

Niger-Congo Verb Extensions: Overview and Discussion

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This paper presents a general overview and discussion of the suffixes known as “verb extensions” in the various sub-branches of Niger-Congo. As indicated in (1), such suffixes may have a variety of functions.

(1) Verb suffixes may:

- | | | |
|----|--------------------|----------------------------------------------------------------------|
| a. | increase valence | causative, benefactive, dative, instrumental, locative, etc. |
| b. | decrease valence | passive, reciprocal, stative, middle, etc. |
| c. | (re-)orient action | reversive, directionals (goal/source, towards/from speaker), etc. |
| d. | mark aspect | pluractional, inchoative, resultative, perfective/imperfective, etc. |

As seen, verb extensions most frequently have what would be identified as “derivational” functions, although certain inflectional categories are sometimes implicated as well. Although the functions in (1) are perhaps best known from detailed studies of Bantu languages, examples from other branches of Niger-Congo which have direct Bantu analogues are given in (2).

(2) a. Causative *-εεε* in Degema [Edoid; Benue-Congo] (Kari 1995:158)

tʉ	‘be burnt’	→	tʉ-εεε	‘cause to be burnt’
tul	‘reach’	→	tul-εεε	‘cause to reach’
kir	‘return’	→	kir-εεε	‘cause to return’

b. Benefactive *-rV-/-ll* in Igbo [Igboid; Benue-Congo] (Emenanjo 1978, Onukawa 1999)

zú	‘buy’	→	zú-rʉ	‘buy for’
bè	‘cut’	→	bè-re	‘cut for’
zà	‘sweep’	→	zà-ra	‘sweep for’

c. Benefactive *-d-* in Zande [Ubangi] (Boyd 1995:19)

kp̩	‘die’	→	kp̩-d-	‘die for someone’ (therefore ‘suffer, sacrifice oneself’)
na	‘rain’	→	na-d-	‘rain for s.o.’ (therefore ‘to wet (like rain)’)
gbe	‘pull’	→	gbe-d-	‘pull for oneself, in order to keep’

d. Reversive *-rV* in Banda-Linda [Ubangi] (Cloirec-Heiss 1986:129)

v̩s	‘warm to make ripen; brood’	→	v̩r̩	‘spread (wings), open’
ʒe	‘bubble, overflow’	→	ʒèrè	‘deflate, utter last breath, lower, sink’

e. Multifunctional valence marker *-ε* in Krahn [Kru] (Bing & Duitsman 1993:99)

mu	‘go’	→	mu-ε	‘make go’	(causative)
dbà	‘kill’	→	dbà-ε	‘kill for’	(applicative)
			dbà-εs	‘kill with’	(instrumental)

In the above and other examples, I have generally kept the transcriptions and hyphenation of the original sources, where *-X* typically means that the suffix can occur finally, while *-X-* means that it is

usually followed by another (e.g. inflectional) suffix. In some case French glosses have been translated into English.

As in the case of noun classes, such verb extensions are found through the Niger-Congo family. The table in (3) cites verbatim the summary distributions of verb extensions provided by Williamson & Blench (2000) by subgroup, which I list in order of those having the most vs. fewest attestations:

- | | | | |
|-----|----|------------------|-----------------------------------------------------------------------------------------------------|
| (3) | a. | Atlantic | widespread |
| | | Gur | widespread |
| | | Central Nigerian | widespread, including pluractionals |
| | | Bantoid | widely attested |
| | | Kordofanian | widespread |
| | b. | Kru | causative, benefactive, inchoative, instrumental, dative, locative, passive |
| | | West Benue-Congo | Edoid has a number (often indicating plurality) and Igboid many, most of which are new developments |
| | c. | Cross River | various, often coalescing with verb root; often indicate plurality |
| | d. | Dogon | few, mostly new formations |
| | | Kwa | at least causative and reflexive/reciprocal |
| | | Ijoid | few, mostly new formations |
| | | Adamawa-Ubangi | a few, including iterative, intensive, benefactive and causative |
| | e. | Mande | not generally, but Bɔ̀bɔ̀ has causative, intransitive |

As seen, Williamson & Blench's characterizations are quite general, and might in fact turn out a little differently if we had better information on specific languages within certain of the subgroups.

