2010, 6 February Muḥayyadīn Budrus, male, 35, Abol
2010, 7 February Muḥayyadīn Budrus, male, 35, Abol
2010, 9 February Muḥayyadīn Budrus, male, 35, Abol

References

African Rights (Rakiya Omar, Alex de Waal). 1995. *Facing genocide: the Nuba of Sudan*. London: African Rights.

Baumann, Gerd. 1980. *Society, culture and musical activity in Miri: an ethnography of a Nuba Mountains village (Sudan)*. PhD diss., Queen's University of Belfast.

Baumann, Gerd. 1987. *National integration and local integrity: the Miri of the Nuba Mountains in the Sudan*. Oxford: Clarendon/Oxford University Press.

Bell, Gawain Westray. 1938. Nuba agricultural methods and beliefs. *Sudan Notes and Records* 21: 237-249.

Colvin, R. C. 1939. *Agricultural survey of Nuba Mountains*. Khartoum: McCorquodale.

Corkill, Norman L. 1939. The Kambala and other seasonal festivals of the Kadugli and Miri Nuba. *Sudan Notes and Records* 22: 205-219.

Ille, Enrico. 2011. *Tracing golden past: historical narratives about Shaybun and Shawabna in the Nuba Mountains, Sudan*. Leipzig & Weissenfels: Ille & Riemer.

Kramer, Fritz W., & Gertraud Marx. 1987. kátú mó dì: Vorstudien zur Ethnizität und Gesellschaft der südlichen Nuba. Teisenham, ms.

Kramer, Fritz W., & Gertraud Marx. 1993. *Zeitmarken: Die Feste von Dimodonko*. Munich: Trickster.

Nadel, Siegfried F. 1947. *The Nuba: an anthropological study of the hill tribes in Kordofan*. London: Oxford University Press.

Rottenburg, Richard. 1991. *Ndemwareng: Wirtschaft und Gesellschaft in den Morobergen*. Munich: Trickster.

Salih, Mohamed Abdel Rahim Mohamed. 1983. *Development and social change among the Moro of the Nuba Mountains*. PhD diss., University of Manchester.

Schadeberg, Thilo C. 1981. *A survey of Kordofanian. Volume 1: The Heiban group*. Hamburg: Helmut Buske.

Sudan Government. 1982. *South Kordofan planning unit: final report*. Hunting Technical Services.

Noun class parallels in Kordofanian and Niger-Congo: evidence of genealogical inheritance?

Harald Hammarström

1. Introduction[1]

The Kordofanian languages are a grouping of some 20 languages spoken in the Nuba Mountains of Sudan. The interrelatedness of the Kordofanian languages is not obvious, and requires some reservations. Most of the Kordofanian languages exhibit noun-class systems with prefixal alliterative concord, similar to Bantu, Atlantic and other languages of West Africa which, in some constellation, form the Niger-Congo family. The Kordofanian languages have been argued to be genealogically related to the Niger-Congo languages on the basis of comparisons of form and function of the noun-class prefixes in Kordofanian. The present paper reviews the arguments for the Kordofanian languages being related externally to the Niger-Congo languages. In particular, we explore the possibility that the noun class systems in Kordofanian and Niger-Congo are independent innovations where some amount of form-function correspondence can be expected from any two independent noun class systems.

We re-examine the case for the relation of Kordofanian to Niger-Congo, starting from its most well-articulated form in Schadeberg (1981a) and taking into account data that has appeared since. It is instructive to first review the internal status of the non-controversial groups of Kordofanian.

Heiban: Internally, the Heiban branch is above 40% related lexicostatistically, and a fair amount of lexical proto-forms, and noun-class prefix pairs can be linked by regular sound correspondences (Schadeberg 1981c). Though there are question marks here and there, these are generally convincing, even for Warnang, which appears to lack many of the proto-classes. A special case is Laro, which is 90% lexicostatistically cognate with

[1] The author wishes to thank an anonymous reviewer for an excellent examination of a previous draft of this paper.

Heiban but shares no noun-class pairing with Heiban or the rest of the languages at all (Schadeberg 1981c: 147-149)! The Laro story is that this was done deliberately to confuse their neighbours (Schadeberg 1981b). There appears to be no convincing alternative to this story.

Narrow Talodi: Internally, the Narrow Talodi branch is clearly related with lexicostatistical figures in the range 44-47%. A fair amount of lexical proto-forms, and noun-class prefix pairs can be linked by regular sound correspondences (Schadeberg 1981d). Though there is a question mark here and there, these are generally convincing.

Lafofa: Lafofa is a single language with some dialectal diversification (Stevenson 1956-1957, 40: 102, 41: 43-46; Schadeberg 1981d: 15). Noun classes are present.

Rashad: The Rashad group comprises two dialect clusters, Tagoi and Tegali, which are clearly related in their lexicon, including, e.g., lower numerals (Latham 1848: 199; MacDiarmid & MacDiarmid 1931: 153; Stevenson 1956-1957, 41: 46). The curious fact is that the Tagoi dialect cluster has a full-fledged alliterative concord noun-class system while the Tegali cluster has no trace of a noun class system. The question is thus whether there was an original noun-class system common to both that was subsequently lost in the Tegali cluster, or whether originally there was none and the Tagoi cluster acquired them later (presumably under influence from neighbouring Heiban or Talodi group noun class languages). Stevenson (1956-1957, 40: 102) favoured the theory that the Tagoi cluster acquired them, since, in addition to the prefix class-markers in Tagoi, both clusters share a plural marking suffix *-Vn*. Schadeberg (1981a: 121) on the other hand, deemed the acquisition of a noun-class system much less probable than the loss of it, and objected to the lack of an identified donor language. No new perspectives or descriptive data have been published to resolve the question.

Katla-Tima: The Katla branch consists of two very closely related languages Katla and Julud, which, in turn, are related to the single language Tima. The two branches are fairly diverse[2], exhibiting, e.g., different sets of numeral roots, but the case for the two being related is convincing (Stevenson 1956-1957, 41: 190-191). One theory is that the divergence of Tima is partly the result of a deliberate manipulation (Dimmendaal 2009b). There are no noun classes (Alamin 2009; Meinhof 1917).

[2] According to Schadeberg (1989: 71) they share as much as 50% of their basic vocabulary.

