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Hyman, Larry M
Rolle, Nicholas
Sande, Hannah
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Niger-Congo Linguistic Features and Typology

Larry M. Hyman, Nicholas Rolle, Hannah Sande, Emily Clem, Peter S. E. Jenks, Florian Lionnet, John Merrill, and Nicholas Baier

9.1   Introduction

The purpose of the present chapter is to survey and discuss some of the prominent linguistic properties of Niger-Congo (NC) languages. This task is a difficult one for at least five reasons. The first is the sheer enormity of the group: consisting of approximately 1,500 languages (Simons & Fennig 2017), the NC linguistic stock is the largest widely recognized genetic group. Second, there is considerable variation in the linguistic features among NC languages, which spread from Senegal in the west to Kenya in the east, and down to South Africa. The third reason is that most of the common features that can be identified are not limited to NC, but are also attested in other African stocks. Fourth, there is disagreement about which linguistic units should be considered NC, such as Mande, Dogon, and Ijoid. This is potentially quite important to the extent that these groups diverge typologically from the rest of NC in interesting ways. Particularly in the case of Mande, there is the question of whether its S-Aux-OVX word order has not spread to neighbouring NC subgroups in what we shall refer to as the Mandesphere. Finally, so much more is known about certain subgroups and the more major languages that one has to be careful not to generalize, for example, not to be Bantu-centric. The task of this chapter is therefore not only to present some of the recurrent typological properties of an agreed upon NC core, but also determine which of these can be traced back to an ancestral Proto-Niger-Congo (PNC) or are due to more recent areal contact. The strategy that will be followed here is to focus on phenomena that are widely attested, noting at the same time any obvious distributional limitations, whether by subgroup or geography. After introducing the basic syllable and word structure in Sections 9.2 and 9.3, we turn to the prosodic stem in 9.4 and segmental consonant and vowel inventories in 9.5. This is followed by vowel and nasal harmonies (9.6), tone (9.7), noun

classes (9.8), noun modifiers and pronouns (9.9), verb extensions (9.10), verb inflection (9.11), word order (9.12), serial verbs (9.13), and information structure (9.14). Because of space limitations, much of the discussion will be brief and only suggestive of the tremendous richness encompassed by NC languages. In the final section (9.15) we summarize the most interesting distinguishing NC features covered in the preceding sections and indicate the extent to which each feature is found in the other African stocks beyond NC.

9.2   Syllable Structure

Most scholars familiar with African languages would probably first think of the NC languages as disproportionately favouring strict open syllables. This is found in most Mande, Kru, Kwa, Western Benue-Congo, and Bantu languages. The tendency towards simple syllable structure is not only against codas, but also against consonant clusters, whether tauto- or heterosyllabic. In many Bantu languages the only potential clusters consist of a homorganic nasal+consonant, which is usually interpreted as producing a complex syllable onset; for example, Luganda is syllabified as [lù.gá:.ndà]. A complicating factor is that many NC languages have syllabic nasal syllables, which may contrast tone, such as Igbo m̀pé 'smallness', ńnà 'father' (Emenanjo 1987:1–2), Haya m̀bwà 'it's a dog', ǹtè 'it's a cow' (Byarushengo 1977:6). NC open-syllable languages otherwise prohibit word-internal consonant clusters as well as word-final consonants.

There are, however, many exceptions. Many of these fall into two areas. The first consists of languages in westerly subbranches of NC such as Atlantic, Gur, Kwa, and to some extent Mande, where the coda may be restricted to the velar nasal, for example, Maninka (Niokolo) kúŋ 'head', kàŋ 'neck' (Creissels 2013:13), Guinean Kpelle lǎŋ́ 'to jump', mànáŋ́ 'cassava' (Konoshenko 2014:239). The second area includes a number of linguistic groups in Nigeria including Cross-River, Central Nigerian (Kainji, Plateau, Jukunoid), and Bantoid, going into Grassfields and certain Northwest Bantu languages in Cameroon. In many of these cases it is possible to show that vowel deletion has more recently produced closed syllables by comparing the resulting forms to Proto-Bantu (PB) reconstructions (Bastin et al. 2002), for example, Babanki [Bantoid; Cameroon] ə̀bèm 'belly' (cf. PB *-bùmù), ə̀kwén 'bean' (cf. PB *-kúndè) (Akumbu 2008:21, 24); Nzadi [Bantu; DRC] ntsɔ̂n 'shame' (cf. PB *-cónì), mbɔ̌ŋ 'brain, marrow' (cf. PB *-bòngó) (Cohen 2011:256, 260). Such languages can also have internal (more rarely, final) consonant clusters, Babanki báŋlí 'be ripe', də̀mkə̀ 'grumble' (Akumbu 2008:16, 20).

While there are other subgroups and sporadic cases of closed syllables throughout the NC stock, NC languages rarely allow the full set of onset consonants to appear as codas. Frequently missing are a voicing

contrast, fricatives, liquids, and palatals. With a few exceptions, languages that have implosives or labiovelar /kp gb ŋm/ typically disallow these as codas. In many languages codas are restricted to a subset of stops and/or nasals. Beyond this it is hard to generalize. Table 9.1 provides a sample of Grassfields Bantu results from an unpublished survey of coda consonants in 114 Bantoid and Northwest Bantu languages.

In the first line of the table, P, T, K refer to a labial, coronal, and velar stop, respectively, whose phonetic voicing may vary according to context. While all of the languages in Table 9.1 contrast voiced vs. voiceless stops in onset position (with the exception of the labial within most Bamileke), there is no voicing contrast in coda position. Authors disagree on whether these should be transcribed [p, t, k] or [b, d, g]. Table 9.1 clearly shows that only a subset of consonants can occur as coda, as few as one consonant (the glottal stop in Mfumte) and as many as nine in Bum. As seen, most have oral stops and nasals, although either can be missing. Although the velar nasal is also a common coda consonant elsewhere in NC, the glottal stop is a particular feature of this area. Also observable is that oral versus nasal codas can have separate histories concerning which places of articulation are represented. Thus, no language has only labial /P/ as an oral stop coda, and no language has only coronal /n/ as a nasal coda. Finally, some of the Ring languages prefer oral continuant fricative and liquid codas at the expense of stops. Similar onset-coda asymmetries are found throughout West African NC languages, sometimes generalizing to stem shapes (see 9.4).

Table 9.1 Coda consonants in Grassfields Bantu

Language	Subgroup	P	T	K	?	m	n	ɲ	ŋ	f	s	h	l	r	w	y	Totals
Medumba	Eastern	p	t	k	?	m	n		ŋ								7
Fe' fe'	Eastern	p	t	k	?	m	n					h					7
Yemba	Eastern	p	t	k	?	m			ŋ								6
Bamena	Eastern	p	t	k	?	m						h					6
Ghomala	Eastern	p		k	?	m			ŋ								5
Bamunkumbit	Eastern	p	t			m	n										4
Shingu	Eastern	p	t	k	?							h					5
Ba'angu Akum	Eastern					m	n		ŋ								3
Limbum	Eastern	b			?				ŋ					r			4
Mfumte	Eastern				?												1
Moghamo	Momo	p	t	k	?	m	n		ŋ								7
Mundani	Momo	p	t			m	n		ŋ								5
Ambele	Momo	p	t	k		m			ŋ								5
Weh	Ring	p	t		?	m	n		ŋ						w	y	8
Bum	Ring		t	k	?	m	n		ŋ	f	s	h					9
Oku	Ring			k		m	n		ŋ	f	s		l				7
Kom	Ring				?	m	n		ŋ	f	s		l				7
Babanki	Ring				?	m	n		ŋ	f	s						6
Lamnso	Ring					m	n		ŋ	v				r		y	6
Babungo	Ring				?				ŋ								2
Bamessing	Ring								ŋ			h			w	y	4

9.3   Word Structure

Turning to the morphology, NC languages vary from a mono- and bisyl-
labic, largely isolating type in Kru, Kwa, Ubangi, and part of Adamawa, to
highly agglutinative structures in North Atlantic, Bantu, Kordofanian, and
certain languages within Gur, Upper Kwa, and Northern Nigeria. While
suffixation is perhaps more overtly widespread, especially in derivational
morphology, NC languages may also exploit prefixation, especially to mark
inflectional categories on the noun and verb. In many cases affixation is
tonal. Where prefixation and suffixation are both present, the following
Bantu verb structure based on Meeussen (1967) appears to apply to other
branches of NC as well:

(1)   word

              pre-stem   stem

              prefixes   root   derivational suffixes   inflectional suffix
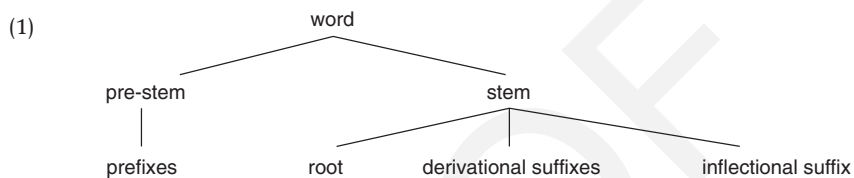
As can be seen, suffixes more closely 'cohere' to the root, forming a stem,
while prefixes are less cohering and attach at the word level. Like the out-
ermost suffix of the stem, prefixes are inflectional, as in the following
Chichewa example (Hyman & Mchombo 1992:358), where [marks the
beginning of the verb stem:

(2)   Mchómbó   a-na- [máng-ír-ídw-á   nkhûni
         Mchombo   he-PAST-tie-APPL-PASS-FV   firewood
         'Mchombo was tied firewood'
         (APPL = applicative; PASS = passive; FV = inflectional final vowel)

In this example, *a-* is the class 1 3sg subject prefix and *-na-* is the recent past
prefix. The first two suffixes are derivational 'verb extensions' : applicative *-ir-*
signals the benefactive NP 'Mchombo', while *-idw-* marks the passive. In
most Bantu languages the verb must end with an inflectional FV, in this
case *-a*.

  Nouns (and where present, adjectives) differ from verbs both in having
less internal structure, but also in whether they are marked by prefixes
and/or suffixes. In the case of non-derived nouns whose stem is monomor-
phemic, there is no distinction between root and stem. If present, a NC
language may mark noun classes by prefixes, suffixes, or both:

(3)   a.   Moro [Kordofanian; Sudan] (Gibbard et al. 2009:107, 112)
              a-jén   'mountain'   pl.   e-jén
              l-aŋwaṭa   'mosquito'   pl.   ɲ-aŋwaṭa
              ð-áp:á   'friend'   pl.   r-áp:á
              e-tám   'neck'   pl.   ń-tám

b. Kulango [Gur; Ivory Coast, Ghana] (Elders 2007a:299–306)

xɛɛn-ɔ̀	'man'	pl.	xɛɛm-bɔ̀
nimee-yò	'bird'	pl.	nimee-hʋ̀
pʋʋ-rɔ̀	'fish'	pl.	pʋʋ-nʋ̀
tɛ-gɛ̀	'hole	pl.	tɛ-hɩ̀

c. Noni [Bantoid; Cameroon] (Hyman 1981:9, 11, 12)

lów-ē	'bean'	pl.	ɛ̄-lów
tēm-é	'axe'	pl.	ɛ̄-tēm
fē-tēnē	'squirrel'	pl.	mū-n-tēné-m
bvū-dvúū	'place'	pl.	mɔ̄-n-dvúú-m

Derived nominalizations, on the other hand, may have internal structure. The stems of the following Luganda [Bantu; Uganda] deverbal nouns thus consist of a verb root plus any of the specialized five derivational final vowels /i e u o a/ (Ashton et al. 1954:373–380):

(4)

-i	:	-lim-	'cultivate'	→	ò-mú-lím-í	'cultivator'	(agent)
		-kol-	'work'	→	ò-mú-kóz-í	'worker'	
-e	:	-sib-	'tie'	→	ò-mù-síb-è	'prisoner'	(patient)
		-laaw-	'castrate'	→	ò-mù-lááw-è	'eunuch'	
-u	:	-tamiir-	'be drunk'	→	ò-mù-támììv-ú	'drunkard'	(experiencer)
		-kyúuk-	'change'	→	ò-mù-kyúùf-ú	'a convert'	
-o	:	-sek-	'laugh'	→	è-n-sék-ó	'laughter'	(result)
		-lóot-	'dream'	→	è-kì-róòt-ó	'a dream'	
-a	:	-sik-	'inherit'	→	ò-mú-sík-á	'heir'	(various)
		-geend-	'go'	→	à-má-géénd-á	'outward journey'	
		-záal-	'bear a child'	→	ò-lù-záàl-á	'child-birth'	

Among other derivational processes, the combination of applicative *-ir-* plus final *-o* derives nouns indicating the location where the verb action or state takes place: *-fuumb-* 'cook' → *è-f-fúúmb-ír-ó* 'kitchen', *-lwaal-* 'be sick' →*è-d-dwáál-ó* 'hospital'. The examples in (4) also show that many of the meanings consistently line up with specific noun classes, for example, human class 1 singular *ò-mu-*. In Kom [Bantoid; Cameroon], deverbal adjectives produce an agglutinated sequence of both prefixes and suffixes (Hyman 2005:314):

(5)

a. -béé-   'be big'   →   ē-fē-ŋwíīn   fē-béé-né-fé   'big bird'
                                 AUG-19-bird   19-big-ADJ-19

b. -béé-lé- 'be big'   →   ē-tē-bíī   tē-béé-lé-né-té 'big kolanuts'
            [plural]   AUG-13-kolanut   13-big-PL-ADJ-13

In (5) the suffix *-né-* derives adjectives from verbs. In (5a), the adjective 'big' carries both a prefix *fē-* and a suffix *-fé*, agreeing with the class 19 noun *ē-fē-ŋwíīn* 'bird'. In (5b) 'big' agrees with the class 13 noun *ē-tē-bíī* 'kolanuts', which, being plural, carries over the pluractional suffix *-lé-* from the verb *-béé-lé-* 'be(come) big'; *-né-* is an adjective-deriving

formative. The result is five agglutinated morphemes with noun class prefixation and suffixation.

While there are even more elaborate morphological structures in certain NC languages, others have very little morphology, ultimately few, if any, prefixes or suffixes marking noun classes or anything else, for example, in Gbe, Defoid, Edoid, and part of Nupoid (McWhorter 2016). This is part of the diversity problem alluded to in 9.1. While the initial V- or N- of nouns in languages such as Igbo, Yoruba, Nupe, and others are clearly relics of older noun class systems, they are almost largely frozen and unpredictable, such as, Yoruba ĩ̌šé 'work', ējò 'snake', ɔ̀rě̌ 'friend' (Pulleyblank 1986:116).

9.4   The Prosodic Stem

An important number of NC languages spoken in Western and Central Africa are characterized by stem-initial prominence, defined mostly (but not exclusively) on the basis of segmental distributional asymmetries, whereby the stem-initial C or CV sequence allows more segmental contrasts than any other position within the stem. A good example comes from Ibibio [Cross-River; Nigeria] (Urua 1999; Akinlabi & Urua 2003; Harris [1994] 2004), where a prosodic stem can have any of the shapes CV, CVC, CVVC, CVCV, CVCCV, or CVVCV. (VV indicates a long vowel and CC a geminate consonant.) Within the maximally bisyllabic and trimoraic structure, the first consonant (C_1) position can be any of the 13 consonants /b t d k kp m n ɲ ŋ f s y w/, while the second consonant (C_2) slot is limited to six possibilities, realized as in Table 9.2.

Representative CVC, CVCV and CVCCV examples are presented in (6).

(6)			CVC		CVCV		CVCCV	
	/P/	:	dìp	'hide'	tòβó	'make an order'	dáppá	'dream'
	/T/	:	dʌt	'drag'	tìɾé	'stop'	sìtté	'remove stopper'
	/K/	:	kɔk	'vomit'	fèɣé	'run'	sʌkkɔ́	'faint'
	/m/	:	nám	'do, perform'	yòmó	'talk noisily'	dámmá	'be mad'
	/n/	:	bén	'carry with hand'	tʌnɔ́	'discipline'	ɲànná	'stretch'
	/ŋ/	:	sàŋ	'go'	sàŋá	'walk'	wɔ́ŋŋɔ́	'turn'

Table 9.2 Realization of C_2 consonants in Ibibio

		CV(V)C	CV(V)CV	CVCCV
/P/	:	p	β	pp
/T/	:	t	ɾ	tt
/K/	:	k	ɣ	kk
/m/	:	m	m	mm
/n/	:	n	n	nn
/ŋ/	:	ŋ	ŋ	ŋŋ

In the CVC column we see that the inventory of six coda consonants are identical to those found in several of the Grassfields Bantu languages in 9.1. What is significant is that C_2 consonants exhibit the same six contrasts internal to the stem. In the CVCV column oral /P, T, K/ spirantize to [β, ɾ, ɣ], while they geminate as voiceless stops in the CVCCV column. One can also notice in the above that there are exactly six contrasting vowels in the first syllable: [ɨ, e, ʌ, o, ɔ, a]. Whether occurring in an open or closed syllable, the two central vowels [ɨ, ʌ] are realizations of /i, u/ stem-internally (cf. *dí* 'come', *kpù* 'be in vain'). With this in mind we can now point out that despite the four realizations of the second vowel in the word, these all derive from a single underlying vowel, presumably /a/, which is realized [e] after /i/ [ɨ] and /e/, [o] after /o/, [ɔ] after /u/ [ʌ] and /ɔ/, and [a] after /a/.

For all of the above reasons, Akinlabi and Urua (2003) conclude that the Ibibio stem constitutes a single, maximally binary foot, whose first syllable is strong and second syllable is weak. Crucially, a vowel prefix falls outside the prosodic stem and thus has no effect on the C_1 consonant. The same kind of observations have been made for languages both to the East and West of the Cross-River subgroup, to which Ibibio belongs. A widespread property of Northwest Bantu languages, such effects were first thoroughly described by Paulian (1975) in Kukuya [Bantu; Congo] (cf. Hyman 1987, 2008), whose prosodic stem has the properties in Table 9.3.

