THE CLASSIFICATION OF THE MASA GROUP OF LANGUAGES*

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Chadic languages, of which there are approximately 140, are spoken in southern Niger, northern Nigeria, northern Cameroon, and western and central Chad [Newman 1977b, 1990, 1992]. Since the first comprehensive classification of these languages [Greenberg 1963], there has been considerable disagreement in the literature about the internal subclassification of Chadic. Currently, there is a consensus that the Chadic family is composed of three major branches: West Chadic, Biu-Mandara or Central Chadic, and East Chadic [Newman 1977b, 1992; Jungraithmayr and Shimizu 1981; Jungraithmayr and Ibriszimow 1994]. However, Newman [1977b] has proposed an additional, fourth branch of Chadic consisting of the Masa group of languages. This group was previously classified in the Biu-Mandara branch of the family [Hoffmann 1971, Newman 1978]. In response to Newman’s proposal, Tourneux [1990] presented evidence in support of the

1. Introduction

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subgrouping of Masa in Biu-Mandara. This subclassification has been maintained by Jungraithmayr [1981], Jungraithmayr and Shimizu [1981], Barreteau [1987], and Jungraithmayr and Ibriszimow [1994] in their studies of the Chadic family.

In this paper I provide supporting evidence for the classification of the Masa group as a fourth branch of the Chadic family. I demonstrate that the Masa group does not exhibit the phonological, lexical, and morphological innovations characteristic of the Biu-Mandara branch. It follows from the absence of these innovations that there is no evidence for the subclassification of this group in Biu-Mandara. Thus, I conclude that the Chadic family is composed of four branches as proposed by Newman [1977b].

The paper is organized as follows. In section 2 I present an overview of the Chadic family. I outline the internal composition and subclassification of the Biu-Mandara languages and the languages of the Masa group. I then summarize the major classifications of the Chadic languages in section 3. The principal arguments regarding the position of the Masa group in the Chadic family are also considered. In sections 4 through 6, I present several phonological, lexical, and morphological innovations of the Biu-Mandara branch and demonstrate that these innovations are not attested in the Masa group of languages. I provide an appendix containing a list of 204 words reconstructed for the Proto-Masa group in order to substantiate the arguments presented in this paper as well as to encourage further comparative research.

2. The Chadic family

As noted above, the Chadic family consists of three major branches: West Chadic, Biu-Mandara, and East Chadic [Newman 1977b, 1990, 1992]. In the West Chadic branch there are approximately 64 languages spoken primarily in northern and northwestern Nigeria. Hausa, the predominant Chadic language, belongs to the West Chadic branch. Hausa has over 40 million speakers located primarily in northern Nigeria but it extends west and north into Niger. The languages of the Biu-Mandara branch are spoken in northeastern Nigeria, northern Cameroon, and westernmost Chad. There are at least 68 languages in this branch. The estimated 30 languages comprising the East Chadic branch are spoken primarily in western and central Chad. Finally, the Masa group is composed of nine closely related languages spoken along the border of northern Cameroon and southwestern Chad. In the remainder of this section, I outline in more depth the composition and internal classification of the Biu-Mandara branch and the Masa group.

In Newman’s 1990 classification of the Chadic languages, the Gidar group is subclassified as a separate, third subbranch in Biu-Mandara. The innovations presented for the Biu-Mandara-B subbranch in this paper hold for the Gidar group as well as the Musgu and Kotoko groups. Since the position of Gidar as a third subbranch may be questioned, I follow Newman’s 1977b subclassification of Biu-Mandara into two branches. Regardless of the position of Gidar in the Biu-Mandara branch, the principal argument of this paper remains the same: the Masa group of languages does not exhibit the innovations characteristic of the Biu-Mandara languages.

2.2. The Masa group. The Masa group consists of nine closely related languages spoken in southwestern Chad and contiguous regions of northern Cameroon. The languages comprising the group are subclassified into two subgroups, ‘north’ and ‘south’ [Dieu and Renaud 1983, Tourneux 1990]. The northern subgroup consists of Masa, Musey, Marba, and Monogoy [Barreteau 1987, Tourneux 1990]; the southern subgroup of Zime (Mesme), Peve, Hede, and Ngide [Jungraithmayr 1978a, Hufnagel 1986, Noss 1990]. Zumaya is provisionally classified as separate from these principal subgroups following Barreteau [1987]. The internal subclassification of the group is summarized in (2).

As noted above, the northern subgroup consists of Masa, Musey, Marba, and Monogoy. Masa has approximately 180,000 speakers situated in the Mayo-Kebbi prefecture of southwestern Chad and in northern Cameroon in the Mayo-Danay Division of the Far North Province [Caïtucoli 1983]. There are approximately 150,000 speakers of Musey [Platiel 1968; R. Duncanson, p.c.], of whom approximately 120,000 live in the Mayo-Kebbi prefecture situated between Fianga and Kelo, the remaining 30,000 in the Mayo-Danay Division of the Far North Province in Cameroon. The approximately 80,000 speakers of Marba, also known
as Azumeina [Price 1968], reside primarily in the Mayo-Kebbi prefecture, north of Kelo. Finally, Monogoy has an estimated 5,000 speakers located in the Mayo-Kebbi prefecture northwest of Kelo [R. Duncanson, p.c.]. The Marba and Monogoy are culturally distinct groups, but linguistically they may be similar enough to warrant being classified as dialects of a single language [R. Duncanson, p.c.; S. Lazicki, p.c.].