2. The internal coherence of Kordofanian

2.1 The position of Katla-Tima

Since no noun classes are attested in the Katla-Tima group, all that has been adduced in support of a genealogical relation with the other Kordofanian languages is the lexical evidence in Greenberg (1963: 149-160). The evidence presented by Greenberg for Katla-Tima is extremely slight: in the 1950 version only the prefix-pairs Katla *b/-* and Tima *g/-* are cited, while in the 1963 version no prefix-pairs are cited, though instead a 2nd person pronoun Katla-Tima *ŋaŋ*[3] 'you (sg.)' and a Katla 3rd person pronoun *ŋu* 'he/she' is cited. Among the 52 Kordofanian-Niger-Congo lexical parallels cited in the 1963 version, only 9 involve Katla or Tima (or both). Needless to say, 2 pronoun forms and 9 lexical items do not stand a chance of passing tests of random resemblances, and, in any case, similar amounts of lookalikes can be found with languages outside Kordofanian (Stevenson 1962-1964, 45: 100; Blench 2006a,b). Therefore, there is no convincing case for a Katla-Tima grouping neither with Kordofanian nor with Niger-Congo. Similarly, Dimmendaal's (2009a) attempt at finding parallels directly with Niger-Congo, is unconvincing in that chance resemblances are not ruled out.

2.2 The Lafofa-Narrow Talodi relationship

Schadeberg (1981d), following Greenberg (1950: 390), further argued that Lafofa's closest relative is the Narrow Talodi group, citing noun class parallels and lexical evidence (lexicostatistical figures in the range of 13-25% between Lafofa and various Narrow Talodi languages; Schadeberg 1981d: 87). However, he is well aware that the noun-class and lexical parallels involving Lafofa are much less secure than those in Narrow Talodi (Schadeberg 1981d: 158). The evidence from noun classes for relating Lafofa and Narrow Talodi noun classes is laid out in a detailed comparison, with many comments and reservations in Schadeberg (1981d: 112-129). An important concern is that, at the time, not even one Talodi language was known well enough for us to know what, if anything, is the semantic content of a certain prefix-paired class. The semantics of a noun class was therefore gauged by Schadeberg (1981d: 112-129) on the basis of which words from a 200-word list belonged to the respective class. This has the effect that, since

[3] The correct Tima form has a long *a*: *ŋaaŋ* (Alamin 2009: 148).

relatively few words serve to delineate the noun-class semantics, significant chance and uncertainty effects enter into the equation. As one scrutinizes the reported comparisons involving Lafofa, it appears that far from all noun classes posited for Proto-Talodi have unambiguous support in Lafofa. The present author's assessments on paired noun classes assigned to proto-Talodi (PT) on the basis of Narrow Talodi (NT) and Lafofa evidence as of Schadeberg (1981d: 112-129) are summarized in Table 1.

Table 1. Assessment of noun classes assigned by Schadeberg to proto-Talodi

PT	Semantics	Status
**b-/(y-)*	"personal"	Not found in Lafofa
**b-/g-*	"tree"	No semantically matching word(s) in Lafofa
**w-/g-*	cow, goat, meat	OK
**j-/g-*	belly, breast, eye, neck, tooth	Requires irregular correspondence NT *j-* ~ Lafofa *ṯ-/t-*
**j-/m-*	bone, egg, head	Requires irregular correspondence NT *j-/Ø* ~ Lafofa *ṯ-/t-*
**ḏ-/r-*	horn, root, thorn	Requires slightly irregular correspondence NT *ḏ* ~ Lafofa *ṯ-/d-* and an arbitrary choice in the NT gender of root
**ḏ-/n-*	hole, leaf, tongue	Not clearly attested in Lafofa
**d-/n-*	hair, louse	Not clearly attested in Lafofa
**g-/n-*	knee, road	Not attested in in Lafofa
**g-/w-*	ear, moon	Phonologically corresponding gender *k-/l-* exists in Lafofa but without matching words
**ts-/ɲ-*	hand, leg	Not found in Lafofa
**ŋ-/ɲ-*	bird, fish	Not found in Lafofa
**b-*	earth, sand, fog, cloud, sun	The only potential Lafofa matches are 'cloud' = 'mist' and 'sun' with irregular *p/b* alternation
**j-*	fog, salt, sun	The only potential Lafofa matches are 'fog' = 'smoke'
**ḏ-*	fire	OK
**n-*	night	Not found in Lafofa
**g-*	bark, name, wind	Requires irregular correspondence NT *g-* ~ Lafofa *ç-/k-*
**ŋ-*	blood, dirt, fat, water, ...	OK, but some Lafofa items have an irregular correspondence NT *ŋ-* ~ Lafofa *ŋ-/ɲ-*

As for the lexical evidence, Schadeberg (1981d: 130-154) reconstructs some 158 cognate sets for proto-Talodi, 68 of which involve a Lafofa form. Of the 68 Lafofa cognates, 18 are regarded by Schadeberg as doubtful, and thus the remaining 50 as secure. Of the 50 cognates regarded as non-doubtful, some 12 are one-vowel (or diphthong) only matches (cow, egg, eye, fat, fire, guts, root, thorn, warm, water, wind, year), some 19 are one-consonant matches[4] (bone, die, dog, eat, fear, flower, fly, bark, dirt, meat, say, tongue, tooth, goat, hand, name, pull, rain), and in 12 other the match is not entirely convincing formally or semantically (branch, gazelle, give, fog, many, heart, scratch, suck, clean, nail, smooth, head). The remaining seven (left side, road, who, count, snake, squeeze) are good multi-consonant matches, but may, of course, include loans. Without many secure cognate sets, it is difficult to find regular correspondences. However, a good candidate is the loss of final *-k* in Lafofa, with up to six witnesses (dog, year, goat, guts, fat, fire). In addition, this correspondence is attractive since Lafofa appears to be more tonal (Schadeberg 1981d: 76-84) than the other Kordofanian languages. This suspicion cannot, at present, be followed up without more and carefully tone-analysed data.

2.3 The Rashad-Heiban-Talodi-Lafofa relationship

Two lines of argument, going back to Greenberg (1950) and subsequently sifted by Stevenson (1962-1964 and unpublished materials, see Blench 1997) and Schadeberg (1981c,d), have been put forward for the unity of all the Kordofanian subgroups, namely, the noun class systems and the lexicon.

As noted already, the lexical evidence is not impressive. The relatively small number of lookalikes so far published (Greenberg 1963: 149-160) are not proto-forms from the respective branches but arbitrarily selected from different branches. Already Stevenson (1962-1964, 45: 100) showed that similar amounts of such lexical resemblances can also be found with neighbouring non-Kordofanian languages, cf. Latham's (1848: 199) parallels between Rashad and Cushitic. Similarly, Blench (2006a,b) re-evaluates the internal lexical evidence with parallel conclusions.