In Kukuya, stems may have from one to three syllables and be mono-, bi-, or trimoraic, taking one of the five indicated tonal melodies. While a large consonant inventory is attested stem-initially, only six are attested in C_2 or C_3 positions, among which are the underspecified consonants /P/, /T/, and /K/, which are realized as [b ~ β], [ɾ], and [k~g~ɣ] respectively. Furthermore, out of the 36 (i.e., 6×6) possible C_2-C_3 combinations, only six are attested. These combinations may not include consonants produced at the same place of articulation or disagreeing in nasality, and must be either coronal C_2 + non-coronal C_3 or velar C_2 + labial C_3. Finally, since prefixes fall outside the prosodic stem, they too have a very limited consonant inventory, viz. /P, K, l, m/. A perhaps even more dramatic case comes from closely related Tiene, which has the same five prosodic stem shapes: CV, CVV, CVCV, CVVCV, and CVCVCV (Ellington 1977; Hyman 2010). While the 'strong' C_1 position can be occupied by any of the 13 consonants /p t k b d f s v l y m n ɲ/, the other 'weak' C_2 and C_3 positions are again restricted.

Table 9.3 Properties of the prosodic stem in Kukuya

Five syllable shapes	:	CV, CV.V, CV.CV, CVV.CV, CV.CV.CV
Five tonal melodies	:	L, H, LH, HL, LHL
Six attested C_2 or C_3	:	P, T, K, l, m, n
Six C_2-C_3 combinations	:	C-n-m, C-T-K, C-l-K, C-l-P, C-K-P, C-T-P
Prefix consonants	:	P, K, l, m

Table 9.4 Some NC languages with prosodic stem-like asymmetries

Family	Languages (references)
NW Bantu	Kukuya (Paulian 1975; Hyman 1987), Tiene (Ellington 1977; Hyman 2010), Basaa (Hyman 2008), Eton (van de Velde 2008)
Cross River	Ibibio (Harris [1994] 2004; Akinlabi & Urua 2003), Gokana (Hyman 2011a)
Plateau	Izere (Blench 2001; Hyman 2010), Birom (Blench 2005; Hyman 2010)
Adamawa	Lua (Boyeldieu 1985), Kim (Lafarge 1978), Day (Nougayrol 1979), Mundang (Elders 2000), Mambay (Anonby 2010), Mumuye (Shimizu 1983), Dii/Duru (Bohnhoff 2010)
Gbaya	Gbaya Kara Bodoe (Moñino & Roulon 1972)
Gur	Konni (Cahill 2007), Koromfe (Rennison 1997)
Mande	Guro (Vydrin 2010a), Mano (Khachaturyan 2015)

In CVCVCV stems, C_2 must be coronal, C_3 must be non-coronal (either labial or velar), and C_2 and C_3 must agree in nasality. Where a coronal suffix such as causative -es- would violate these constraints, it must be infixed. Thus compare dím-à 'become extinguished' versus dísèb-έ 'extinguish (tr.)', where /m/ has also been denasalized to agree with oral /s/. Since Proto-Bantu allowed a free distribution of consonants within the stem (Teil-Dautrey 2002, 2008; Hyman 2008), restrictions such as in Tiene have to be innovations.

Such distributional asymmetries are especially common in Benue-Congo, but are also attested in most if not all of the branches of NC, including Adamawa, Plateau, Gur, and as far west as Mande. While a more systematic typological and comparative study is still needed to map out the exact nature and distribution of prosodic stem effects, Table 9.4 presents a partial survey of such prominence asymmetries within NC. Since such asymmetries have also been noted in unrelated languages in close proximity with NC, for example, in Chadic languages such as Goemai (Hellwig 2011), Tumak (Caprile 1977), and Ndam (Bross 1988) and the isolate Laal (Lionnet 2014), areal factors must be taken into account as well. However, the similar properties noted in the former 'Khoisan' groups Khoe, Tuu, and Kx'a (e.g., Beach 1938; Traill 1985; Miller-Ockhuizen 2001; Nakagawa 2010) suggest that limiting the distribution of Cs, Vs, and tonal patterns may more generally be a derived property in languages that have undergone considerable simplification and restructuring.

9.5 Segmental Phonology

In this section we briefly consider a few of the most noteworthy properties of consonant and vowel inventories in NC languages, starting with consonants.

Table 9.5 Shekgalagari consonants

	Bilabial	Dental	Alveolar	Post-alveolar	Palatal	Velar	Uvular	Glottal
Stops, affricates	p pʰ b	tʰ t d	ts tsʰ tsʷ tsʰʷ	tʃ, tʃʰ dʒ tʃʷ, tʃʰʷ	c cʰɟ cʷ, cʰʷ	k kʰ g	q qʰ	
Fricatives			s z	ʃ ʒ ʃʷ ʒʷ			χ	h
Nasals	m	n			ɲ	ŋ		
Trill/tap			r					
Glides					y	w		
Lateral			l					
Clicks	⊙	ǀ						

9.5.1 Consonant Systems

NC languages vary considerably in the complexity of their phonetic and phonological consonant systems. We have already cited two languages, Ibibio and Tiene, that contrast a small inventory of 13 underlying consonants. Contrast this with the consonant system of Shekgalagari [Bantu] Botswana in Table 9.5, based on Lukusa and Monaka (2008:12).

Among the 54 NC languages in UPSID (Maddieson & Precoda 1990), the size of their consonant systems ranges from 13 in Efik (closely related to Ibibio) and Klao [Kru; Liberia] to 43 in Ohũhũ Igbo [Igboid; Nigeria], which, like Shekgalagari, contrasts aspirated and unaspirated stops as well as labialized consonants. All but seven fall into the 18–32 consonant range. The exact number often depends on the interpretation, for example, whether to analyse Cw as a labialized consonant /Cʷ/ or a sequence of a consonant +/w/, and similarly for whether NC is a prenasalized consonant /ᴺC/ or a nasal+consonant cluster. In addition, results will be different depending on the level of analysis. For example, based on Welmers (1962), UPSID reports a contrast between /p t k kʷ kp f s/ and /b d g gʷ gb v z/ in Liberian Kpelle [Mande; Liberia] despite the fact that voicing is almost completely predictable, mostly being derived after a nasal, for example, the H(igh) tone nasal prefix 'my' in the following examples (where ̰ indicates nasalization):

(7) stem 'my' 'his/her'
  pólù ḿbólù ɓ̀bólù 'back'
  túɛ́ ńdúɛ́ ɗ̀dúɛ́ 'front'
  kɔ́ɔ́ ŋ́gɔ́ɔ́   g̀gɔ́ɔ́ 'foot, leg'
  kpíŋ̀ ŋ́gbíŋ̀ g̀gbíŋ̀ 'self'
  fíí ńvíí v̀víí 'hard breathing'
  sṵ́á̰ ńzṵ́á̰ z̀zṵ́á̰ 'nose'

A complication arises in the 'his/her' forms, which begin with a L(ow) tone fully voiced obstruent and which Dwyer (1974) interprets as geminate. Alternations involving sonorant-initial stems show that the 'his/her'

morpheme can be analysed morphophonemically as a L tone nasal: *lēē* 'mother', *ńēē* 'my mother', *ǹēē* 'his/her mother', *yéé* 'hand/arm', *ṕéé* 'my hand/arm', *ỳéé* 'his/her hand/arm'. The 'his/her' forms can thus be set up with underlying voiceless initials, for example, /m̀-pólù/, /ǹ-túɛ́/, and so on, thereby reducing the size of the underlying consonant system.

Kpelle illustrates several widespread properties of NC languages: The first is the frequent presence of labial-velar /kp, gb/ (and less commonly /ŋm/) in the western branches (see Cahill 1999; Clements & Rialland 2008:42–44, Güldemann 2008:156–158). The second, characterizing also Bantu languages in the east, is the tendency to avoid voiceless consonants after a nasal, including voiceless prenasalized stops (typically missing from Chadic languages as well). In addition, alternations such as *lēē* 'mother' versus *ńēē* 'my mother' show a common relation between oral and nasal sonorants. It is not uncommon for voiced oral consonants to become fully nasal in the environment of a nasalized vowel. Thus compare the intensive derivation of the following forms in Kana [Cross-River; Nigeria]: *bà* 'eat' → *bà-gàrà* versus *gɔ̃̄* 'hide' → *gɔ̀-ŋàná* (Ikoro 1996:153). There may also be changes of nasal to oral, as in Grebo [Kru; Liberia], where /n/ denasalizes to [l] and transfers its nasality to the following vowel in fast speech: *pone* → *plẽ* 'rat', *kene* → *klẽ* 'wickerwork basket' (Innes 1966:15–16). Initial 'consonant mutations' are especially prevalent in Northern Atlantic languages, as seen in the following singular-plural pairs from Fula (Arnott 1970):

(8)   singular   plural
        gor-ko   wor-ɓe   'man'
        mbaal-u   baal-i   'sheep'
        haak-o   kaak-e   'leaf'

Among other common consonant processes is the 'hardening' of glides to fricatives or stops, particularly post-consonantally. This is well known in the Kirundi/Kinyarwanda and Shona subgroups of Bantu, but also in Northern Nigeria. Thus, Shimizu (1980:100) reports the realizations given in Table 9.6 in a number of Jukunoid languages and dialects.

Such developments are also found in the Nupoid languages, which produce correspondences such as Gwari Kuta *ōpyá*, Ganagana *ēpʃā*, and Nupe *ētswā* 'moon' (Hyman & Magaji 1971:7). In the last column in Table 9.6

Table 9.6 Glide hardening in Jukunoid

py	[pʃ]			tw	[tk]	kw	[kp]
by	[bʒ]	bw	[bg]	dw	[dg]	gw	[gb]
fy	[fʃ]	fw	[fk]	sw	[sk]		
vy	[vʒ]	vw	[vg]				
mby	[mbʒ]	mw	[mŋ]	nw	[nŋ]		

it can also be seen that labial-velars can result from a velar followed by [w], as is happening synchronically in Noni [Bantoid; Cameroon] *kwēn ~ kpēn* 'firewood', *gwɔ́ɔ́n ~ gbɔ́ɔ́n* 'bamboo', where the labialization is from an earlier *ʉ-* prefix (cf. the plurals *kēn, gɔ́ɔ́n*, which lack a prefix). On the other hand a labial consonant + [w] can also result in a labial-velar, as in Aghem [Bantoid; Cameroon]: *kɨ́-bɛ́* 'fufu', pl. *ó-gbɛ́; kɨ́-báʔ* 'rope', pl. *ó-gbáʔ* (Hyman 2011b:15).

An analogous property of liquid hardening is responsible for special realizations of /l/ before glides or high vowels. There are a number of languages where /l/ is realized as [d] before /i/, for example, Ciyao [Bantu; Mozambique] *mil-a* 'swallow' versus *mid-isy-a* 'swallow a lot'; *kul-a* 'grow big' versus *kud-isy-a* 'grow very big' (Ngunga 2000:56). In Gbari [Nupoid; Nigeria], /l/ is realized as [ɗ] before /i/, for example, *ɗí* 'eat'. In Gwari Kuta /l/ has further developed into a palatal stop with offglide before both /i/ and /e/, such as *gyí* 'eat', *gyè* 'sharpen' (Hyman & Magaji 1971:14, 15).

It is perhaps worth noting in this context that implosives are very common in NC, a commonality they share with many Chadic and Nilo-Saharan languages. The implosives /ɓ, ɗ/ are the most common, as in Dan [Mande; Ivory Coast] *ɓā* 'be', *ɗā* 'rain (n.)' (Vydrin & Mognan 2008:107, 128), and many languages have only these two, for example, Degema [Edoid, Nigeria] and Kalabari [Ijoid, Nigeria]. A few languages have a full set of contrasts, including Ega [unclassified NC, Ivory Coast] which has the voiced plosives /b ɗ ɟ g gb/ and the implosives /ɓ ɗ ʃ ɠ ɠɓ/, for example, /ùgbò/ 'cooking pot' and /ùɠɓò/ 'mouse (sp.)' (Connell et al. 2002). Several NC languages have typologically rare voiceless implosives as well. Most notably, Sereer makes use of a phonemic voicing distinction for implosives at three places of articulation: /ɓ ɗ ʃ/ versus /ɓ̥ ƒ ƈ/, exploited by the language's consonant mutation system as well as for underlying lexical contrasts. Implosives are largely found in NC languages in the Sudanic Belt (which excludes most Bantu languages). Clements and Rialland (2008:58), however, demarcate an area within this macro-area where implosives are systematically absent, which includes languages within Dogon, Senoufo, Gur languages (Mòoré, Kabiyé), Kwa languages (Akan, Guang, Gbe), Yoruba, most Edoid languages, and westernly located Ijoid languages (e.g., Izon varieties). They note that 'there is comparative evidence that earlier implosives shifted to non-implosive sounds, for example, *ɓ > b/v, *ɗ > d/ɗ/l in Central Gur (Manessy 1979)'.

Some NC languages in West Africa make a distinction between fortis and lenis consonant series, on top of a voiced/voiceless distinction, where lenis consonants are indicated by <'> or with <h>. Stewart (1973) notes Ebrié [Kwa; Ivory Coast] fortis consonants as /p b/ and lenis consonants as /'p 'b/. Botma & Smith (2006) summarize the phonetic research on this distinction, noting that the 'lenis stops of [Ebrié] are produced with less energy than their fortis counterparts, they have a shorter duration, they involve spontaneous voicing and they are realized as

non-exploded, often with an implosive quality', and note comparable observations for lenis stops in Edoid (Elugbe 1980). Welmers (1973: 46–47) indicates that in the Edoid language Etsako (Ekpei dialect), fortis /kp gb/ occur with a suction sound, whereas lenis /kph gbh/ do not. We find it unlikely that fortis/lenis distinctions have uniform phonetic realizations across NC.

Fortis/lenis distinctions have played a role in a number of synchronic and diachronic proposals in early NC. Stewart (1973) reconstructs fortis stops (e.g., *t *d) versus lenis stops (e.g., *'t *'d) for 'Proto Volta-Bantu' which would encompass modern day Kwa and Bantu families, retained in Ebrié above. Leynseele and Stewart (1980) explicitly reconstruct fortis and lenis stops for NW Bantu, a distinction used to account for so-called 'double reflexes' (Hedinger 1987:105–108; but see Bachmann 1989, Blanchon 1991, and Janssens 1993 for a different interpretation of the NW Bantu facts). Proto-Edoid is reconstructed with a full set of fortis and lenis consonants, including the labial series *p, *ph, *b, *bh, *ɓ, *m, *mh, *f, *v, largely maintained in the Ibilo dialect of Okpamheri (Elugbe 1989:297). This reconstructed set illustrates that fortis/lenis cannot simply be reduced to voicing, implosiveness, sonority, or frication. Fortis/Lenis oppositions are also proposed for Delta Cross (Connell 1994:8), for example, Abua (Gardner 1980). Leggbo, a related language in Upper Cross, also has both a fortis and lenis series of consonants, for example, dū 'beat, pound', ddū 'whisper'. Fortis consonants are transcribed as double graphemes, and are articulated with greater force, have greater duration, have a shorter following vowel, and have differences in intra-oral air pressure profiles (Udoh 2004).

This highlights the fact that the fortis series is consistent with an interpretation as gemination on a case-by-case basis. Relatedly, Clements and Rialland (2008:57) classify implosives as 'non-obstruent' stops, and explicitly relate them to the use of the imprecise term 'lenis' in the Africanist literature (cf. Clements & Osu 2002). Future work should seek to determine potential correspondences, such as whether fortis/lenis series correspond in different proto-languages, lenis consonants correspond to implosives, or fortis consonants correspond to consonant clusters supporting incipient gemination.

There are a number of notable phonological contrasts not typically found in NC. NC languages do not frequently make use of breathy and creaky phonation types, although breathy consonants are found in the Ohũhũ variety of Igbo (Green & Igwe 1963) and the Ibilo dialect of Okpamheri (Elugbe 1989:297). Sylak-Glassman (2014:55) notes that post-velar non-glottal sounds (i.e., uvular, pharyngeal, epiglottal) are largely absent in NC languages, although they are found in peripheral Bantu languages (e.g., Shekgalagari above, Nyaturu /ʁ/, and Datooga /q/, which has the realizations [q ɢ χ ʁ]), in certain Senufo languages (Mamara), Wolof and Sereer within Atlantic, and in the Mande language Susu. Further, clicks in NC are also only found in the Southernmost Bantu languages, such as in Sotho-Tswana and Nguni groups. This is uncontroversially due to sustained contact with 'Khoisan' languages (Gunnick et al. 2015).

9.5.2   Vowel Systems

While some NC languages have the unremarkable five-vowel system /i, e, u, o, a/, for example many Bantu languages, it is much more common to find vowel systems involving a greater number of vowel quality distinctions and, particularly in certain western areas, nasalized vowels. Some NC languages also contrast vowel length. Among the 54 NC languages in UPSID, the size of their vowel systems ranges from 5 in one language (Zulu [Bantu; South Africa]) to one language (Dan [Mande; Ivory Coast]) with 19 – in fact, 21 in Eastern Dan (Vydrin & Mognan 2008). While Zulu is alone, four other languages expand to six vowels by adding either /ə/ (Dagbani, Tarok) or /ɔ/ (Bisa, Mambila). Much more common is the oral vowel system in (9a), where the languages on the right are listed roughly from west to east:

(9)   a.   i   u   (Senadi, Ga, Ewe, Lelemi, Yoruba, Efik, Birom,
                                              Noni, Gbeya, Sango)

              e   o
              ɛ   ɔ
                     a

         b.   i   u   (Kpelle, Teke, Jomang)
              ɪ   ʊ
              ɛ   ɔ
                     a

In the languages in (9a), there is tense/lax or advanced tongue root (ATR) contrast only among the mid vowels, for example, Mbembe [Bantoid; Cameroon] *bí* 'ask', *bé* 'call', *bɛ́* 'dog', *bū* 'thing', *bō* 'they (human)', *bɔ̀* 'beg', *bá* 'legs' (Richter 2014:17). In contrast, the vowel system in (9b), which has an ATR contrast only in the high vowels, is much rarer, especially outside Bantu. Thus, in Kinande [Bantu; DRC]: *-lím-* 'extinguish', *-lɪm-* 'cultivate', *-lem-* 'fail', *-lúm-* 'be very lively', *-lʊ́m-* 'bite', *-tóm-* 'put aside', *-lam-* 'recover from a disease' (Mutaka & Kavutirwaki 2011). Although both systems have been considered, a consensus seems to be forming that (9b) should be reconstructed at the Proto-Bantu stage (Schadeberg 1995:73; Stewart 2000/2001:46).