(2) The languages of the Masa group

(3) Map for Masa, Musey, Marba, and Monogoy
The southern subgroup consists of Zime (Mesme), Peve, Hède, and Ngide [Jungraithmayr 1978a, Hufnagel 1986, Noss 1990]. Zime, which has an estimated 30,000 speakers [Hufnagel 1986, Kieschke 1990, Noss 1990], is spoken in the Mayo-Kebbi prefecture, immediately east of Kelo, Chad. Peve is also spoken in the Mayo-Kebbi prefecture, west of Pala in a region which extends into the neighboring area of Cameroon. It has approximately 30,000 speakers [Venberg 1975]. Hède, with an estimated 35,000 speakers [Noss 1990], is spoken in an area to the immediate east of the Peve speaking area [Hufnagel 1986, Noss 1990]. Lamé or Dzopaw is the southernmost dialect of Hède, spoken in Cameroon east of the Bouba Njidda National Forest Reserve [Sachnine 1982]. Finally, Ngide is spoken to the east of Pala and has an estimated 5,000 speakers [Noss 1990; R. Duncanson, p.c.]. Hède and Ngide are the most closely related members of the southern subgroup. Noss [1990] has questioned the status of Ngide as a language separate from Hède, but also notes that the Ngide people consider themselves culturally and linguistically distinct.

(4) Map for Zime, Peve, Hède, and Ngide

Zumaya has only a few remaining speakers [Barreteau 1987]. Its classification in the group is unclear because the language has not been well documented.
3. Overview of Chadic classification

3.1. Classifications of the Chadic languages. Greenberg [1963] put forward the first comprehensive classification of the languages of the Chadic family, classifying the languages in nine groups and demonstrating their unity as a family. Newman and Ma’s [1966] in-depth comparative study of the Chadic languages demonstrated more conclusively the genetic unity of the family. They also provided evidence for the subclassification of four of Greenberg’s nine groups. They classified groups 1 and 9 as a single subgroup which they referred to as “Plateau-Sahel” and groups 3 and 6 as a second subgroup referred to as “Biu-Mandara”. Hoffmann [1971] placed the remaining five groups of Greenberg [1963] in Newman and Ma’s “Biu-Mandara”, thereby classifying all the Chadic languages into two major branches. Subsequently, in 1974, Newman [1978] proposed that Plateau-Sahel be split into two separate branches coordinate with the Biu-Mandara branch, introducing the terms “West Chadic” and “East Chadic” to refer to the two groups comprising the Plateau-Sahel branch, formerly Greenberg’s groups 1 and 9, respectively. Finally, Newman [1977b] proposed that the Masa group of languages constitutes a fourth branch of Chadic, coordinate with the other three major branches. The Masa group corresponds to Greenberg’s group 8 and was previously classified as part of the Biu-Mandara branch [Hoffmann 1971, Newman 1978]. These classifications are summarized in (5).

(5) The major classifications of the Chadic languages

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>9</th>
<th>3 &amp; 6</th>
<th>2, 4, 5, &amp; 7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenberg [1963]</td>
<td></td>
<td>9</td>
<td>3 &amp; 6</td>
<td>2, 4, 5, &amp; 7</td>
<td>8</td>
</tr>
<tr>
<td>Hoffmann [1971]</td>
<td>Plateau-Sahel</td>
<td>Biu-Mandara</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2. Classification of the Masa group and Musgu. The Masa group of languages has been considered to be closely related to Musgu, a Biu-Mandara language [Westermann and Bryan 1952, Meyer-Bahlberg 1972, Caprile and Jungraithmayr 1973]. The close relationship between these languages appears to be based primarily on the geographic proximity of Musgu and the Masa language as well as on typological and lexical similarities between these two languages. Meyer-Bahlberg [1972], for instance, noted similarities between Musgu and Masa in the manner in which they form various syntactic constructions such as relative clauses and comparatives. Furthermore, she noted lexical and grammatical resemblances between the languages.
Despite the similarities reported between Masa and Musgu, Greenberg [1963] classified Masa and the other languages of the Masa group as a distinct group from Musgu, in groups 8 and 7, respectively. Newman and Ma [1966] did not place the Masa and Musgu groups with any of the other groups in their classification of Chadic, leaving both outside the Plateau-Sahel and Biu-Mandara groups. As noted above, Hoffmann [1971] then classified the Masa group and Musgu together as part of the Biu-Mandara branch, while Caprile and Jungraithmayr [1973] classified them as a single group. In a later classification, Newman [1978] distinguished two subbranches of the Biu-Mandara branch, designated ‘A’ and ‘B’, and, in keeping with the consensus of a close genetic relationship, he placed the Masa group and Musgu in the same subbranch, Biu-Mandara-B.

In 1977, Newman rejected the conventional acceptance of a close relation between the Masa group and Musgu, proposing instead that the Masa group be removed from the Biu-Mandara branch and provisionally classified as a fourth branch of Chadic. He noted that the primary argument for removing the Masa group from Biu-Mandara was that the Masa group does not exhibit the sound change Proto-Chadic *S > *l characteristic of the Biu-Mandara branch [Newman 1977a,b]. *S represents a sibilant distinct from Proto-Chadic *s, possibly [ʃ]. Furthermore, Newman noted that he could not find any features of the Masa group which would justify its subclassification in the West or East Chadic branches. Consequently, he provisionally classified the group as a separate branch. It is important to note that Newman’s subclassification was based on the identification of shared innovations. In the absence of shared innovations among languages or language groups, no subclassification can be inferred.