The argument for a genealogical relation on the basis of form-meaning correspondences in noun-classes culminates in the Heiban-Talodi-Rashad part of the comparative table of Schadeberg (1981a: 123), cf. Table 2 below. What the actually claimed correspondences are, whether they exceed chance, and whether they provide linguistic (as opposed to geographic) evidence for a Kordofanian subgroup is left implicit. But an explanation in

[4] Some other words, see especially those involving *r*, do not have consistent correspondences.

terms of diffusion is explicitly rejected on the grounds that the direct borrowing of noun class systems is unattested (Schadeberg 1981a: 124). This claim may have been too rash, since direct borrowing of noun classes as well as other kinds of diffusion are attested.

For example, three concordial noun classes as well as many nominal stems (but not necessarily the stems bearing the morphology in question) were borrowed (in form and function) into Warndarang from Nunggubuyu (Heath 1978a: 88-90). In this case, many lexical items accompanied the borrowing of noun classes and the case therefore does not parallel the (internal) Kordofanian situation where, lexically, the branches are quite distinct, lacking massive lexical borrowing in any direction. More relevant is direct borrowing of morphological material without massive lexical borrowing at the same time, which is also attested. A large array of bound gender markers and classifiers are borrowed (in form and function) from Bora into Resígaro (Seifart 2011), which is tantamount to borrowing a noun class system of the Kordofanian type.

There are also cases where contact with a noun-class language appears to have given rise to a full-fledged concordial noun class system with native material (rather than borrowed) making up the prefixal forms. Yanyuwa's closest genealogical relatives in the Ngarna subgroup of Pama-Nyungan show no sign of a noun class system (Breen 2004; Dixon 2002: 500-502) implying that it is an innovation in Yanyuwa. Yanyuwa is the only Ngarna language in contact with noun class languages, therefore it seems plausible to link the innovation of noun classes to precisely that contact. There are plausible internal etymologies for some of the Yanyuwa prefixes but little in the way of matches in form with neighbouring noun-class languages (Dixon 2002: 500-502). The Yanyuwa case thus appears to represent a case of borrowing of a noun class system without segmental material. Furthermore, Dholuo has significantly expanded a system of inherited paired prefix genders due to contact with Bantu languages (Dimmendaal 2001: 97-105; Storch 2005: 339-344, 414; Hieda 2011: 164-167), resulting in a nominal class system similar to Bantu language (but without alliterative concord). Another relevant case may be Mauritian Creole which has accelerated article incorporation due to contact with Bantu languages (Strandqvist 2003: 27-114). What used to be an article in French loses its meaning and becomes unsegmentable and phonologically part of its host word. The result is a large number of stems beginning with *la-*, *de-*, *ma-* and so forth. While the resulting article+stem compound is usually a noun, there are also cases where the resulting form is an adjective or a verb. With many such cases, it is easy to see how alliterative concord may emerge, though this has not (yet?) happened.

In sum, an adequate evaluation of the merits and demerits of an inheritance versus an diffusional scenario for the Kordofanian remains to be done.

3. Kordofanian and Niger-Congo

The argument for relating Kordofanian and Niger-Congo hinges on parallels in the noun class systems. The lexical evidence was never impressive and remains weak in a more recent re-evaluation (Blench 2006a,b). Another diagnostic frequently used to define the Niger-Congo family is verb-extensions (Williamson & Blench 2000), but a recent survey including Kordofanian failed to produce clear such parallels in Kordofanian (Hyman 2007).[5]

As noted, the Lafofa, Talodi, Heiban and (one branch of) Rashad lineages have noun class systems. All of these undoubtedly have a similar typology in the following ways:

- The noun-classes are marked by overt (predominantly single-consonant) prefixes.
- The noun-classes are defined by (predominantly alliterative) concord in the noun phrase and in the non-Rashad groups, also as subject prefixes on the verb.
- There are a dozen or more noun-classes that come in singular-plural pairs (but the same prefix frequently occurs as the plural of one class and as the singular of another and vice versa).
- There are a dozen or more noun-classes come in singleton form (i.e., not in singular/plural pairs).
- Many noun classes seem to have some correlation with semantic fields.
- Many nouns, sometimes also nouns which take noun class prefixes, also take a suffix in the plural.

Some of these features are similar to Niger-Congo noun classes, i.e., the singular-plural pairing, alliterative concord and possibly some aspects of the semantics. The differences to Niger-Congo are the large number of singleton classes, the presence of additional plural-marking suffixes, and the extent to which one prefix can serve as singular or plural depending on the gender

[5] The verb-extension comparisons in Dimmendaal (2009a) concerning Katla-Tima specifically, have not ruled out chance as an explanation for the parallels observed.

(Kihore 1978). The Kordofanian languages also appear to have much fewer (if any) prefixes that include a vowel, contrasting with Niger-Congo languages which typically have many consonant plus vowel prefixes (Johnston 1919-1922, vol. 2: vii-viii).

From the very beginning, the question has been whether the similarities are merely typological — and if so, whether a merely typological similarity has some diagnostic value for genealogical relationship — or whether there are also form-meaning correspondences which would be a better indicator of genealogical relationship (Stevenson 1975; Greenberg 1972: 190; Tucker & Bryan 1956: 147; Schadeberg 1981a: 124). For instance, Tucker and Bryan (1956: 147) write:

> In the Nuba Hills Class Languages there is no formal resemblance of the Noun Class system to that of BANTU, the mere fact of the existence of a system of paired Classes, distinguished by Prefixes, and with alliterative Concords, being the only thing common to these languages and to BANTU.

Schadeberg (1981a: 124) takes this further, arguing that the typological similarity in itself, being so rare, counts as evidence for a genealogical relation, but also that the relationship between Niger-Congo and Kordofanian languages is not just typological, but also has form-meaning parallels:

> [...] a similar system is not attested anywhere else in the world. The Caucasian and Australian nominal class systems represent completely different types. It is also highly unlikely that the correspondence could be due to borrowing. (Mbugu in Tanzania is, in my opinion, not a valid counterexample, not even the proverbial exception that confirms the rule.) Seen against this background, the typological correspondence gains sufficient weight to serve as an argument for genealogical relatedness. But the correspondence is not exclusively typological [...] (Schadeberg 1981a: 124, transl. HH)

The form-meaning correspondences as spelled out by Schadeberg (1989: 72) are reproduced in Table 2. The tabulated correspondences (henceforth the six-fold table), at face value, are certainly impressive.

