)
- **Genetic affiliation:**
 - primary branch of Niger-Congo (Hammarström et al. 2019)
 - traditional classification: > South > Atlantic > Niger-Congo
 (see e.g. Greenberg (1963: 8) and Sapir (1971: 49; includes Gola in Mel))
 - Figure 1: Internal classification of the Mel languages

Northern Mel

Baga Koba
Baga Manduri
Baga Sitemu
Landuma
Temne

Southern Mel

Bullom
 Northern Bullom
 Bom-Kim (with *Krim* as a dialect)
 Bullom So (aka *Mani*, see Childs 2011)
 Sherbro
 Kisi
 Northern Kisi
 Southern Kisi

Figure 1: Internal classification of the Mel languages
 (adapted from Hammarström et al. 2020)

1.2 Background of this study

This work is embedded in the project “Noun classification systems in Africa between gender and nominal declension” at Humboldt Universität zu Berlin, funded by the “Deutsche Forschungsgemeinschaft” and headed by Tom Güldemann (see Güldemann 2016).

My dissertation is associated with this project and deals with the historical-comparative reconstruction of the Proto-Mel gender system.

1.3 Language sample and data sources

- All data from grammatical descriptions
- All Southern Mel languages considered for which descriptions are available
- Sample with data sources:
 - Temne (Wilson 1961)
 - Mani (Childs 2011)
 - Krim (Pichl 1972, Pichl 1976)
 - Sherbro (Rogers 1967)
 - Kisi (Childs 1995, Heydorn 1969/70)
- All Southern Mel languages considered for which descriptions are available
- Where necessary additional information on Baga languages (Northern Mel):
 - Baga Koba (Relich 1973)
 - Baga Sitemu (Weller Ganong 1998, Wilson 1961)
 - Landuma (Sumbatova 2016)
- The examples taken from the data sources are generally adapted/reanalyzed.

1.4 Methods and goals of this talk

- Analysis of the morphosyntactic structure of the nominal phrase in Mel (language sample see 1.3)
- Analysis of nominal classification marking patterns
- Mapping of nominal form classes and agreement classes, primarily treating nominal form class/deriflection and agreement/gender separately (Güldemann & Fiedler 2019); analysis of agreement assignment
- Identification of the number of nominal classification systems present in the respective languages, e.g. nominal form marking and agreement as two separate systems or one single system in languages with a 1:1 mapping of nominal form class and agreement class
- Tentative suggestion of typological localizations of the nominal classification systems in Mel
- Diachronic considerations, how the synchronic systems could have evolved

2 Nominal classification marking in Mel

2.1 Temne

2.1.1 Nominal form marking

- Nominal form marking is exclusively prefixing, the presence of prefixes being obligatory. Temne (but not the other Northern Mel languages) has two series of prefixes to express indefiniteness and definiteness respectively. The indefinite prefix contains a vowel ə, while the definite prefix has ʌ:

- (1) kə-bap '(an) axe'
 kʌ-bap '(the) axe' (Wilson 1961: 10)

2.1.2 Agreement

Agreement targets and exponents (Wilson 1961: 46-48)

- Adjectives: prefixes
- Numerals 1-4: prefixes (similar to adjective prefixes, but some special forms)
- Possessives prefixes
- Dependent noun in associative construction prefixes (before prefix of dependent noun)
- Demonstratives/relatives prefixes
- Subject and object pronouns
- Subject indexes

- (2) Attributive adjective (indefinite head noun), prefix form identical to indefinite prefix

ɔ-ba kə-bap **kə-bana**

1-have K.DET-axe **5-big¹**

'He has a big axe.' (Wilson 1961: 16)

- (3) Attributive adjective (definite head noun), prefix form identical to indefinite prefix

ɔ-ba kʌ-bap ʌk-e **kə-bana**

1-have K.DET-axe 5-PROX.DEM **5-big**

'He owns this big axe.' (Wilson 1961: 16)

¹ According to the terminology of Güldemann & Fiedler (2019), nominal form classes are indicated by capital letters, agreement classes by Arabic numbers.

- (4) Nominalized adjective with definite prefix
 ɔ-ba **kə-bana**
 1-have **5.DET-big**
 ‘He has the big one (e.g. an axe).’ (Wilson 1961: 16)
- (5) Predicative adjective (indefinite prefix)
 kə-bap ək-e **kə-bana**
 K.DET-axe 5-PROX.DEM **5-big**
 ‘This axe is big.’ (Wilson 1961: 16)
- (6) Possessive modifier (possessive agreement prefixes)
 kə-bap **kə-mi**
 K.DET-axe **5-POSS.1SG**
 ‘my axe’ (Wilson 1961: 20)
- (7) Possessive pronoun (long form of prefix)
əkə-mi
5-POSS.1SG
 ‘mine (e.g. an axe)’ (Wilson 1961: 20)
- (8) Associative construction (genitive prefixes)
 kə-dare **ka-əŋ-seth**
 K.DET-door **5-A.DET-house**
 ‘the door of the house’ (Wilson 1961: 19)
- (9) Demonstrative (prefixes identical to definite prefixes)
 kə-bap **ək-e**
 K.DET-axe **5-PROX.DEM**
 ‘this axe’ (Wilson 1961: 18)

2.1.3 Mapping of nominal form classes and agreement classes in Northern Mel

2.1.3.1 Morphological agreement

- In Northern Mel languages, morphological agreement is prevalent (see Wilson 1961 for Temne, Relich 1973 for Baga Koba, Weller Ganong 1998 for Baga Sitemu and Sumbatova 2016 for Landuma). With the exception of Baga Sitemu, animate nouns trigger semantic agreement (rules see below).

2.1.3.2 Semantic agreement

Temne

- All nouns denoting animates trigger agreement of the SG/PL AGR classes *k̀* / *ŋ̀* (Wilson 1961: 13-14).

(10) ɔ-lɔŋgba ɔw-e
 U.DET-man 1-PROX.DEM
 ‘this man’ (Wilson 1961: 13)

(11) kɔ-dare ak²-e
 K.DET-door 5-PROX.DEM
 ‘this door’ (Wilson 1961: 13)

(12) kɔ-lɔmɛ ɔw-e
 K.DET-sheep 1-PROX.DEM
 ‘this sheep’ (Wilson 1961: 13)

Baga Koba

- All animate nouns control agreement of the SG/PL AGR classes *ko* / *na* (Relich 1973: 9).

Baga Sitemu

- Wilson (1961: 56): strict morphological assignment, no animate agreement
- Weller Ganong (1998: 24): “Baga speakers appear to be shifting to a practice of animate concord”; normally morphological assignment, but central animal characters from folktales may trigger animate agreement of the human SG/PL classes
- It seems that Baga Sitemu basically has a system of strict morphological assignment.