In response to Newman [1977b], Tourneux [1990] argued for the subclassification of the Masa group as part of Biu-Mandara-B. Tourneux noted three sound correspondences characteristic of the Masa group: Proto-Chadic *s corresponds to [s], Proto-Chadic *r to [l], and Proto-Chadic *d to [r] in intervocalic position. Note that Tourneaux’s Proto-Chadic *s is equivalent to Newman’s Proto-Chadic *S. Tourneux compared these correspondences with other Chadic languages and, specifically, with Musgu. He observed that these sound correspondences occur elsewhere in the Chadic family and, more importantly, in Musgu. However, the fact that the Masa group and Musgu share these sound correspondences does not mean that these languages should be subclassified in the same branch of the family. Tourneux illustrated this point well by demonstrating the prevalence of these sound correspondences in other branches of Chadic. If it could be shown that the Masa group and Musgu underwent these sound changes at a similar point in their history, then these correspondences could possibly be phonological innovations indicating a period of common ancestry. Tourneux did not address the relative chronology of these sound changes. In section 4, I show that these sound correspondences represent sound changes which occurred independently in the Masa group and Biu-Mandara.
Tourneux also presented the findings of a lexico-statistical comparison of Musgu and four of the languages of the Masa group based on a modified Swadesh list. This comparison revealed that the Masa group languages exhibited from 37 to 41% cognancy with Musgu. Tourneux suggested that these figures indicated that the Masa group and Musgu are more closely related than Newman’s subclassification recognizes. He suggested, moreover, that these findings argue for the subclassification of the Masa group as a group within Biu-Mandara. In support of this proposal, Tourneux noted that the languages of the Matakan group, a group in the A sub-branch of Biu-Mandara, share from 32% to 68% of their vocabulary. Tourneux suggested that since the Masa group and Musgu share approximately 40% of their vocabulary, it follows that the genetic relation between these languages is comparable to that noted for the languages of the Matakan group. It is not the case, however, that the percentage of cognate vocabulary represents an absolute figure with which to determine degree of subclassification. Moreover, the identification of shared innovations remains the principal method of subclassification.

In the remainder of this paper, I present several phonological, lexical, and morphological innovations characteristic of the Biu-Mandara branch and the Biu-Mandara-B sub-branch. I demonstrate that the Masa group of languages consistently does not share the innovations of the Biu-Mandara branch. In the absence of shared innovations, there is no evidence for the subclassification of the Masa group of languages within Biu-Mandara. Thus, the absence of the Biu-Mandara innovations in the Masa group supports Newman’s proposal that the Masa group should be classified as a separate, fourth branch of Chadic.

4. Phonological Innovations

In this section, I present four historical sound changes which affected the Biu-Mandara languages. Two of the sound changes affected Biu-Mandara and distinguish this branch from the East and West Chadic branches. The two remaining changes affected the B subbranch of Biu-Mandara but not the A subbranch. After considering these sound changes in Biu-Mandara, I consider the corresponding historical developments in the Masa group. I demonstrate that the Masa group did not undergo the sound changes reconstructed for Biu-Mandara.

4.1. Sound changes affecting Proto-Biu-Mandara. There are two well-documented sound changes which affected Proto-Biu-Mandara (Proto-BM): Proto-Chadic *b > Proto-BM *v and Proto-Chadic *S > Proto-BM *ɭ [Newman 1977a,b] The first of these changes is illustrated in (6). The Proto-Chadic reconstructions presented in (6) and in subsequent discussions are from Newman [1977b]. See Appendix A for a list of language abbreviations.
Classification of the Masa group of languages

(6) Proto-Chadic *b > Proto-BM *v

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>BM-B</th>
<th>BM-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>*bar ‘blood’</td>
<td>Mg fel</td>
<td>J vara</td>
</tr>
<tr>
<td>*barə ‘to give’</td>
<td>Lo vá, G a+vaya</td>
<td>T vəra</td>
</tr>
<tr>
<td>*zaban ‘guinea-fowl’</td>
<td>Lo zaawan, G zamvəna</td>
<td>Gs tsuvoŋ</td>
</tr>
<tr>
<td>*bədi ‘night’</td>
<td>Lo vade</td>
<td>Db vudu</td>
</tr>
</tbody>
</table>

The second sound change, Proto-Chadic *S > Proto-BM *l, is of particular interest because a change of this nature only occurred in Biu-Mandara [Newman 1977a,b]. This sound change is illustrated in (7). As noted earlier, Proto-Chadic *S represents a sibilant distinct from Proto-Chadic *s.

(7) Proto-Chadic *S > Proto-BM *l

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>BM-B</th>
<th>BM-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>*’JaSu ‘bone’</td>
<td>Lo ale, G tɛnɛŋ</td>
<td>T ’gel</td>
</tr>
<tr>
<td>*Səmi ‘ear’</td>
<td>Mg time, G təma</td>
<td>Hi ʰəme</td>
</tr>
<tr>
<td>*Səm ‘name’</td>
<td>Lo əmi</td>
<td>M əm</td>
</tr>
<tr>
<td>*San(-) ‘tooth’</td>
<td>Lo ən, G əya</td>
<td>Pd əra</td>
</tr>
</tbody>
</table>

4.2. Sound changes affecting Proto-Biu-Mandara-B. Two sound changes which affected Proto-Biu-Mandara-B include: Proto-Chadic *r > Proto-BM *r > Proto-BM-B *l and Proto-Chadic *d > Proto-BM *d > Proto-BM-B *r / V_ V. The first of these changes is illustrated in (8).

(8) Proto-BM *r > Proto-BM-B *l

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>BM-B</th>
<th>BM-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>*kərfi ‘fish’</td>
<td>Mg kilif, G kilfi</td>
<td>T yurvu</td>
</tr>
<tr>
<td>*pərə ‘to fly’</td>
<td>Mg afili, Lo pelace</td>
<td></td>
</tr>
<tr>
<td>*təra ‘moon’</td>
<td>Mg tile, G təla</td>
<td>Mə təra</td>
</tr>
<tr>
<td>*xərə ‘to steal’</td>
<td>Mg hala, G ø+hala</td>
<td>Gd ørə</td>
</tr>
</tbody>
</table>

The sound change Proto-Chadic *r > *l applied to a significant number of Biu-Mandara-A languages. This sound change, however, cannot be reconstructed for Proto-BM-A. The sound change affected the Bura/Higi, Mandara, Matakam, and Daba groups of Biu-Mandara-A. It did not arise in the Tera and Bacama groups. As seen in (1) above, Bura/Higi, Mandara, Sukur, and Matakam belong to a single subbranch of Biu-Mandara-A. The Daba, Tera, and Bacama groups constitute three separate subbranches. Thus, the change occurred in two of the four subbranches of Biu-Mandara-A. The distribution of this sound change suggests that it occurred independently in these two subgroups after the split of Proto-BM-A.
The second sound change affecting Biu-Mandara-B was Proto-Chadic *d > Proto-BM *d > Proto-BM-B *r / V_ V. This sound change is illustrated (9).