Table 2. Kordofanian versus Niger-Congo form-meaning correspondences suggested by Schadeberg (1989: 72)[6]

	1	3	4 pl. of 3	5	6 pl. of 5	6a
Kordofanian	*gu-* people	*gu-* tree	*j-*	*li-* egg	*ŋu-*	*ŋ-* liquids
Atlantic (Doneux 1975)	*gʊ-* people	*gu-* tree names	Ci-	*de-* head, name	*ga-*	*ma-* liquids
Oti-Volta (Manessy 1975)	*-ʊ* people	*-bʊ* tree	-Ci	*-ɖɪ* egg, head	*-a*	*-ma* liquids
Togo Remnant (Heine 1968)	*o-* people	*o-* firewood	*i-*	*li-* egg, head, name	*a-*	N- liquids
Benue-Congo (De Wolf 1971)	*u-* people	*u-* tree	*(t)i-*	*li-* egg, head, name	*a-*	*ma-* liquids
Bantu (Meeussen 1967)	NP *mu-* PP *ju-* people	*mu-* *gu-* tree	*mi-* *gi-*	*ɟi-* *li-* egg, name	*ma-* *ga-*	*ma-* *ga-* liquids
Mba (Ubangi) (Carrington 1949)	-V Num *g-* man	-V Num *w-*	*-e* Num Ø-	*-le* Num *l-* name		*-me* liquids

However, the abbreviated tables hide a number of complicating circumstances. To take just a few examples from the Heiban (best documented) side, the characteristic nouns for the **gu-/li-* gender are 'fish', 'neck', 'woman' and 'worm' rather than people (Schadeberg 1981c: 138), and where we have better data than 200-word lists (Faris 1978: 103), there are at least three genders (1, 4, 6) which include people. A more detailed analysis of Moro (Gibbard et al. 2009) shows that the labial element in *gu-* is better analysed as not being part of the prefix, just like in the southeastern branch where the labial element is clearly absent (Faris 1978), so reconstructing the labial element is probably not justified. Similarly, the tree-gender is based on simply the word for 'tree', but a tree-word with a *gu-/j-* noun class is restricted to Central Heiban (Schadeberg 1981c: 138) and in extensive data from the southeastern branch there are at least three noun classes which include trees, none of which matches both singular *gu-* and

[6] A slightly more detailed version occurs in Schadeberg (1981a: 123) which has been used here to correct some errors appearing in the 1989 table.

plural *j-* (Faris 1978: 103). The **li-/ŋu-* noun class does include 'egg', but the inclusion of 'head' is restricted to the west-central branch. These examples show that there is a certain amount of leeway in the establishment of gender semantics, in the projection to the proto-language and the phonological shape of the prefix. The implication is that matches between genders, as in the six-fold table, are easier to find if one has, e.g., two subfamily branches, three tree genders, or several phonetic segments to choose from.

Given two (historically unrelated) languages with noun class systems, how many form-meaning correspondences should one expect just by chance? This depends on the number of noun classes and the number of consonants participating in the marking of them. In at least Heiban and Talodi, one can easily count over 20 classes and beyond (depending on how many words need to inhabit a certain pairing for one to call it a 'class') and "practically all PT consonants did function as noun class prefixes" (Schadeberg 1981d: 129). As a simplistic example, we may consider the following configuration. There are n places of articulation and k possible semantic classes[7] (trees, liquids, animates, etc.; Croft 1994). Two languages pick m form-meaning pairs each. The probability of at least x form-meaning matches is then:

$$P(x) = \frac{\sum_{x \leq i \leq m} \binom{m}{i}\binom{kn-m}{m-i}}{\binom{kn}{m}}$$

To put the six-fold correspondences of Table 2 in perspective, we are interested in the probability than one gets six form-meaning correspondences (or more). As with the six-fold correspondence table, we count four places of articulation and same place of articulation is sufficient for a match.

- With $n=4$, $k=13$, $m=20$, we get $P(x \geq 6) \approx 0.901$
- With $n=4$, $k=26$, $m=20$, we get $P(x \geq 6) \approx 0.148$
- With $n=4$, $k=26$, $m=10$, we get $P(x \geq 6) < 0.000$

[7] A reviewer points out that noun class systems may be organized differently, e.g., as to type of object (tree, animal, etc.) or as to shape of object (long, round, etc.), and that there is no matching semantics between two such systems. This observation is not relevant for the six-fold table where (at least from the Kordofanian side) the semantics is gauged by which words on the 200-word list are members of the respective class. Whether, e.g., trees are members of a class because of their shape or because of their type is not decided.

This is to be interpreted as follows. If the two languages have 20 classes each, and if there are relatively few possible semantic classes (here 13)[8], then one almost certainly should expect (at least) six matches. If, on the other hand, the number of semantic classes is larger (here 26), it is much less likely, but still not significantly unlikely (at conventional levels of statistical significance). On the other hand, if the two languages only have 10 classes each, the probability of getting six or more matches is infinitesimally small.

Calculations like the above involve a number of simplifying assumptions and fail to appreciate what are often felt to be matching idiosyncrasies. Another way of gauging the chance similarity is to take an unrelated noun-class language from somewhere else in the world and look for six matches. The best described non-African noun class language with alliterative concord and a similar number of noun classes is Yimas of the Lower Sepik-Ramu family in Papua New Guinea (Foley 1991). It has 10x(Sg, Du, Pl)[9] classes and has agreement on nominal modifiers and subject in verbs. With a little leeway, just as in the Kordofanian comparisons, six correspondences are easy to find:

- Class I (male humans) has *-kn* so matches Kordofanian class 1.
- Class X (containing e.g. *kawŋ* 'bark of sago palm', *aympanuŋ* 'heavy piece of wood for pounding grass') has *-uk* in the sg. and *ya-* in the plural so it matches Kordofanian 3, 4.
- Class V contains 50% of the Yimas words, including 'egg', 'head', 'name' and some liquids. It matches 5 and 6, 6a because it includes nouns with stem-final *l* in the singular, *na-* (on verbs) in the singular, and *-ra*, *-ya* in the plural.

Related to the above question is exactly how rare are noun class languages across the world. If by "noun classes" we mean a gender system as defined by agreement which has at least 4 genders (regardless of exactly how they are marked), then (apart from Niger-Congo and Kordofanian) some 32

[8] We exemplify using 13 because then the problem becomes congruent to picking 20 cards from a standard deck of 52 cards, i.e., picking 20 cards (noun classes) from one deck and 20 from another, what is the probability of getting at least 6 cards out of 20 with both matching suit (consonant) and value (semantics)?