Landuma

- Sumbatova 2016: finite verbs, object pronouns and emphatic pronouns show animate agreement, the numeral ‘one’ morphological and animate agreement, other targets morphological (“alliterative”) agreement only

² Prefix sic, expected *ak-* (see Wilson 1961: 46)

2.1.3.3 Number of nominal classification systems

- Baga Sitemu has a single nominal classification system, with a 1:1 mapping of class markers.
- All other Northern Mel languages have two systems conditioned through the two different agreement assignment systems (morphological vs. semantic).
- Temne and Baga Koba: cutting line between nominal form marking and agreement
- Landuma: semantic agreement with anaphoric pronouns, cutting line thus between intraphrasal and intraclausal/interclausal agreement (exception: numeral 'one')

2.2 Mani

2.2.1 Nominal form marking

Nominal forms are marked with prefixes. This is always the case on nouns without modifiers.

- | | | |
|------|---------|----------------------------|
| (13) | ì-cáŋ | ḥ-cáŋ |
| | I-tooth | N-tooth |
| | 'tooth' | 'teeth' (Childs 2011: 119) |

- The presence of the prefix of nominal form class U- ~ Ø- (associated with agreement class 1) shows much variation (see Childs 2011: 120).
- The prefixes of the nominal form classes DI-, SI- and THI- are absent in noun phrases with modifiers in most examples presented by Childs (2011).
- With other nominal form classes, prefixes are usually present in extended noun phrases.
- For examples see 2.2.2.

2.2.2 Agreement

Agreement targets and exponents (Childs 2011: 118, 194-198)

- | | |
|---|----------|
| - Adjectives: | prefixes |
| - Numerals: | prefixes |
| - Determiner: | prefixes |
| - Demonstratives: | prefixes |
| - Possessives: | prefixes |
| - Dependent noun in associative construction: | prefixes |
| - Pronouns | |

- | | |
|------|--|
| (14) | Extended noun phrase with prefixed head noun |
| | ḥ-kén ḥ-dòyá ḥ-tì ḥ-cèn ḥ-cé |
| | N-knife 7-sharp 7-black 7-two 7-DET |
| | 'the two sharp, black knives' (Childs 2011: 192) |

- (15) Prefixed noun without modifier; extended noun phrases with prefixless head nouns
 sì-tùmè, tùmè sì-cə̀ŋ, tùmè sì-rà
 SI-dog dog 4-two dog 4-three
 ‘dogs, two dogs, three dogs’ (Childs 2011: 125)

2.2.3 Mapping of nominal form classes and agreement classes

2.2.3.1 Morphological agreement

- When semantic agreement is not applicable, morphological agreement with a 1:1 mapping of nominal form and agreement class is found.

2.2.3.2 Semantic agreement

- Animate agreement for animals in the plural, using the marker *a-* of agreement class 2
- Preferably found with pronouns, but also on demonstratives
- For animals with a plural of nominal form class SI-, animate agreement may also occur on adjectives, numbers and the definite article (see Childs 2011: 125-126).

- (16) Determiner: morphological AGR; pronoun and predicative adjective: semantic AGR
 tùmè sì-cé ŋà à-pót
 dog 4-DET 2.PRO 2-weak
 ‘The dogs are weak.’ (Childs 2011: 125)

- (17) Semantic agreement of all agreement targets; note: no absence of prefix of the head noun
 sì-sú à-dintè à-cə̀ŋ à-cé
 SI-bird 2-white 2-two 2-DET
 ‘the two white birds’ (Childs 2011: 126)

2.2.3.3 Number of nominal classification systems

- Two systems due to the presence of both morphological and semantic agreement
- Cutting line unclear, shows variation in the examples presented by Childs (2011)

2.3 Krim

2.3.1 Nominal form marking

- According to Pichl (1972: 28-29), both nominal prefixes and suffixes are used, a noun can be

- 1) without any affix
- 2) with a prefix
- 3) with both prefix and suffix
- 4) with a suffix

2.3.1.1. Noun without affix

- Noun without affix, “if the speaker feels no need to put any stress on number, if the noun cannot be mistaken for another one or, if a nearer explanation of the noun is express by a qualificative, numeral etc.” (Pichl 1972: 28)

(18) No stress on number

a chən sɔm **hag**, yum gwɛ kɔ
 1SG NEG.HAB? eat **cutlass.fish** taboo 9:DET 9.PRO
 ‘I don’t eat cutlass fish, it is taboo.’ (Pichl 1972: 28)

- Affixless form could be due to a non-referential reading in a negative clause.

- The noun *hag* has SG nominal form class Ø- (see Pichl 1972: 98), according to Pichl (1972: 23) prefixes and suffixes are not used. So, this is not a good example to explain the use of affixless nominal forms.

(19) Unequivocal meaning of an otherwise ambiguous noun

(*kɔnth* is only used with *pɔm* ‘spirit’, not with *pɔm* ‘leaf’)

wɔ kɔnthə **pɔm**
 1.PRO lose **spirit**
 ‘He loses spirit (=he faints).’ (Pichl 1972: 28)

- The affixless noun form could be a result of compounding.

(20) Construction with numeral

a yema yung **sɔgʔ** si-tên si-tên a-ya
 1SG want buy **chicken** 2a-small 2a-small 2-three
 ‘I want to buy three very small chicken.’ (Pichl 1972: 28)

- The only convincing case of a noun without affix mentioned by Pichl

- The affixlessness of the head noun could be due to the presence of modifiers (as in Mani, see 2.2.1).

2.3.1.2 Noun with prefix

The dependent noun in an associative construction (possessor) has a prefix (Pichl 1972: 28).

- (21) men-ma **gu-səm**
 water-?MA **KU-Anthostema.senegalense**
 ‘resin’, ‘latex’; lit. ‘water of the *Anthostema senegalense*’ (Pichl 1972: 29)

- Not clear whether *-ma* suffix of the head noun is a nominal form marker or whether it is an associative marker agreeing with the head noun

- (22) be **ku-pɔŋ** ε
 chief **KU-country** DET
 ‘the chief of the country’ (Pichl 1972: 28)

- Cf. the use of prefixed dependent nouns in associative constructions in Kisi. There, the prefixed form is chosen because the dependent noun is used non-referentially.

2.3.1.3 Noun with suffix

- Pichl (1972: 29) is not able to give rules for the use of nominal classification suffixes, but for him nouns with suffixes appear to be “less definite” than those with prefixes.

- (23) wɔ yɔŋ-i **yenthege^ə-ma**
 1.PRO carry-? **load-?MA**
 ‘He carries a load.’ (Pichl 1972: 29)

- Is the suffix *-ma* nominal form marker?

- Could it rather express specificity/referentiality than definiteness?