(9) Proto-BM *d > Proto-BM-B *r / V_ V

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>BM-B</th>
<th>BM-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>*kɔdɔm</td>
<td>‘crocodile’</td>
<td>Mg kurum</td>
</tr>
<tr>
<td>*iɗɔ</td>
<td>‘eye’</td>
<td>Bu yil, Mg ara</td>
</tr>
<tr>
<td>*bɔdĩ</td>
<td>‘monkey’</td>
<td>Mg ávrik, G bɔr</td>
</tr>
</tbody>
</table>

In Biu-Mandara-A, the Daba and Matakam groups exhibit this sound change. Several languages of the Bura group, including Kilba and Margi, also underwent this change. In the majority of the groups in Biu-Mandara-A, though, Proto-Chadic *d did not change to *r intervocally.

4.3. Sound changes in the Masa group. Three sound changes reconstructed for the Proto-Masa group (Proto-MG) are of interest here: Proto-Chadic *b > Proto-MG *v, Proto-Chadic *s > Proto-MG *s, and Proto-Chadic *d > Proto-MG *r / V_ V. These sound changes are illustrated in the following tables.

(10) Proto-Chadic *b > Proto-MG *v

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>Masa group</th>
</tr>
</thead>
<tbody>
<tr>
<td>*bɔr</td>
<td>‘blood’</td>
</tr>
<tr>
<td>*bɔdĩ</td>
<td>‘monkey’</td>
</tr>
<tr>
<td>*bɔ</td>
<td>‘mouth’</td>
</tr>
</tbody>
</table>

(11) Proto-Chadic *s > Proto-MG *s

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>Masa group</th>
</tr>
</thead>
<tbody>
<tr>
<td>*JaSu</td>
<td>‘bone’</td>
</tr>
<tr>
<td>*aSi</td>
<td>‘egg’</td>
</tr>
<tr>
<td>*Sɔm</td>
<td>‘name’</td>
</tr>
<tr>
<td>*Sɔnɔ</td>
<td>‘to send’</td>
</tr>
</tbody>
</table>

(12) Proto-Chadic *d > Proto-MG *r / V_ V

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>Masa group</th>
</tr>
</thead>
<tbody>
<tr>
<td>*iɗɔ</td>
<td>‘eye’</td>
</tr>
<tr>
<td>*kɔdɔm</td>
<td>‘crocodile’</td>
</tr>
<tr>
<td>*bɔdĩ</td>
<td>‘monkey’</td>
</tr>
</tbody>
</table>
The change Proto-Chadic *d > *r / V_V brought about a phonological contrast between *r, a flap, and *r, a trill, in Proto-MG. The Proto-MG *r is the reflex of Proto-Chadic *r whereas the Proto-MG *r is the reflex of Proto-Chadic intervocalic *d. After the split of Proto-Mas a group into the northern and southern subgroups, the contrast between the two r’s was independently lost in both subgroups. In the southern languages the *r merged with the *r; but in the northern languages, *r merged with *l. Note the correspondences in (13) for Proto-MG *r in contrast to the reflexes of Proto-MG *r and *l seen in (14) and (15).

(13) Proto-MG *r > *l in northern subgroup, *r in southern subgroup

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>Proto-MG</th>
<th>North</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>*kərfi</td>
<td>*k-rf-</td>
<td>‘fish’</td>
<td>Ma kūlúf+nà</td>
</tr>
<tr>
<td>*təra</td>
<td>*tir</td>
<td>‘moon’</td>
<td>Ma ṭíl+tā</td>
</tr>
<tr>
<td>*mar</td>
<td>*mbur</td>
<td>‘oil’</td>
<td>Mu mbùl+lå</td>
</tr>
</tbody>
</table>

(14) Proto-MG *r > *r

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>Proto-MG</th>
<th>North</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>*kədəm</td>
<td>*hurum</td>
<td>‘crocodile’</td>
<td>Mu hùrùm+mà</td>
</tr>
<tr>
<td>*ido</td>
<td>*ir</td>
<td>‘eye’</td>
<td>Mb ir+a</td>
</tr>
<tr>
<td>*bədi</td>
<td>*vir</td>
<td>‘monkey’</td>
<td>Ma ví+rà</td>
</tr>
</tbody>
</table>

(15) Proto-MG *l > *l

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>Proto-MG</th>
<th>North</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>*gol</td>
<td>‘to watch’</td>
<td>Mu gol</td>
<td>H gòl</td>
</tr>
<tr>
<td>*gulok</td>
<td>‘rooster’</td>
<td>Mu gògòlòk+ŋà</td>
<td>P gùlok</td>
</tr>
<tr>
<td>*wile</td>
<td>‘to shine, flash’</td>
<td>Mb wile+da</td>
<td>L wile?ë</td>
</tr>
<tr>
<td>*sal</td>
<td>‘to wash grain’</td>
<td>Mu sal</td>
<td>H sal</td>
</tr>
</tbody>
</table>

It is a common characteristic of languages in this area of Africa to distinguish a trill, flap, and voiced lateral. Hausa, Ngizim, and Kanuri (Nilo-Saharan), for instance, exhibit such an inventory of liquids. It is interesting to note that in the Bade group of West Chadic languages, the flap has undergone sound changes in Gashua Bade and Western Bade which are very similar to the sound changes reconstructed for the Masa group. As illustrated in (16), the Proto-Bade flap *r has undergone the change *r > *l in Gashua Bade, but *r > *r in Western Bade. The flap *r remains a flap in Ngizim. The Proto-Bade *r persists as a trill in the three languages [Schuh 1981a, b; p.c.].
4.4. Historical Inferences. If the Masa group were a member of Biu-Mandara-B, it would follow that this group of languages would exhibit the phonological innovations characteristic of both Biu-Mandara and Biu-Mandara-B. As noted above, there are four well-attested sound changes which affected Proto-BM and Proto-BM-B. In this section, I argue that only one of these sound changes could have affected Proto-MG. I demonstrate that the other three sound changes which affected the Biu-Mandara languages are not the same sound changes as those which affected Proto-MG.