[9] This formula and similar ones in Table 3 provide the information needed to predict the agreement exponent for a given noun occurrence. For example, 10x(Sg, Du, Pl) means you have to know which one of 10 classes AND whether the noun occurs in Sg, Du or Pl; 7+3 Pl means you have to know which one of 7 classes OR which one of 3 classes if the noun occurs in the plural.

different families[10] are known to the author. They are shown in Table 3 where, for each family which has (at least one language with) noun classes, I list one language witnessing this fact. If a family has isolated noun classes across deep phylogenetic branches — arguably, such cases do not represent inheritance from that family's proto-language — I list those languages witnessing the range of noun classes occurrences across deep phylogenetic branches in that family.

On the highest count then, at least ca. 10.7%[11] of the language families in the world exhibit a language with a noun class system. If noun class systems can be borrowed then the whole argument for Kordofanian genealogical relatedness is already defeated. For the sake of the argument then, we assume here that noun class systems cannot be borrowed, which in turn implies that the cases in Table 3 are independent. However, arguably, many of the cases of noun class systems in Table 3 are significantly different from the Niger-Congo-Kordofanian ones, i.e., more different from Niger-Congo-Kordofanian languages than the Kordofanian ones are different from Niger-Congo. If we count only those which have (a) number pairing, (b) a large number of classes and (c) are secure (do not have a question mark) then it boils down to some 8 cases, or 2.7%.[12] This makes e.g., phonemic clicks (1.9%[13]) and object initial word order[14] rarer. Thus, if the sheer rarity of concordial noun class systems with a large number of classes is decisive evidence for genealogical relatedness, then by the same argument, sufficiently geographically close click languages and object initial languages respectively must also be genealogically related.

[10] By family we mean the highest-level genealogical unit demonstrable by the comparative method, see Hammarström (2009) for more information and an explicit listing.

[11] 32 families out of some 299 families (cf. Hammarström 2009) for which there is at least one grammar sketch for at least one language of the family.

[12] These 8 cases are marked with an asterisk following the language name.

[13] 8 families (Sandawe, Hadza, Juu-Hoan, Taa, Bantu (e.g. Yei), Cushitic (as per Dahalo) and Tangkic (as per Damin-Lardil), see Sands & Güldemann 2009), out of 421 of the world's families for which we have data on clicks in the phonemic inventory. If known cases of borrowing of a small amount of clicks are factored out, click inventories are even rarer.

[14] Similarly, $7/299 \approx 2.34\%$ (Hammarström 2007).

Table 3. Languages/families with a noun-class system

Language	Family	# Classes	Alliterative NP Concord	Source
Yimas*	Lower Sepik-Ramu	12x(Sg/Du/Pl)	Yes	Foley 1991
Mountain Arapesh*	Torricelli	13x(Sg/Pl)	Yes	Fortune 1942
Buna	Torricelli	9/12x?	?	Kirschbaum 1926
Marind	Marind	4 + 1 Pl	Yes	Drabbe 1955
Mali*	Baining(-Kol?)	9x(Sg/Du/Pl)	Yes	Stebbins 2005
Kol	Kol(-Baining?)	9x(Sg/? /?)	?	Stebbins 2010: 238
Touo*	Touo	5x(Sg/Du/Tri/Pl)	Yes	Capell 1969: 5-7; Frahm 1998
Yabio	Walio	14?	?	Yoshida 1998: 132-136; Healey 1964: 110
Asabano	Duranmin	4+?	?	p.c. Roger Lohmann 2009
Weri*	Goilalan	16+1 Du+3 Pl	End of NP	Boxwell 1990
Abau	Sepik	12	Numerals	Lock 2011: 56-62
? Äiwoo	Austronesian	13?	Yes?	Næss 2006; Wurm 1991
Warndarang*	Mangarrayi-Maran	7 + 3 non-Sg	Yes	Heath 1980
Ngandi*	Gunwinyguan	7+2 non-Sg	Yes	Heath 1978b
Nunggubuyu	Gunwinyguan	7	Yes	Heath 1978a
Maung	Iwaidjan	5	Yes	Singer 2006
Anindilyakwa*	Anindilyakwa	7x(Sg/Du/Pl)	Yes	Leeding 1989
Giimbiyu	Giimbiyu	4+1 Pl	Yes	Campbell 2006
Dyirbal	Pama-Nyungan	4	No	Dixon 1972
Yanyuwa	Pama-Nyungan	7	Yes	Bradley et al. 1992
Ju/'hoan	Juu	5	No	Dickens 2005
West !Xoon	Taa	5	No	Güldemann 2011
Zande	Ubangi	4	No	Claudi 1985
? Gaahmg	Eastern Jebel	6	Limited	Stirtz 2006
Kiowa	Kiowa-Tanoan	4-6	Yes	Watkins 1984
Yuchi	Yuchi	6	Yes	Linn 2000
Chalc. Mixtec	Otomanguean	7	No	Macaulay 1996

Language	Family	# Classes	Alliterative NP Concord	Source
Bats	NE Caucasian	5x(Sg/Pl)	Yes	Desheriev 1953
Andoke	Andoke	6	?	Landaburu 1979
Toba	Guaycuruan	15	Poss.	Fabre 2007, Messineo 2003; Messineo & Cúneo 2010
Ayoreo	Zamucoan	20-30	Poss.	Fabre 2007
Maká	Matacoan	6	Poss.	Gerzenstein 1994; Messineo & Cúneo 2010
Enlhet	Mascoian	6	Poss.	Fabre 2007
Paumarí	Arawán	4	Yes	Aikhenvald 2010
Kipeá	Karirian	12	No	Rodrigues 1997

Furthermore, noun class systems are widely thought to come from classifiers. In particular, languages with classifiers that are echoed throughout the noun phrase show a highly plausible development path towards a noun class system with alliterative concord. Table 4 shows the families known to the present author with a language with classifiers that exhibit agreement. An example is provided from Piaroa (Krute 1989) in (1).

(1) *isok'i* *ri-o-k'i* *idikw-o-k'i* *č'uædæhi*
stick large-V-CL.STICK black-V- CL.STICK he.grab.PAST
He grabbed the large black stick.