- (24) wɔ hã **panthⁱ-mo** ε
 1.PRO do **work-?MO** DET
 ‘He works (= does work).’ (Pichl 1972: 29)

- The suffix is followed by the determiner ε (allophone of *lɛ*, see Pichl 1972: 21-22).

- The function of the suffix is not clear. Does it mark agreement of the determiner with the previous noun? Unfortunately, Pichl (1972: 21-22) does not describe agreement of the determiner ε.

- The “suffix” *-ma* in (24) could be a merger of an agreement marker *ma* with a following determiner ε , but Pichl does not give a paradigm of such mergers, except the class-9-form *gwε* (*gu* + ε) (Pichl 1972: 22).

2.3.1.4 Noun with both prefix and suffix

- According to Pichl (1972: 29), the use of both prefix and suffix with a noun expresses “a stronger definition” than the use of a prefix or suffix only.

(25) wɔ wôn i-wɔŋg-hĩ ko
 1.PRO climb I-hill-?HI to
 ‘He climbs up the hill (not any hill, but the hill before us).’ (Pichl 1972: 29)

- Prefix is a nominal form marker

- The status of the suffix is not clear. Is it a suffixed nominal form marker, or rather an agreement affix merged with a determiner ε (see Pichl 1972: 21)?

- The latter analysis becomes more probable if one considers the following example, likewise mentioned by Pichl as a construction of a noun with both prefix and suffix:

(26) a yema lim ku-tɛm gwε
 1SG want tell KU-story ?9:DET
 ‘I want to tell a (certain) story.’ (Pichl 1972: 29)

- The element *gwε* is a merger of the agreement marker *gu* with the determiner ε (see Pichl 1972: 22).

- The determiner does not express definiteness in this example, rather it expresses specificity.

- If the “suffix” can always be analyzed as an agreeing determiner, there is no category of nouns with both prefix and suffix.

2.3.2 Agreement

Agreement targets and exponents (Pichl 1972: 23 and elsewhere; Pichl 1976: KRI9)

- | | |
|--|-----------|
| - Attributive adjectives: | prefixes |
| - Predicative adjectives: | prefixes |
| - Numerals: | prefixes |
| - Dependent noun in an associative construction: | prefixes? |
| - Possessives: | prefixes? |
| - Determiner: | prefixes? |
| - Pronouns | |

(27) Noun with attributive adjective

sɔgɔ si-tên si-tên³

chicken 2a-small 2a-small

‘very small chickens’ (Pichl 1972: 42)

- According to Pichl (1972: 29), in possessive constructions the possessive is followed by a nominal class exponent. He leaves open whether he considers this exponent to be a suffixed agreement marker.

(28) wɔ kɔ hɔ piẽ-ma wɔ-ma

1.PRO go say brother-?MA 1.POSS-?6:?DET

‘He goes to tell his brothers’ (Pichl 1972: 34)

- Pichl analyzes the first *-ma* as a nominal suffix, the second *-ma* as a nominal class exponent which follows the possessive.

- Could the first *-ma* be alternatively an agreement marker of the possessive *wɔ* and the second one an agreement marker fused with the determiner ε (see Pichl 1972: 21-22)?

- In the next example, the class marker after the possessive is indeed fused with the determiner ε , the possessive itself is probably fused with following ε , too.

(29) kumɛ-gu w’ɛ gwɛ

son.in.law-?KU 1.POSS:?DET ?9:DET

‘her son-in-law’ (Pichl 1972: 29)

2.3.3 Mapping of nominal form classes and agreement classes

2.3.3.1 Morphological agreement

- Basically, Krim has lexically triggered agreement with nouns of the zero-marked nominal form classes, otherwise morphologically triggered agreement.

2.3.3.2 Semantic agreement

- Semantic agreement is not mentioned by Pichl (1972), but seems to work as follows:

- Human referents trigger gender 1/2 (associated deriflection class \emptyset -/A-) (Pichl 1972: 23-24, 26).

- Plural forms of animals of deriflection class \emptyset -/Sɛ- trigger morphological agreement within the noun phrase (Pichl: with adjectives) and semantic agreement (agreement class 2) with pronouns and predicatives (Pichl 1972: 23-24).

³ The circumflex used by Pichl (1972) does not seem to be a tone marker, probably it marks vowel length.

2.3.3.3 Number of nominal classification systems

- Obviously two systems
- Cutting line not quite clear:
- Maybe somewhere within the noun phrase, e.g. article agreement grouping with nominal form marking vs. the rest
- Maybe morphological agreement within the noun phrase vs. semantic intra-/interclausal agreement (pronouns, predicatives), if one assumes adjectives to have nominal inflection (thus grouping with nominal form marking)

2.4 Sherbro

2.4.1 Nominal form marking

- According to Rogers (1967), both prefixes and suffixes are used.
- In fact, this statement is somewhat simplified (see below).
- Nouns of the SG agreement classes 1, 5, 7 have no affix (Rogers 1967: 102):

(30) \emptyset -ná \emptyset -mí wò \emptyset -bòm
 \emptyset -cow 1-POSS.1SG 1.PRO 1-big
 'My cow is big.' (Rogers 1967: 115)

(31) \emptyset -sòk-é
1-chicken-DET
 'the chicken' (Rogers 1967: 144)

- Nouns of NF class N- have a prefix N-:

(32) NP with possessive and attributive adjective, prefixed head noun of NF class N-
n-thók má-mi n-víl-dè
N-tree 6-POSS.1SG 6-tall-DET
 'my tall trees' (Rogers 1967: 97)

- The exponent of nominal form class I is always a prefix *i-*. This prefix is optional and may be replaced by zero (see Rogers 1967: 96, 102).

(33) NP with numeral, prefixed head noun of NF class I-
í-wáa í-tíŋ
I-oil.palm.tree 10-two
 'two oil palm trees' (Rogers 1967: 96)

- The nominal form markers with CV structure offer a complex scenario.
- Reinterpreting Rogers' information, the following can be said about the nominal form classes LI- (SG), THI- and SI- (PL) (Rogers 1967: 102, 104):
- LI-, THI-, SI may be realized as noun prefixes *li-*, *thi-*, *si-* on nouns without modifiers:

(34) *li-kɛn*
 LI-knife
 'knife' (Pichl 1964: 54)

- Nouns of the nominal form class THI- and LI- have no prefix, if they are followed by a modifier (Rogers' (1967: 102, 104) comes to the same result, but offers a different analysis). Examples of extended nominal phrases with a non-agreeing demonstrative:

(35) *râi thó*
 book THI:PROX.DEM
 'these books' (Rogers 1967: 125)

(36) *kén-dò*
 knife-LI:PROX.DEM
 'this knife' (Rogers 1967: 125)

- In the following example with a prefixless head noun of NF class THI-, the following modifier has a prefix *th(i)-*, which could be interpreted as an agreement prefix.