First, as previously discussed, Proto-BM and Proto-MG exhibit the sound change Proto-Chadic *b > *v. The fact that the Masa group and Biu-Mandara share this sound change may indicate that the Masa group is a subgroup in Biu-Mandara. However, the change *b > *v has occurred independently elsewhere in the Chadic family. The Zaar, Ron, and Bade groups of West Chadic, for instance, independently underwent this change. In the case of the Ron group, there was apparently subsequent devoicing of the labial fricative. These sound changes are illustrated in (17) for Zaar of the Zaar group [Shimizu 1978], Fyer of the Ron group [Jungraithmayr 1968, 1970], and Ngizim of the Bade group [Schuh 1981a].

(17) Proto-Chadic *b > *v in West Chadic

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>Zaar</th>
<th>Fyer</th>
<th>Ngizim</th>
</tr>
</thead>
<tbody>
<tr>
<td>*bədi</td>
<td>‘monkey’</td>
<td>*vʊrɪ</td>
<td>*vəjɪ</td>
</tr>
<tr>
<td>*barə</td>
<td>‘to give’</td>
<td>*vʊrtʊ</td>
<td>*fə</td>
</tr>
<tr>
<td>*bən-</td>
<td>‘hut, house’</td>
<td>*vɪn</td>
<td>*fɛn</td>
</tr>
<tr>
<td>*badə</td>
<td>‘five’</td>
<td>*vəad</td>
<td></td>
</tr>
<tr>
<td>*bəna</td>
<td>‘to wash oneself’</td>
<td></td>
<td>*vɪʏʊ</td>
</tr>
</tbody>
</table>

The fact that this sound change has occurred independently in three separate groups indicates that this is a common change in the Chadic family. Thus, the fact that the Biu-Mandara and Masa group languages exhibit this change may be attributed to the prevalence of this change in the Chadic family.

Newman [1977b] proposes that the Proto-Chadic inventory of sibilants and laterals includes *s, *z, *S, and *ɬ. As noted earlier, Proto-BM underwent the
sound change Proto-Chadic *S > Proto-BM *l. In other words, Proto-Chadic *S merged with Proto-Chadic *l in Proto-BM. In Proto-MG, however, Proto-Chadic *S merged with Proto-Chadic *s. As Newman [1977b] first noted, the merger of Proto-Chadic *S with Proto-Chadic *s provides strong evidence against classification of the Masa group as a subgroup of Biu-Mandara. It is not plausible that the merger of the Proto-Chadic *S and *l characteristic of Biu-Mandara could subsequently be reversed in the Masa group, with the reflexes of Proto-Chadic *S shifting to *s.

After the split of Proto-BM into its two subbranches, the change Proto-BM *r > *l affected Proto-BM-B. After Masa group split into its two subgroups, the sound change (Proto-Chadic *r >)Proto-Masa *r > *l applied to the languages of the northern subgroup. As a result, there are superficial similarities between cognates in the northern subgroup and Biu-Mandara-B, e.g., [kûlûf+na] ‘fish’ in Masa and [kilif] in Musgu and [kilif] in Gidar. Nonetheless, this sound change in the northern subgroup of Masa was a development independent of the sound change noted for Proto-BM-B.

In the last case to be considered, the sound change *d > *r / V_V affected Proto-BM-B and the Proto-Masa group. In Proto-BM-B, this sound change followed the sound change Proto-BM *r > *l. As just noted, the sound change *r > *l did not apply to Proto-MG. It follows that the sound change *d > *r / V_V could not have applied to Proto-BM-B and Proto-MG at the same point in time. If this sound change had applied to Proto-BM-B and Proto-MG at the same point in time, Proto-MG would necessarily exhibit the prior sound change of Proto-BM *r > *l.

These sound changes and their relative chronologies are summarized in (18).

In summary, there is one shared phonological innovation which could support the subclassification of the Masa group within Biu-Mandara: Proto-Chadic *b > *v. The fact that the Masa group and Biu-Mandara exhibit this sound change does not, however, indicate that the Masa group should be subclassified in Biu-Mandara. Such a proposal would attribute considerable importance to a single sound change which has occurred independently in other languages of the Chadic family. Moreover, there are three additional sound changes reconstructed for Proto-BM and Proto-BM-B which cannot be reconstructed for Proto-MG.
5. Lexical Innovations

The presence of shared lexical innovations provides strong positive evidence for the subclassification of languages. In this section, I present five lexical innovations characteristic of the Biu-Mandara branch as a whole and one innovation characteristic of the Biu-Mandara-B subbranch. In each case, the languages of the Masa group do not exhibit these lexical innovations.