Among the larger ATR vowel inventories are those in (10a) which have nine vowels, lacking an ATR contrast only for /a/, and those in (10b) which have ten vowels dividing into two sets:

(10)   a.   i   u   (Joola, Aizi, Tampulma, Isoko, Kalabari)
              ɪ   ʊ
              e   o
              ɛ   ɔ
                     a

         b.   i   u   (Ogbia, Amo, Kokumono, Degema)
              ɪ   ʊ
              e   o
              ɛ   ɜ   ɔ
                     a

Table 9.7 Williamson's featural analysis of Godié vowels

	[expanded]			[constricted]		
	[front]		[round]	[front]		[round]
[high]	i̧	i̵	ų		ɪ	ʉ	ʊ
[mid]	ȩ	ə̧	o̧		ɛ	ʌ	ɔ
[low]				a			

Other systems also exist lacking one or another of the above vowels, for example, Igbo /i, ɪ, e, u, ʊ, o, ɔ, a/, which lacks /e/ and Lokaa /i, e, ɛ, u, o, ɔ, a, ɜ/, which lacks both /ɪ/ and /ʊ/, but has /ɜ/ (Williamson 2004:129). Several Kru languages have developed central vowels with ATR distinctions, for example, Godie (Marchese 1983a), as represented by Williamson (2004:132) using Lindau's (1978) pharynx features Expanded and Constricted (see Table 9.7).

While /a/ occurs with both sets of vowels, as in many ATR systems (see 9.6.1), it functions with the [−ATR] or contracted vowels in certain phonological processes. However, the cooccurrence of interior vowels with ATR in Godié and other languages in the Kru/Mande contact area is quite unusual. As ATR typically correlates with a distinction along vocalic height (F1) more so than backness (F2), languages which show ATR contrasts and harmony tend not to have interior vowels, and vice versa. Rolle et al. (2017) show that this inverse relationship is statistically significant within a sample of African languages. Many NC languages in Central Africa have interior vowel phonemes, that is, /i̵ ʉ ɯ ə ɐ.../, for example, within Grassfields/North Bantoid, Ubangi, Adamawa, Platoid, and Kainji. The same Rolle et al. study shows that the development of interior vowels is an areal phenomenon that cuts across the different phyla in the area. In some of these languages, expansion of vowels along the front/back dimension correlates with fewer distinctions along height, for example, the Jukunoid language Etkywan (Icen) in Eastern Nigeria, which has the vowels /i e i̵ a u o/, as well as their nasal counterparts (Shimizu 1980:72). (Nasalized vowels will be treated in 9.6.2.)

9.6 Vowel and Nasal Harmonies

African languages are known for different types of vowel and nasal harmonies, which will be treated in the following two subsections.

9.6.1 Vowel Harmonies
NC languages are well known for having several types of vowel harmony. The most famous type is ATR harmony, as mentioned above, which has an

Table 9.8 Degema ATR contrasts

	[+ATR]			[−ATR]		
	front	central	back	front	central	back
high	i̩ / i		u̩ / u	i̩ / ɪ		u̩ / ʊ
mid	e̩ / e		o̩ / o	e̩ / ɛ		o̩ / ɔ
low		a̩ / ɜ			a̩ / a	

extremely rich phonological and phonetic literature (catalogued in Casali 2008). In this type, vowels form two mutually exclusive groups: in the ATR set vowels are articulated with an advancement of the tongue root widening the pharyngeal cavity; in the other, vowels are articulated with retraction of the tongue root (RTR). Degema is an example with a full set of contrasts (Kari 2004:370). Assuming ATR as a binary feature, [+ATR] is indicated with [ˌ] and [−ATR] with [ˌ]. This distinction is often times transcribed as tense vowels versus lax vowels. Both transcriptions are shown in Table 9.8.

In Degema, these vowel sets cannot co-occur, whether within roots or across morphemes. As a result, the nominalizer *o-* has two allomorphs, [+ATR] /o-/ and [−ATR] /ɔ-/ (Kari 2008:xxxi):

(11)		verb		nominal	
	[+ATR]	ɗegínɔ́	'be old'	o-ɗegínɔ́	'one that is old'
	[−ATR]	tɛvtév	'be short'	ɔ-tɛvtév	'one that is short'

[+ATR] vowels canonically have lower first formant frequency (F1) than their [−ATR] counterparts. As F1 is also the primary cue for tongue height, it has led to the convention of transcribing ATR with different vowel heights, for example, [e] versus [ɛ]. Casali (2008:510) further notes that in languages where ATR is additionally cued through voice quality, '[+ATR] vowels have been characterized … as having a "breathy", "deep", "muffled", or "hollow" quality, while [−ATR] vowels have been described by terms such as "bright", "choked", "brassy", or "creaky"'.

ATR harmony is found throughout NC in virtually every major family as summarized in Casali (2003:312), including Atlantic, Mande, Gur, Kru, Kwa, Ijoid, Benue-Congo (Bantu, Defoid, Edoid, Igboid, Nupoid), Ubangi, and Kordofanian. Notably, it is largely absent in the centrally located families Gbe, Grassfields/Bantoid, Kainji, Platoid/Jukunoid, and Adamawa. ATR harmony is a robust areal feature of the Sudanic Belt, common also in Nilo-Saharan, although less so in Afroasiatic. This ATR macro-area can be further divided into a Western and an Eastern ATR zone, with the largest concentration of NC languages with ATR in the Western zone. In some languages between these zones, there has been a loss of ATR harmony, correlating with extensive reduction of morphology and vowel mergers.

One example is Edo where even mid vowels can co-occur, for example, the name /ɛ̀dó/ 'Edo people, Benin City'.

Casali (2003, 2008) diagnoses specific sub-types of ATR, for example, whether the language has two heights in high vowels (/i/ vs. /ɪ/), whether the plus or minus value is dominant in phonological processes, whether roots are ATR dominant, among other dimensions. Casali is liberal in what he considers an ATR system, including languages such as Yoruba with /i e ɛ a ɔ o u/ where /e o/ do not co-occur with /ɛ ɔ/, but high vowels /i u/ can occur with either set. In such 7-vowel systems, there is no clear cross-height harmony present as in 9-vowel ATR systems. Rolle et al. (2017) classify this 7-vowel type as 'trace ATR' systems to distinguish them from other ATR systems. Such trace systems are found in many Mande languages, Western Kru family, Dogon family, Gbaya family, and Idomoid.

A number of other vowel harmonies occur throughout NC as well. Height harmony, which is not reducible to ATR harmony, is quite common. Hyman (1999) presents an extensive survey of Bantu vowel harmony, illustrating symmetrical and asymmetrical height harmony in 7V languages. Under symmetrical harmony, the Proto-Bantu high vowels *ɪ, *ʊ lower to mid [ɛ, ɔ] when adjacent to mid vowels. Under asymmetrical harmony, Proto-Bantu *ɪ is lowered after both mid vowels, whereas *ʊ lowers only when following *ɔ. Asymmetric height harmony of Nyamwezi's vowel system /i ɪ ɛ a ɔ ʊ u/ is shown below with the applicative suffix /-ɪl-/ and the reversive transitive or 'separative' suffix /-ʊl-/ (Maganga & Schadeberg 1992:155):

(12)	Root V	Appl /-ɪl-/		Rev. Trans. /-ʊl-/	
	i	-shik-ɪl-a	'arrive+appl'	-βis-úl-a	'find out'
	ɪ	-βɪt-íl-a	'pass+appl'	-pɪɪnd-ʊl-a	'overturn'
	u	-zug-íl-a	'cook+appl'	-gub-úl-a	'take off lid'
	ʊ	-gʊl-ɪl-a	'buy+appl'	-shʊʊn-ʊl-a	'show teeth'
	ɛ	-lɛk-ɛl-a	'let, leave+appl'	-zɛɛng-ʊl-a	'build'
	ɔ	-βɔn-ɛ́l-a	'see+appl'	-hɔng-ɔ́l-a	'break off'
	a	-ap-íl-a	'collect honey+appl'	-gaβ-ʊl-a	'divide'

Another type of height harmony affects the low vowel /a/. In a number of NW Bantu languages such as Babole [Congo], /a/ becomes [ɛ] in the context of /ɛ/ and [ɔ] in the context of /ɔ/ (Leitch 1996:123):

(13)		Root vowel	Imperative	Passive /-am-a/	Applicative /-el-a/	
	(a)	/i/	sìl-á	-sìl-ám-á	-sìl-él-á	'sharpen'
		/e/	kèl-á	-kèl-ám-á	-kèl-él-á	'make'
		/u/	tsùm-á	-tsùm-ám-á	-tsùm-él-á	'dip'
		/o/	kòh-á	-kòh-ám-á	-kòh-él-á	'take'
		/a/	sál-á	-sál-ám-á	-sál-él-á	'do'
	(b)	/ɛ/	hɛ́k-ɛ́	-hɛ́k-ɛ́m-ɛ́	-hɛ́k-ɛ́l-ɛ́	'cut'
	(c)	/ɔ/	kɔ́s-ɔ́	-kɔ́s-ɔ́m-ɔ́	-kɔ́s-ɛ́l-ɛ́	'gather'

In (13a) the input suffix vowels are realized without change. On the other hand, the /a/ of the final vowel and the passive suffix become [ɛ] after the root vowel /ɛ/ in (13b) and [ɔ] after the root vowel /ɔ/ in (13c). The applicative forms in the last column show that Babole also harmonizes /e/ to [ɛ] after both /ɛ/ and /ɔ/, which then triggers the /a/ → [ɛ] change on the final vowel.

Cases of /i/ → [u] rounding harmony are found in other languages, for example, Punu [Bantu; Gabon] (Fontenay 1980; Hyman 2008:329–330):

(14) a. -bíng-asan-a → -bíng-əsən-ə 'roll (sth.)' (general, 'default' final /-a/)
         -bund-igil-a → -bund-igil-ə 'slander'

     b. -bíng-asan-i → -bíng-isin-i 'roll (sth.)' (present, subjunctive /-i/)
         -bund-igil-i → -bund-igil-i 'slander'

     c. -bíng-asan-u → -bíng-usun-u 'be rolled' (passive /-u/)
         -bund-igil-u → -bund-ugul-u 'be slandered'

In Punu, suffixal vowels are limited to /i u a/. An /a/ or sequence of suffixal /a/s is realized [ə] word-finally, as in (14a), but as [i] before final /-i/, as in (14b). (14c) shows that both /i/ and /a/ assimilate to [u] before a final /-u/. Rounding harmony is widespread also outside of Bantu and found, among others, in Tommo So [Dogon; Mali] (McPherson & Hayes 2016), Alladian [Kwa; Ivory Coast] (Duponchel & Mel 1983), Kalabari [Ijoid; Nigeria] (Akinlabi 1997), Samba-Leko [Adamawa; Nigeria] (Fabre 2002), Iceve-Maci [Bantoid; Cameroon] (Cox 2013), Zande [Ubangi; Central African Republic] (Tucker 1959; R. Boyd 1995), and Southwest Gbaya [Ubangi; Central African Republic] (Moñino 1995:86–92, 99–104).

Many NC languages do not show vowel harmony per se, but have co-occurrence restrictions which limit possible combinations of vowels. Cishingini [Kainji; Nigeria] has neutral vowels /i u/ and non-neutral vowels /ə o e a/ (Stark 2000). Non-neutral vowels may co-occur with neutral vowels, but may only co-occur with an identical non-neutral vowel (Stark 2000:57). This is summarized in Table 9.9.

Further, although Gbaya languages do not have clear active harmony, they also have robust vowel co-occurrence restrictions, many of which can be reconstructable and are diachronically stable. Moñino (1995:378)

Table 9.9 Cishingini co-occurrence restrictions

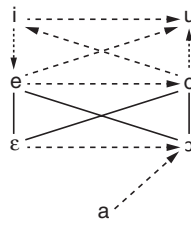| V1	V2		V1	V2		V1
	i	u	ə	e	o	a
i	√	√	√	√	√	√
u	√	√	√	√	√	√
ə	√	√	√	*	*	*
e	√	√	*	√	*	*
o	√	√	*	*	√	*
a	√	√	*	*	*	√

Figure 9.1 Vowel sequences in Proto-Gbaya

reconstructs the Proto-Gbaya vowel system, and provides the following restrictions in Figure 9.1. Solid lines indicate vowel sequences that cannot occur in either order, while dashed lines indicate vowel sequences that cannot only occur in the order of the arrow. Thus, there is no word that can be reconstructed with the shape CiCu, but there are words of the shape CuCi.

Finally, a number of NC languages show a propensity towards having identical vowels within roots or stems. For example, while Berom [Platoid; Nigeria] has a seven vowel system, Bouquiaux (1970:98–99) writes that approximately 80 percent of all disyllabic stems have identical vowels, and similarly in C'Lela [Kainji; Nigeria], Dettweiler (2015:28) notes that approximately 61 percent (158/260) of disyllabic stems have identical vowels. Similar facts are seen in Ubangi languages, for example, Banda-Ndele where 47 percent of CVCV words have identical vowels (Sampson 1985:141). This may be due to an areal phenomenon in Central Africa, as similar identical vowel propensities are found in the vicinity in non-NC languages, such as in the Sara-Bongo-Bagirmi family as well as in some Central Chadic languages.

9.6.2   Nasal Harmonies

Contrastive nasal vowels, nasal harmony, and prenasalized consonants play a large role in NC languages. Rolle (2013, 2015) presents a survey of 473 West African languages (of which NC are the majority) and finds that 53 percent have contrastive nasal vowels (252/473), 40 percent lack contrastive nasal vowels (191/473), and 6 percent are ambiguous (30/473). We can compare this to cross-linguistic worldwide averages for contrastive nasal vowels, which range between 19 percent and 26 percent depending on sampling. The geographical distribution of these patterns is given in Map 9.1, from Rolle (2015).

As can be seen from Map 9.1, contrastive nasal vowels are found in a continuous belt from Guinea to the Central African Republic. They are common in Mande, Kwa, Dogon, Adamawa, Gbaya, and Ijoid; mixed in Kru, Gur/Senoufo, Benue-Congo, and Ubangi; and largely absent in Atlantic to the west and Bantu and Kordofanian to the east.
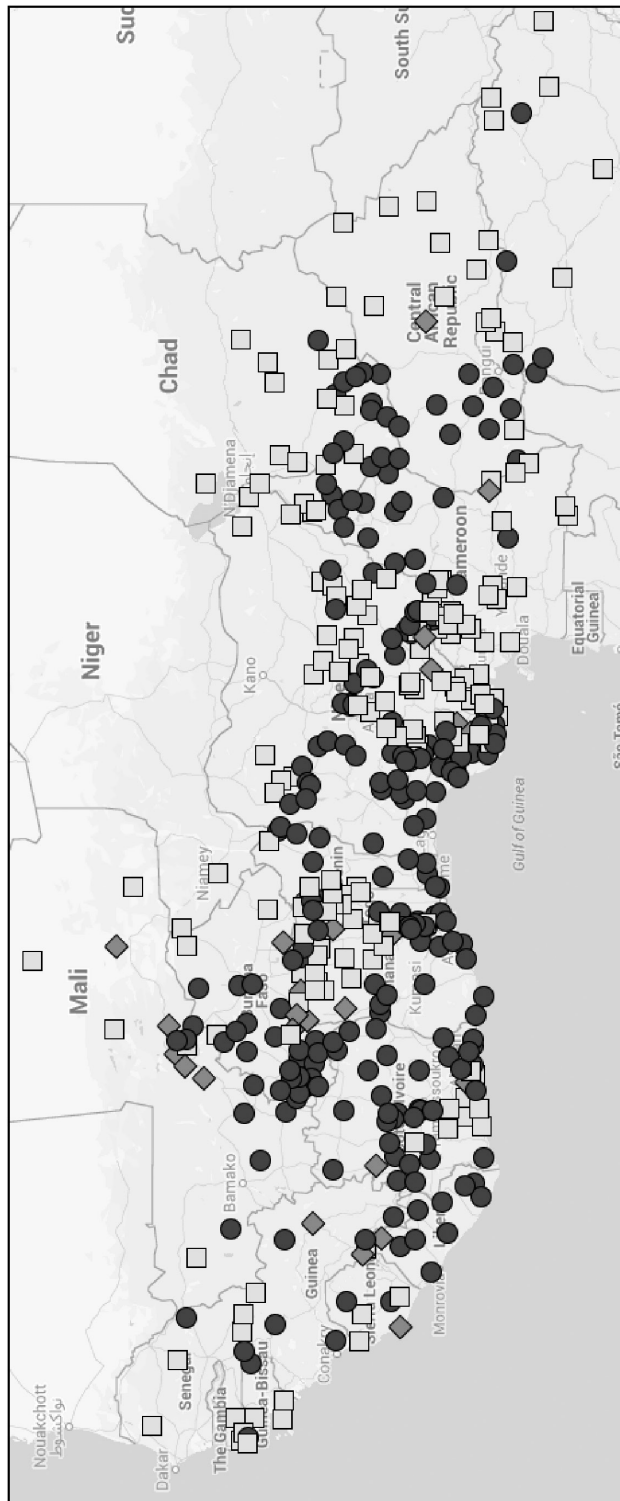
Map 9.1 Distribution of nasality – ● Has nasal vowels / □ No nasal vowels / ◇ Ambiguous

Contrastive nasal vowels are used as evidence for classifying the Sudanic Belt as a macro-area (Clements & Rialland 2008; Güldemann 2008). Within this area, however, oral vowel zones exist in a number of areas dominated by NC languages: among North Atlantic languages in Senegal, in Eastern Kru languages in Ivory Coast, among Gur and Kwa languages in northern Ghana, and among Benue-Congo languages in the Nigeria/Cameroon borderlands. This last area extends into the Bantu spread zone, which generally lacks nasal vowels. Incipient contrastive nasalization is found, however, in a small number of Bantu languages (Maddieson 2003:23), for example, Umbundu (Schadeberg 1982), Teke (Paulian 1975; Hombert 1987), and Bitam Fang (Medjo 1997:63–64).