(37) NP with attributive adjective
râi **thì-tòntòn-dé**
book 4-small-DET
 'the small books' (Rogers 1967: 97)

- The next example refers to the same kind of extended noun phrases, here with a prefixless head noun of NF class LI-. Rogers (1967), however, interprets the same element, which is considered as an agreement prefix above (37) as a suffix of the head noun. Forming a phonological word with the noun, it could be analyzed as a nominal form marker in this case, the following modifier having no agreement affix.

(38) NP with possessive
kén-dì *mí-è* *lò* *lì-bòm*
knife-LI POSS.1SG-DET 11.PRO 11-big
 'My knife is big.' (Rogers 1967: 115)

- Rogers' morphological analysis is not consequent, possibly also due to the quality of his data.
- A unified analysis for such cases in Sherbro is desirable. The following examples may help to solve this problem, providing arguments in favor of a suffix interpretation.
- In (39), the attributive adjective is followed by a suffixed determiner *-dɛ́*, which does not display agreement with the head noun.

(39) NP with attributive adjective
 ráì thì-tòntòn-**dɛ́**
 book 4-small-**DET**
 'the small books' (Rogers 1967: 97)

- In (40), however the prefixless nominal root *kìl* is followed by a classificatory suffix *-thi*, which is fused with the following determiner *-ɛ́* (allomorph of *-dɛ́*, see Rogers 1967: 70).

(40) hà-thì-nò **kìl-thé**
 EMPH-4-POSS.2PL **house-THI:DET**
 'your own houses' (Rogers 1967: 117)

- Given the situation in (39), there is no reason to consider the classificatory suffix in (40) as an agreement marker of the following article. Obviously, the article is not an agreement target (39). So, the suffix should be rather analyzed as a nominal form marker.
- It seems that at least one nominal classification marker has to be present in a noun phrase. In a simple noun phrase, it appears in front of the noun, while in an extended noun phrase it follows the noun.
- The noun 'knife' (root *kén*) in the following example has a weird circumfixal nominal form marking (see Rogers 1967: 102, 104) and is the only example of this kind found so far.

(41) **ŋ-kén-dì** mà-mí-è mà m-bòm
N-knife-LI 6-POSS.1SG-DET 6.PRO 6-big
 'My knives are big.' (Rogers 1967: 115)

- The circumfix *N-.-dì* consists of the expected plural prefix *N-* whereas the suffix *-dì* is the corresponding singular marker (see (38)). A possible explanation could be that the presence of the suffix *-dì* is considered to have to be present in extended noun phrases, irrespective of the number value of the noun. What is important is that *-dì* has to be seen as a nominal form marker here, the following possessive having a plural agreement prefix.
- Interestingly in (42), the emphatic possessive pronoun displays both the agreement markers *li* and *ma*, thus reflecting the circumfixal nominal form structure.

- (42) hǎ-lì-mà-mò ŋ-kén-dé
 EMPH-11-6-POSS.2SG N-knife-LI:DET
 ‘your own knives’ (Rogers 1967: 120)

- Nouns of nominal form class SI- (semantically animals) show instead of a prefix a suffix *-si*, when they are followed by a modifier. In (43) and (44), examples with following non-agreeing demonstrative and determiner are shown. Agreeing modifiers take the animate agreement prefix *a-* (Rogers 1967: 102, 104).

- (43) Noun phrase with non-agreeing demonstrative
 ná-sò
 cow-SI:PROX.DEM
 ‘these cows’ (Rogers 1967: 125)

- (44) Noun phrase with non-agreeing determiner
 sòk-sé
 chicken-SI:DET
 ‘the chickens’ (Rogers 1967: 140)

- These examples again favor an analysis as suffixed nominal form markers (for more examples of animate agreement see 2.4.3.2)

- Irrespective of Rogers’ analysis, nominal classification markers with a CV structure precede the head noun in simple noun phrases and follow it in extended ones. In Rogers’ examples the postnominal markers sometimes form a phonological word with the preceding noun, sometimes with the following modifier. It cannot be excluded that even synchronically the markers are in fact separate words. Further research is needed to clarify their morphosyntactic status.

2.4.2 Agreement

Agreement targets and exponents (Rogers 1967: 84, 96)

- Adjectives: prefixes
- Numerals: prefixes
- Possessives: prefixes
- Pronouns

- The list is not exhaustive, Rogers does not cover all parts of the grammar.
- For examples of extended noun phrases with agreement targets see 2.4.1.

- The agreement classes 1, 5 and 7 are only distinguished with pronouns, within the noun phrase they are marked with zero (see (30) and (31) in 2.4.1).
- Since nouns of these agreement classes display a zero prefix, too, no nominal classification marker is present in the respective extended noun phrases. This is of some importance, because nouns with AGR 1, 5 and 7 cover a large part of the nominal lexicon.

2.4.3 Mapping of nominal form classes and agreement classes

2.4.3.1 Morphological agreement

- With non-animate nouns, agreement is triggered lexically if the noun has a zero nominal form marker, otherwise morphologically.

2.4.3.2 Semantic agreement

- Semantic agreement is only implicitly dealt with by Rogers (1967: 78). One can conclude from his grammatical information that animate nouns of the plural nominal form classes N-, I- and SI- trigger class-2-agreement.
- It appears that animates always trigger class-2-agreement in the plural. There is no special plural agreement class with an exponent *si* as it is the case in Mani and Krim (see (16) and (27)).

(45) n-dànbáŋ à-kélèŋ à-hìòl-lé
 N-man 2-good 2-four-DET
 ‘the four good men’ (Rogers 1967: 116)

(46) ì-lá à-mí-è hà à-bòm
 I-louse 2-POSS.1SG 2.PRO 2-big
 ‘My lice are big.’ (Rogers 1967: 115)

- In extended noun phrases with head nouns of NF class SI-, the *si* marker follows the prefixless noun, the following modifier has a semantically triggered agreement prefix *à-* of class 2. In (47), *si* has fused with *à*, forming a prefix *sà-*, which is best analyzed as an innovative agreement marker (glossed as 4:2).

(47) NP with attributive adjective
 véé sà-híl-lè
 bird 4:2-flying-DET
 ‘the flying birds’ (Rogers 1967: 112)

- In (48), however, *sí* has not fused with the following *à*, being analyzed as a nominal suffix by Rogers (1967).

(48) ná-sí à-bòm-dé
 cow-SI 2-big-DET
 ‘the big cows’ (Rogers 1967: 96)

- Since (47) and (48) are only morphophonologically conditioned variants of one and the same construction, it is problematic to consider *si* as a component of an agreement marker in one variant and as a nominal form marker in the other. It seems that even though there are two systems of agreement assignment (lexical/morphological and semantic), nominal form markers and agreement markers are the same kind of morpheme and it is problematic to gloss them in a different way.