5.1. Biu-Mandara innovations. There are three words reconstructed for Proto-Chadic which are well attested in the West and East Chadic branches but absent in Biu-Mandara: Proto-Chadic *ba ‘mouth’, *ti ‘to eat’, and *badə ‘five’ [Newman 1977b]. The Biu-Mandara languages exhibit the innovations *ma ‘mouth’ and *zəmə ‘to eat’ [Newman 1977b]. As for Proto-Chadic *badə ‘five’, the Biu-Mandara languages exhibit reflexes of a form which I provisionally reconstruct as Proto-BM *ʔəm ‘five’. In the case of each of these innovations, the Masa group exhibits a reflex of the Proto-Chadic form, not the Biu-Mandara innovation. The Proto-Chadic (PC) reconstructions and their reflexes in West and East Chadic and the Masa group as well as the Biu-Mandara innovations are illustrated in (19).
(19) Biu-Mandara lexical innovations

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>BM</th>
<th>Masa</th>
<th>West</th>
<th>East</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ba  ‘mouth’</td>
<td>Mg  ma</td>
<td>Z  vun</td>
<td>Ha  baakii</td>
<td>D  bii</td>
</tr>
<tr>
<td></td>
<td>G  ma</td>
<td>Mu  vùn+nà</td>
<td>Zr  vi</td>
<td>So  bo</td>
</tr>
<tr>
<td></td>
<td>Db  ma</td>
<td></td>
<td>Mi  vin</td>
<td></td>
</tr>
<tr>
<td>*ti  ‘to eat’</td>
<td>T  zɔmɔ</td>
<td>Z  ti</td>
<td>Ha  ci</td>
<td>D  tèè</td>
</tr>
<tr>
<td></td>
<td>Br  sɔm</td>
<td>Ma  ti</td>
<td>Ng  ta</td>
<td>Bi  tàyà</td>
</tr>
<tr>
<td></td>
<td>Bu  hum</td>
<td></td>
<td>Kk  tu</td>
<td></td>
</tr>
<tr>
<td>*bʌdɔ  ‘five’</td>
<td>Mg  tım</td>
<td>Z  vɔl</td>
<td>Kk  bɔadu</td>
<td>D  beedy</td>
</tr>
<tr>
<td></td>
<td>Mt  ŋam</td>
<td>Ma  vɔl</td>
<td>Mi  vɔl</td>
<td>Ke  wiidiw</td>
</tr>
<tr>
<td></td>
<td>Gl  ŋɔba</td>
<td></td>
<td>Ng  vɔʌd</td>
<td></td>
</tr>
</tbody>
</table>

In addition, there are two forms which are widely attested in the Biu-Mandara branch but which do not occur in East or West Chadic. I provisionally reconstruct these Biu-Mandara innovations as Proto-BM *kur- ‘urine’ and *tuw- ‘to weep’, following Jungraithmayr and Ibriszimow [1994]. These innovations do not appear in the Masa group. The Biu-Mandara reconstructions and their reflexes as well as the unrelated forms found in the Masa group are presented in (20). Note that the Masa [tii] ‘to weep’ is reconstructed for the northern subgroup as *tir. As seen in the reconstructions in Appendix B, word-final [r] has been lost in the northern subgroup with compensatory lengthening of the preceding vowel.

(20) Biu-Mandara lexical innovations

<table>
<thead>
<tr>
<th>Proto-BM</th>
<th>BM-A</th>
<th>BM-B</th>
<th>Masa</th>
</tr>
</thead>
<tbody>
<tr>
<td>*kur- ‘urine’</td>
<td>Dg  kúrè</td>
<td>Y  kóray</td>
<td>Mu  súmúú+rà</td>
</tr>
<tr>
<td></td>
<td>Mt  kúray</td>
<td>G  kûnne</td>
<td>P  jàbûr</td>
</tr>
<tr>
<td></td>
<td>Gs  kunnay</td>
<td>Ko  ŋkûne</td>
<td></td>
</tr>
<tr>
<td>*tuw- ‘to weep’</td>
<td>Gd  tûna</td>
<td>Mg  twa</td>
<td>Z  sì?i</td>
</tr>
<tr>
<td></td>
<td>Gs  tuway</td>
<td>Ko  súwé</td>
<td>Ma  tii</td>
</tr>
<tr>
<td></td>
<td>Dg  tɔwà</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Finally, the BM-B languages exhibit the irregular sound change *k > *f in Proto-Chadic *aku/ak*a ‘fire’. In BM-A and the Masa group, though, the irregular *k > *f did not occur as seen in (21). The regular reflex of Proto-Chadic *k is Proto-MG *h, e.g., Proto-Chadic *kəðəm ‘crocodile’ corresponds to Proto-MG *hurum. Thus, Proto-MG *ku ‘fire’ does not exhibit the expected reflex of Proto-Chadic *k. It remains to be determined why Proto-MG *ku did not undergo the sound change Proto-Chadic *k > Proto-MG *h.
As noted earlier, the presence of shared innovations provides positive evidence for subclassification. Six lexical innovations have been reconstructed for the Biu-Mandara languages. It is striking that the languages of the Masa group do not exhibit even one of the lexical innovations. The absence of these lexical innovations provides strong evidence against the subclassification of the Masa group in the Biu-Mandara branch of Chadic.

### 6. A Morphological Innovation

In this last section, I consider the innovation of the third person plural pronoun in Chadic. The three major branches of Chadic differ with respect to the shape of the third person plural pronoun. The West Chadic languages exhibit a reflex of the PC third person plural *sun* [Kraft 1972, Newman 1980]. The northern subgroup of the Masa group exhibits the pronoun *-zi*, a reflex of PC *sun*. In the southern subgroup of Masa, though, the innovation *na* occurs. In the East Chadic languages, the third person plural can be reconstructed as *k-η*, possibly originating from the PC plural determiner *k-* and the *n* plural [Schuh 1983a]. Finally, the Biu-Mandara languages exhibit the innovation *t-n* [Kraft 1972]. These distinct pronouns are illustrated in (22).