Given their equivalent pervasiveness, the question naturally arises as to why the comparative study of verb extensions (VEs) has so seriously lagged behind that of noun classes, the other major morphological property of Niger-Congo languages? Three of the factors which may be responsible are as follows:

First, VEs are less unique to Niger-Congo than noun classes. While verb extensions have a wide distribution within Niger-Congo, as indicated below in (4), similar derivational suffixes appear throughout Africa, perhaps as an areal feature:

- (4) Verb extensions are amply attested in languages from the three other African language phyla
- a. Khoisan
Derivative verbal extensions as semantic and/or syntactic modifiers of basic verbs are very typical of all Khoe languages. Throughout attested are causative . . . , reflexive, reciprocal, and probably dative/benefactive and repetitive, too . . . Passive in Khoekhoe occurs as a verbal extension . . . (Güldemann & Vossen 2000:116).
 - b. Afro-Asiatic
[Afro-Asiatic] languages all exhibit word-formation processes for creating new verbs from existing ones by means of affixes, often in combination... A transitivity/causative *s-* ~ *-s* is found in all six families... Other widespread derivational affixes are: *m-* ~ *-m*, *n-* and *t-* ~ *-t* associated variously with notions of reflexivity, reciprocity, and/or intransitivity/passivizing formations — the last formative listed also often appears as a middle voice in Cushitic [cf. Atlantic!]. (Hayward 2000:93)
 - c. Nilo-Saharan
The derivational extensions ventive, itive, dative, and instrumental . . . in Turkana [are] characteristic for Nilotic in general as well as for proto-Nilotic. (Dimmendaal 1981:72)

Second, VEs are less easy to study, elicitation requiring more in depth familiarity with the grammar—vs. nouns and their plurals/agreement. Analyzing the verb morphology often requires considerable familiarity with the language vs. noun morphology which can often be read off a word list.

Third, VEs are often difficult to recognize and segment, as they are more subject to erosion, fusion, and reanalysis than (noun class) prefixes. For this reason they are even more susceptible to Bender's (2000:63) admonition concerning historical-comparative work: "The disadvantage of grammatical morphemes [re. "the task of firmly establishing Nilo-Saharan"] is that grammatical morphemes tend to be small so that similar forms recur even in unrelated phyla."

Despite the relative difficulties in analyzing VEs, two assumptions seem to be widely accepted: (i) Proto-Niger-Congo (PNC) had verb extensions (cf. Voeltz 1977); (ii) The more complex or complete systems found in such subgroups as Bantu and Atlantic represent the original situation, if not retentions from PNC. Assuming that PNC had extensions, what needs to be reconstructed is the following for each proto extension: (i) Phonology: the syllable shape (CV, VC, V), segmentals, and tone; (ii) Morphology: the morphotactics (co-occurrence restrictions and relative ordering with respect to the root and other VEs); (iii) Function: the syntactic and semantic properties; (iv) Origin: the historical lexical source (e.g. from verbs or prepositions).

As seen in (5), the most comprehensive proposal for PNC reconstructions is found in Voeltz (1977).

(5)	Proto-Niger-Congo Voeltz (1977)	Proto-Bantu (PB) Schadeberg (2003)	Proto-Atlantic (Doneux 1975)
a. Applicative	*-de	*-ɪd-	*-ed
b. Causative	*-ci, *-ti	*-ic-i-	(*-an)
c. Contactive	*-ta	*-at-	
d. Passive	*-o	*-ɪb-ʊ-	*-V [+back]
e. Reciprocal	*-na	*-an-	*-ad
f. reversive (tr.)	*-to	*-ʊd-	*-t
g. reversive (i.)	*-ko	*-ʊk-	
h. stative/neuter	*-ke	*-ɪk-	
i. stative/positional	*-ma	*-am-	

As also indicated in (5), reconstructions have been proposed at the level of certain Niger-Congo subgroups, e.g. Bantu and Atlantic. Concerning Adamawa-Ubangi, Boyd (1989:206) writes: "While phonological correspondences remain hypothetical, there appear to be extensions of the form *-t- (intensive), *-r- or *-l- (iterative), *-g- (benefactive), and *-s- (causative). Ubangi seems to have another iterative *-k- and another benefactive *-d-, as well as the general forms." Within Adamawa, Doyayo has at least 9 extensions, based on Wiering (1994).

Two basic obstacles have stood in the way of reconstructing PNC verb extensions with confidence, specifically with respect to determining which present-day extensions are cognate: First, there are problems in establishing phonetic correspondences. On the one hand, the same proto sound can have multiple reflexes, e.g. *d can be realized [l], [r], [n], [t], or Ø. On the other hand, the same present-day reflex can have multiple proto sources, e.g. [l] can derive from *t, *d, *d or *n. Second, there are problems in establishing semantic correspondences. Extensions can change or overlap in their functions. They can thus merge with each other or fuse with other suffixes, e.g. voice, aspect.

To illustrate these problems more concretely, consider the forms which Voeltz (1977:59) provides as reflexes of his PNC applicative *de:

- (6)
- | | | | |
|----|------------------|------|-------------------------|
| a. | Igbo (WBC) | -rV | (benefactive) |
| b. | Mbui (Bantoid) | -l | frequentative |
| c. | Tikar (Bantoid) | -l | causative |
| d. | Grebo (Kru) | -di | instrumental |
| e. | Dagara (Gur) | -l | causative |
| f. | Ndunga (Ubangi) | -la | stative |
| g. | Fula (Atlantic) | -ir- | (instrumental/locative) |
| h. | Temne (Atlantic) | -ər | (directional) |
| i. | Banda (Ubangi) | -ndɛ | ? |
| j. | Dongo (Ubangi) | -ni | ? |

Without studying each of the languages in some detail, it is hard to know in advance whether forms such as the above are reflexes of the same proto form, especially as they also vary widely in their semantics (cf. Trithart 1983:84).