2.4.3.3 Number of nominal classification systems

- The existence of semantic agreement results in two different systems, the cutting line being within the noun phrase between nominal form marking and agreement.
- But note the remarks above concerning the status of the nominal classification marker *si*, which cannot unambiguously be called a nominal form marker or an agreement marker.

2.5 Kisi

2.5.1 Nominal classification marking

- Kisi has a single marking system with a 1:1 mapping of nominal classification markers.
- From the phrasal enclitics used in the citation form all other nominal class exponents can be predicted (see Childs 1995).
- In some cases, one cannot clearly decide whether a classificatory exponent belongs to the nominal form marking or to the agreement system. Therefore, the system will be presented as a whole in the following paragraphs, generally using Arabic numbers for the classes.

2.5.1.1 Nominal classification markers

- Phrasal enclitics
- Nominal prefixes
- Class suffixes in extended noun phrases (nominal suffixes, agreement suffixes with non-final modifiers)
- Agreement prefixes on numerals and predicative adjectives
- Demonstratives
- Pronouns (subject and object)

- Subject pronouns, nominal suffixes, agreement prefixes and nominal prefixes have the same form, pronouns standing alone, the other elements being used as affixes (see Childs 1995).
- Childs (1995) does not mention cases of semantic agreement, but all animates have gender 1/2 agreement.

2.5.1.2 Constructions with phrasal enclitics

- Phrasal enclitics occur once in a noun phrase and are mutually exclusive with nominal prefixes (see 2.5.1.6) and distal demonstratives (see 2.5.1.3). They agree with the head noun.
- There are strong hints that phrasal enclitics function as referentiality markers for noun phrases.
- Childs (1995) does not mention definiteness markers for Kisi. So, an interpretation of the phrasal enclitics as definite articles showing agreement is not possible.

a) Simple noun phrases

N = CL.ENCL (see Childs 1995: 150)

- Noun stem is followed by class-specific phrasal enclitic
- Often morphophonological interactions between stem and enclitic (see Childs 1995: 80-88, 150-158)

(49)	mèŋ	+	áj (cl. 7)	→	mèŋ = ndáj	‘water’	(Childs 1995: 151)
	mèè	+	áj (cl. 7)	→	mèè = yáj	‘milk’	(Childs 1995: 152)
	làndù	+	(ó)ŋ (cl. 6)	→	làndón	‘pawns’	(Childs 1995: 154)
	sìàù	+	léŋ (cl. 3)	→	sìàù = léŋ	‘orange’	(Childs 1995: 155)

b) Construction with adjectives, possessives and relative clauses

N-CL.SUFF (MOD-CL.SUFF) MOD = CL.ENCL

- Modifiers: adjectives, possessives or relative clause (see Childs 1995: 106, 150, 285ff.)
- Class marker identical to the subject pronoun is suffixed to the head noun and in constructions with more than one modifier such a class marker is suffixed to the non-final modifier, too.
- Class-specific phrasal enclitic appears at the end of the construction (after the last modifier)

(50) Noun + adjective

lèèn-là yùwéí = lán

cutlass-4 old = 4.ENCL

‘old cutlasses’ (Childs 1995: 150)

(51) Noun + possessive

ì cíimíá h̀l-lè ǹ = léŋ
 I rub eye-3 POSS.1SG = 3.ENCL
 'I rubbed my eye.' (Childs 1995: 106)

(52) Noun + relative clause

k̀ambéí-lá [s̀ù = wá c̀ lèńŋ] = láŋ
 hamper-4 [fish = 2.ENCL COP inside] = 4.ENCL
 'The baskets that the fish are inside.' (Childs 1995: 286)

- If one considers the class marker suffixed to the head noun to be a NF marker and the enclitic to be a phrasal marker, there is no marker in the noun phrase which indicates agreement of the modifier. Alternatively, one could treat the nominal suffix as the agreement morpheme of the following modifier, though it forms a phonological word with the preceding noun. Both alternatives are not convincing.

- In noun phrases with two modifiers, however, the first modifier has a suffixed class marker identical to that of the head noun, which could be analyzed as an agreement marker.

(53) Noun with 2 modifiers (possessive and adjective)

ǹàu-ø ní-ø b̀éndô
 cow-1 POSS.1SG-1 big:1.ENCL
 'my big cow' (Heydorn 1969/70: 205)

(54) Presence and position of the zero markers in (53) can be concluded from the plural version

ǹàwá ní-à b̀éndóà
 cow:2 POSS.1SG-2 big:2.ENCL
 'my big cows' (Heydorn 1969/70: 205)

c) Associative construction

$N_1\text{-CL.SUFF}_1 \text{ CL.PREF}_2\text{-}N_2 = \text{CL.ENCL}_1$ (see Childs 1995: 209)

- Head noun takes suffixed class marker, modifying noun takes noun prefix

- Phrasal enclitic (class of the head noun) follows the whole construction

(55) k̀èlèí lànìèí

k̀èlà-í là-ǹ = é
 ring-5 4-ear = 5.ENCL
 'earring' (Childs 1995: 209)

d) Construction with proximal demonstrative

N = CL.ENCL PROX.DEM

- Head noun takes phrasal enclitic, class-specific proximal demonstrative follows (see Childs 1995: 110)

- l-initial demonstratives undergo nasal spreading

(56) Class 3:

lééŋ = ndéŋ	lêŋ	→	lééŋ = ndéŋ	ndêŋ
cutlass = 3.ENCL	3.PROX.DEM		cutlass = 3.ENCL	3.PROX.DEM
				‘this cutlass’

Class 4:

lééŋ = ndáŋ	lâŋ	→	lééŋ = ndáŋ	ndâŋ
cutlass = 4.ENCL	4.PROX.DEM		cutlass = 4.ENCL	4.PROX.DEM
				‘these cutlasses’ (Childs 1995: 110)

2.5.1.3 Construction with distal demonstrative

N-CL.SUFF DIST.DEM

- Head noun takes suffixed class marker, an agreeing class-specific distal demonstrative follows (see Childs 1995: 110-111)

(57) Class 1:

sò-ò	kóŋ
fowl-1.PRO	1.DIST.DEM
	‘that fowl’

Class 3:

pèl-lè	léŋ
egg-3.PRO	3.DIST.DEM
	‘that egg’ (Childs 1995: 111)

- The distal demonstratives are mutually exclusive with the phrasal enclitics. Moreover, there are some formal similarities between the two (see Childs 1995: 110). This raises the suspicion that the phrasal enclitics originate in demonstratives diachronically.

- The examples with distal demonstratives suggest, that the suffixed class marker of the noun is not an agreement marker. Otherwise, one would have to conclude that there is double agreement in these constructions.