Cross-linguistically, it is extremely common for the set of nasal vowels to be a subset of the oral vowels. This is true in most NC languages as well, for example, Esan [Edoid, Nigeria] has oral vowels /i e ɛ a ɔ o u/ but nasal vowels /ĩ ɛ̃ ã ɔ̃ ũ/. As seen in the scale in Table 9.10, based on Rolle (2015) the most common missing vowels are /ẽ õ/, supporting previous observations in Africanist literature, and aligning with wider typological and phonetic research.

For languages that have a full set of nasal vowel counterparts, these are disproportionately found at the transition zones between oral vowel and nasal vowel zones, suggesting recent transphonologization of *VN or *NV sequences as /Ṽ/. Still in some other languages, contrastive nasal vowels are marginal and found in only a few lexical items, for example, in Sango Véhiculaire (Moñino 1988), Gbaya-Mbodomo (L. Boyd 1997), and Biali (Sambieni 2005:25). Contrastive nasal vowels have been reconstructed for Proto-Mande (Vydrin 2012), in some stage following Proto-Kwa (Kropp Dakubu 2012:32), and Proto-Gbaya (Moñino 1995). Stewart (2000, 2002) speculates that nasalized vowels occurred as far back as his 'Proto-Potou-Akanic-Bantu'. However, the loss or gain of contrastive nasal vowels can be quite sudden.

Nasal vowels interact with nasal consonants in complex ways in NC. In a certain number of Mande, Kru, Kwa, Gur, and Benue-Congo languages, nasal vowels are contrastive but nasal consonants are not (Clements & Rialland 2008:47), a typologically unusual pattern. In these languages, nasal consonants are conditioned variants of oral consonants in the presence of a nasal vowel. An example is from Akan,

Table 9.10 Likelihood of nasal vowel counterparts to be absent

most likely to be absent	mid-close	>	+ATR low	>	near-high	>	mid-open	>	high and low	Least likely to be absent
	ẽ õ		ə̃		ĩ ũ		ɛ̃ ɔ̃		ĩ ũ ã	

where /b d/ become [m n] adjacent to nasal vowels (Schachter & Fromkin 1968:72):

(15)　　Underlying　Surface
　　　　/bã/　　　　[mã]　　'give'
　　　　/dã/　　　　[nã]　　'and'
　　　　/jã/　　　　[ɲ̃ã]　　'receive'
　　　　/wãdĩ/　　　[w̃ãnĩ]　'scrape'
　　　　/hũ/　　　　[h̃ũ]　　'fear'

This can be interpreted as a type of nasal harmony, which is extremely common in NC. In such harmony systems, nasality spreads from a sponsor onto other segments, subject to their ability to bear nasality and the presence of transparent and opaque segments. Nasal consonant harmony can take place even in the absence of contrastive nasal vowels. For example, in Yaka the perfective suffix deriving from Proto-Bantu *-ile* has a number of allomorphs, including height harmony and the variants -*ini*/ -*ene* when preceded by a nasal consonant earlier in the verb stem (Hyman 1995b:6–9):

(16)　a.　kúd-idi　　'chase (s. o.)'　　ték-ele　　'sell'
　　　　　kás-idi　　'attach'　　　　sób-ele　　'change'

　　　b.　tsúm-ini　　'sew'　　　　　kém-ene　'groan'
　　　　　kún-ini　　'plant'　　　　kóny-ene　'roll up'

　　　c.　mák-ini　　'climb'　　　　mék-ene　'try'
　　　　　míítuk-ini　'sulk'　　　　nók-ene　'rain'

The examples in (16c) show that the triggering nasal need not be in the immediately preceding syllable.

　　Finally, prenasalized stops occur in most Bantu languages, and are reconstructable at the Proto-Bantu stage (Meeussen 1967), for example, *búmb-* 'mould', *gènd-* 'go', *táŋg-* 'read'. Prenasalized stops are not particularly common in the rest of NC, although North Atlantic languages often have them, and they operate within the consonant mutation systems, for example, marking subject number agreement on verbs in Fula (Merrill 2013:6):

(17)　　singular　plural
　　　　war　　　mbar　　'kill'
　　　　rew　　　ndew　　'follow'
　　　　yolb　　njolb　　'be loose'
　　　　ʔand　　ngand　　'know'

As seen from such alternations, prenasalization can affect the realization of the consonant, for example, *w ~ mb, r ~ nd*. Besides having a stopping effect, prenasalization can also result in voicing, for example, Ciyao *lù-tèwù* 'beard', pl. *n-dèwù* (Ngunga 2000b:66). In fact, many languages only allow prenasalized voiced stops.

9.7   Tone

It is well known that NC languages, and African languages in general, tend to be tonal in Welmers's (1959:2, 1973:80) sense that pitch is a contrastive exponent of at least some morphemes. The prevalence of tone in diverse languages within the NC family supports a view where tone is reconstructed to PNC. Almost all NC languages are tonal, including controversial inclusions (Mande, Dogon, Ijoid). Non-tonal NC languages are geographically peripheral and are assumed to have lost their tone either through natural tone simplification processes (cf. Childs 1995b) and/or influence from neighbouring non-tonal languages (cf. Hombert 1984:154–155). This includes not only Swahili in the East, but also Northern Atlantic (Fula, Seereer, Wolof, etc.), Koromfé [Gur] (Rennison 1997:16), and (outside NC) Koyra Chiini [Songhay] (Heath 1999b:48), due to a possible effect of contact with Berber or Arabic, either directly or through Fula (Childs 1995b:200). There is one striking geographic exception: certain inland Bantu languages in Mozambique, Malawi, and Tanzania (e.g., Sena, Tumbuka, Nyakyusa) have lost the inherited Proto-Bantu tonal contrasts. As is the case with several of the other major properties considered in this chapter, tone is not limited to NC within Africa, rather it is a sub-Saharan African areal feature (see 9.15).

Beyond possessing the shared property of being tonal, NC languages show considerable variation in the specifics of the tone systems they exhibit. First, NC languages contrast anywhere from two to five tone heights, as in Dan [Mande] (Vydrin 2008:10):

(18)   Extra-high: kɑ̋ɑ̋   'scabies'
       High: káá   'you pl.' (present negative pronoun)
       Mid: kāā   'you pl.' (prospective aspect pronoun)
       Low: kàà   'scratch' (in conjoint construction)
       Extra-low: kɑ̏ɑ̏   'reed'

Second, some allow their tones to combine to form tonal contours, while others do not. Third, some have a tonal contrast on every tone-bearing unit, while in others tonal contrasts are limited to certain positions within the word or phrase. Fourth, NC languages differ in the extent to which they exploit tone for the purpose of distinguishing lexical versus grammatical morphemes. It is quite rare for a tonal NC language to have only grammatical tone, as in Chimwiini (Kisseberth & Abasheikh 2011:1992), or to not contrast tone on nouns. However, a number of NC languages do not have a tonal contrast on verb roots, for example, Kisi [Atlantic] (Childs 1995a:171–194), Konni [Gur] (Cahill 2000:), Kulango [Gur] (Elders 2008:75), Cicipu [Kainji] (McGill 2009:133), Zande [Ubangi] (R. Boyd 1995), and all of Edoid (Elugbe 1989:299), not to mention many Narrow Bantu languages such as Kimatuumbi (Odden 1998:190), where tones are assigned by the inflectional morphology (tense-aspect-mood-negation). Most NC languages

exploit grammatical tone at least for this latter purpose, for example, marking tense/aspect (as in two of the above Dan examples). Finally, NC languages differ in the extent to which phrasal tones are affected by syntactic configurations: In some languages there may be special rules that apply within certain prosodic domains, for example, the phonological phrase, or in specific contexts, for example, the associative (possessive) construction, as in Igbo (Welmers 1963:441–442):

(19) a. ìtè 'pot', ànyí 'our' → ìté ↓ányí 'our pot'   from: /ìtè + ´ + ànyí/

     b. ìtè 'pot', àtó 'three' → ìtè àtó   'three pots'

     c. ìtè 'pot', àtó 'three' → ìté ↓átó   'third pot'   from: /ìtè + ´ + àtó/
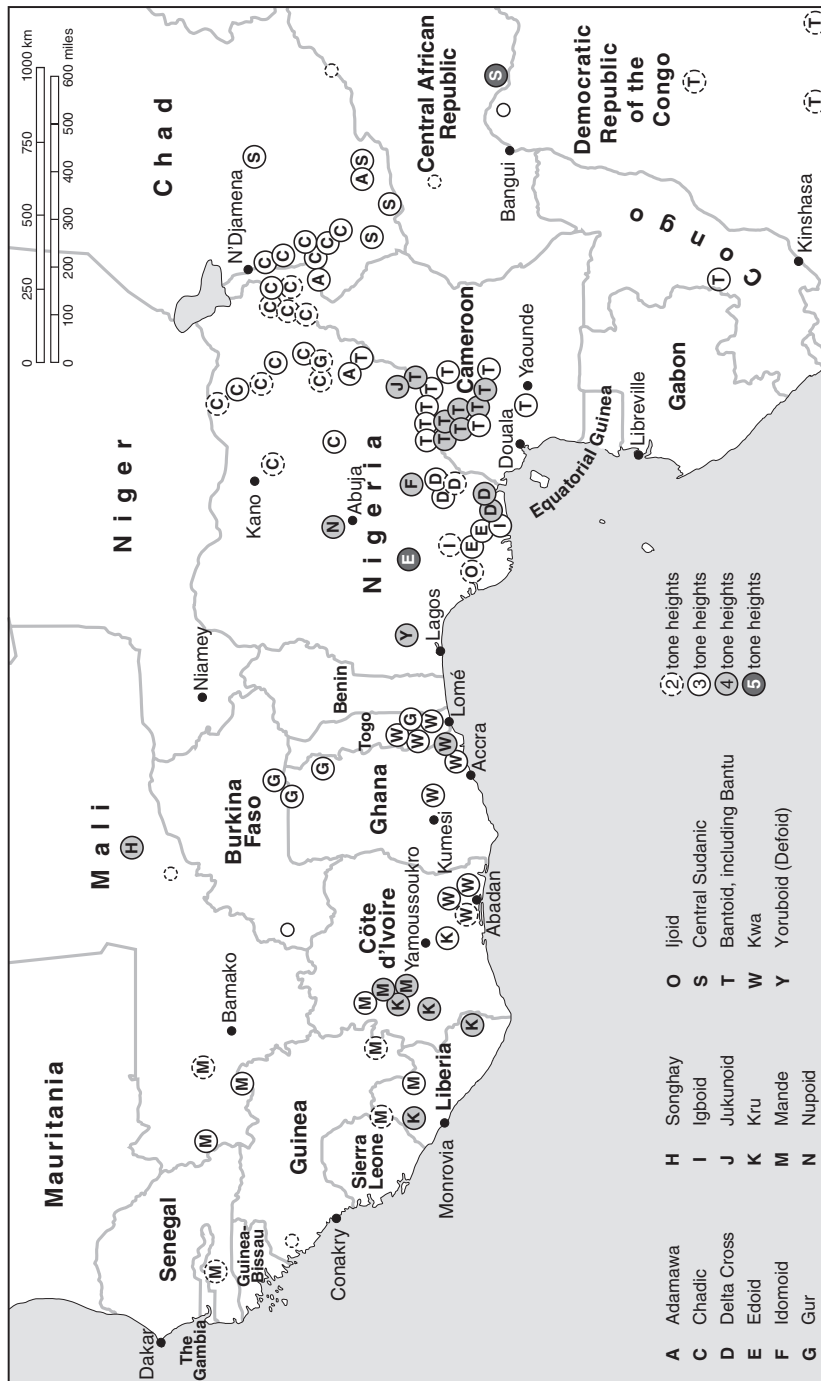
In (19a) the L-L noun 'pot' becomes L-H, and the L-H pronoun becomes ↓H-H, a sequence of two high tones realized on a downstep. As shown to the right, these changes are caused by a H 'associative' tonal morpheme which marks the relation, hence 'pot of us' (see 9.9). The H tonal morpheme is lacking in the noun + numeral construction in (19b), and therefore no tonal change takes place. When the associative morpheme occurs between the noun and numeral, as in (19c), the meaning is 'third pot', where 'pot' is 'associated' with the number 'three'. The Igbo examples in (19a, c) also highlight another tonal property: languages may have downstepped tones or not. While the most common contrast is restricted to H-H versus H-↓H sequences, languages have been reported that contrast H versus ↓H after L, as well as downstepped L and M tones, particularly, but not exclusively, in Grassfields Bantu (Hyman 1979).

The above variations in tonal properties are not randomly distributed within NC, but may depend on either genetic or areal factors. Drawing from a database of 662 tonal languages compiled by the first author, 243 of which are spoken in Africa, we discuss in the following subsections how each of the above tonal features is distributed within Africa.[1]

9.7.1 The Number of Surface Tone Heights

NC languages vary in the number of non-contour tones in their surface tone inventory. For the purpose of comparison, surface tones were encoded in order to avoid differences of analysis which could affect the number of claimed underlying tones. This surface-based count includes downstepped tones as constituting distinct surface levels. As seen in Map 9.2, which also includes West African non-NC languages, several micro-areas within Africa are defined by the number of level tones distinguished in the surface tone inventories (cf. Clements & Rialland 2008:73).

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[1] The tonal systems were entered with a numerical system we designed to encode equivalencies across distinct traditions of tonal orthographic representations. This coded database allowed us to explore the distribution of numerous tonal sub-features, including the number and identity of level tones, downsteps, and contour tones, as well as the direction of contour tones.

Map 9.2 Number of surface contrastive tones in West African languages

Legend:

A Adamawa
C Chadic
D Delta Cross
E Edoid
F Idomoid
G Gur
H Songhay
I Igboid
J Jukunoid
K Kru
M Mande
N Nupoid
O Ijoid
S Central Sudanic
T Bantoid, including Bantu
W Kwa
Y Yoruboid (Defoid)

(2) tone heights
(3) tone heights
(4) tone heights
(5) tone heights

Countries and places labelled on the map: Mauritania, Senegal, The Gambia, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Mali, Burkina Faso, Côte d'Ivoire, Ghana, Togo, Benin, Niger, Nigeria, Chad, Cameroon, Central African Republic, Equatorial Guinea, Gabon, Congo, Democratic Republic of the Congo; Dakar, Conakry, Monrovia, Bamako, Niamey, Yamoussoukro, Abidan, Kumesi, Accra, Lomé, Lagos, Abuja, Kano, N'Djamena, Yaounde, Douala, Libreville, Bangui, Kinshasa.

Scale: 0–1000 km; 0–600 miles.

Despite the fact that such a high proportion of African languages have tone, there are subgroups of languages that pattern together based on the number of distinct surface tones. As seen in Map 9.2, language families for each of the 243 languages surveyed are represented with letters. As also indicated in the legend, each letter is shade-coded for the number of surface level tones. Although truncated on the map, two-toned languages are the most common south of the Macro-Sudan Belt (Güldemann 2008), where most Bantu languages are spoken. Taking a closer look at the Macro-Sudan Belt itself, we see additional areas of similarity. For example, the languages spoken near Lake Chad tend to have 2–3 tone levels, while those in the Kru-Mandesphere and in the Nigeria-Cameroon borderland area tend to have 3–4, occasionally more.

9.7.2   Additional Tonal Inventory Features

Using the same database, we considered other tonal features as well, including the identity of tones in three-tone-height languages, whether each language has a mid or downstepped tone, and the number and identity of contour tones in each language. The (non-)intersection of these additional features provides extra evidence for certain areal patterns across Africa. For example, languages like those in the Kru-Mandesphere, which tend to have high numbers of level and contour tones also tend to lack downstep. Also, perhaps expectedly, languages with a higher number of level tones potentially have more contour tones. In addition to making generalizations about tonal features and whether they pattern together, we can also propose micro-areas of contact and spread based on the distribution of tonal features. These include (a) the area south of Lake Chad, which shows three level tones, usually low, mid, and high, but tends to lack contours and downstep; (b) the Nigeria/Cameroon border, where there tend to be more surface level tones and contours than in closely related Bantu languages in Southern Africa, and where there tends to be at least one downstepped tone; (c) the Ghana/Togo/Burkina Faso cluster where there are often three surface level tones, including downstep, but where there is a lack of contour tones; (d) the southern part of the Mandesphere, where there are many surface level tones and contours, including complex contour tones.

The Mandesphere is made up primarily of Mande and Kru languages, though Atlantic, Gur, Kwa, Dogon, and non-NC Songhay are also interwoven into this area. The working hypothesis of Vydrin (2002) is that Proto-Mande had two level tones. Proto-Kru, however, is reconstructed with four level tones (Marchese 1979; Marchese Zogbo 2012). Those Mande languages geographically situated nearest to Kru tend to have larger tonal inventories

than those further north. These distributional findings are consistent with Vydrin's (2009) findings, where he uses the number of tonal heights, in addition to a number of other linguistic features, to show that there is a micro-area of linguistic features where Mande languages come into contact with Kru. Thus, in Ivory Coast, the Mande languages Toura and Dan, which border Kru languages, have 4 and 5 tone heights, respectively. Moving slightly farther north away from Kru languages, however, the Mande language Maḥou has only 3 surface tone heights.