Given the overlap in reflexes and semantics, phonetically similar suffixes can have quite different sources, raising questions like: (i) Where does Krahn multifunctional *-ɛ* in (2e) come from? (ii) Is the causative extension *-n* in the Atlantic language Fula (Arnott 1970) related to the causative extension *-n* in the Adamawa language Mundang? (Elders 2000)? Where a detailed phonology is available, we can sometimes resolve such questions. Thus, consider the reflexes of Proto-Bantu (PB) reversion transitive **-ud-* in (7).

- (7)
- | | | | | | |
|----|-------------------------------------------|--------------|--------|--------------------|-------------------|
| a. | Basaa <i>-l</i> (Lemb & de Gastines 1973) | | | | |
| | tɛŋ | ‘attach’ | tɪŋ-il | ‘detach’ | (/e, o/ → [i, u]) |
| | kɔp | ‘fix a hook’ | kɔb-ɔl | ‘unhook’ | |
| | at | ‘unite’ | ad-al | ‘divide’ | |
| b. | Ewondo <i>-i</i> (Essono 2000:372) | | | | |
| | sâ | ‘accrocher’ | sá-i | ‘dérocher’ | |
| | du | ‘tremper’ | du-i | ‘retirer de l’eau’ | [dwi] |
| | tij | ‘attacher’ | ti-i | ‘détacher’ | |

The Basaa forms look reasonable, even though the vowel of the suffix is not round. (As indicated, non-low vowels undergo vowel height raising.) The Ewondo case is less clear, since not only is the vowel [i], but there is no consonant. However, as the distribution of vowels in (8) shows, a non-initial round vowel must be preceded by an identical vowel. (V_1 is indicated in the first column, V_2 in the first row.)

- (8) Distribution of vowels in CV₁CV₂ stems in Ewondo (Essono 2000:115)

	i	e	ə	u	o	ɔ	a
i	+	-	-	-	-	-	+
e	-	+	-	-	-	-	+
ə	-	+	+	-	-	-	+
u	+	-	-	+	-	-	+
o	-	+	-	-	+	-	+
ɔ	+	-	-	-	-	+	+
a	+	-	-	-	-	-	+

It thus seems reasonable to hypothesize that Ewondo */-i/* is cognate with the **u* of PB **-ud-*, but has become unrounded (even after */u/*, perhaps as an analogical extension).

How then can we go about reconstructing and tracing the history of PNC verb extensions with reasonable confidence? Three possible strategies are the following: First, we might focus on the most complex systems, e.g. Atlantic and Bantu, which provide the most “pieces” to the puzzle and show

how a full extension system works. Second, we might focus on simpler systems, e.g. non-Bantu Benue-Congo, to see if their extensions appear to be “subsets” of the fuller set in the first group. If not, they may in fact provide evidence that the proto system was different, even more complex, than the extensions in Atlantic and Bantu. Minimally these languages would provide evidence for how extension systems erode, including the order in which various extensions are lost. A third strategy would be to look at innovative system such as Igbo (Onukawa 1999) which may provide evidence concerning which extensions should not be reconstructed, as well as showing how extension systems arise in general.

The above strategies each have something to contribute to resolving the puzzle. Let us begin with the first and ask the question: Does complex equal conservative? Two subgroups which have complex verb extension systems are Bantu and Atlantic, which I consider now in turn.

Bantu verb extension systems are impressively uniform and reconstructable back to PB, as in (9).

- (9) The PB verb extension system (Meeussen 1967, Schadeberg 2003)
- a. frozen, mostly semantically unidentifiable -VC- expansions
 - i. *-u-, *-im-, *-un-, *-ing-
 - ii. *-ang-, *-ab-, *-ag-, *-ak-
 - iii. *-im-, *-om-, *-o ng- (but only after CV)
 - iv. *-ot-
 - b. unproductive extensions often restricted to post-root position or specific combinations
 - i. *-ik- ‘impositive’
 - ii. *-am- ‘positional’
 - iii. *-a(n)g- ‘repetitive’
 - iv. *-ad- ‘extensive’
 - v. *-at- ‘tentive’ (contactive)
 - vi. *-ud-/*-uk- ‘reversive/separative’ (tr/intr)
 - c. productive extensions
 - i. *-i- ‘causative’
 - ii. *-ic-i- ‘causative’
 - iii. *-id- ‘applicative’
 - iv. *-ik- ‘neuter/stative’
 - v. *-an- ‘reciprocal/associative’
 - vi. *(-iC-)-u- ‘passive’

The extensions are relatively numerous and can often occur in long successions, as Ngunga (2000) shows for ci-Yao in (10).

