A survey of Niger-Congo noun class agreement systems

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1 Introduction

This paper presents the preliminary results of an ongoing survey of Niger-Congo noun class agreement systems (NCAS). Previous proposals for the PNC NCAS (such as Williamson 1989) have focused on class markers and genders (pairings of classes, unpaired classes, etc.). Noun class systems, however, most often manifest themselves much more broadly throughout the grammar of the language as a whole, as stressed in Good (2012). The ultimate goal of this survey is to provide the data and the tools of comparison to refine the existing proposals and reconstruct this broader picture. Here I propose several expansions to the reconstruction of the PNC NCAS based on the data collected in this survey

Parameters of Variation
Number of Classes
Number of Genders
NCM Affix Type
Agreement Targets
Agreement Target Affix Type
Agreement Series
Intra-Series Variation
Semantics and Derivation
Variable Exponence

2 Languages of the Survey

Group	Sub-Group	Language	Source
Adamawa	Waja-Jen	Longuda	Jungraithmayr (1968/9)
Atlantic 1	Fula	Gambe Fula	Arnott (1970)
	Nyun	Baïnounk Gubëeher	Cobbinah (2013)
Atlantic 2	Mel	Kisi	Childs (1995)
Benue-Congo	Bantu	Proto-Bantu	Meeussen (1967) & Maho (1999)
	Grassfields	Aghem	Hyman (1981)
	Beboid	Noni	Hyman (1979)
	Kainji	Cicipu	McGill (2007)
Gur	North Central	Ditammari	Reineke (2012)
	Senufo	Supyire	Carlson (1995)
Kordofanian	Heiban	Otoro	Stevenson (2009)
Kru	Eastern	Godié	Marchese (1989)
Kwa	Ka-Togo	Tuwuli	Harley (2005)
	Na-Togo	Logba	Dorvlo (2008)
Ubangi	Mba	a-Mã-lo	Pasch (1986)
	Mba	Ndunga-le	Pasch (1986)

Figure 1: Languages of the Survey

Note that this survey consists of modern languages rather than reconstructions, with the one exception of Proto-Bantu, based on Meeussen (1967), but updated following Maho (1999).

Future work will expand the survey to better present the diversity of NCAS's by including languages from Gurunsi (Gur), Cross River (Benue-Congo), Samba-Duru (Adamawa) and others.

3   Number of classes
Counting classes is not as easy as it sounds. What do you do with systems such as the following?

Figure 2: Counting Classes in Logba & Tuwuli

Descriptive work often counts the **synchronic class set**, the number of classes based on Corbet's (1991) definition based on agreement patterns. Using this criteria the chart above represent two classes in Logba and one in Tuwuli. For historical/comparative work, optimally we want to find the **set of class reflexes**, the number of proto-classes for which there is evidence in the given language. Some descriptions (such as Hyman 1979) count classes this way, based on established comparative evidence. For the purposes of this survey, the **maximal class set** is chosen, and the largest number of possible classes is chosen. Using this method, the table above displays two classes for both Logba and Tuwuli. At a later point comparative data will be used to propose a set of class reflexes for each language.

The number of maximal classes ranges from 6 in Godié (Marchese 1989) to 30 in Baïnounk (Cobbinah 2013).

4   Number of Genders
Total number of noun class genders, including single-class genders, class pairings, class triplets and any other noun class gender type. Ranges from 4, found in Godié to 60 in Baïnounk.[1] Languages may also have a number of minor genders, defined as genders with five or fewer members.

5   Noun Class Marker Affix Type
Noun class markers can appear as prefixes, suffixes, or circumfixes.

(1) *NCM prefixing in Baïnounk Gubeëher*
   a. bu-rul   b. i-rul
       CL.bu-mouth   CL.i-mouth
       'mouth'   'mouths'   (Cobbinah 2013:179)

(2) *NCM suffixing in Supyire*
   a. ba-ga   b. ba-ya
       house-5   house-6
       'house'   'houses'   (Carlson 1999:142ff)

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[1] The number of genders is particularly high in Baïnounk due to two reasons. First, in addition to two-class genders and single class genders, there are also a number of three-class genders. Second, an innovative plural suffix interact with the noun class system to create a number of addition gender types as well. An innovative plural marker is also found in Logba (Dorvlo 2008:48).