9.7.3   The Function of Tone

As mentioned above, tone can have either a lexical or grammatical function. Like many tonal languages cross-linguistically, tone typically differentiates lexical items in NC, as well as in African languages in general. In Guébie, a four-height Kru language of Ivory Coast (Sande 2017), tones are marked with numbers 1–4 where 4 is high. The following examples show tone distinguishing lexical morphemes:

(20)   a. si^2 'trees'   b. nə^2 'mouth'
          si^3 'laugh'   nə^{41} 'hole'
          si^{31} 'snails'   nə^{31} 'curse'
          si^{23} 'sweep'   c. gbala$^{3.4}$ 'climb'
          si^{32} 'dry'   gbala$^{4.4}$ 'sew'

However, in the same language, tone can play a grammatical role. Still in Guébie, (21) shows that tonal marking on the verb differentiates perfective from imperfective aspect:

(21)   a. e^4 li^3 ɟa^{31}
             1.SG   eat.PFV   coconuts
             'I ate coconuts'

         b. e^4 li^2 ɟa^{31}
             1.SG   eat.IPFV   coconuts
             'I eat coconuts'

Interestingly, in the neighbouring Mande language Gban, a similar grammatical distinction is realized on the tense auxiliaries which index the subject's person and number (Zheltov 2005:24), which can be nicely captured with tone features:

(22)

	Present		Past		
	SG	PL	SG	PL	
1st pers.	ĩ^2	u^2	ĩ^4	u^4	[+upper]
2nd pers.	ɛɛ^2	aa^2	ɛɛ^4	aa^4	
3rd pers.	ɛ^1	ɔ^1	ɛ^3	ɔ^3	[-upper]
	[-raised]		[+raised]		

In other languages tone has been found to mark person, tense, negation, transitivity on the verb, and singular-plural distinctions on the noun, for example, Noni [Bantoid; Cameroon] (Hyman 1981:10):

(23)   bìe   'fish'   pl.   bíe   (L vs. H)
        bìē   'goat'   pl.   bīe   (LM vs. M)

In addition to the above morphological function, tone may interact with the syntax or information structure (see 9.14). The presence of tone does not preclude important interfaces with intonation (see Downing & Rialland 2016).

9.8   Noun Classes

One of the most notable features of NC languages as a whole is their systems of noun classification. Some form of noun class system is found in the majority of NC languages, and noun classes have traditionally been cited as one of the defining features of the phylum, for example, 'this feature was and is the best non-lexical diagnostic for genealogical classification in the Niger-Congo domain since Westermann 1935' (Güldemann 2011:131). In this section we will first examine what are often thought of as 'typical' NC noun class systems, before briefly surveying the rather impressive diversity of systems encountered within the phylum as a whole.

Discussion of NC noun class systems inevitably begins with Narrow Bantu languages, being the best studied and most commonly cited. Proto-Bantu (cf. Meeussen 1967) made use of around 20 noun class prefixes obligatorily marked on the noun itself, a system kept generally intact in most of the descendant languages. Elements agreeing with the noun (adjectives, verbs, etc.) also take a class-appropriate prefix, the form of which is for some classes somewhat different from that seen on the noun itself. An illustrative example of class agreement from Herero [Namibia] (Möhlig & Kavari 2008:209) is seen in (24).

(24)   oka-tí   oka-ṱíṱí   k-á-kóyóka
        12-stick   12-small   12.SUBJ-IMPERF-be.broken
        'the small stick is broken'

Most classes are grouped into a default singular/plural pair, as indicated in Table 9.11. However, individual nouns can make use of non-default singular/plural pairings, and some classes serve double duty as a both a singular/mass and plural class. For example, class 6 *ma-* is both the plural of class 5 and the class for liquids, and class 14 *bú-* is used for abstract

Table 9.11 Proto-Bantu noun class prefixes

sg. classes			pl. classes		locative classes	
1	*mʊ̀-	———	2	*bà-	16	*pà-
3	*mʊ̀-	———	4	*mɪ̀-	17	*kʊ̀-
5	*ì-	———	6	*mà-	18	*mʊ̀-
15	*kʊ̀-					
7	*kì-	———	8	*bì-		
9	*Ǹ-	———	10	*Ǹ-		
11	*dʊ̀-	———	13	*tʊ̀-		
12	*kà-	———	14	*bʊ̀-		
19	*pì-					

concepts (e.g., *bʊ̀-ntʊ̀ 'humanity') in addition to being a diminutive plural class. Schadeberg (2011) cites this 'conflation' of class and number as a defining characteristic of NC languages more broadly. For several classes, one can identify a prototypical semantic field that the class marks: classes 1/2 *mʊ̀-/bà- for people, 3/4 mʊ̀-/mì for plants, 9/10 *Ǹ-/Ǹ- contains many animals, and so on. However, the semantic membership of most classes is not particularly strict, and often the class of a noun will differ even among very closely-related languages. A common feature of Bantu languages and other NC languages with similar class systems is the possibility of a single root appearing in multiple classes with different but related meaning. This is often a productive way of forming diminutives, augmentatives, and evaluatives of various sorts, for example, Lusoga ò-mú-tì 'tree' (cl. 3) → à-ká-tì 'small tree' (cl. 12), ò-gú-tì 'big tree' (cl. 20), è-cí-tì 'short, fat tree' (cl. 7), ò-lú-tì 'tall, thin tree', é-í-tì 'abnormal or defective tree (e.g., diseased, ugly-looking)' (cl. 5) (L. Hyman, personal notes).

Outside of Bantu, we find many examples of typologically similar noun class systems, not only in the Benue-Congo languages (those most closely and demonstrably related to Bantu), but also within much more distant families. The noun class systems of Joola Eegimaa and Temne (Atlantic) in Table 9.12 function in basically the same way as in Bantu, even though the class markers themselves are in most cases not obviously cognate with the Bantu markers.

This typological profile of noun classification – namely, a rather large inventory of classes marked by obligatory prefixes on the noun and agreeing elements – is often taken as proto-typical for NC, and is assumed by many scholars (e.g., Schadeberg 2011) to have existed in much the same form in a putative proto-language. However, when taken as a whole, there is a rather impressive typological range of noun class systems within NC, many of which do not fit this typological profile, especially outside of Benue-Congo.

Table 9.12 Joola Eegimaa and Temne noun class prefixes

Joola Eegimaa (Sagna 2010)		Temne (Schlenker 1864)	
sg. classes	pl. classes	sg. classes	pl. classes

Joola Eegimaa sg.	Joola Eegimaa pl.	Temne sg.	Temne pl.
a-	bug-	i-/a-	maŋ-
	e-	ta-	ma-
e-	su-	a-/ŋa-	ε-/yε-/ya-
fu-	gu-		trə-
ju-	mu-	da-/ra-	na-
bu-/ba-	u-	kə-	pə-
ga-		o-/u-	a-/ŋa-
ñu-/ña-		ɔ-/u-	

locative classes	collective classes	locative classes	
t-	ba-	ro-/do-	
d-	fa-	ra-/rə-	
n- (temporal)	mu-		
	ma-		

The position of the marker itself is subject to widespread geographical variation. While prefixes are overall more common, noun class suffixes are found in many families including Gur, Kru, Bantoid and a number of languages within Atlantic such as Fula (Arnott 1970) and Kisi (Childs 1985). Languages that make use of both suffixes and prefixes are common in Atlantic, including Mbulungish, Baga Mboteni, and the Bullom languages (Sapir 1971). In some languages like Wolof and the Cangin languages within Atlantic, noun classes are marked only on agreeing elements. In these languages, marking on the noun is either entirely absent, or only identifiable as an inert historical vestige, 'fossilized' on certain nouns. The number of classes varies widely across languages. Some have rather more than Bantu, like the Bainunk languages (Cobbinah 2013) and Kobiana (Voisin 2015) within Atlantic, each with over 30. But most have less, sometimes significantly so: nine in Kisi (Childs 1985), five in Palor (D'Alton 1983). The conflation of number and noun class is not a feature of all NC languages. Often, as in many Atlantic languages, number is a grammatical category distinct from noun class. Furthermore, some languages do not possess a particularly large number of plural classes – Wolof has only two plural versus eight singular classes, and Fula has three for its fifteen singular classes (ignoring diminutives and augmentatives). The degree to which elements agree with the noun also differs greatly from language to language. Some languages like the Northern Atlantic group (including Wolof and Fula) show no verbal agreement with noun class. Agreement within the noun phrase is more common, but can be lacking entirely as in Dagbani (Gur) (Olawsky 2004), which distinguishes nine distinct suffixes only on nouns (and adjectives, which

are nouns). A number of languages show no noun class system at all, most notably in Mande and Ijoid, subgroups whose NC status has been questioned (Dimmendaal 2011:320, 323).

Much of this typological diversity could be explained as the result of the erosion of an originally Bantu-like system, and this certainly did occur in a number of families (see Good 2012). However, especially at the highest levels of the phylum, it is far from certain that such a system was original, given the typological diversity of the modern class systems. One oft-proposed idea (e.g., Kießling 2013) is that some or all of these systems originated as a system of noun classifier or numeral classifier words, becoming grammaticalized in different ways in different families. This could explain not only some of the typological variation, notably prefixes versus suffixes, but also the apparent non-cognacy of many of the markers among more distantly related families. Nonetheless, some particular class markers have an extremely wide distribution, such as the personal plural *ɓa and liquid *ma, both of which are found across Atlantic as well as Bantu, and in many families in between. Needless to say, this heavily suggests the presence of some system of noun classification at the earliest stages of NC. The relevant questions concerning PNC noun classes are the following: How many? How semantically coherent were they? How were they realized (prefixes, suffixes)? How do they correspond in the daughter languages and groups? With respect to this last question, there continues to be interest in explaining how and why the Narrow Bantu nasal N (V)- prefix classes correspond to non-nasal (C)V- in most non-Bantu NC languages. Even within Narrow Bantu, the agreement markers closely resemble the noun prefix shapes (and tones) found on nouns outside of Narrow Bantu, for example, class 3 noun prefix *mù- versus agreement prefix gù-, class 4 noun prefix mì- versus agreement prefix gí-, and so on. For overviews and different views, see Hyman (1981, 2017), Miehe (1991), and references cited therein. Surveys of noun class systems in different NC subgroups include de Wolf (1971) for Benue-Congo, Creissels and Pozdniakov (2015) for Atlantic, and Miehe and Winkelmann (2007, 2012) for Gur, many of whose noun classes are identified – even by number – with those found in Bantu.

9.9   The Noun Phrase

As outlined in Heine (1976), African languages vary considerably in the structure and order of elements within the noun phrase. In all NC languages a noun can be modified or expanded by a possessive pronoun or full noun phrase, a demonstrative, and/or numeral. The word order can vary considerably. In some head-final languages such as Kalabari [Ijoid; Nigeria] (Harry &

Hyman 2014), all modifiers precede the noun except for the plural marker, the definite marker, certain higher numerals, and the quantifier 'all':

(25) a. PossN + N   tʊ̀ɓɔ̀ námà   'the child's animal/meat'
          PossPro + N   ì ná˩má   'my animal/meat'
          Determiner + N   mí nàmá   'this animal/meat'
          Numeral + N   sɔ́ná nàmà   'five animals'

      b. N + Plural   námá áméɛ̀   'animals'
          N + definite   námá mɛ́   'the animal/meat'
          N + quantifier   námá mámgbà   'all the animals/meat'

At the other end of the spectrum – and much more common in NC – are languages where most or all modifiers follow the head noun. Such is the case in many Bantu languages such as Luganda (Ashton et al. 1954):

(26) a. N + PossN   ènnyámá yá ómwáàná   'the child's meat'
          N + PossPro   ènnyàmá yààngé   'my meat'
          N + Demonstrative   ènnyàmá ènó   'this meat'
          N + Numeral   ènnyàmà ttáànó   'five meats'
          N + Adjective   ènnyámá émbísì   'raw meat'
          N + quantifier   ènnyàmà yònnâ   'all the meat'

      b. 'every' + N   bùlì ǹnyámá   'every meat'

While Bantu languages sometimes allow preposed modifiers, especially demonstratives (van de Velde 2005), possessive pronouns and 'every', for example, *bùlì* in Luganda, it is sometimes hard to tell if these are appositional ('this one meat', 'mine meat', etc.) or true modifiers (Rijkhoff 2002:272–276). The situation is much clearer in the obligatorily mixed noun phrase word order which obtains in a wide range of West African NC languages, particularly in Cameroonian Bantu (Mous 2005b) and the Mandesphere. In these languages possessives and at least some determiners precede the head noun, while other modifiers (e.g., numerals, adjectives) follow. This is illustrated below from Tommo So [Dogon; Mali] (McPherson 2014:58–59):

(27) a. gàmmà gém   'black cat'
          gàmmà nɔ́   'this cat'
          gámmá tàành́ú   'three cats'

      b. gámmá ḿmɔ   'my cat'

      c. mí bábé   'my uncle'

      d. íí=gɛ gàmmà   'the child's cat'
          íí=gɛ bàbè   'the child's uncle'

The expected noun-modifier order is observed in (27a) involving an adjective, a demonstrative, and a numeral. The other examples are complicated

by the fact that Tommo So makes an alienable/inalienable distinction found especially in the Mandesphere. With an alienable noun, the possessive pronoun follows, as in (27b), while the possessive pronoun precedes an inalienable noun such as the kinship term in (27c). Possessive nominals precede both alienable and inalienable nouns, as in (27d). As (27b, c) also show, it is common for possessive pronouns to have different forms when modifying alienable versus inalienable nouns. Thus compare the following possessed 'free' versus 'relational' nouns from Liberian Kpelle [Mande; Liberia], slightly modified from Welmers (1969:74):

(28)   péré 'house' (free)   pólù 'back' (relational)
        'my'   ŋá péré-í   ḿ-bólù
        'your sg.'   í péré-í   í pólù
        'his/her'   ŋà péré-í   `bólù
        'our'   kú péré-í   kú pólù
        'your pl.'   ká péré-í   ká pólù
        'their'   `dí péré-í                    `dí pólù

Not only are the pronouns different in the first and third person singular forms, but only Welmers's 'free' nouns can take the -í specific suffix: *ŋá péré-í* 'my house', *ŋá péré* 'a house of mine', *ḿ-bólù* (*-í) 'my back'. The voicing of the /p/ of /pólù/ 'back' is due to a preceding nasal prefix which drops out in the L tone third singular form. The nasality is however kept when the initial consonant is a sonorant, for example, *lēē* 'mother', *ǹēē* 'his/her mother'. The Kpelle forms have a parallel in *ka* versus Ø marking in Bambara, a language of the Manding Group of Western Mande (examples from Welmers 1963:436, as modified by Valentin Vydrin, personal communication):

(29)   'Free' nouns   'Relational' nouns
        ń ká bón   'my house'   ń bólo   'my hand'
        cè ká bón   'the man's house'   cè bólo   'the man's hand'
        à ká fìni   'his cloth'   à dén   'his child'
        mùso ká fìni 'the woman's cloth'   mùso dén   'the woman's child'

While only a minority of NC languages make a free/relational or alienable/ inalienable distinction, many if not most show at least traces of so-called associative markers when connecting nominals. Welmers exemplifies the pervasive Bantu *-a* with Swahili examples *ki-pande ch-a nyama* 'piece of meat', *nyumba y-a udongo* 'house of stone', *ma-ji y-a chumwi* 'salt water' (water+assoc.+salt), *m-tu w-a Utete* 'a person from Utete', which show that associative *-a* fulfils typical genitive functions. It should be noted that certain NC languages have introduced nouns meaning 'thing' or 'unit' into associative constructions, sometimes to emphasize the possessor, for example, Igbo *ìtè ḿ ~ ìtè ǹkè ḿ* 'my pot' (cf. *ǹkè ḿ* 'mine') (Emenanjo 1987:93). Only a small number of NC languages have been reported with numeral classifiers, the most extensively documented being Kana [Cross-River; Nigeria] (Ikoro 1994).

While possessives, demonstratives, and numerals are universal, not every NC language has article-like determiners or an easily identifiable class of adjectives. Luganda stands at one end of the spectrum in both regards. First, there is the augment known also as the initial vowel or prefix in Bantu studies, where it has various functions (de Blois 1970; Hyman & Katamba 1993): *è-kí-tábó* 'a/the book' versus *kì-tábó* 'it's a book' (see also 9.14). While some NC languages have only a restrictive set of adjectives, for example, exactly eight in Igbo, falling into four groups of opposites (Welmers & Welmers 1969:321): *ọ́má* 'good', *ọ́jọ́ꜜọ́* 'bad', *ójíꜜí* 'black, dark', *ọ́cá* 'white, light', *úkwú* 'large', *ńtà* 'small', *ọ́húꜜrụ́* 'new', *ócyè* 'old', Luganda has a more extensive set of underived adjectives, including the eight in Igbo (Ashton et al. 1954:161). In addition, Luganda productively derives adjectives from verbs: Many transitive verbs produce a past participle-like adjective by adding the final vowel *-e,* while intransitives form a present participle-like adjective by adding *-u* (with labiodentalizing of the preceding obstruent): *-fuk-* 'pour' → *-fúk-è* 'spilt, poured'; *-guy-* 'deceive' → *-guy-ê* 'deceived, beguiled'; *-búùb-* 'mould'→ *-búùmb-è* 'moulded' versus *-jeem* 'rebel, revolt' → *-jéém-ù* 'rebellious'; *-tamiir-* 'get drunk' → *-támììv-ù;* 'drunken'; *-kólòòngok-* 'be slender, thin' → *-kólòòngòf-ù* 'long and slender' (Snoxall 1967).

We have already mentioned possessive pronouns in the context of free versus relational nouns. While most NC languages have distinct forms for the six person-number combinations, a few have inclusive and exclusive first person plural forms. Others may merge two of the plural pronouns in at least certain functions. As mapped out by Güldemann (2003a; 2008:154), there is a wide area in his Macro Sudan Belt where logophoric pronouns are found. Noni [Bantoid; Cameroon] not only has distinct singular and plural logophoric pronouns used in reported speech ('the child$_i$ said that *s/he$_i$* fell'), but also a contrast between singular non-logophoric co-referential versus non-co-referential pronouns (Hyman 1981:15, 20).