2.5.1.4 Construction with numeral/quantity word

N(= CL.ENCL) AGR.PREF-NUM

- Noun stem is optionally followed by phrasal enclitic

- Numeral/quantity word follows head noun and takes agreement prefix

- Numeral stems additionally show class-specific forms (with some syncretism). So, there is a kind of double agreement of numerals, but in this case, the agreement prefix clearly forms a phonological word with the numeral.

(Childs 1995: 113)

(58) With phrasal enclitic

sálà = lán là-tìóóŋ
sacrifice = 4.ENCL 4-two
'two sacrifices'

Without phrasal enclitic

cú là-tíŋ
spoon 4-some
'some spoons' (Childs 1995: 113)

2.5.1.5 Construction with predicative adjective

- A predicative adjective takes an agreement prefix (see Childs 1995: 251).

(59) dómàá cò ò-hùmbù fófó
shirt:1.ENCL COP 1-white IDEO
'The shirt is bright white.' (Childs 1995: 251)

2.5.1.6 Nominal prefixes

- There are a number of environments in which nominal prefixes precede noun stems, while there is no phrasal enclitic (see Childs 1995: 159):

- 1) Negative constructions
- 2) Comparative constructions
- 3) Some adpositional constructions
- 4) Some questions
- 5) Exclamations
- 6) Indefinite pronouns and time words
- 7) Non-finite verb forms

- Childs (1995: 159): the environments are in "decreasingly obligatory order", e.g. prefixing is obligatory in negative constructions, while "only a few non-finite verb forms [...] appear with a prefixed pronoun".

(60) Negative construction

(a) citation form with phrasal enclitic
cà = léŋ
pumpkin = 3.ENCL
'pumpkin'

(b) Prefixed form in a negative construction
ò có lé-cá lé
1.PRO COP 3-pumpkin NEG
'It's not a pumpkin.'

(Childs 1995: 159)

(61) Comparative construction: obligatorily prefixed form after comparative *màà*

ò tìjì màà **mà-nùm**

he black as **7-night**

'He is black as night.' (Childs 1995: 160)

(62) Prefixing in emphatic statements

(a) Non-emphatic statement

mbó tùl yá yè=léj

CONJ:1.PRO bear me hate=3.ENCL

'She hated me.'

(b) Emphatic statement

mbó tùl yá lè-yè

CONJ:1.PRO bear me 3-hate

'She really hated me.'

(Childs 1995: 160)

- The use of the prefixes in negative and comparative constructions points out that the nominal prefixes could be restricted to non-referential noun phrases. The use in emphatic statements remains unclear.

- The following two constructions not mentioned by Childs in this context underline that the use of nominal prefixes has possibly something to do with non-referentiality.

(63) Nominal prefix with dependent noun in associative construction

kèlèí lànìéí

kèlà-í **là-nì**=é

ring-5 **4-ear**=5.ENCL

'earring' (Childs 1995: 209)

(64) Nominal prefix with predicative adjective

dòmàá cò **ò-hùmbù** fófó

shirt:1.ENCL COP **1-white** IDEO

'The shirt is bright white.' (Childs 1995: 251)

- In both constructions, the constituent marked with a prefix is used attributively, not referentially.

- If prefixed forms occur in non-referential noun phrases, while other noun phrases are marked by phrasal enclitics (or distal demonstratives), one could conclude that the function of the phrasal enclitics is indeed to mark the referentiality of the noun phrase.

- Unfortunately, no examples with extended noun phrases in the environments of prefix occurrence are available. So, it is unclear, whether the prefixes are absent in these cases (cf. absence of prefixes in extended noun phrases in Mani and Sherbro).

- The absence of the nominal prefixes in referential noun phrases is possibly due to the obligatory presence of a modifier, the phrasal enclitic being a modifier, too.

- All this provides clear hints that the present system of Kisi can be traced back to a purely prefixing system of nominal form marking.

2.5.2 Nominal form marking and agreement, number of classification systems

- Only the nominal prefixes are a clear instance of nominal form marking.
- The phrasal enclitics mark the phrase, not a single constituent of the noun phrase. Since they agree with the head noun, they can be considered as agreement rather than as nominal form markers.
- Pronouns, demonstratives and prefixes of numerals are instances of agreement.
- The class suffixes found with nouns and non-final modifiers are formally identical with the subject pronouns. Childs (1995) calls them “class pronouns”, which is not compatible with their function within the noun phrase. The class suffixes could be analyzed as agreement markers of the following modifier, though they form a phonological word with the preceding element. Alternatively, the nominal suffix could be seen as a nominal form marker, while a following modifier has no agreement marker and a second modifier has an agreement suffix. In constructions with a distal demonstrative, the nominal suffix is best explained as a nominal form marker. However, with all these explanations one cannot be satisfied.
- There is a 1:1 mapping between all classificatory markers in Kisi, thus there is one single system of nominal classification. So, there is actually no need to distinguish between nominal form marking and agreement. One can simply speak of the presence of classificatory markers in certain morphosyntactic positions, a situation known from languages with classifier systems.

3 Summary of nominal classification marking patterns in Mel

3.1 Synchronic analysis

- The synchronic patterns of nominal classification marking found in the sample languages are summarized in Table 1:

	NP			outside NP
	NF		?NF, ?AGR?	AGR
	prenom.	N	postnom.	anaphoric PRO, etc.
Temne	✓✓		--	morph., sem. with animates
Mani	✓		--	morph., in certain cases semantic (rules unclear) morph., sem. with PL forms of animates
Krim	✓		✓	lex./morph. with ADJ, otherwise unclear morph., sem. with PL forms of animates
Sherbro	✓		✓	lex./morph., sem. with animates
Kisi	✓		✓	morph.

Table 1: Pattern of nominal classification marking in Mel

Notes:

✓✓ obligatory marking

✓ optional marking

Krim: circumfixes possible, 1 example for a circumfix in Sherbro

Grey cells: semantic agreement present

Ruled cells: semantic agreement present, rules not clear

- Kisi has one single system of nominal classification with a 1:1 mapping of class markers. It is of little use to consider nominal form marking and agreement to be separate categories in this language.
- The other languages have two systems, due to the coexistence of morphological and semantic agreement. The cutting line between the two system runs between grey and white cells in Temne and Sherbro. In Mani and Krim, it possibly runs through the ruled area.
- In Temne, we can clearly distinguish between a system of nominal form marking on the other hand, and a second system of agreement marking on the other hand.
- Krim, Sherbro and Kisi have postnominal classification markers which are generally of the same class as the prenominal marker (no semantic class assignment), but cannot be unambiguously assigned to the NF or AGR marking system. In any case, postnominal markers group with prenominal ones, thus belong to the same system.
- In Mani and Krim, it may be the case that some clear agreement targets group with the prenominal/postnominal marking system, while others belong to a second system together with anaphoric pronouns. The lexical/morphological agreement of adjectives in Krim could be due to a classification of adjectives as nouns.