(3) *NCM circumfixing in Ditammari*
    a.   dī-dù-rì
        5-stick-5
        'stick'   (Reineke 2012)

There is also a fourth affix type, which involves a suffix and mutation of the stem-initial consonant, as can be found in Gambe Fula (Arnott 1970).

(4) *Stem mutation in Gambe Fula*
    a.   gim-ɗo   b.   yim-ɓe   c.   ŋgim-kon
        P.person-1   F.person-2   N.person-6
        'person'   'people'   'small people'   (Arnott 1970)

6 Agreement Targets

All word classes which display noun-class agreement with a noun. Ranges from no agreement targets, as in a-Mã-lo, an Mba language of the Ubangi group (Pasch 1986) to nearly all nominal dependents, pronouns, and subject and object agreement on verbs (such as in M&M-PB).

7 Agreement Target Affix type

Prefixing, suffixing, circumfixing, whole form. Most systems are mixed, where some targets mark agreement in one way while others do so in another. In other systems targets take agreement in the same way that nouns are marked for class.

(5) *Cicipu*
    ka-áyá   ká-mpà
    1-hut   1-DEM
    'this hut'   (McGill 2007:75)

(6) *Ditammari*
    a. fā-nàà-fà   fā-béé   b. tā-cyɛ̃-tà   mɔ̄-tà   c. yā-wā-bà   yā-dyá-yà
        19-cow-19 19-one   12-house-12   INDEF-12   6-calabash-6 6-big-6
        'one cow'   'a (certain) house'   'big calabashes'
                                                  (Reineke 2012:136ff)

8 Agreement Series

Refers to the number of distinct realizations of a noun class marker (or agreement marker) conditioned by the different word classes of the target.

Table 1: Proto-Bantu Agreement Series, Classes 1-10 (Adapted from Meeussen 1967:97)

Class	NP	EP	PP	VP I II III	Infix I II III
1	mù-	(ù?)	jù	ǹ ù ú,á	ǹ kù mù
2	bà-	bá-	bá-	tù mù bá	tú mú bá
3	mù-	(ú?)	gú	--	--
4	mì-	(í?)	gí	--	--
5	ì-	dí	--	--	--
6	mà-	(á?)	gá	--	--
7	kì-	--	--	--	--
8	bi̧-	--	--	--	--
9	ǹ-	(ì?)	jì	--	--
10	ǹ-	í̧	jí̧	--	--

Ranges from two, as in Cicipu, to eleven in Fula. The only language with one agreement series is a-Mã-lo (the only agreement series is the NCM). More abstract morphological analyses may greatly reduce the number of series in some languages.

Table 2: Fula Agreement Series

Series	Content	Class 1 Marker
1	Noun, Adjectives, Participles	*-o* (+mutation)
2	Subject Element	*o*, *mo*
3	Object Element	*mo'*, *-moo*
4	Genitive & Relative Element	*mo*
5	Demonstrative (Near)	*o'o*
6	Demonstrative (Far)	*oya*
7	Interrogative	*moye*, *mo*
8	Referential	*on*
9	Independent Pronoun	*haŋko'*
10	Possessive Pronoun	*maako'*
11	Possessive Suffix	*-iiko'*

9   Intra-Series Variation

Phonologically, morphophonologically, or lexically conditioned variation within an agreement series.

(7) *Vowel Harmony in Cicipu*
a.   *ka-ádándá*   b.   *ko-ócì*
     1-thorn   1-hole
     'thorn'   'hole'   (McGill 2007:65)

(8) *Nasal Harmony in Logba*
a.   ŋ-gutɔ́-wɔ   b.   n-dzimi-wɔ
     CL.N-bat-PL   CL.N-mudfish-PL
     'bat'   'mudfish'   (Dorvlo 2008:48)

(9) *Class* gw- *nouns appearing with class* g- *markers in Otoro*
a.   g-öbu   (cf. class *gw-* noun *gw-aɽɛ* 'tree')
     CL.GW-taraktarak
     'taraktarak tree'   (Stevenson 2009)

10   Semantics & Derivation

The semantics of noun classes are often difficult (or impossible) to unify, but despite this noun classes can often show clear functions with respect to derivation. These derivational functions can be quite open like augmentative and diminutive classes, accepting nouns from any class (or for nominalizations, any verb/adjective), or they can be relatively closed, accepting nouns from a limited set of classes (such as in the class networks below).