Finally, a number of NC languages, especially Bantoid and Northwest Bantu, but also Southern and South-Western Mande (Vydrin 2010b), have what Cysouw (2009:182) terms 'incorporative pronouns'. The most elaborate such system may be Medumba [Bantoid; Cameroon] (Déchaine & Keupdijio 2016). In this language the oblique or independent pronouns are

Table 9.13 Noni pronouns

	1sg	2sg	3sg$_j$	3sg$_i$	LogSg	1pl	2pl	3pl	LogPl
subj/obj	mē	wɔ̀	wvù	—	wēn	bèsèn	bèn	bɔ́	bɔ̀wēn
cl. 1 poss.	wɛ̀m	wɔ̀	wè	—	wēn	wèsèn	wènè	(wù)bɔ̀	bɔ̀wēn
cl. 2 poss.	bɛ̄m̀	bōẁ	bêw	bêŋ	bɔ̄-wēn-ɛ́	bɔ̀sɛ́sèn	bɔ̀nɛ̂n	bɔ̄bɔ́ɔ́lɛ̀	bɔ̄-bɔ̀wēn-ɛ́
cl. 7 poss.	kɛ̄m̀	kōẁ	kêw	kêŋ	kē-wēn-ɛ́	kèsɛ́sèn	kènɛ̂n	kēbɔ́ɔ́lɛ̀	kē-bɔ̀wēn-ɛ́

Table 9.14 Independent incorporative pronouns in Medumba

2sg			2pl			3sg			3pl		
1sg +	mɔ̀-	bɔ́g	-ù	mɔ̀-	bɔ́g	-à-bín	mɔ́-	bɔ́g	-yí	mɔ̀-	bɔ́g	-à-bú
1pl +	(*bɔ́g)	bɔ́g	-ù	bɔ́g-	bɔ́g	-à-bín	bɔ́g	bɔ́g	-yí	bɔ́g-	bɔ́g	-à-bú
2sg +							ù-	bîn	-yí	ù-	bín	-à-bú
2pl +							bín-	bîn	-yí	bín-	bín	-à-bú
3sg +							yí-	bû	-yí	yí-	bú-	-à-bú
3pl +							(*bú-)	bû	-yí	bú-	bú-	-à-bú

mɔ̀ '1sg', *ù* '2sg', *yí* '3sg', *bɔ́g* '1pl', *bín* '2pl', and *bú* '3pl'. In the independent incorporative pronouns in Table 9.14, the above plural pronouns form the base that determines the overall (plural) person to which additional singular or plural component pronouns can be compounded, for example, me-we-you sg., you sg.-you pl.-them. The apparent uniqueness of Medumba is the tripartite structure of such pronouns. In neighbouring languages the first column would not be present. A form such as *bɔ́g-yí* (we-him/her) is necessarily dual, i.e., 'him/her and me', while a form such as *bɔ́g-à-bú* (we-them) would be ambiguous between 'them and us', 'them and me', and 'him/her and us'. In Medumba there are more possibilities to disambiguate the person and number of the parts, but obligatorily with the plural pronoun in the middle.

9.10 Verb Extensions

Two properties of NC that are often considered together are noun classes and the derivational suffixes known as verb extensions (causatives, applicatives, etc.). This can be seen, for example, in Williamson and Blench's (2000) tabular summary of each sub-branch. One difference, however, is that noun classes are almost strictly limited to NC, while extensions occur in all four of Greenberg's (1963) African language phyla (Dimmendaal 2000a:187–188). Since such extensions are typically short, consisting of one or two segments, and often resemble each other even across unrelated language families, it is sometimes difficult to establish cognacy. Still, Table 9.15 presents an early attempt by Voeltz (1977) to propose reconstructions at the PNC stage. Even though Voeltz's proposals are tentative, it is clear from Table 9.15 that the extensions shared by Proto-Bantu and distant Moore have to be reconstructed at a level that includes Benue-Congo and Gur (see also Elders 2007b). Further efforts to reconstruct at the PNC level have been hampered by the fact that several of the subgroups do not have verb extensions, while others have extensions that may or may not be cognate to those found in Proto-Bantu. For example, the causative extension has [l],[ɗ] or [n] or [nd] in several North Atlantic languages,

Table 9.15 Possible Niger-Congo verb extensions

	Proto-Niger-Congo (Voeltz 1977)	Proto-Bantu (Meeussen 1967)	Moore (Gur) (Canu 1976)
applicative	*-de	*-ɪd- [-ɪl-]	-d 'locatif'
causative	*-ci, *-ti	*-ic-i- [-is-]	-s 'causatif'
contactive	*-ta	*-at-	
passive	*-o	*-ʊ-	-b 'être dans un état'
reciprocal	*-na	*-an-	
reversive (tr.)	*-to	*-ʊd- [-ʊl-]	
reversive (intr.)	*-ko	*-ʊk-	-g 'inversif'
stative/neuter	*-ke	*-ɪk-	
stative/positional	*-ma	*-am-	-m 'positionnel'

e.g., Sereer -*and*, Wolof -*al* (Becher 2000:31), while the more Bantu-looking Fula/Sereer -*it*- and Noon/Ndut -*is*- instead have reversive and intensive functions. While the Bantu applicative *-ɪd- has multiple functions marking benefactives, recipients, locatives, circumstantials ('for some reason') and sometimes instruments, the situation can be quite different in other sub-branches. Thus, Atlantic languages typically differentiate between benefactive/recipient and circumstantial extensions, for example, Ndut -*id́*- versus -*aʔ*- (Becher 2000:31), while Kordofanian languages distinguish benefactive/recipient and locative/applicative extensions, for example, Koalib – *(V)ccÉ* versus *(V)t̪À*, the latter having spatial, but especially male-factive readings (Quint 2010:297). Atlantic and Kordofanian languages are particularly rich in extensions, having also ventive (towards the speaker) and itive (away from the speaker) suffixes, often lacking in other sub-branches. What this suggests is that the proto language might have had a quite different system from Proto-Bantu, perhaps with more distinctions rather than fewer.

The extensions in Table 9.15 all have in common that they are valence-related. Some license an additional argument or other constituent, for example, locative, circumstance, while others demote or otherwise remove an argument, such as the passive. The 'stative' or 'neuter' extension is better identified as a 'decausative' (Creissels et al. 2008:314n). NC languages that have a valence-increasing applicative extension that licenses a benefactive or recipient argument will typically allow unmarked double objects, as in the following Luganda examples (L. Hyman, personal notes):

(30) a. à-fúúmb-á   ómúpúùngá   'he is cooking rice'
          3SG-cook-INFL   rice

      b. à-fúúmb-ír-á   ábáànà   òmùpúúngá
          3SG-cook-APPL-INFL   children   rice
          'he is cooking rice for the children'

The causative may also increase the valence:

(31) a. à-ly-á   òmùpúùngá   'he is eating rice'
          3sg-eat-INFL   rice

      b. à-lí-ìs-á   ábáànà   òmùpúùngá
          3SG-eat-CAUS-INFL   children   rice
          'he is feeding the children rice'

Such languages typically have only a few ditransitive verbs that can take two unmarked objects without an applicative suffix. This seems always to include the verb 'give'.

NC languages vary considerably in the status that they accord to verb extensions. At the one extreme, many NC languages allow for multiple 'stacking' of verb extensions:

(32) a. Sereer [Atlantic; Se
          a   up -t -ik -t
          3p.SM bury-REV-GOA
          'they'll go unbury

      b. Cicipu [Kainji; Nig
          zzá   nnà ù- tób
          person REL 3SG-cool
          'the person who h
          and iterative fashi

      c. Moro [Kordofanian
          ow:a   g -ubəð -i
          woman SM.CL -run
          'the woman was m

> [ideally: align interlinear glosses as follows]
> a   up -t -ik -t   -ir -oox -k -a apeel
> 3p.sm bury-rev-goal-inst.appl-rec-rfl   -fut-infl shovels
> zzá   nnà ù- tób -ìl -ìs -ìs -u-wò -wò-nò mu sháyì
> person rel   3sg-cool-pl-caus-caus-v-anticaus-appl-perf =1sg tea
> ow:a   g -ubəð -i -tʃ -ən -ə´ -ŋó
> woman sm.cl -run   -caus -appl -pass -perf -3sg.om
> tu-né-mu-ndi-syá-tá-sya-ya -ba -king -ul -ir -a -is -i -á ky-ô
> we-tense/aspect complex   -them-close -rev-appl-rec-caus-caus-infl it

      d. Kinande (Bantu) [Bantoid; DRC] (Philip Mutaka, pers. comm to Nurse
          & Philippson 2003b:9)
          tu-né-mu-ndi-syá-tá-sya-ya -ba -king -ul -ir -an -is   -i   -á =ky-ô
          we-TENSE/ASPECT COMPLEX- them-close-REV-APPL-REC-CAUS-CAUS-INFL it
          'we will make it possible one more time for them to open it for each other'

The linear order of such stacked extensions has received considerable recent attention, particularly in Bantu (Hyman 2003b; Good 2005, 2007; McPherson & Paster 2009, among others). The results point to a conflict between fixed ('templatic') orders versus order determined by the relative scope of the different extensions – or even phonological considerations (Hyman 2010).

At the other extreme, a language may have only one or two extensions, which may not be productive. Often original valence-related verb extensions evolve into aspectual suffixes (Gerhardt 1988:5), for example,

marking various types of pluractionality, as in Babanki [Grassfields Bantu; Cameroon] (Akumbu 2008; Harriet Jisa, personal notes):

(33)   tsɔ́ʔɔ́   'jump' →   tsɔ́ʔ-mɔ́   'jump one after the other'
                                 tsɔ́ʔ-kɔ́   'jump time and again'
                                 tsɔ́ʔ-lɔ́   'jump across things'
                                 tsɔ́ʔ-tɔ́   'jump gently' (= attenuative)

In NC languages which have only lexicalized extensions or none at all, the prior functions must be taken over by other means. In the absence of an applicative extension to mark a benefactive or recipient referent, NC languages either allow unmarked double objects, adpositions, or serial verbs, sometimes alternatively or combined in the same language (XP = the theme; YP = the beneficiary or recipient):

(34)   a.   Verb YP XP: Nzadi [Bantu; DRC] (Crane et al. 2011:155)
               bì ó súm mwàán òŋkàáŋ   'we bought the child a book'
               1pl PST buy child book

         b.   Verb XP to/for YP: Limbum [Grassfields Bantu; Cameroon] (Fransen 1995:259)
               wìr bí fàʔ nì Tàrī   'we will serve [work for] the Lord'
               we FUT$_0$ work for lord

         c.   Verb YP with XP: Koshin [Bantoid; Cameroon] (Ousmanou 2014:309)
               mɘ̄ fà wə bɔ́ ndì   'I give you some water'
               I give you with water

         d.   Verb XP give (to/for) YP: Mundani [Grassfields Bantu; Cameroon] (Elizabeth Magba, personal communication)
               tà lè lạ̄ạ̄ èghɨdzɨ ŋa abua tò   'she cooked food for him'
               she PST$_3$ cook food give to him

9.11   Verb Inflection

As in other areas of the grammar, there is considerable variation in verb inflection. The NC word structure presented in 9.3 suggests that the verbs should have both inflectional prefixes and suffixes, the latter following any verb extensions that may be present. This structure is exuberantly realized in the Kinande example in (32d) above. While Kinande represents the extreme at one end of a continuum of inflectional marking, most other sub-branches are not this complete. On the one hand it is quite common for subject-verb agreement, tense, aspect, and perhaps negation to be either prefixed to the verb or to combine to form a 'tensed pronoun' or sub-ject-tense-aspect-mood-polarity 'S/TAM/P morph' (Anderson 2012). On the

Table 9.16 Comparison of past tenses in two dialects of Totela

			Namibian Totela	Zambian Totela
a.	*Prehodiernal past*	*Perfective*	na-SM-a-R-a	SM-a-ka-R-a
		Imperfective	ka-SM-R-a	ka-SM-R-a
b.	*Hodiernal past*	*Perfective*	SM-a-R-a	SM-a-R-a
		Imperfective	SM-la-R-i	SM-na-R-a
c.	*Hodiernal*	*Future*	mo-SM-R-e	SM-la-R-a
d.	*Posthodiernal*	*Future*	ka-SM-R-e	na-SM-la-R-a

other hand, the most analytic NC languages have only limited such inflec-tion, ultimately none at all. These may reflect the same categories analyti-cally, that is, as separate words. It is safe to say that most NC languages are rich in 'auxiliaries', whether monomorphemic or fused (Anderson 2011).

One of the striking properties of tense-aspect-mood (TAM) marking is how much it can vary, even among closely related languages. This can be seen, first, in a comparison of the agglutinative structures of two mutually intelligible forms of Totela [Bantu] (Crane 2011:110) in Table 9.16. As seen, not only can the TAM markers be different, but they also can differ in whether they precede or follow the subject marker (SM). The inflectional final vowel suffix that follows the root (R) may also differ. Similar differ-ences are noted between the following closely related Kegboid [Ogoni] Cross-River languages, which use different habitual auxiliaries (cf. Bond 2006:191–193):

(35)   a.   ò   ʔórò   ba-i   nɔm   (Gokana)
            2   HAB   eat-2PL   meat
            'you pl. used to eat meat'

       b.   ò-bere   kɛ-a-i   m̀bó   (Eleme)
            2-ANT   slaughter-HAB-2PL   goat
            'you pl. used to slaughter goats'

The separation of person and number marking is also noteworthy: Without the -*i* suffix on the main verb, the subject would be second person singular. Table 9.17 summarizes the default subject affixes in Eleme (Bond 2010:4).

Concerning the different TAMs that are marked, NC languages, especially Bantoid, are known for distinguishing multiple degrees of past tense, as in Totela (Table 9.16), but also of future tense, as in Yemba (Bamileke-Dschang) [Bantoid; Cameroon], which has five degrees of future (Hyman 1980b:228):

(36)   F1 : à˩á táŋ   'he is about to bargain'
       F2 : àà ˩pìŋ˩ɲ́ táŋ 'he will bargain (later today)'
       F3 : àà ˩lù˩ú táŋ   'he will bargain (tomorrow)'
          = àà ˩šʉ̀ʔ˩é táŋ
       F4 : à˩á láʔé ˩táŋ 'he will bargain (after tomorrow, some days from now)'
       F5 : à˩á fú˩táŋ   'he will bargain (a long time, e.g., a year or more
                            from now)'

Table 9.17 Default subject affixes in Eleme

	singular	plural
1st person	m̀-, ǹ-, ŋ̀-, ŋ̀m̀-	rē̄-/nē̄-
2nd person	ò-, ɔ̀-	ò-, ɔ̀- ... -i
3rd person	è-, ɛ̀-	è-, ɛ̀- ... -ri

In addition to the tonal configuration on the subject pronoun, the F2-F5 tenses are marked by an auxiliary, which except for F5 can be related to a Yemba main verb: *pìŋ* 'return', *lù* 'get up', *šʉ̀ʔ* 'come', *láʔ* 'spend the night'. Thus, F2 derives from 'return & bargain', while the two variants of F3 derive from 'come & bargain' and 'spend the night & bargain'. These markers can in fact be combined either as main verbs or indicators of 'relative' time:

(37) àà   ꜜlùù   pìŋꜜŋ́ táŋ

      3SG.F1   F3   F2   bargain 'he will bargain later tomorrow'

               F3   return   'he will return tomorrow and bargain'

               get-up   F2   'he is about to get up and later today bargain'

               get-up   return   'he is about to get up and return and bargain'

The relative interpretations of F2 and F3 are thus 'the same day', and 'the next day'. However, as pointed out for Chibemba, in many cases 'the attitude of the speaker is the deciding factor, not the mechanical division of days' (Sharman 1956:31).

While languages like Totela and Bamileke-Dschang are very rich in tenses, other NC languages have been claimed not to have tense at all. One controversial case is Igbo, which has been claimed by several scholars only to have aspect (see Obiamalu 2015:49–55 for a recent perspective on the different views). There certainly are cases where tense is underdifferentiated, at least in certain aspects. Thus Ikoro (1996:171–172) interprets the Kana habitual marker *wēē* as 'express[ing] customary or generic action which used to take place in the past, or still takes place at present, but not at the moment of speaking'. In other words, it expresses what is usually referred to as present AND past habitual, hence Ikoro's translations:

(38)   a.   m̀-wēē   dʒìge   'I normally snatch (it)'

          1SG-HAB   snatch

  b.   m̀-wēē   fà   'I used to weed (it)'

          1SG-HAB   weed

A number of languages have a verb form identified as 'factitive' (also 'factative') which can be interpreted differently according to the nature of the verb: With an active verb the time reference is usually past, while with a stative verb it is (or can be) present. The tradition in Igbo has been to view

the *-rV* suffix as marking such a factitive, as seen in the following examples (Emenanjo 1987:169):

(39) a. chí⁣ˡkéè   sì̀-rì̀   àsị́   'Chike told lies'
          Chike   tell-FACT lie

      b. àdáà   chọ̀-rọ̀   éˡgó   'Ada wants money'
          Ada   want-FACT money

The controversy comes from whether one should analyse forms such as the above as having the same *-rV* suffix. While the Kana sentences in (38) show that certain aspects do not distinguish tense, the different time references of the Igbo *-rV* suffix(es) has indicated to most scholars that tense is subordinated to the Aktionsart of the lexical verb.