3.2 Diachronic considerations

- All synchronic patterns of nominal classification marking in Mel can be explained as originating in a strictly prefixing system, as we still have it in Temne (Northern Mel) and Mani (Southern Mel).

3.2.1 Absence of prefixes in extended noun phrases of Southern Mel

- In Northern Mel, nominal prefixes are obligatorily present. In Mani, Sherbro and Kisi, however, the nominal prefix is absent in extended noun phrases (in Mani and Sherbro only those of CV classes, the situation in Krim is unclear). This need not be a case of prefix dropping (Güldemann p.c.), as described for the Grassfields Bantu language Aghem (Benue-Congo < Bantoid) by Hyman (1979: 27-28). It may just have been the case that in the proto-language at least one nominal classification marker had to be present, which appeared as a prenominal marker in simple noun phrases and as a postnominal one in extended noun phrases. At least

for Southern Mel, it seems probable that this phenomenon can be traced back to the proto-language. Whether this was the case in Proto-Mel, too, is not quite clear up to now, because two scenarios are possible. The prefixes could indeed have been dropped in extended noun phrases of Proto-Southern-Mel, but vice versa optional prefixes could have also become obligatory in Proto-Northern Mel.

3.2.2 Suffix genesis in Southern Mel

3.2.2.1 Krim

- Due to the scarcity of data, the development in Krim remains unclear.
- Possibly, suffixes appear in the context of the definite article and may indicate agreement of the article with the head noun.

3.2.2.2 Sherbro

- The nominal suffixes in extended noun phrases of Sherbro are clearly an innovation originating in a postnominal classification marker. This postnominal marker could have been an agreement marker of the following modifier but just as well a marker of the preceding noun from the beginning.

3.2.2.3 Kisi

- In Kisi, postnominal classification markers have grammaticalized as suffixes.
- The same process of suffix genesis is visible with some non-final modifiers.
- Former demonstratives have probably evolved into phrasal enclitics.
- In other contexts, original prefixes are still present.
- Just as described for Sherbro, the postnominal classification markers could have originally been agreement markers of the following modifier or markers of the preceding noun.

3.2.2.4 The situation in Proto-Southern-Mel

- Probably prefixing nominal classification marking system with absence of prefixes in extended noun phrases
- The situation with postnominal markers in Sherbro and Kisi points out to the possibility that in Proto-Southern-Mel, maybe still in Proto-Bullom and pre-Kisi, the markers were not bound morphemes, but rather separate words, just as it is the case with classifiers (see Grinevald 2000: 61).

3.2.2.5 Grammaticalization paths at work

- The suffix genesis in Sherbro and Kisi reminds of a grammaticalization path which has already been described by Hoffmann (1967: 252-254), using the example of the Kainji (> Benue-Congo) language Dakarkari:

(65) Noun AGR-modifier → noun-AGR modifier

- The evolution of the phrasal enclitics in Kisi obviously follows the well-known grammaticalization path described by Greenberg (1977):

(66) Free article → affixed article → class marker

- Childs (1983: 27) gives a different account on the diachronic development of the phrasal enclitics (called “suffixes” by him):

“In Kisi the process is clear. Kisi nouns (with their suffixes) are almost always followed by their class pronouns when in subject position, and Kisi pronouns are close in form to the suffixes of the nouns with which they agree. If we can assume that animate nouns are most of subjects of Kisi sentences, this might explain why animate nouns are the first to develop suffixes.”

3.2.3 Number of nominal classification systems in the Proto-languages

3.2.3.1 Northern Mel

- Baga Sitemu has only one single system of nominal classification with morphologically triggered agreement.

- Elsewhere in Northern Mel, there are two systems due to the presence of semantic agreement.

- It seems that Proto-Northern-Mel only had one single system with morphological agreement, semantic agreement being an innovation. But an inverse development cannot be excluded.

3.2.3.2 Southern Mel

- Especially the two classification systems in Sherbro with nominal prefixes/nominal suffixes vs. agreement system point out to the existence of one single system without semantic agreement in Proto-Southern-Mel. This hypothesis would be strengthened, if the nominal suffixes were originally agreement morphemes of the following modifier which consequently have been reanalyzed as suffixed nominal form markers, because this would show, that the original agreement system was morphologically triggered.

- The difficulties to assign certain classificatory markers of Sherbro and Kisi unambiguously to the nominal form marking or the agreement system raises doubt, whether these two categories were really relevant in Proto-Southern-Mel. Instead of speaking of nominal form

marking and agreement one could choose the unified approach that Proto-Southern-Mel had one single classification system with at least one classificatory marker in the noun phrase. These markers could form chains with a 1:1 mapping. Probably, the markers were not bound morphemes. This situation reminds of classifier systems. Unlike a typical classifier system which has only one number-unspecific classifier in a noun phrase (cf. Grinevald 2000: 61), there were multiple occurrences of number-specific classificatory markers.

4 Conclusions

- Synchronically, a variety of morphosyntactic patterns can be found in the Mel languages, from prefixing structures in Temne and Mani to both prefixes and suffixes in Krim, Sherbro and Kisi. In Kisi, suffixing structures are prevalent.
- Baga Sitemu and Kisi have one single system of nominal classification with a 1:1 mapping of nominal classification markers. After analyzing nominal form marking and agreement separately, it has turned out that they are not separate systems in these languages.
- In Temne, Mani, Krim and Sherbro, two systems of nominal classification are present, in the sense that the marking of certain targets is triggered lexically/morphologically, whereas the marking of other targets is triggered both lexically/morphologically and with animate nouns semantically. The number of two systems results from the different treatment of the respective targets by the speakers.
- Güldemann & Fiedler (2019) showed that it is in any case necessary to analyze nominal form marking and agreement separately. In Temne and Sherbro, the cutting line between the two systems runs indeed between NF and AGR marking (the postnominal markers of Sherbro being in a gray area). In Krim and Mani, however, the line seems to run further on the right within the noun phrase, so that certain agreement targets group with NF marking, whereas the rest of the agreement targets, including anaphoric pronouns, form the second group. This shows, that it is not only necessary to treat NF and AGR separately, but to analyze each target of nominal classification marking in a separate way.
- Diachronically, it is obvious that all synchronic nominal classification marking patterns in Mel can be traced back to a prefixing system, suffixes being the result of secondary grammaticalization processes.
- There are strong hints that in both branches of Mel semantic agreement with animates is a secondary development. On the levels of Proto-Northern-Mel and Proto-Southern-Mel it is probable that single systems with a 1:1 mapping of classification markers were still present. It does not make sense to distinguish between nominal form marking and agreement in such systems. The absence of prefixes in extended noun phrases is probably reconstructable for Proto-Southern-Mel and points out that at least one classificatory marker had to be present in the noun phrase, which precedes the head noun in simple noun phrases and follows it in extended ones. Classificatory markers formed chains within and beyond noun phrases. At least

in Proto-Southern-Mel, possibly in Pre-Kisi as well, the classificatory markers could have been separate words rather than bound morphemes. Such systems remind of multiple classifier systems (cf. Aikhenvald 2000: 204-241), where classifiers can have several occurrences in a noun phrase. The number specificity of classes, however, makes the system different from a classifier system (cf. Grinevald 2000: 61). For the development of exponents of nominal classification from classifiers see also Kießling (2013) and Güldemann & Merrill (in preparation).