(10) *Otoro ethnonym class network*
a.   gwu-toɽo   b.   li-toɽo   c.   o-toɽo   d.   ði-toɽo
     GW-toro   LI-toro   GW-toro   DHI-toro
     'Toro Person'   'Toro people'   'Land of the Toro'   'Toro Language'
                                                                        (Stevenson 2009: 117)

(11) *Baïnounk Gubëeher botanical class network*

a. si-dooma   b. bu-dooma   c. ja-dooma   d. tin-dooma
    CL.SI-kaba   CL.BU-kaba   CL.JA-kaba   CL.TIN-kaba
    'kaba tree'   'kaba fruit'   'leaves of the kaba tree'   'sap of kaba tree'
                                                                                        (Cobbinah 2013:319)

11 Variable Exponence

Refers to a range of phenomenon where there is constructionally conditioned alternations in the exponence of a noun class marker. In Dagara, attributive and genitive constructions involve the dropping of the class marker on the first word.

(12) *Affix dropping in Dagara*

a. bʊ-ɔ   b. bʊ   bɛd-ʊ   c. bʊ   zʊʊ-d
    goat-SG   goat   big-SG   goat   tail-SG
    'goat'   'big goat'   'goat's tail'   (Delplanque 1997)

It has already been noted in the literature (Creissels 2009, Miehe 2007) that similar affix-dropping can be found throughout Gur. It also can be found in C'lela (Kainji group of Benue-Congo, Hoffman 1967) and Longuda (Adamawa, Jungraithmayr 1968/9):

(13) *Affix dropping before adjectives in Longuda*

a. dõõ-yà   b. dõõ   mwárá-yá
    man-Y   man   big-Y
    'man'   'a big man'   (Jungraithmayr 1968/9:177)

A more extreme example of affix dropping can be found in Aghem (Hyman 1979), which, in addition to having two different noun forms related to focus, has constructions where head nouns lose their affix when modified by anything other than a number.

(14) *Affix dropping in Aghem*

a. tí-bvʉ́   b. bvʉ́   ˈtáŋá   c. bvʉ́   ˈtín
    10-dog   dog 10.my   dog 10.these
    'dogs'   'my dogs'   'these dogs'   (Hyman 1979:27)

Related to affix dropping, noun-adjective compounding can be found in Supyire (Carlson 1995).

(15) *Noun-Adjective Compounding in Supyire*

a. kya-ra   b. panhaŋa   c. kya-pànhànà
    meat-21   tough   meat-tough.21
    'trousers'   'be tough'   'tough meat'   (Carlson 1990:199)

Constructions similar to compounding can be found in Kisi (Childs 1995), where noun class suffixes move to attach to following dependents. These constructions differ, however, in that the missing noun class suffix is replaced on the noun by a suffix identical to the concord pronoun.

(16) *Attributive Constructions in Kisi*

a. kpèlè-lá   nɔ́ɔ́léí-láŋ   (cf. *kpèlè-láŋ* 'bed')
    bed-LA.PRO dirty-LA.SUF
    'a dirty bed'   (Childs 1995: 126)

b. kambɛi   la   [suuwa   co   leniŋ]-laŋ
    hamper   LA.PRO   fish   COPinside]-LA.SUF
    'the baskets that the fish are inside'   (Childs 1995:286)

5

12 Proposed Expansion of PNC NCAS

Based on the survey data, several expansions of the reconstructed PNC NCAS can be proposed. First, PNC likely had 2-5 agreement series (recall a-Mã-lo).