While the above discussion has been centred around the inflectional features of person, number, tense, and aspect, NC languages also very often express negation within the inflectional morphology. Nowhere is this property more evident than in Bantu. As exemplified by the following examples from Chichewa, the Bantu prefixal sequence lends itself to a 'slot-filler' interpretation (FV = final inflectional vowel):

(40) a. main (root) clause: NEGATIVE-SUBJECT-TENSE-ASPECT-OBJECT-
              si- ti-   dzá-ngo- mú- mény-á   'we will not just hit him'
              NEG-1PL.SUBJ-FUT-just-3SG.OBJ-hit-FV

      b. subordinate clause: SUBJECT-NEGATIVE-TENSE-ASPECT-OBJECT-
              ti-   sa- dzá-ngo- mú- mény-á
              1PL.SUBJ-NEG-FUT-just-3SG.OBJ-hit-FV

While the negative prefix precedes the subject prefix in main clauses, it follows it in relative, adverbial and other subordinate clauses, and occurs with the same form in the negative infinitive (*ku-mény-a* 'to hit', *ku-sa-mény-a* 'to not hit') (see Kamba Muzenga 1981 and Maho 2007 for further elaboration of the template). While there is considerable variation across Bantu ~~language~~, some of which adopt other strategies (Devos & van der Auwera 2013; Gibson & Guérois 2016), Güldemann (1999) argues that the order in (40b) predates that in (40a). Further evidence of the thorough integration of negation into the inflectional morphology is that the same tense or aspect can be marked quite differently in the affirmative versus negative, as seen in the following near future (F1) forms from Lusoga [Uganda] (L. Hyman, personal notes):

(41) a. tù- nà-à-gézémúl-á   'we will perspire'
          1PL.SUBJ-F1-F1-perspire-FV

      b. tí- tú- ú-gézèmùl-é   'we will not perspire'
          NEG-1PL.SUBJ-F1-perspire-FV

It should first be pointed out that the *-a-* and *-u-* morphs are realizations of the underlying F1 empty mora ~~assimilates~~ to the preceding vowel. There

are three more important differences to note: (a) the F1 prefix *-nà-* is present only in the affirmative; (b) the FV is *-a* in the affirmative but *-e* in the negative; (c) the tones that are assigned to the verb are different: in the affirmative the stem is all H tone (underlying toneless, receiving its tones from a final H% boundary tone); in the negative a H is placed on the first mora which is followed by Ls (the final H is due to a H% boundary tone). With respect to this last point, it is extremely common throughout NC for the affirmative and negative forms of the same TAM to have different tones. Despite the widespread integration of negation into the inflectional system, many NC languages instead (or also) realize negation through syntactically independent markers. In Ubangi and Adamawa languages the negative marker is generally clause-final (R. Boyd 1989:208), as in Mundang (Adamawa).

(42)   a.   mè   kó-kō   ɓè   'I have seen him'   (Elders 2000:441)
           1SG   see-DET   PERF

       b.   mè   kó-kō   yā   'I have not seen him'
           1SG   see-DET   NEG

       c.   mò   ràk   yā   nē   'Have you not eaten?'   (Elders 2000:491)
           2SG   eat   NEG   Q

The last example shows that the question marker *nē* follows the negative marker *yā*.

9.12   Sentence Structure

Although they do not utilize case marking on nouns, NC languages make a clear distinction between subject and object through word order and often pronoun forms and subject-verb agreement. Converging with a general tendency throughout the continent (Heine 1976; Creissels et al. 2008), the basic sentence word order is SVO in NC. The most notable deviations from this pattern are the head-final patterns found in two areas: (a) in Mande and neighbouring languages in the Mandesphere; (b) in Ijo and certain Cross-River, Bantoid, and a few NW Bantu languages, for example, Tunen (Mous 2003). Particularly striking is the S-Aux-OVX order that occurs in an area that Güldemann (2008:151) calls the Macro-Sudan Belt (cf. Creissels 2005). This pattern is significant for its mixing of head initial (VO) and head final (OV) properties. While the surface order S-Aux-OV(X) is sporadically widespread within this zone, its deeper syntactic properties are heterogeneous, suggesting distinct subtypes of the pattern (Sande et al., forthcoming). In one type represented in the more westerly Mande area, S-Aux-OV(X) is a general organizing principle of the syntax, while in many others it limited to specific syntactic environments which may differ from language to language.

In Kru languages, if an auxiliary is present, it immediately follows the subject, and the primary object precedes the verb. In the Kru language, Guébie (Ivory Coast), the word order is S-Aux-OV in most environments, including most main clauses and subordinate clauses. As seen in (43) and (44), the verb follows the object within a verb phrase (Sande 2017).
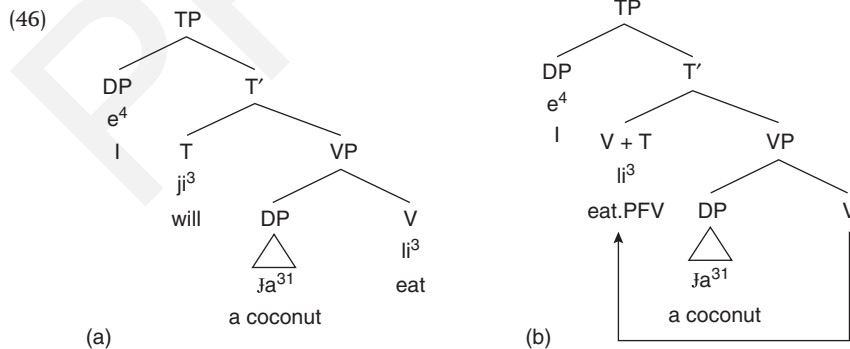
(43)   e^4 ji^3 ɟa^{31} li^3
         1SG FUT coconut eat
         'I will eat a coconut'

(44)   e^4 wa^2 gba^1 e^4 ka^3 tɛlɛ$^{3.3}$ kɔklalɛ$^{3.2.2}$
         1SG want.IPFV that 1SG IRR   snake   touch
          'I want to touch the snake'

Guébie also shows numerous other head-final properties, such as postpositions, Genitive-Noun word order, and manner adverbs, which precede verbs within verb phrases. When there is no overt segmental auxiliary, however, SVO order emerges, as in (45). This occurs in present imperfective and basic perfective contexts.

(45)   e^4 li^3 ɟa^{31}
         1SG eat coconut
         'I ate a coconut'

According to the clause structure proposed by Sande (2017:94–102) and Sande et al. (forthcoming), the VP is head-final, but the tense phrase (TP) is head-initial, realized by the future auxiliary in (46a). When no auxiliary is present in T, the verb moves to that position, resulting in the SVO order in (46b) (cf. Koopman 1984):

(46)

(a)

```
              TP
           ／     ＼
        DP          T′
        e⁴       ／    ＼
         I      T          VP
              ji³       ／    ＼
              will    DP        V
                      △        li³
                     ɟa³¹       eat
                  a coconut
```

(b)

```
                    TP
                 ／     ＼
              DP          T′
              e⁴       ／    ＼
               I    V + T        VP
                     li³      ／    ＼
                  eat.PFV   DP        V
                            △
                           ɟa³¹
                        a coconut
```

Guébie is representative of Kru languages in general in that it alternates between S-Aux-OV and SVO word order. However, Kru languages vary in whether anything can follow a clause-final verb. For example, in Guébie only heavy complement clauses follow the verb, while in certain Western Kru languages like Grebo (Innes 1966) complement clauses as well as some postpositional phrases follow the verb when an auxiliary is present. Either

way, S-Aux-OV seems to be the default word order across Kru, where SVO is a derived structure.

Mande languages are like Kru languages in that S-Aux-OV word orders are pervasive. This basic word order is illustrated below for Marka Dafing (Burkina Faso), a close relative of Bambara in the Manding group, for the past and future tense auxiliaries (P. Jenks, personal notes):

(47) a. wúrú-ꜜú ꜜní ʃwó-ꜜó ɲìmì
          dog-DEF PST meat-DEF eat
          'The dog ate the meat'

      b. wúrú-ꜜú ꜜná ʃwó-ꜜó ɲìmì
          dog-DEF FUT meat-DEF eat
          'The dog will eat the meat'

As in Kru, S-Aux-OV is a general organizing principle of Mande languages, which can be modelled by adopting the same syntactic analysis in (46). Also like Kru languages, Mande languages are primarily postpositional and have genitive noun order in noun phrases. However, there are two important syntactic differences between Kru and Mande. First, when there is no overt segmental auxiliary, such as the present habitual, SOV order is found in Mande:

(48) wúrú-ꜜú ʃwó-ꜜó ɲìmì
      dog-DEF meat-DEF eat
      'The dog eats the meat'

This fact illustrates the general observation that Mande languages typically have less V-to-T verb movement than their Kru counterparts, although it is attested. Because of this, SVO is not an alternate word order in Mande languages.

The second observation is that other than nominal primary objects, phrasal modifiers and verbal arguments in Mande follow the verb rather than preceding it. This means that secondary objects (which are postpositional phrases), embedded clauses besides relative clauses, and adverbial modifiers all occur after the verb. Thus, Mande has in a sense a canonical S-Aux-OVX pattern, with particular emphasis on X. It is an interesting question how to model these word order facts, whether these modifiers and arguments are all rightwards adjuncts of VP or a higher projection, as suggested by Nikitina (2009, 2011), or if there are some right-branching structures in the VP domain.

While Guebie and Dafing are good representatives of the most common syntactic patterns in their respective families, both families are more diverse, and contain languages which are somewhere in between the two patterns described above. For example, some languages might allow some but not all complements to precede the V, or allow certain nominalized clauses to precede the V in addition to noun phrases themselves. These

patterns are not limited to Kru and Mande languages. For example, Creissels (2005) notes that nearby Senufo and Songhay languages share the general S-Aux-OVX pattern characteristic of Mande.

Outside of Mande and Kru, the distribution of S-Aux-OV(X) is typically restricted to specific syntactic environments. For example, in Gwari [Nupoid; Nigeria], which contrasts SVO and S-Aux-OV word order, the latter is found only with the completive aspect auxiliaries *lá/kú*, deriving from the singular/plural forms of the main verb 'take':

(49)   wo   kú   à-shnamá   (SVO)   (Hyman & Magaji 1971:56)
        3SG take:PL   PL-yam
        's/he takes yams'

(50)   wo   kú   à-shnamá   si   (S-Aux-OV)
        3SG   CPL:PL PL-yams   buy
        's/he has bought yams'

Unlike the general S-Aux-OV order in Mande and Kru, other auxiliaries like the today past continuous auxiliary *ɓéī* require S-Aux-VO word order in Gwari:

(51)   wo   ɓéī si   à-shnamá   (S-Aux-VO)   (H&M 1970:54)
        3SG   T.PST buy   PL-yam
        's/he was buying yams'

This is a crucial difference, because the S-Aux-OV order is not a general characteristic of all clauses with auxiliaries. In fact, the two types of auxiliaries can co-occur:

(52)   wò   ɓei kú   à-shnamá si   (S-Aux-Aux-OV)   (H&M 1970:57)
        3SG   BY.PST CPL:PL PL-yams   buy
        's/he has bought yams' [before yesterday]

This indicates that OV order in Gwari is tied to the presence of *kú* in (50) and (52) and not just a general requirement that OV word order follows auxiliaries. Sande et al. (forthcoming) argues that the Gwari VP is head initial, and that OV is derived.

We find a similar situation in Fongbe [Kwa; Benin], with a limited number of environments showing OV order. The dominant word order is SVO and there is a class of auxiliaries that requires S-Aux-VO order (Lefebvre & Brousseau 2002):

(53)   Kɔ̀kú xò   àsíbá   (SVO)   (p.247)
        Koku hit Asiba
        'Koku hit Asiba'

(54)   Lili nɔ̀ ɖù gbàɖé   (S-Aux-VO)   (p.94)
        Lili HAB eat corn
        'Lili (habitually) eats corn'

However, certain aspectual verbs are followed by OV word order:

(55) àsíbá ɖò [[ví ɔ kpɔ́n]] wɛ̀] (p.215)
     Asiba be.at child DEF look.at.NZ POST
     'Asiba is looking at the child'

(56) ùn jɛ̀ [[nú ɖù] jí] (p.215)
     1SG fall thing eat.NZ on
     'I began to eat'

Following Lefebvre and Brousseau (2002), Sande et al. argue that the OV constituent is a nominalized VP (cf. Khachaturyan & Nikitina 2016 for Mande). The OV word order is expected on this analysis because noun complements precede their selecting head. Apparent 'Aux-OV' word order is therefore epiphenomenal. It is not a deep property of the grammar of Fongbe.

Marginal S-Aux-OV(X) is found elsewhere in NC as well. Childs (2005) argues that several Atlantic languages show an S-Aux-OV(X) pattern. However, it appears that these patterns are similar to the Gwari and Fongbe type in that they are limited to certain types of constructions (cf. Creissels 2005). For example, in Noon, Childs shows that S-Aux-OV word order is only found when the object is a pronoun. The same is true of Kana [Cross-River]:

(57) maa zìb légbò (SVO) (Ikoro 1996:226)
     1SG.PROG hit Legbo
     'I am hitting Legbo'

(58) maa yé zìb (SOV)
     1SG.PROG 3SG hit
     'I am hitting him'

This suggests that, as in Gwari, OV is derived by object shift. It is well known that in many languages, object shift applies differentially to only a subclass of nominals, with pronouns being the most likely to shift crosslinguistically.

In addition to the five case studies discussed above, Sande et al. (forthcoming) surveyed 55 languages spoken throughout the Macro-Sudan belt, based on the diversity sample used by Clements and Rialland (2008). The results of the survey show that there is a strong cluster of head-final properties and S-Aux-OV(X) order in the Mande area – the Mandesphere – encompassing Ivory Coast, Liberia, Sierra Leone, Guinea, Mali, and Burkina Faso. Outside of this cluster, some NC languages such as Gwari and Kana show S-Aux-OV(X) order in limited syntactic environments. While S-Aux-OV(X) seems to be prevalent in a number of NC subgroups throughout West Africa, it does not span the entire Macro-Sudan Belt, nor would we want to reconstruct it in PNC (cf. Hyman 2011b). Although S-Aux-OV was likely present in Proto-Mande and some neighbouring families (Creissels 2005), there appear to be three diachronic sources of S-Aux-OV (cf. Claudi 1993, 1994): (a) from a SVOV serial verb construction, as in Gwari (cf. Heine &

Reh 1984); (b) from a transitive SV-OV, where the OV is a nominalized VP, as in Fongbe; (c) from S-Aux-VO with fronting of the O for defocusing, as in Aghem (cf. Güldemann 2007):

(59)   fɨl   á   mɔ̀   zɨ́   kɨ́bɛ́ án   ↓sóm
        friend 3PL Y.PST eat fufu in   farm
        'the friends ate fufu in the farm' (S-Aux-VOX) (yesterday past)
        'the friends ate fufu in the farm' (Watters 1979:147)

(60)   fɨl   á   mɔ̀   bɛ́   ↓kɨ́ zɨ́   án   ↓sóm
        friend 3PL Y.PST fufu DET eat in   farm
        'the friends ate fufu in the FARM' (S-Aux-OVX) (not somewhere else)
        'the friends ate fufu in the farm' (Watters 1979:148)

As others have noted (e.g., Dimmendaal 2008b:306), some S-Aux-OV languages, including Aghem, allow more than the direct object to precede the verb, which is likely more prevalent where preposing is associated with defocusing. Also of note is that preposing may also be associated with negation, perhaps exclusively so, as in Leggbo [Cross-River; Nigeria] (Good 2003; Hyman 2003a).

9.13 Serial Verbs

Another widespread property of NC languages are serial verb constructions (SVCs). Largely restricted to the middle part of area, that is, Ghana to Cameroon, SVCs can be defined as a series of verbs within a single clause which do not have a marker of morphosyntactic dependency, show argument sharing, and whose verbs can function as independent verbs outside of an SVC (Ameka 2001). An example is provided from Isu [Bantoid; Cameroon] (Kießling 2011:44) involving four verbs in series.

(61)   ú   ↓tú   ɲi   tswí   dzɔ́ ŋi tsɘ́   sɔ̀ʔɔ̀   á↓nɘ́   ↓mwí
        3SG. P3   escape   enter descend return IMM also   to   6a.water
                  V₁   V₂   V₃   V₄
        á↓nɘ́   tsɘ̌m   ↓k-ɘ́
        to   7.deep.pool   7-D1
         'She also dived back into the water of the deep'

SVCs are common throughout the Kwa and non-Bantu Benue-Congo families, and also found in Gur, for example, Dàgáárè (Hiraiwa & Bodomo 2008) and Ijoid, for example, Izon (Williamson 1965; Carstens 2002). Contrasting with these are the highly synthetic languages without SVCs found in Atlantic, Kordofanian, Bantu, and certain Benue-Congo branches (e.g., Kainji) (cf. (32) above). Foley and Olson (1985:50–51) offer a list of shared phonological and grammatical properties among languages with certain types of SVCs (e.g., valence-increasing), particularly in West

Africa and Southeast Asia, which include (a) phonemic tone, (b) having many monosyllabic words, (c) isolating morphology, and (d) verb medial word order (SVO). They view this cluster as interrelated, where 'phonological attrition causes syncope of segments or syllables', which leads to 'the gradual loss of the bound morphemes … [and] a new device for valence adjustment must be found' (Foley & Olson 1985:51). In many languages, SVCs fill this functional gap, provided that SVCs already exist in some capacity in the language, for example, as simple motional/directional SVCs.

There thus is at least a diachronic relation between phonological development, the loss of head-marking morphology, and the extended development of serial verbs. Even so, NC systems which display increased analyticity outside of this Kwa/Benue-Congo zone do not necessarily comply with other aspects of this typology. For example, SVC systems are not found in the Bantu language Nzadi which has lost much of Proto-Bantu morphology (Crane et al. 2011:4), nor in the more analytic Kru and Mande families (Marchese 1989:135; Dwyer 1989:57). To some extent, the areal distribution of SVCs within NC will depend on the criteria used to define them (cf. Hopper 2008 for discussion of the 'take & verb' construction as an incipient SVC in English).

Serial verb constructions are used to express a wide range of meanings. In Degema [Edoid; Nigeria], SVCs are used to express exhaustion/completion of a situation, directionals, benefactives, verbal comparison, comitatives, instrumentals, accompanimentals, refusal, simultaneousness, abilitatives, consequentials, and event coordination (Kari 2003). Examples are below of benefactive expressed with *ke* 'give' in second verb position (V2) and verbal comparison expressed with *tul* 'reach' in V2 (Kari 2004):

(62)   (i)   imó   nú   Ohoso   o=méné   ké=n   ọ́yi?   (p.19)
            what   that   Ohoso   3SG=do   give=FAC   him
            'What was it that Ohoso did for him?'