- (10)
- | | | | |
|----|-----------------------------|------------------------------------|----------------------|
| a. | taam-a | ‘sit’ | |
| b. | taam-ik-a | ‘seat’ (put in seated position) | -ik- (impositive) |
| c. | taam-uk-ul-a | ‘unseat’ | -ul- (reversive tr.) |
| d. | taam-uk-ul-igw-a | ‘be unseated’ | -igw- (passive) |
| e. | taam-uk-ul-igw-aasy-a | ‘cause to be unseated’ | -aasy- (causative) |
| f. | taam-uk-ul-igw-aasy-an-a | ‘cause each other to be unseated’ | -an- (reciprocal) |
| g. | taam-uk-ul-igw-aasy-an-il-a | ‘cause e.o. to be unseated for/at’ | -il- (applicative) |

Turning now to Atlantic, as seen in the following Fula examples from Arnott (1970), the extension system of many Atlantic languages appears quite similar to Bantu:

- (11)
- | | | | |
|----|-----------------------------------|-----------------------------------|--------------------|
| a. | ’o-ma66-ii yolnde | ‘he shut the door’ | |
| b. | ’o-ma66-it-ii yolnde | ‘he opened the door’ | -t- (reversive) |
| c. | ’o-ma66-it-id-ii jol3e fuu | ‘he opened all the doors’ | -d-(comprehensive) |
| d. | ’o-ma66-it-id-an-ii =mo jolde fuu | ‘he opened all the doors for him’ | -an- (dative) |

However, whereas Bantu cognate extensions are relatively easy to identify across languages, there is considerably more variation in Atlantic, as seen in (12).

(12) Partial list of extensions in selected Atlantic languages (Becher 2000:31); Bijogo (Segerer 2002)

	Revers	Intens	Caus1	Caus2	Dative	Circum	Assoc	Inst	Reciprocal
Fula	it, ut	it, ut, VVin	(i)n	(i)n, d	an, in	ir, or, d	(o/i/u)d		indir, o ^ɪ dir, ootir, tir
Sereer	it		and	in, an, il, it	an, in, al	(i/o)r, it, an, oɗ	ir, or, od		or, od, andor
Wolof	i, anti, arbi, arñi	VVi	al, *in	al	al, wal	e, al	and-		oo, ante
Palor	is	(k)is	al, el, id	id	id	aʔ			ante, antox
Ndut	is	is	il	id	id	aʔ			antaʔ
Noon	(is)	(i)s	id, *l	id, d	id	oh			oh
Diola	ul		en, a	en, a	um	um			or
Balante	et, at		n	n	ed, Vd	(i)r, i	*d		ndi, ir
Basari	ʌt	el	ʌn	ʌn, l	i, l-i	al, r	dʌr, dʌ		ʌr, r
Bedik	ʌt			ɣn	ɣn	al	ɣd		ʌr
Kisi	i	i	i	i	(u)l		i		i-ŋ, (i/a)ndo
Temne	i, e	(a)s~t, V-V	(a)s, a, ar	(a)t, a	na, a, ar	(n)a, e, (i/a)r	as	an	(a)ne
Bijogo			i	i	an		an	at	an

Given its genetic and geographic position within Niger-Congo, the presence of verb extensions in Kordofanian is also important to consider, as illustrated in (13).

(13) Sketchy information from Kordofanian (Stevenson 1957); Krongo from Reh (1985)

	Dative	Passive	Recip	Assoc	Caus	Appl (Abl)	Ventive	Itive
Koalib	-(i)ce	-(i)ne	-(i)ɗu	-ɗize	-e	-aɗi	-a	-ɔ
Heiban	-(i)jo	-(i)nu	-(i)yo	-jiyo	-eyo	-öɗi	-a	-ɔ
Otoro	-(i)jo	-(i)nu	-ið	-(ag)ið	-iyo ?	-öɗi	-a	-ɔ
Masakan	-ine	-a(a)ko	-əra	-(ə)rəɗe	-i	-tɛ		
Talodi	-unok	-ɔk				-ek, -ik		
Temein	-agi	-an	-ane	-ane				
Krongo	-ĀkĀ, -Āŋ	Ātīŋj, -ĀcĀ	-(Ā)ncá		-ŋ, (tr.)		(Ā)cĀ	-kĀ

However, as seen in (14), some of the languages of the Kordofanian area such as Krongo, appear to have prefixes fulfilling some of the roles normally expressed by verb extensions in other languages:

(14) Krongo also has a full set of case prefixes (Reh 1985:144)

a.	dative	Ā-	e.	comitative	yĀ-
b.	locative	kĪ-, kA-	f.	genitive	mĀ-
c.	ablative	nkĪ-, nkA-	g.	possessive	kA-
d.	instrumental	Ān-			

The fact that many Niger-Congo languages also have prepositions is a significant component in understanding how verb extensions arise diachronically. As seen in (15), two pathways are recognized:

- (15) Pathways for developing verb extensions involving “verbal attraction” (Heine & Reh 1984:50; cf. Givón 1971, Voeltz 1977, Lord 1993)

- a. serial verbs: V + NP + V > V + V + NP > V-ext NP
 e.g. Aghem *ghé nì t í-fú kò? > ghé nì kò? t í-fú
 3pl take hoes go-up ‘they took-up hoes’
- b. prepositions: V + prep-NP > V-ext + NP (e.g. PB Assoc/Recip *-an- < na- ‘with?’)