(22) The third person plural pronoun in Chadic

<table>
<thead>
<tr>
<th>Proto-Chadic</th>
<th>West</th>
<th>Masa</th>
<th>BM</th>
<th>East</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>sun</em> ‘they’</td>
<td>Ha suu</td>
<td>Ma nd+izi</td>
<td>Ga tanda</td>
<td>Mk +aη</td>
</tr>
<tr>
<td></td>
<td>Dw sunŋ</td>
<td>Mu azi</td>
<td>Lo +ton</td>
<td>So +giŋ</td>
</tr>
<tr>
<td></td>
<td>Gj si</td>
<td>P ku+na</td>
<td>Ba tô</td>
<td>Si go</td>
</tr>
<tr>
<td></td>
<td>Ge sundi</td>
<td>Z ta+na</td>
<td>M dar</td>
<td></td>
</tr>
</tbody>
</table>

Note that the Biu-Mandara innovation *t-n* cannot be reconstructed for the Masa group. The northern subgroup of the Masa group exhibits a reflex of PC *sun* whereas the southern subgroup exhibits the innovation *na*. The absence of this innovation provides further evidence against the classification of the Masa group in Biu-Mandara.
7. Conclusion

In summary, there is no conclusive evidence from shared innovations which supports the subclassification of the Masa group of languages in Biu-Mandara. The only shared phonological innovation which could indicate a close genetic relation between Biu-Mandara and the Masa group is the sound change Proto-Chadic *b >*v. However, this is a sound change which has occurred independently in other parts of the Chadic family. Moreover, there are three other phonological changes attested in Biu-Mandara which cannot be reconstructed for the Masa group. In addition, the Masa group does not exhibit the lexical and morphological innovations characteristic of Biu-Mandara and Biu-Mandara-B. Thus, I propose that the Masa group be classified as a separate, fourth branch of Chadic as first proposed by Newman [1977b].
Appendix A

Abbreviations

The following abbreviations are used in this paper. The classification of each language and sources for the data cited are also indicated. Newman [1977b] is abbreviated as ‘N 1977’, Jungraithmayr and Ibriszmow [1994 ]as ‘J&I 1994.’

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Language</th>
<th>Group</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ba</td>
<td>Bacama</td>
<td>BM, A, Bata group</td>
<td>Kraft 1972</td>
</tr>
<tr>
<td>Bi</td>
<td>Birgit</td>
<td>East, B, Dangla group</td>
<td>J&amp;I 1994</td>
</tr>
<tr>
<td>Br</td>
<td>Bura</td>
<td>BM, A, Bura group</td>
<td>Kraft 1981</td>
</tr>
<tr>
<td>Bu</td>
<td>Buduma</td>
<td>BM, B, Kotoko group</td>
<td>Lukas 1939</td>
</tr>
<tr>
<td>D</td>
<td>Dangla</td>
<td>East, B, Dangla group</td>
<td>Fédry 1971, N 1977</td>
</tr>
<tr>
<td>Db</td>
<td>Daba</td>
<td>BM, A, Daba group</td>
<td>N 1977</td>
</tr>
<tr>
<td>Dg</td>
<td>Dghwede</td>
<td>BM, A, Mandara group</td>
<td>J&amp;I 1994</td>
</tr>
<tr>
<td>Dw</td>
<td>Dwot</td>
<td>West, B, Saya group</td>
<td>Kraft 1972</td>
</tr>
<tr>
<td>G</td>
<td>Gidar</td>
<td>BM, B, Gidar group</td>
<td>Schuh n.d.</td>
</tr>
<tr>
<td>Ga</td>
<td>Gabin</td>
<td>BM, A, Tera group</td>
<td>Kraft 1972</td>
</tr>
<tr>
<td>Ge</td>
<td>Geruma</td>
<td>West, A, Bole group</td>
<td>Schuh 1978</td>
</tr>
<tr>
<td>Gj</td>
<td>Geji</td>
<td>West, B, Saya</td>
<td>Kraft 1972</td>
</tr>
<tr>
<td>Gl</td>
<td>Glavda</td>
<td>BM, A, Matakam group</td>
<td>Rapp and Mühle 1969</td>
</tr>
<tr>
<td>H</td>
<td>Hede</td>
<td>Masa group</td>
<td>Noss 1990</td>
</tr>
<tr>
<td>Ha</td>
<td>Hausa</td>
<td>West, A, Hausa group</td>
<td>N 1977</td>
</tr>
<tr>
<td>Hi</td>
<td>Higi</td>
<td>BM, A, Higi group</td>
<td>N 1977, Kraft 1981</td>
</tr>
<tr>
<td>J</td>
<td>Jara</td>
<td>BM, A, Tera group</td>
<td>N 1977</td>
</tr>
<tr>
<td>Ke</td>
<td>Kera</td>
<td>East, A, Kera group</td>
<td>N 1977</td>
</tr>
<tr>
<td>Kk</td>
<td>Kanakuru</td>
<td>West, A, Bole group</td>
<td>N 1977</td>
</tr>
<tr>
<td>Ko</td>
<td>Kotoko</td>
<td>BM, B, Kotoko group</td>
<td>J&amp;I 1994</td>
</tr>
<tr>
<td>Lng</td>
<td>Lamang</td>
<td>BM, A, Mandara group</td>
<td>Wolff 1983</td>
</tr>
<tr>
<td>Lo</td>
<td>Logone</td>
<td>BM, B, Kotoko group</td>
<td>Lukas 1936</td>
</tr>
<tr>
<td>M</td>
<td>Margi</td>
<td>BM, A, Bura group</td>
<td>N 1977</td>
</tr>
<tr>
<td>Ma</td>
<td>Masa</td>
<td>Masa group</td>
<td>Caïtucoli 1983</td>
</tr>
<tr>
<td>Mb</td>
<td>Marba</td>
<td>Masa group</td>
<td>Franco 1970, Price 1968</td>
</tr>
<tr>
<td>Mg</td>
<td>Musgu</td>
<td>BM, B, Kotoko group</td>
<td>Lukas 1941</td>
</tr>
<tr>
<td>Mi</td>
<td>Miya</td>
<td>West, A, Bole group</td>
<td>Schuh 1995</td>
</tr>
<tr>
<td>Mk</td>
<td>Mokilko</td>
<td>East, B, Mukulu group</td>
<td>Jungraithmayr 1990</td>
</tr>
<tr>
<td>Mn</td>
<td>Mandara</td>
<td>BM, A, Mandara group</td>
<td>N 1977</td>
</tr>
<tr>
<td>Mu</td>
<td>Musey</td>
<td>Masa group</td>
<td>Shryock 1995</td>
</tr>
<tr>
<td>N</td>
<td>Ngide</td>
<td>Masa group</td>
<td>Noss 1990</td>
</tr>
<tr>
<td>Ng</td>
<td>Ngizim</td>
<td>West, B, Bade group</td>
<td>Schuh 1981a</td>
</tr>
</tbody>
</table>
Classification of the Masa group of languages