        (ii) O=sóm=n   úsī   o=túl   wọ́=ōn   (p.157)
            3SG=be.good=FAC   beauty   3SG=reach   you=FAC
            'He is as handsome as you.' (Kari 2004:157)

A common type of SVC involves the verb 'take' or 'carry', typically in V1 position. These may have metaphorical uses in SVCs, for example, in the Esan case in (63a) below, where it combines with *èghọ̀nghọ̀n* 'happiness' to mean 'with happiness' or 'happily'. Further, in (63b) it is used to introduce an object. This is remarkable as the Esan verb *wọn* 'to drink' is a transitive verb already and may readily occur with the object directly.

(63)   (a)   Èlékà   riè   èghọ́nghọ́n   gbè   ìkhiẹ́n
            Eleka   take   happiness\IPFV   dance   dance\IPFV
            'Eleka is dancing with happiness'

(b) Èlékà   ghâ   riè   àyǫ́n   wǫ́n
     Eleka   PreV   take   alcohol\IPFV   drink
     'Eleka is getting drunk'

Such data as in (63b) illustrate that SVCs in NC, especially with 'take', may originate as offering something different from the constructions with which they compete and may ultimately replace (cf. Lord 1993; Hopper 2008:271–274). For example, consider the function of 'take' as a 'custody transfer' verb in Mungbam [Bantoid; Cameroon]. Lovegren (2013:222) describes the use of the coverb *mə̄* 'take' with the verb *mū* 'drink' as indicating that the drinking cup is not in the addressee's hand, and that 'the only situation where a simple imperative *mù̃* 'drink!' is felicitous is a case where the addressee is already holding a drinking cup'.

(64)
     a. mə̄   jə́   à   mũ̄   'take and drink!'
         take.IRR ascend.IRR 2s.TOP drink.IRR
         [cup is on the floor and has to be 'ascended' by addressee]

     b. mə̄   mu   'take and drink!'
         take.IRR drink.IRR
         [cup is within reach and at the level of the addressee's hands, in front of him]

     c. mũ̄   'drink!'
         drink.IRR
         [addressee is already holding a drinking cup]

These above usages illustrate the development of SVCs to express functional relations, such as valency-changing, which in other languages may be expressed through verbal morphology and adpositions (recall the NC verb extensions in Table 9.15 above). Frequently, SVCs take on tense/aspect meanings as well, for example, grammaticalization of the verb 'finish' in V2 position to indicate completion or exhaustion. Grammaticalization paths are often language-specific, for example, in Isu the verb *fyí* 'exit' extends to mean 'do intensively, excessively' in an SVC, and the verb *diáɲí* 'pass through' extends to 'immediately, without delay' (Kießling 2011:144, 167).

Further, the existence of two verbs within a clause presents a number of logical possibilities for where the locus of inflectional marking should be: on V1, V2, or both. Numerous languages within NC show complex patterns, the most interesting of which involve cases where inflection is split across the verbs, or found repeating fully or partially on both. Examples are seen in (65a) from Ogbronuagum [Cross-River; Nigeria] where the aspectual marker *mə-* ~ *ma-* is found on both verbs in the SVC (Kari 2000:55) and (65b) from Baoule [Kwa; Ivory Coast],

where the perfective suffix *-lì* is on both verbs (Creissels & Kouadio 2010:176):

(65) a. eédi   téɓéní a   mú   lórú ꜛɛ́ɛ́má ínam   aamí <u>mə́</u>-ɗeeri
          that   tell   2SG   that in   town   animals 1SG   ASP-know
          nɛ́ɛ́ma   <u>má</u>-tɛ   a
          something   ASP-surpass   you
          'That will show you that I'm the wisest in the animal kingdom'

      b. kuàkú   fà-<u>lì</u>   mín   klè-<u>lì</u>   Ákísí
          Kouakou   take-PFV   1SG   show-PFV   Akissi
          'Kouakou showed me to to Akissi'

Such inflectional concord is found even in cases where the two verbs do not refer to the same subject, for example, in the example from Akan [Kwa; Ghana] in (66) where the verb *gu* 'flow' is marked with first person singular agreement, even though its semantic argument is the object *aburow* 'corn' (Schachter 1974:258, tones not marked):

(66) me-de aburow mi-gu msum
      1SG-take corn 1SG-flow water.in
      'I pour corn into water'

Finally, we understand verb compounding to be a special type of serialization in which the two verbs are obligatorily adjacent, often forming a single 'word'. Verb compounding is not common in NC, but it is represented in a number of languages. A famous case is in Igbo, such as in (67) below where the verbs *tú* 'throw' and *fù* 'be lost' form a single compound marked by a single tense inflection (Lord 1975:25):

(67) ọ̀   ꜜtú-fù-rù   ákwúkwọ́
      3SG   throw-be.lost-TNS   paper
      'He threw paper away'

Verb compounds are also found in Isu (Kießling 2011), and to a limited extent in Degema with the verb *kịye* 'give' (Kari 2003, 2004).

9.14 Information Structure

As throughout the continent, NC languages are very rich in marking information structure, particularly focus distinctions. These can be realized through syntactic structures (word order variations, clefts, etc.), prosody (particularly tone), or most significantly, morphology. In many NC languages focus has a major effect on the grammar. This can be seen in

the following sentences from Aghem [Grassfields Bantu; Cameroon] from Watters (1979:146–147):

(68)   a.   fɨ́l   á   mɔ̀ zɨ́   kɨ́-bɛ́   á↓zɔ́ɔ́   'the friends ate fufu yesterday'
            friends SM   P2   eat   7-fufu   yest.

       b.   fɨ́l   á   mɔ̀ zɨ́   á↓zɔ́ɔ́ bɛ́   ↓kɔ́   'the friends ate fufu YESTERDAY'
            friends SM   P2   eat   yest.   fufu DET

       c.   fɨ́l   á   mɔ̀ á↓zɔ́ɔ́ zɨ́   bɛ́   ↓kɔ́   'the friends ate FUFU yesterday'
            friends SM   P2   yest. eat   fufu DET

       d.   à   mɔ̀ zɨ́   á-fɨ́n   bɛ́   ↓kɔ́ á↓zɔ́ɔ́   'the FRIENDS ate fufu yesterday'
            ES   P2   eat   2-friends fufu DET   yest.

       e.   fɨ́l   á   mɔ̀ zɨ́   nô bɛ́   ↓kɔ́ á↓zɔ́ɔ́   'the friends ATE fufu yesterday'
            friends SM   P2   eat   FM fufu DET   yest.

       f.   fɨ́l   á   máà   zɨ́   bɛ́   ↓kɔ́ á↓zɔ́ɔ́   'the friends DID eat fufu yesterday'
            friends SM   P2.FOC eat   fufu DET   yest.

The even focus with neutral word order is shown in (68a), where the object *kɨ́-bɛ́* 'fufu' consists of a class 7 prefix *kɨ́-* plus the stem *bɛ́* 'fufu' and appears in the immediate after verb (IAV) position. (68b) shows that the IAV position can be exploited to focus constituents other than the direct object, in this case the temporal adverb *á↓zɔ́ɔ́* 'yesterday'. Note also that the bare object must occur with a determiner, in this case semantically empty class 7 *kɔ́* (before which the noun undergoes prefix deletion). In (68c) *á↓zɔ́ɔ́* is defocused into the immediate before verb (IBV) position thereby stranding 'fufu' in the contrastive IAV position. (68d) shows that when the subject is focused, it too is realized in IAV position, leaving the expletive subject marker *à* in its normal, preverbal place. In (68e) the lexical meaning of the verb is contrasted by placing the focus marker (FM) /nô/ after it. Finally, in (68f) truth-value focus is achieved by the substitution of the focused tense marker *máà* which also must be used if the verb is final in an affirmative main clause (Watters 1979:151):

(69)   a.   bvú   ↓tɨ   máà   ñɨ́ŋ   'the dogs ran/did run'
            dogs SM   P2.FOC run

       b.   *bvú ↓tɨ   mɔ̀   ñɨ́ŋ   'the dogs ran'
            dogs SM   P2   run

       c.   bvú   ↓tɨ   mɔ̀   ñɨ́ŋ   nô   'the dogs RAN'
            dogs SM   P2   run   FM

Although unmarked word order appears to hold in (68f), the form of 'fufu' is still *bɛ́ ↓kɔ́*, indicating that 'fufu' is not in the focused IAV position at a deeper level of analysis.

Table 9.18 Tense marking in Efik

	[–focus]	[+focus]	
Past	-kV-	-ma	
Present	Ø	-mV-	[–progressive]
		kέ-	[+progressive]
Future	dì	-yέ-`	

The interaction between tense marking and focus is quite widespread within NC. Table 9.18 based on Welmers (1968) and Cook (1976) shows the different markers of the three tenses in Efik [Cross-River; Nigeria]. As implied by the term, the focused forms of a tense indicate that an inflectional feature or truth value is being focused, while such focus is lacking in the non-focused forms. Another property, however, concerns the tightness of the link to the constituent that follows the verb, for example, the object. With non-focused tense marking, the verb typically forms a tight bond with what follows, which may be required, as in the case of Aghem *mɔ̀*, while with a focused tense marker there often is a prosodic break after the verb. The ability to appear at a constituent end correlates with the ability of a [+focus] marked verb to appear finally within an affirmative main clause, as with Aghem *máà*. For this reason the comparable distinction in Kirundi was termed 'conjoint' versus 'disjoint' by Meeussen (1959), terms which have been found useful in describing analogous distinctions in numerous other Bantu languages (see Van der Wal 2017 and other chapters in the same volume). As in Efik, the markers can be quite different segmentally and tonally. In Simakonde, the conjoint [–focus] past tenses are marked with an -*ile* suffix, while the corresponding disjoint tenses are marked with an -*ndi*- prefix and an -*a* suffix (Manus 2017:242).

Such contrasting [±focus] variants are typically restricted to affirmative main clause present and past tenses. Relative and adverbial clauses typically take the [–focus] tense forms (as these are backgrounded clauses), as do negative verb forms. However, both negatives and imperatives can otherwise act as if they are [+focus], for example, in Aghem and Kru (Marchese 1983b). In (69a) we saw that the [+focus] sequence *máà ñɨ́ŋ* can appear finally, while the [–focus] sequence *mɔ̀ ñɨ́ŋ* cannot. While the [±focus] distinction is neutralized in the corresponding negative, the latter can appear finally, suggesting that it is inherently [+focus], therefore not needing any constituent to fill the IAV position: *bvʉ́ ꜜtɨ́ káá ñɨ́ŋ* 'the dogs didn't run'. Consider also the contrast between the following affirmative and negative today past tense verb forms in Haya [Bantu; Tanzania] (Hyman & Watters 1984:260):

(70) a. affirmative   bá-á-kôm-à   'they tied'

      b.   bà-à-kòm-à kátò   'they tied Kato'

	c.	negative	tì-bá-á-kòm-à	'they didn't tie'
	d.		tì-bá-á-kòm-à kátò	'they didn't tie Kato'

Both (70a) and (70c) show that the affirmative and negative verbs both have H tones when occurring finally in their clause. When an object follows in (70b), the affirmative verb loses its H tones by virtue of being out of focus, while the negative verb is not affected in (70d), again revealing its inherent focus. For more on what he termed 'predication focus', see Güldemann (2003b).

Besides morphological marking and tonal effects, focus constructions vary considerably across NC languages. Besides exploiting the IAV position, even closely related languages can differ in placing the focused constituent at the left versus right edge of the utterance:

(71) Nupe sisi   Musa   si   eyì   o   (cf. Kandybowicz 2008:105)
            buy.RED Musa   buy corn FOC
            'Musa BOUGHT corn' (he didn't steal it)
      Gwari Musa si   yaywì sisi   nũ   (cf. Hyman & Magaji 1971:122)
            Musa buy corn   buy.RED FOC
            'Musa BUYS corn' (he doesn't steal it)

The above sentences from Nupe and Gwari [Nupoid; Nigeria] also exemplify a common repetition strategy for focusing on the lexical meaning of the verb, here in reduplicated form. There has been considerable recent interest in focus in NC languages too numerous to mention here, but see for example Fiedler and Schwarz (2010) and several articles on Ghana-Togo-Mountain languages in the *Journal of West African Languages* 36 (2009).

There is of course much more going on than focus in the packaging of information in NC languages. This includes attitudinal or evidential marking, as in the case of the Luganda complementizer *ntì*, which introduces reported speech versus *mbù*, which 'introduc[es] hearsay information' (Snoxall 1967:203). A particularly interesting set of clause-final 'marqueurs de proposition' occurs in a number of Adamawa and Ubangi languages (Bohnhoff & Boyd 2003:3). These markers fuse mood, aspect and polarity, taking different shapes, depending on whether the utterance is perfective/ imperfective, indicative/ 'injunctive', and affirmative/negative. The following examples illustrate two injunctive markers occurring at the end of an affirmative versus negative imperative in Dii [Adamawa; Cameroon] (Bohnhoff & Boyd 2003):

(72) a. àm̀   hò   lig   míí   nu   (p.9)
          2SG.INJ look.at house.DEF my   INJ.AFF
          'look at my house!'

      b. àm̀   làà   kaa-lí   sá   (p.8)
          2SG.INJ go   village.DEF-LOC INJ.NEG
          'don't go to the village'

Numerous different allomorphs are used not only according to the features with which they fuse, but also depending on the word class of the constituent that immediately precedes the marker, for example, verb, noun, possessive pronoun.

The last issue to be discussed is how questions are expressed in NC. WH elements generally follow the same patterns as in focused constituent structure. Thus, many languages front the WH word or place it in IAV position, often as an enclitic in Bantu. Clements and Rialland (2008:74ff.) establish a number of patterns by which yes-no questions are expressed. Many West African languages express yes-no questions through what Rialland (2007, 2009) calls a final 'lax question prosody'. While many NC languages have question particles or end questions in a H pitch, a final L tone is quite widespread in West Africa, which may in turn be accompanied by lengthening and/or breathiness (Clements & Rialland 2008:79). This is illustrated in Adele [Kwa; Togo, Ghana] (Cahill 2015b:31), where both length and pitch lowering mark yes-no questions:

(73)   a. ὲέ kòrò ὲkpὲέ 's/he ate dog'
           ὲέ kòrò ὲkpὲὲ̀ 'did s/he eat dog?'

   b. è dé fótù   's/he is holding camera, photo'
       è dé fótùù̀ 'is s/he holding camera, photo?'

In (73a) the long [ὲέ] rising tone acquires a L pitch with even longer duration, while the final L of *fótù* 'camera, photo' becomes even lower [ṳ], also with lengthening.

Finally, although falling outside the heading of information structure, NC languages are rich in packaging information in terms of expressive particles and interjections and often have phonologically and semantically defined sub-systems of ideophones (Samarin 1965, 1971). This is illustrated from Yoruba [Defoid; Nigeria] in (74) (Courtenay 1976:19–20):

(74)   a. wɔ́kɔ̄wɔ̀kɔ̄ 'zigzag'   (same vowel throughout)
          pɛ́tɛ̄pɛ̀tɛ̄ 'muddy, soggy'
          šúkūšùkū 'disorderly'

   b. pátīpàtī   'covered in warts'   (different first and second vowel)
       jásā̱jàsā̱   'rough'

As Courtenay points out, the above identifiable pattern involves the reduplication of a bisyllabic structure onto which a H-M-L-M tone pattern is imposed. She further indicates that such ideophones 'always have [the] connotation of "irregularity"' (19). As with other properties, this is one that characterizes more of Africa than NC (Creissels et al. 2008:126–127). For recent perspectives on the description and typology of ideophones, see Dingemanse (2011, 2012, forthcoming) and the papers in Voeltz and Kilian-Hatz (2001).

9.15   Summary

Although the preceding sections have attempted to discuss some of the most prominent characteristics of NC languages, we began by pointing out how difficult a task this presents. NC is vast and varied, and much of what is found in it is not restricted to NC, but rather spills over into (often adjacent) parts of Africa. We have reiterated the oft-made observation that NC languages are best distinguished from other African languages by their noun class systems. Although many of the other properties we have covered have a greater African distribution, we have not addressed the specific lexical items, lexical semantics, and grammaticalization processes that have been variously identified as 'Africanisms' (Greenberg 1959; Meeussen 1975; Heine & Leyew 2008). In Table 9.19 we recapitulate some of the NC properties discussed above and broadly indicate the extent to which they are found in Greenberg's (1963) other three stocks. In the last column we also include Proto-Bantu for reference. The numbers we present are arrived at from our personal research and our understanding of the literature as well as consultations with other Africanists. A more fine-tuned summary would assign integers to the various subgroups of each stock. However, if the above is accurate, the properties that have 3 in NC, but only add up to 4 combining Nilo-Saharan, Afroasiatic, and Khoisan are (a) open syllables only, (b) labiovelars, (c) noun classes, and possibly (d) predicate focus marking. This distribution of features suggests that these properties are better diagnostics of NC languages than the other features considered throughout this paper. While many linguistic features, including

Table 9.19 Niger-Congo features compared to other African stocks

Property	Niger-Congo	Nilo-Saharan	Afroasiatic	Khoisan	Proto-Bantu
Open syllables only	3	2	1	1	3
Labiovelars	3	2	1	1	1
ATR harmony	3	3	2	1	2
Tone	3	3	2	3	3
Stem-initial prominence	3	2	2	3	1
Noun classes	3	1	1	2	3
Incorporative Pronouns	2	?	?	1/3	1
Verb extensions	3	2	3	2	3
Pluractional marking	3	3	3	3?	2
S-Aux-OV	3	2	1?	2?	2
Serial verb constructions	2	1	1	2/3	1
Predication focus marking	3	1	2	?	2
Case	1	3	3	1	1

3 = widespread; 2 = found in certain geographic zones or subgroups (possibly areally induced); 1 = rare or unattested (possibly a small number of languages through contact). Where two values are given for 'Khoisan', the first refers to Khoe, the second to Tuu/Kx'a. (Our thanks to Denis Creissels and Gerrit Dimmendaal for their expert input, which we think has resulted in a more accurate, although rough, assessment.)

those discussed here, are found more in NC languages and throughout Africa than typologically expected, we conclude that noun classes are still the primary distinguishing feature of NC languages.

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