The first pathway in (15a) concerns the grammaticalization of verbs in series. The Aghem example from Hyman (1979:209) illustrates the process of “verbal attraction” (cf. Kiessling 2003). A verb, here ‘to go up’, comes to be compounded with a preceding verb, ultimately grammaticalized as a suffix.

The second pathway in (15b) concerns regrammaticalization of a preposition into a verb suffix. Thus the Bantu associative/reciprocal extension *-an-* is often assumed to come from the preposition *nà-* ‘with’. The same may have happened in Atlantic. Consider in this context the shapes of the Bijogo extensions in (16) which Segerer (2000) compares to phonetically similar verbs and prepositions:

- (16) Bijogo extensions and their possible sources (Segerer 2002); NB prepositions can combine with each other.

Extension	Verb	Prep
middle -ok	-ok ‘be there, exist’	
ventive -a		a- ‘on’
Itive -am		am- ‘at’ ma- ‘in order to’
causative -(ak)-i	(-ak see below)	i- ‘chez’
instrumental -at	-at ‘reach’	ta- ‘with, from’
recip/assoc. -an		na- ‘and, with’
benefactive -an		an- ‘towards’
resultative -ak ~ -Vk	(-ak ‘draw (water)’, (-ak ‘crush’)	ka- ‘as, since, if, when’ aki- ‘like’

As seen, several of the extensions appear related to prepositions. One of these concerns the instrumental *-at* vs. the preposition *ta-* ‘with, from’. The parallel with Bantu *-an-/na-* is striking, especially as some NW Bantu languages use *-an-* as an instrumental extension (cf. (19) below). Segerer also considers possible verbal sources of the Bijogo extensions, as indicated, but these do not seem as semantically transparent. In (17) two more attempts are made to relate extensions to prepositions in Atlantic. While less impressive than Bijogo, each language has at least one correlation that appears promising as an etymological source.

(17) a. Kisi (Childs 1987, 1995)

Extension	Prep
causative -i	
benefactive -lul, -l	lé 'for'
middle -nuŋ, -ŋ	
plural -ì, -uu	
	á 'with'
	ó 'to, at'

b. Temne (Wilson 1961, Kanu 2004)

Extension	Prep
reversive -i	
iterative -s, -t	
causative -s	
directional -r	ro 'to, at'
benefactive -a	ta 'for'
(applicative)	ka 'of, from'
reflexive -nε	
instrument -aŋε	ra 'with'
reciprocal -aŋε	yi... aŋ 'with, and'
	ŋa... aŋ (w/plurals)

There seems to be a clear relationship between prepositions and verb suffixes, but why should the former regrammaticalize into the latter? As can be seen in the statement concerning Dholuo in (18a), verbal attraction appears to be a strategy for avoiding preposition stranding:

(18) Verbal attraction as a strategy for avoiding preposition stranding

- a. [Dholuo (Nilo-Saharan)] has a verb attraction rule applying to case marking prepositions: once the noun phrase governed by the relevant preposition is topicalized to the pre-verbal position the preposition is removed from the adverbial phrase and attached to the verb as a suffix. (Okoth-Okombo pers.comm. to Heine & Reh 1984:51)
- b. jon nego diel ne juma 'John is killing a goat for Juma'
John is.killing goat for Juma
- c. juma jon negone diel 'John is killing a goat for JUMA'
Juma John kill-for goat
- d. juma jon i-negone diel 'a goat is being killed for JUMA'
Juma John PASS-kill-for goat

The basic sentence structure is seen in (18b) where the beneficiary is introduced by the preposition *ne-*. In (18c,d), where the beneficiary is fronted for focus purposes, the preposition now attaches to the verb as a suffix. Heine & Reh (1984:53) describe a similar situation where the verb *mâ* 'give' becomes an applicative suffix in Kxoe (Khoisan) just in case the beneficiary does not follow. This process is reminiscent of Bantu locative prefixes, which become enclitic to the preceding verb when a noun phrase is fronted, e.g. 'I slept in-house' vs. 'house that I slept-in'. Finally, note the equivalence between preposition *nà-* and suffixal *-an-* in the following examples from Mòkpè, a NW Bantu language:

(19) Prepositional *nà-* 'with' vs. instrumental extension *-an-* in Mòkpè (Henson 2001)

- a. à-mà-sòs-á nà sóβì 'he washed with soap'
he-PAST-wash-FV with 9-soap
- b. à-mà-sòs-án-á sóβì 'he washed with soap'
he-PAST-wash-INST-FV 9-soap

Although other evidence shows that (19b) must be parsed as *-sòs-án-á* rather than *-sòs-á-ná*, the etymological relationship seems secure. What may have started out as an avoidance of preposition stranding has become generalized to fit the overall extension system.