Table 4. Languages/families with a concordial classifier system

Language	Family	Number of classifiers	Alliterative NP concord	Source
Nasioi	South Bougainville	>100	Yes	Hurd 1977; Schmidt 1909
Kilivila	Austronesian	~200	Yes	Senft 1996
Baniwa	Arawak	~44	Yes	Aikhenvald 2007; Melgueiro 2009
Tukano	Tucanoan	6?	Yes	Chacon 2007; Ramirez 1997
Miraña	Boran	>60	Yes	Seifart 2005
Piaroa	Saliba-Piaroa	>100	Yes	Krute 1989
Amarakaeri	Harakmbut	~50	On verb	Helberg Chávez 1984

Language	Family	Number of classifiers	Alliterative NP concord	Source
Munduruku	Tupi	>100	Yes	Comodo 1981a,b
Nomatsiguenga	Arawak	~50	Yes	Shaver 1996; Wise 1968

An objection often voiced against concordial classifiers being the precursor of Niger-Congo-Kordofanian-like noun class systems is that the singular-plural pairings found in Niger-Congo-Kordofanian are not predicted from a concordial classifiers scenario. This objection appears to be based on the model of classifier languages in Southeast Asia which often do not have morphological plural marking at all, let alone on noun phrases with a classifier. However, in classifier languages which mark plurality, e.g., with a suffix, noun phrases with a classifier happily take plural marking. For example, Miraña is a language with a concordial classifier system which marks plurals with a suffix on phrases which include a classifier (Seifart 2005: 113), as in (2):

(2) *úvi-:baj* *úvi-:baj-:ne*
basket-CL.CONTAINER basket- CL.CONTAINER-PL
(a) basket baskets

In fact, all of the languages in Table 4 with a concordial classifier system can mark plurality in a phrase that has a classifier. If plurality can or must be marked, singular-plural pairings may easily arise through fusion of the classifier and the plural marker. The fusion may result in segmentally different singular/plural forms especially if the language has several segmentally different plural markers.

4. Conclusion

It is clear that the basis for including Katla-Tima in Kordofanian is very weak. Given their geographical proximity, the noun class systems of the Heiban, Talodi, Lafofa and Rashad groups are probably not independent. The inference that they are the result of genealogical inheritance has a weakness in that they are otherwise very different, and should be weighted against the weaknesses of an explicit diffusional scenario for (some of) the groups. As for the relation of the Kordofanian group(s) to the Niger-Congo languages, a competing scenario (against a genealogical relation) is simply that the observed form-meaning correspondences are chance resemblances to be expected of languages with the typological feature of noun class systems.

The noun-class systems could have developed independently in Niger-Congo and Kordofanian from classifiers, with plural marking catalyzing the emergence of singular-plural pairings.

References

Aikhenvald, Alexandra Y. 2007. Classifiers in multiple environments: Baniwa of Içana/Kurripako — a North Arawak perspective. *International Journal of American Linguistics* 73: 475-500.

Aikhenvald, Alexandra Y. 2010. Gender, noun class and language obsolescence: the case of Paumari. In *Linguistics and archaeology in the Americas: the historization of language and society*, ed. by Eithne B. Carlin & Simon van de Kerke, pp. 235-252. (Brill's Studies in Indigenous Languages of the Americas, 2.) Leiden: Brill.

Alamin, Suzan. 2009. *Tima word structure (noun and verb)*. PhD diss., University of Khartoum.

Blench, Roger M. 1997. The papers of Roland Stevenson: a composite catalogue. *Nilo-Saharan Newsletter* N.S. 1: 3-16.

Blench, Roger M. 2006a. Kordofanian and Niger-Congo: an evaluation of the evidence. Draft manuscript.

Blench, Roger M. 2006b. Kordofanian and Niger-Congo: new and revised lexical evidence. Draft manuscript.

Boxwell, Maurice. 1990. *Co-referentiality through nominal elements in Weri*. PhD diss., Macquarie University.

Bradley, John, Jean Kirton & the Yanyuwa Community. 1992. *Yanyuwa Wuka: language from Yanyuwa country*. The Yanyuwa Community.

Breen, Gavan. 2004. Evolution of the verb conjugations in the Ngarna languages. In *Australian languages: classification and the comparative method*, ed. by Claire Bowern & Harold Koch, pp. 223-240, 655-661. (Amsterdam Studies in the Theory and History of Linguistic Science, Series 4: Current Issues in Linguistic Theory, 249.) Amsterdam: John Benjamins.

Campbell, Lauren. 2006. *A sketch grammar of Urningangk, Erre and Mengerrdji: the Giimbiyu languages of Western Arnhem Land*. MA thesis, Dept. of Linguistics and Applied Linguistics, University of Melbourne.

Capell, Arthur. 1969. Non-Austronesian languages of the British Solomons. In *Papers in linguistics of Melanesia No. 2*, pp. 1-16. (Pacific Linguistics, Series A 21.) Canberra: Research School of Pacific and Asian Studies, Australian National University.

Chacon, Thiago C. 2007. O sistema de classificação nominal do Tukáno. *Revista de Estudos e Pesquisas* 4: 147-197.

Claudi, Ulrike. 1985. *Zur Entstehung von Genussystemen: Überlegungen zu einigen theoretischen Aspekten, verbunden mit einer Fallstudie des Zande*. Hamburg: Helmut Buske.

Comodo, Cristina Helena Rohwedder. 1981a. *Concordância em Mundurukú*. MA thesis, Universidade de Campinas.

Comodo, Cristina Helena Rohwedder. 1981b. Concordância nominal em Mundurukú. *Estudos Lingüísticos: Revista Brasileira de Lingüística Teórica e Aplicada* 4: 265-272.

Croft, William. 1994. Semantic universals in classifier systems. *Word* 45(2): 145-171.

Desheriev, Ju. D. 1953. *Batsbijskij yazyk*. Moscow: Akademia Nauk SSSR.

Dickens, Patrick J. 2005. *A concise grammar of Ju/'hoan*. (Research in Khoisan Studies, 17.) Cologne: Rüdiger Köppe.

Dimmendaal, Gerrit J. 2001. Language shift and morphological convergence in the Nilotic area. *Sprache und Geschichte in Afrika (SUGIA)* 16/17: 83-124.

Dimmendaal, Gerrit J. 2009a. The genetic position of Tima. Paper presented at the 6th World Congress of African Linguistics, 17-21 August 2009, Cologne.

Dimmendaal, Gerrit J. 2009b. Tima. In *Coding participant marking: construction types in twelve African languages*, ed. by Gerrit J. Dimmendaal, pp. 331-353. Amsterdam: John Benjamins.

Dixon, Robert M. W. 1972. *The Dyirbal language of North Queensland*. Cambridge University Press.

Dixon, Robert M. W. 2002. *Australian languages: their nature and development*. Cambridge: Cambridge University Press.