Table 3: Overview

Language	NCM	T.Aff.	Cls	Gen	MG	Ser.
Otoro	Pre	Mix	14	14	0	3
Gambe Fula	S+M	Mix	25	20	0	11
Baïn. Gub.	Pre	Mix	30	60	0	3
Kisi	Suf	Mix	7	8	5	6
Ditammari	Circ	Mix	17	11	1	8
Supyire	Suf	Mix	8	5	0	7
Longuda	Suf	Mix	9	6	0	5
a-Ma-lo	Suf	Ø	15	9	14	1
Ndunga-le	Suf	Mix	9	9	3	3
Godié	Suf	Suf	6	4	0	2
Tuwuli	Pre	Pre	9	25	0	4
Logba	Pre	Pre	6	13	0	3
Cicipu	Pre	Pre	9	18	0	2
Noni	Pre	Mix	18	22	1	8
Aghem	Pre	Mix	9	11	11	9
Proto-Bantu	Pre	Pre	19	10	0	5

Abbreviations: NCM = Noun Class Marker, T.Aff. = Target Affix, Cls = # of classes, Gen = # of genders, MG = # of minor genders, Ser. = # of agreement series

No clear pattern emerges from examining intra-series variation. This information will be crucial at a more detailed comparative stage of the project, since these processes could have affected the trajectory of the development of these systems.

Table 4: Intra-Series Variation

Language	VowHar	TonPer	OtherPhon	Lexical
Otoro				✓
Gambe Fula				✓
Baïn. Gub.	✓		✓	
Kisi			✓	✓
Ditammari				
Supyire	✓	✓		
Longuda			✓	
a-Ma-lo				
Ndunga-le				
Godié				
Tuwuli	✓	✓		✓
Logba				
Cicipu	✓		✓	
Noni		✓		✓
Aghem		✓		
Proto-Bantu				

Abbreviations: VowHar = vowel harmony, TonPer = tonal perturbations, OtherPhon = other phonological processes

NC concord on a substantial subset of nominal dependents is very likely. Adjectives and demonstratives are most common. Concord is also very likely marked on anaphoric and possessive pronouns.

Table 5: Agreement Targets

Language	Ana	Adj	Num	Dem	Int	Poss	Rel	Subj	Obj	Def
Otoro	✓	✓	✓	✓	✓	✓		✓	✓	
Gambe Fula	✓	✓		✓	✓	✓	✓			
Baïn. Gub.	✓	✓	✓	✓	✓	✓	✓			
Kisi	✓	✓	✓	✓		✓	✓			
Ditammari	✓	✓	✓	✓			✓			✓
Supyire	✓	✓	✓	✓	✓	✓	✓			✓
Longuda		✓		✓		✓				
a-Ma-lo										
Ndunga-le	✓	✓	✓	✓	✓	✓				
Godié	✓	✓		✓	✓	✓	✓			✓
Tuwuli	✓		✓	✓	✓	✓	✓	✓		
Logba		✓	✓	✓				✓		
Cicipu	✓	✓	✓	✓		✓	✓	✓		
Noni	✓	✓	✓	✓		✓				
Aghem	✓	✓	✓	✓	✓	✓		✓		
Proto-Bantu	✓	✓	✓	✓	✓	✓		✓	✓	

Abbreviations: Ana = anaphoric pronouns, Adj = adjectives, Num = (a subset of) numerals, Dem = demonstrative pronouns/adjectives, Int = interrogative words, Poss = possessive pronouns, Rel = relative pronouns, Subj = subject agreement on verb, Obj = object agreement on verb, Def = definiteness marker

Infinitival derivations are found throughout the family, and so may be reconstructable to PNC. Agentive derivations are far less common. Diminutive classes are more common than augmentative, and may be reconstructable. The ethnonym class network is quite common as well (although some languages lack a productive class referring to the area/land).

Table 6: Derivational Functions and Class Networks

Language	Aug	Dim	Inf	Agnt	EthNet	TrNet
Otoro			✓		✓	
Gambe Fula	✓	✓	✓			
Baïn. Gub.	✓	✓	✓	✓	✓	✓
Kisi		✓	✓		P&L	
Ditammari	✓	✓	✓	✓	✓	✓
Supyire	✓	✓	✓			
Longuda						
a-Ma-lo					P&L	
Ndunga-le			✓	✓	P&L	
Godié						
Tuwuli			✓			
Logba						
Proto-Bantu	✓	✓	✓		P&L	
Aghem						
Noni		✓	✓	✓		
Cicipu		✓	✓		✓	

Constructionally conditioned variable exponence only occurs in four out of the sixteen languages of the survey (Kisi, Supyire, Longuda, Aghem), but each of these languages belongs to a different group, so the origin of this type of construction and its role in the development of NC languages should be investigated.

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