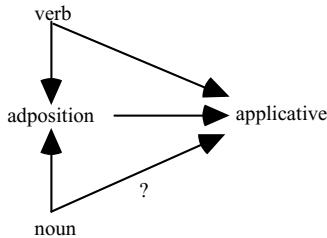
Various possible scenarios for the development of verb extensions are shown in (20).

- (20) a. V > extension c. V > postp > extension
b. prep > extension d. V > prep > extension

We have discussed (20a, b) where either a verb or a preposition becomes an extension. (20c, d) provide intermediate steps whereby a verb first becomes a postposition or preposition and then an extension. What is important is that these scenarios are potentially dependent on the word order reconstructed for PNC: While the direct verbal source in (20a, c) seems most compatible with an SOV order in PNC, a prepositional source requires PNC to have had SVO order. (For a discussion of word order in PNC, see Gensler 1997 and references cited therein.)

Let us consider some of the issues involved in the development of so-called applicatives. As frequently noted, a common source of applicatives world-wide is from a verb, especially one meaning ‘give’. Peterson (1999:104) illustrates the source morphology for applicatives as follows:

(21) Source morphology for applicatives/locatives, etc. (Peterson 1999:104; cf. Craig & Hale 1988)



Although benefactive applicatives are pervasive in the world’s languages, as seen in (22), applicatives are frequently polysemous in Niger-Congo—especially in Bantu.

(22)

	Chichewa	Temne	Fula
causative	-is-	-s	-n-
allative	-ir-	-r	-r- ?
locative	-ir-	-r	-r-
recipient	-ir-	-r	-an-
benefactive	-ir-	-a	-an-
circumstance	-ir-	-a	-an-
manner	-ir-	-a	-r-
instrument	-ir-	-a -nε	-r-

The seven functions expressed by the applicative *-ir-* suffix in the Bantu language Chichewa divide up differently in the Atlantic languages Temne and Fula. This raises two questions: First, what was the semantics of the original grammaticalization(s)? Second, how did the (or each) grammaticalization extend to cover other functions, ultimately deriving polysemous applicatives which mark benefactive, recipient, allative, manner, instrument, etc. in Bantu and elsewhere? Two of the proposals are reproduced in (23).

- (23) a. allative > recipient > benefactive (Endresen 1994)
 b. locative > time > manner > instrument (Trithart 1983:182)

In fact, there are two logically distinct scenarios for the development of the ultimate Bantu applicative polysemy, which is remarkably stable in Central, Eastern and Southern Bantu:

- (24) a. **-id-* (*-ir-*) first developed with one meaning which then acquired additional functions following semantic pathways such as in (23)
 b. different extensions developed covering the functions in (22), which were later taken over by **-id-* (*-ir-*) following semantic pathways such as in (23)

The first scenario in (24a) supposes relatively few applicative-like extensions in PNC, perhaps limited to the one applicative suffix in PB. The second scenario in (24b) suggests a richer inventory of applicative extensions in PNC, perhaps on the order of that seen in Atlantic where there is a differentiation into benefactives, recipients, locatives, instruments, etc. Having surveyed some of Niger-Congo (cf. also below), I am inclined to believe that Bantu has merged a richer system of applicative-like extensions, but until Atlantic is understood better, the possibility always remains open that some of the extension properties found in that group are actual innovations.

Another strategy for determining the relative chronology of extensions is to carefully study the linear orders in which they occur with respect to each other. The hypothesis here is that suffixes which occur closer to the root are older (Good 2005). For example, Bantu languages frequently constrain the order or the realization of extensions in at least three ways: (i) some extensions must occur immediately after the CV(C)- root, e.g. reversives *-*uk-*, *-*ud-*; (ii) some extensions have different allomorphs after a root vs. after another extension; (iii) some extensions have fixed orders with respect to each other. In Hyman (2003a), I presented arguments supporting the following templatic order of extensions in Bantu:

(25)	causative ₁	applicative	reciprocal	causative ₂	passive
Proto-Bantu	-ic-	-id-	-an-	-i-	-ib-u-
Luganda	-is-	-ir-	-agan-	-i-	-ib-u-

If there is at least a tendency for older suffixes to occur closer to the root than more recent ones, as Good (2005) hypothesizes, and if the extension system developed once at or just before the PNC stage, we should expect to be able to establish a similar ordering of suffixes across the various subgroups of Niger-Congo. Minimally, we should expect cognates of Bantu causative *-is-* to occur earlier than other extensions.