Drabbe, Peter. 1955. *Spraakkunst van het Marind: zuidkust Nederlands Nieuw-Guinea*. (Studia Instituti Anthropos, 11.) Wien-Mödling: St. Gabriël.

Fabre, Alain. 2007. Morfosintaxis de los clasificadores posesivos en las lenguas del Gran Chaco (Argentina, Bolivia y Paraguay). *UniverSOS* 4: 67-85.

Faris, James C. 1978. Nominal classes of the southeastern Nuba: implications for linguistic science. In *Aspects of language in the Sudan*, ed. by Robin Thelwall, pp. 97-113. (Occasional Papers in Linguistics and Language Learning, 5.) Coleraine: The New University of Ulster.

Foley, William. 1991. *The Yimas language of New Guinea*. Stanford: Stanford University Press.

Fortune, Reo F. 1942. *Arapesh*. (Publications of the American Ethnological Society, 19.) New York: J. J. Augustin.

Frahm, Roxanne Margaret. 1998. *Baniata serial verb constructions*. MA thesis, University of Auckland.

Gerzenstein, Ana. 1994. *Lengua Maká: estudio descriptivo.* Facultad de Filosofía y Letras, Universidad de Buenos Aires.
Gibbard, George, Hannah Rohde & Sharon Rose. 2009. Moro noun class morphology. In *Selected proceedings of the 38th annual conference on African linguistics: linguistic theory and African language documentation*, ed. by Masangu Matondo, Fiona McLaughlin & Eric Potsdam, pp. 106-117. Somerville, Mass.: Cascadilla Proceedings Project.
Greenberg, Joseph H. 1950. Studies in African linguistic classification: VII. Smaller families; index of languages. *Southwestern Journal of Anthropology* 6: 388-398.
Greenberg, Joseph H. 1963. *The languages of Africa.* The Hague: Mouton.
Greenberg, Joseph H. 1972. Linguistic evidence regarding Bantu origins. *Journal of African History* 13: 189-216.
Güldemann, Tom. 2011. The Lower Nossob varieties of Tuu: !Ui, Taa or neither? Paper presented at the workshop on genealogical and areal relations in the Kalahari basin.
Hammarström, Harald. 2007. A genetically stratified language sample for basic word order typology. Paper presented at the Seventh International Conference of the Association for Linguistic Typology (ALT VII), CNRS, Paris, September 25-28, 2007.
Hammarström, Harald. 2009. Sampling and genealogical coverage in the WALS. *Linguistic Typology* 13: 105-119, plus 198 pp. appendix.
Healey, Alan. 1964. *The Ok language family in New Guinea.* PhD diss., Australian National University, Canberra.
Heath, Jeffrey. 1978a. *Linguistic diffusion in Arnhem Land.* (Australian Aboriginal Studies: Research and Regional Studies, 13) Canberra: AIAS.
Heath, Jeffrey. 1978b. *Ngandi grammar, texts and dictionary.* Canberra: Australian Institute of Aboriginal Studies.
Heath, Jeffrey. 1980. *Basic materials in Warndarang: grammar, texts and dictionary.* (Pacific Linguistics, Series B, 72.) Canberra: Research School of Pacific and Asian Studies, Australian National University.
Helberg Chávez, Heinrich Albert. 1984. *Skizze einer Grammatik des Amarakaeri.* PhD diss., Eberhard-Karls-Universität, Tübingen.
Hieda, Osamu. 2011. Is Kumam a creole language? A mechanism of linguistic convergence in the Southern Lwo area. In *Geographical typology and linguistic areas with special reference to Africa*, ed. by Osamu Hieda, Christa König & Hirosi Nakagawa, pp. 161-176. Amsterdam: John Benjamins.
Hurd, Conrad. 1977. Nasioi Projectives. *Oceanic Linguistics* 16: 111-178.
Hyman, Larry M. 2007. Niger-Congo verb extensions: overview and discussion. In *Selected proceedings of the 37th Annual Conference on African Linguistics*, ed. by Doris L. Payne & Jaime Peña, pp. 149-163. Somerville, Mass.: Cascadilla Proceedings Project,.
Johnston, Harry H. 1919-1922. *A comparative study of the Bantu and Semi-Bantu languages.* 2 vols. Oxford: Clarendon Press.
Kihore, Yared M. 1978. *A comparative study of the noun-class systems of Heiban and Kiswahili.* MA thesis, University of Khartoum.
Kirschbaum, Franz. 1926. Miscellanea aus Neuguinea. *Anthropos* 21: 274-277.
Krute, Laurence Dana. 1989. *Piaroa nominal morphosemantics.* PhD diss., Columbia University, New York.
Landaburu, Jon. 1979. *La langue des Andoke (grammaire colombienne).* (Langues et Civilisations a Tradition Orale, 36.) Paris: SELAF.
Latham, Robert G. 1848. On the present state and recent progress of ethnographical philology, part 1: Africa. In *Report of the meeting of the British Association for the Advancement of Science, held at Oxford in June 1847* 17: 154-229.
Leeding, Velma. 1989. *Anindilyakwa phonology and morphology.* PhD diss., University of Sydney.
Linn, Mary Sarah. 2000. *A grammar of Euchee (Yuchi).* PhD diss., University of Kansas, Lawrence.
Lock, Arnold. 2011. *Abau grammar.* (Data papers on Papua New Guinea languages, 57.) Papua New Guinea: SIL-PNG Academic Publications.
Macaulay, Monica A. 1996. *A grammar of Chalcatongo Mixtec.* (University of California Publications in Linguistics, 127.) Berkeley & Los Angeles: University of California Press.
MacDiarmid, Phoebe A., & Donald N. MacDiarmid. 1931. The languages of the Nuba Mountains. *Sudan Notes and Records* 14: 149-162.
Meinhof, Carl. 1916/1917. Sprachstudien im egyptischen Sudan: 14. Katla. *Zeitschrift für Kolonialsprachen* 7: 212-235.
Melgueiro, Edilson Martins. 2009. *Sobre a natureza, expressão formal e escopo da classificação lingüística das entidades na concepção do mundo dos Baníwa.* MA thesis, Universidade de Brasília.
Messineo, Cristina. 2003. *Lengua Toba (Guaycurú): aspectos gramaticales y discursivos.* (LINCOM Studies in Native American Linguistics, 48.) Munich: Lincom.
Messineo, Cristina, & Paola Cúneo. 2010. Modos de clasificación nominal en toba (guaycurú) y maká (mataguaya): zoonimia y fitonimia. In *Léxico y categorización etnobiológica en grupos indígenas del Gran Chaco*, ed. by Cristina Messineo, Gustavo F. Scarpa & Florencia Tola, pp. 27-64. Santa Rosa: Universidad Nacional de La Pampa.
Næss, Åshild. 2006. Bound nominal elements in Äiwoo (Reefs): a reappraisal of the "multiple noun class systems". *Oceanic Linguistics* 45: 269-296.