Abbreviations

1, 2, 6...	agreement classes	MOD	modifier
1SG	1 st person singular, ...	morph.	morphological (agreement)
A, SI, N, I...	nominal form classes	N	noun
ADJ	adjective	NEG	negative particle
AGR	agreement (class)	NEG.HAB	negative habitual
AGR.PREF	agreement prefix	NF	nominal form (class)
cl.	class	NP	noun phrase
CL.ENCL	class-specific phrasal enclitic	NUM	numeral
CL.PREF	class-specific prefix	PL	plural
CL.SUFF	class-specific suffix	POSS	possessive
CONJ	conjunction	prenom.	prenominal
COP	copula	postnom.	postnominal
DET	determiner	PRO	pronoun
DIST.DEM	distal demonstrative	PROX.DEM	proximal demonstrative
ENCL	phrasal enclitic	sem.	semantic (agreement)
IDEO	ideophone	SG	singular
lex.	lexical (agreement)		

References

- Aikhenvald, Alexandra Y. 2000. *Classifiers. A Typology of Noun Categorization devices*. (Oxford Studies in Typology and Linguistic Theory.) Oxford: Oxford University Press.
- Childs, George Tucker. 1983. Noun class affix renewal in south West Atlantic. In Jonathan Kaye, Hilda Koopman, Dominique Sportiche und André Dugas (eds.), *Current approaches to African linguistics II* (Publications in African Languages and Linguistics 5), 17-29. Dordrecht & Cinnaminson: Foris Publications.
- Childs, George Tucker. 1995. *A grammar of Kisi, a southern Atlantic language* (Mouton Grammar Library 16). Berlin & New York: Mouton de Gruyter.
- Childs, George Tucker. 2011. *A grammar of Mani* (Mouton Grammar Library 54). Berlin & Boston: De Gruyter Mouton.
- Eberhard, David M., Gary F. Simons, and Charles D. Fennig (eds.). 2020. *Ethnologue: Languages of the World*. Twenty-third edition. Dallas, Texas: SIL International.
[Online version: <http://www.ethnologue.com>, last access 31/01/2021.]
- Greenberg, Joseph H. 1963. *The languages of Africa*. Bloomington: Bloomington University Center in Anthropology, Folklore, Linguistics und Den Haag: Mouton.
- Greenberg, Joseph H. 1977. Niger-Congo noun class markers: prefixes, suffixes, both or neither. *Studies in African Linguistics Supplement 7*. 97-104.
- Grinevald, Colette. 2000. A morphosyntactic typology of classifiers. In Gunter Senft (ed.), *Systems of nominal classification* (Language, culture and cognition 4), 50-92. Cambridge: Cambridge University Press.
- Güldemann, Tom. 2016. Noun classification systems in Africa between gender and nominal declension. Project description – project proposals. Application to the DFG (Deutsche Forschungsgemeinschaft).
- Güldemann, Tom & Ines Fiedler. 2019. Niger-Congo “noun classes” conflate gender with deriflection. In Francesca di Garbo, Bruno Olsson & Bernhard Wälchli (eds.), *Grammatical gender and linguistic complexity*, 95-145. Berlin: Language Science Press.
- Güldemann, Tom & Jack Merrill. In preparation. Proto-Niger-Congo as a late classifier language, or why should Africa be full of “noun classes” but almost void of classifiers?
- Hammarström, Harald & Forkel, Robert & Haspelmath, Martin & Bank, Sebastian. 2020. *Glottolog 4.3*. Jena: Max Planck Institute for the Science of Human History.
<https://doi.org/10.5281/zenodo.4061162>
(Available online at <http://glottolog.org>, Accessed on 2021-01-26.)
- Heydorn, Richard W. 1969/1970. The Kisi noun and pronoun with a chapter on the interrogative clause. *Afrika und Übersee* 53. 161-216.
- Hoffmann, Carl. 1967. An outline of the Dakarkari noun class system and the relation between prefix and suffix noun class systems. In Manessy, Gabriel (ed.), *La classification nominale dans les langues négro-africaines*, 237-259. Paris: CNRS.

- Hyman, Larry M. 1979. Phonology and Noun Structure. In Larry M. Hyman (ed.), *Aghem Grammatical Structure* (Southern California Occasional Papers in Linguistics 7), 1-72. Los Angeles: Department of Linguistics/University of Southern California.
- Kießling, Roland. 2013. On the origin of Niger-Congo nominal classification. In Ritsuko Kikusawa & Lawrence A. Reid (eds.), *Historical Linguistics 2011. Selected papers from the 20th international Conference on Historical Linguistics, Osaka, 25-30 July 2011*. Amsterdam & Philadelphia: John Benjamins Publishing Company.
- Pichl, Walter J. 1972. *The Krim language in Sierra Leone*. Pittsburgh: Duquesne University.
- Pichl, Walter J. 1976. Krim. In M. E. Kropp-Dakubu (ed.), *West African Language Data Sheets: Volume 1*. West African Linguistics Society. KRI 1-10.
- Relich, Randa Rae. 1973. General grammar of Koba Baga with texts and translations. Pittsburgh: Duquesne University, MA thesis.
- Rogers, Henry E. 1967. *The phonology and morphology of Sherbro*. New Haven: Yale University, PhD thesis.
- Sapir, J. David. 1971. West Atlantic: an inventory of the languages, their noun class systems and consonant alternation. In T. A. Sebeok (eds.), *Current Trends in Linguistics* 7, 45-112. Den Haag & Paris: Mouton.
- Sumbatova, Nina R. 2016. Alliterative agreement in Landuma. Paper presented at: Syntax of the World's languages, Mexico, August 2016.
- Weller Ganong, Tina. 1998. Features of Baga morphology, syntax, and narrative discourse. Arlington: University of Texas, MA thesis.
- Wilson, William André Auquier. 1961. *An outline of the Temne language*. London: School of Oriental and African Studies (SOAS), University of London.