Consider in this context the Gur language Moore, whose extensions in (26a) show the indicated correspondences to their PB counterparts:

(26) Verb extensions and their combination in Moore (Canu 1976)

a.	-b	be in a state		cf. PB *-ib-u-	passive
	-b	intensive			
	-d	produce by putting into a state		cf. PB *-ud-	reversive transitive (?)
	-d	locative		cf. PB *-id-	applicative
	-g	put into a state		cf. PB *-ik-	impositive
	-g	repeated action, intensive		cf. PB *-a(n)g-	plural, durative
	-g	inversive		cf. PB *-uk-	reversive intransitive
	-l	amplitude, certitude		cf. PB *-lɪd-	completive, intensive
	-m	positional		cf. PB *-am-	stative (positional)
	-s	causative		cf. PB *-ic-	causative
	-s	discontinuous (fréquentative?)			

b.	-b	-d	-g	-l	-m	-s
-b			x	x		x
-d			x			x
-g				x	x	x
-l			x		x	x
-m						x
-s			x			

In this language the causative suffix *-s* occurs late (followed only by *-g*) in contradistinction to the Bantu template in (25) where causative₁ occurs early. The three Atlantic languages in (27) show mixed results in the ordering of causative *-s* and *-i* when compared to either Bantu or Moore:

(27) Three Atlantic suffix orders (note early *-i* in Temne/Kisi vs. late *-i* in Bijogo/Bantu)

a.	Temne (Kanu 2004)	caus, iter, rev	dir/loc	ben	refl	(refl/instr = <i>-a</i> + <i>-nε</i>)
		-s -s ~ -ʃ -i	-r	-a	-nε	
b.	Kisi (Childs 1995)	caus, plur	benefactive	middle		
		-i -uu	-lul, -l	-nuŋ, -ŋ		
c.	Bijogo (Segerer 2002)	res, middle	instr	rec/assoc/ben	caus, ventive, itive	(* <i>-at-i</i> not attested)
		-ak -ɔk	-at	-an-	-i -a -am	

Temne has an early causative *-s* as in Bantu. However, causative *-i* occurs early in Kisi vs. late in Bijogo. Perhaps we can hypothesize that the causative *-i* of Kisi corresponds to the Bantu Causative₁ (**-ic-*), while the causative *-i* of Bijogo corresponds to the Bantu Causative₂. (Recall the discussion above concerning the difficulty of establishing clear etymologies in certain cases.) The other possibility is that there wasn't one order in Proto-Atlantic, but rather Atlantic languages have fixed the suffix orders in different ways. There also is the possibility that the template in (25) is a Bantu innovation.

Besides having variable ordering, suffixes may have different allomorphs according to their position, particularly with respect to the root. Such a case occurs in the NW Bantu language, Basaa:

(28) Basaa verb extensions and allomorphs (Hyman 2003b, Lemb & de Gastines 1973)

	After CV(C) root	Later in verb stem	
reversive	ː-l, -l	---	(ː = vowel raising)
reflexive	-b [p], -b-a, ʃ-a	---	
causative	ː-s	---	
indirect causative	ː-h-a / ː-s-a/	ː-h-a / ː-s-a/	
applicative	ː-l	-n-ε	
reciprocal	-n-a	-n-a	
passive	ː-a, ː-b-a	-a, -n-a	
habitual	-a	---	
stative	ː-i	---	
imperfective	-g [k]	-ag [ak]	

The first three suffixes occur only immediately after the CV(C) verb root. In addition, the applicative and passive extensions have different allomorphs when following the root vs. another extension. The order in which the above extensions occur is shown in (29).

(29) Root C's ⊃ {b, l} ⊃ {s, h} ⊃ n ⊃ g

Since /b/, /l/ and /n/ all mark more than one extension; the suggestion is that the extension order is at least in part phonologically determined.

Perhaps the most striking property of the verb stem (root+extensions) in NW Bantu is the tendency for a maximal size to be imposed, e.g. three syllables in Basaa vs. the unlimited number of syllables in the Eastern Bantu language ci-Yao in (10). The NW Bantu languages Gunu and Mokpe are tending in this direction, while the Grassfields Bantu languages Mankon and Bafut have gone further to limit verbs to two syllables (a monosyllabic root + one -Cə extension). Still, the resemblance of the extensions in (30) to Proto-Bantu is unmistakable.

(30) Extensions in NW Bantu and Grassfields Bantu

Gunu (Orwig 1989)	A.62	Mokpe 1997, Henson 2001)	A.22 (Connell)	Mankon (Leroy 1982)	Bafut (Tamanji & Mba 2003)	
-anIn	reciprocal	-an-ε	reciprocal	-nə	reciprocal	
-an	plural, iterative	-an-a	instrumental	-nə	stative, refl	
-Ug	reversive intr.	-o-a	reversive	-kə	intransitive	
-Ig	intensive			-kə	iterative	
-i	causative	-is-ε	causative	-sə	causative	
-Id	diminutive			-tə	diminutive	
-In	applicative	-e-a, -εl-ε	applicative		-lə	random
-Im	stative	-am-a	positional			
=VIÚ	passive	-av-ε	passive			
bá-	reflexive	á- ... -ε	reflexive			

The above completes the overview of Niger-Congo verb extensions promised in the title. The results of this brief survey are summarized in (31).