Ramirez, Henri. 1997. *A fala tukano dos Ye'pâ-Masa. Tomo I: Gramática.* Manaus: Inspetoria Salesiana Missionária da Amazônia, CEDEM.
Rodrigues, Aryon D. 1997. Nominal classification in Karirí. *Opción* 22: 65-79.
Sands, Bonny, & Tom Güldemann. 2009. What click languages can and can't tell us about language origins. In *The cradle of language*, ed. by Rudolf Botha & Chris Knight, pp. 204-218. (Studies in the Evolution of Language, 12.) Oxford: Oxford University Press.
Schadeberg, Thilo C. 1981a. Das Kordofanische. In *Die Sprachen Afrikas*, ed. by Bernd Heine, Thilo C. Schadeberg & Ekkehard Wolff, pp. 117-128. Hamburg: Helmut Buske.
Schadeberg, Thilo C. 1981b. Die Geschichte der Nominalklassen des Laru (Kordofanisch). In *Berliner Afrikanistische Vorträge: XXI. Deutscher Orientalistentag, Berlin 24.-29. März 1980*, pp. 203-212. (Marburger Studien zur Afrika- und Asienkunde, Serie A, 28.) Berlin: Dietrich Reimer.
Schadeberg, Thilo C. 1981c. *A survey of Kordofanian. Volume 1: The Heiban group.* Hamburg: Helmut Buske.
Schadeberg, Thilo C. 1981d. *A survey of Kordofanian. Volume 2: The Talodi group.* Hamburg: Helmut Buske.
Schadeberg, Thilo C. 1989. Kordofanian. In *The Niger-Congo languages: a classification and description of Africa's largest language family*, ed. by John Bendor-Samuel, pp. 66-80. Lanham: University Press of America.
Schmidt, Wilhelm. 1909. Neuentdeckte Papuasprachen von den Salomonsinseln (Bougainville). *Globus* 95: 206-207.
Seifart, Frank. 2005. *The structure and use of shape-based noun classes in Miraña (North West Amazon).* PhD diss., Radboud Universiteit, Nijmegen.
Seifart, Frank. 2011. *Bora loans in Resígaro: massive morphological and little lexical borrowing in a moribund Arawakan language.* (Cadernos de Etnolingüística, Série Monografias, 2.) [www. etnolinguistica.org]
Senft, Gunter. 1996. *Classificatory particles in Kilivila.* (Oxford Studies in Anthropological Lingiuistics, 1.) New York: Oxford University Press.
Shaver, Harold. 1996. *Diccionario nomatsiguenga-castellano / castellano-nomatsiguenga.* (Serie Lingüística Peruana, 41.) Pucallpa: Ministerio de Educación & Instituto Lingüístico de Verano.
Singer, Ruth. 2006. *Agreement in Mawng: productive and lexicalised uses of agreement in an Australian language.* PhD diss., University of Melbourne.
Stebbins, Tonya N. 2005. Nominal classification in Mali. *Anthropological Linguistics* 47: 77-121.
Stebbins, Tonya N. 2010. The Papuan languages of the Eastern Bismarcks: migration, origins and connections. In *Discovering history through language: papers in honour of Malcolm Ross*, ed. by Bethwyn Evans, pp. 223-243. (Pacific Linguistics, 605.) Canberra: Research School of Pacific and Asian Studies, Australian National University.

Stevenson, Roland C. 1956-1957. A survey of the phonetics and grammatical structure of the Nuba Mountain languages, with particular reference to Otoro, Katcha and Nyimang. *Afrika und Übersee* 40 (1956): 73-84, 93-115; 41 (1957): 27-65, 117-152, 171-196.
Stevenson, Roland C. 1962-1964. Linguistic research in the Nuba Mountains. *Sudan Notes and Records* 43 (1962): 118-130; 45 (1964): 79-102.
Stevenson, Roland C. 1975. The present position of research in the Nuba Mountain languages. In *Directions in Sudanese linguistics and folklore*, ed. by Sayyid Ḥ. Ḥurreiz & Herman Bell, pp. 58-62. Khartoum: Khartoum University Press for the Institute of African and Asian Studies.
Stirtz, Timothy M. 2006. Possession of alienable and inalienable nouns in Gaahmg. In *Insights into Nilo-Saharan language, history and culture: proceedings of the 9th Nilo-Saharan Linguistic Colloquium, Institute of African and Asian Studies, University of Khartoum, 16-19 February 2004*, ed. by Al-Amin Abu-Manga, Leoma Gilley & Anne Storch, pp. 377-392. (Nilo-Saharan, 23.) Cologne: Rüdiger Köppe.
Storch, Anne. 2005. *The noun morphology of Western Nilotic.* (Nilo-Saharan, 21.) Cologne: Rüdiger Köppe.
Strandqvist, Rachel Eva. 2003. *Article incorporation in Mauritian Creole.* MA thesis, University of Victoria.
Tucker, A. N., & M. A. Bryan. 1956. *The non-Bantu languages of north-eastern Africa.* London: Oxford University Press for the International African Institute.
Watkins, Laurel J. 1984. *A grammar of Kiowa.* Lincoln: University of Nebraska Press.
Williamson, Kay, & Roger M. Blench. 2000. Niger-Congo. In *African languages: an introduction*, ed. by Bernd Heine & Derek Nurse, pp. 11-42. Cambridge: Cambridge University Press.
Wise, Mary Ruth. 1968. *Identification of participants in discourse: a study of aspects of form and meaning in Nomatsiguenga.* PhD diss., University of Michigan.
Wurm, Stephen A. 1991. Language decay and revivalism: the Äŷiwo language of the Reef Islands, Santa Cruz Archipelago, Solomon Islands. In *Currents in Pacific linguistics: papers on Austronesian languages and ethnolinguistics in honour of George W. Grace*, ed. by Robert Blust, pp. 551-560. (Pacific Linguistics, Series C, 117.) Canberra: Research School of Pacific and Asian Studies, Australian National University.
Yoshida, Shuji. 1998. Numeral classifiers among the May River Iwam. In *Fringe area of highlands in Papua New Guinea*, ed. by Shuji Yoshida & Yukio Toyoda, pp. 113-138. (Senri Ethnological Studies, 47.) Osaka: National Museum of Ethnology.