(31) Summary of results

- a. Niger-Congo verb extensions are widespread, but varied
- b. etymologies are mostly unknown
- c. establishment of (false) cognates may be obscured by sound and meaning changes
- d. it is likely that head-marking and specific extensions are reconstructible to PNC
- e. Mande, Atlantic, and Kordofanian diverge from Volta-Congo, as expected from NC tree

Concerning the last point in (31e), Mande has almost no extensions, while the extensions found in Atlantic and Kordofanian show differences from Bantu and certain other Volta-Congo languages in having multiple applicatives.

In (32) I list the principal extension properties which distinguish “Central Bantu” (CB) from those found in NW Bantu and other Niger-Congo languages:

- (32) a. passive
- i. CB reflexes of *-*lb-ʋ*- may co-occur with passive agent
 - ii. passive is rare elsewhere in Niger-Congo; the agent is often not expressible
- b. applicative
- i. multifunctional in CB (locative; sometimes instrumental function)
 - ii. distinct locative and instrumental extensions frequent outside CB (e.g. -*an*-)
- c. middle voice (cf. Atlantic, Kordofanian; Gokana -*a*)
- i. CB stative/neuter *-*lk*- has a specific function (often meaning ‘be verb-able’)
 - ii. Non-Bantu Niger-Congo languages often have middle voice suffixes thoroughly integrated into the system, i.e. used across various tense-aspects
- d. aspect
- i. Productive Bantu extensions mostly encode arguments vs. aspect
 - intensives are often derived from causative *-*ic-i*- or double applicative *-*ld-ld*-

- development of perfective **-id-ε* and imperfective **-a(n)g-a* postdate the development of the derivational extensions
- ii. Productive non-Bantu NC extensions include aspect (e.g. pluractional, completive)

Concerning the last point, in much of the Plateau and neighboring groups of Niger-Congo within Nigeria, “. . . those [verbal extensions] with syntactic functions have been lost, while aspect-like VEs are still present” (Gerhardt 1988:5). Pluractionality marking is widespread in both Nigeria and Cameroon and, where occurring, often uses suffixes which look like the derivational suffixes found in Bantu and elsewhere in Niger-Congo, e.g. in the Grassfields Bantu language Kom, where individual verbs mark the pluractional by means of different suffixes:

(33) Kom pluractional marking (examples from fieldnotes; cf. Mba & Chiatoh 2003)

-tə		-lə		-nə	
kfu	‘die’	kfu	‘break (eggs)’	fù	‘exit’
cvù	‘soak’	sœ	‘sink’	niŋ	‘run’
		foè	‘rot’	gwì	‘come’
		beʔ	‘break (sth soft)’	ʒi	‘eat’
		lè	‘get lost’	lù	‘leave’

This change from marking valence to marking aspect allows us to present the natural history of verb extensions as schematized in (34).

(34) The natural history of extensions

- a. generation (i.e. genesis of the original extensions)
 - i. from verbs (also from nouns?)
 - ii. from adpositions
- b. regeneration (i.e. restructuring of original extensions)
 - i. functional reassignments (e.g. causative > intensive > pluractional)
 - ii. splits, e.g. Endresen (1994) proposes that there was one *-n-* suffix in pre-Fula, but that final vowel suffixes were anticipated and later dropped, producing the following reinterpretations:

<i>*-Vn-a</i>	>	<i>-an-a</i>	>	<i>-an</i>	(benefactive)	cf. <i>*-Vt-oo</i> > <i>-ot-o</i>
<i>*-Vn-i</i>	>	<i>-in-i</i>	>	<i>-in</i>	(causative)	‘middle rel. imperf.’
 - iii. renewal, e.g. *-an-* < *na-* as an instrumental in NW Bantu; perhaps also Bijogo *-at* < *ta-*
 - iv. semantic reassignments, e.g. valence extensions > aspectual
- c. degeneration (i.e. steps on the way to loss of extensions)
 - i. productive > non-productive > “formal”, e.g. Bantu **-ad-*, **-at-* ~ *-Vt-*, etc.
 - ii. fusion and loss via prosodic restrictions or phonetic erosion (Hyman 2004)

Finally, there’s the question: Where’s Bantu in all this? Are PB extensions super-archaic or a restructured system? It’s hard not to speculate that early or pre-PB was somewhat different. I thus conclude with two speculations. First, maybe the αV of contactive *-at-* ~ *-Vt-* and other frozen extensions derive from final *-a* in a period before *-a* became the general verb-final vowel in Bantu; cf. past **-l* which is restricted to post-root position in some languages vs. *-a* with extensions (Grégoire 1979). Second, maybe causative **-i* and passive **-o* are old voice suffixes that have been incorporated into various extensions in this way. What is needed is a renewed effort to study and compare Niger-Congo verb extensions in greater depth. Only then will we be able to resolve the questions raised in this paper and arrive at a firmer conclusion.

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