P | Peve | Masa group | Cooper 1984, Hufnagel 1986
Pd | Paduko | BM, A, Mandara group | N 1977
Si | Sibine | East, A, Somrai group | Jungraithmayr 1978b
So | Somrai | East, A, Somrai group | N 1977
T | Tera | BM, A, Tera group | N 1977
Y | Yedin | BM, B, Kotoko group | J&I 1994
Z | Zime | Masa group | Hufnagel 1986, Kraft 1981
Zr | Zaar | West, B, Zaar group | N 1977

Appendix B

The Lexicon of Proto-Masa Group

This appendix contains a list of 204 words reconstructed for Proto-Masa group with the data supporting these reconstructions. The data cited below is taken from the sources noted in Appendix A for the respective languages. In the case of Peve, ‘P’ designates data from Cooper [1984], and ‘P2’ data from Hufnagel [1986]. Likewise, ‘Z’ designates Hufnagel [1986], and ‘Z2’ Kraft [1981].

The consonantal inventory outlined in (1) is reconstructed for Proto-Masa group. In addition, five vowels are reconstructed: *i, *e, *a, *o, *u. Tone has not been reconstructed. The tone patterns of verbs are not indicated because tone has a grammatical function in these languages, indicating the aspect of the verb (cf. Jungraithmayr 1978a, Caïtucoli 1983). For the nouns, however, tone is lexical; consequently, the tone of the nouns has been indicated if transcribed in the original source. Finally, in Masa, Musey, and Marba, the grammatical gender of nouns is explicitly marked by an enclitic: /na/ for masculine nouns, /da/ for feminine nouns.

(1) Consonantal inventory of Proto-MG

\[
\begin{array}{cccc}
p & t & c & k \\
b & d & j & g \\
\hat{b} & d & \\
mb & nd & nj & \eta g \\
f & s & \ell & h \\
v & z & \hat{k} & \hat{h} \\
m & n & \eta \\
l & \\
w & r & r & y \\
\end{array}
\]
1. to accompany: *tin  
   Ms tin, Mb tin, P cin, H tin

2. antelope: *zar  
   Ms zàà+na, Mb azar+a, P zär, H zar

3. ashes: *but  
   Ms bút+ña, Mb but+na, P būt, H butu, N pūtù, Z budf

4. to ask: *j-p  
   Ma jop, Ms jop, Mb jop, P2 caf la, H cap

5. arm, hand: *ɓa  
   Ma ɓám+ná, Mb abo+na, P ɓá, H ɓá, N ɓá, Z ɓá

6. to awake: *l-  
   Ma ḋìi, Ms ḋit, Mb ḋi, H ḋa?

7. bark, peal: *b-l-k  
   Ma ḡulók+ña, Ms ḡolók+ŋa, Mb bloh+a, P bōlē?, H bōle?

8. bat: *babay  
   Ma báybay+ña, Ms bàybay+ña, Mb abibey+na, P bōbāy, H bōbay

9. bean: *rit  
   Ms lii+t+ná, Mb alit+na, P réd, H ređe

10. bee, honey: *y-m  
    Ma yum+ná, Ms yūm+má, Mb ayum+a, Pīm, H yem, yam, Z yem

11. beer: *sum  
     Ms sūm+má, Mb sum+a, P sūm, H sum

12. to belch: *gil  
     Ma gil, Ms gil, Mb gil, P2 gil, H gīli?, Z gīli

13. to bite: *et  
     Ms et, Mb et, P2 et, H et, N ete, Z eđe

14. black: *wura  
     Ma wūrā, Ms wár, Mb ura+da, P2 ura?, H ura?, Z2 wura

15. blacksmith, hammer: *caf  
     Ma caf+ná, Ms caf+fá, H caf

16. blow: *fo  
     Ma fo, Ms fo, Mb fo, P fo?, H fo?, Z fo?o

17. blood: *vuzur  
     Ma būzùù+ña, Ms bùzùù+ná, Mb buzù+na, P vūsū, H vursu, Z vursu

18. body: *tu  
     Ma tūù+nà, Ms tā+rā, Mb ta+da, P tū, H tu, Z tu

19. to boil: *zar  
     Ma zal, Ms zal, Mb zal, P2 sar, H sar, Z2 zar
20. bone: *sok
   Ma zök+ŋä, Ms sōk+ŋä, Mb assoh+a, P ûsō, H uso, Z iseu
21. brain: *toʔon
   Ma tōʔon+nā, Ms tōʔon+nā, Mb tohon+da, P tūʔom wā, H teʔem wa, Z2 toʔom
22. to break: *k-s
   Ma kus, Ms kus, Mb kus, P kọy, H kas, Z kas
23. breast: *po
   Ma po+nā, Ms po+nā, Mb appo+na, P pāʔ, H paʔ, Z pa
24. to breathe: *m-s-k
   Ms mūzūk, Mb muzuk, P2 mai, H mas
25. broom: *samat
   Ms sāmat+nā, Mb assumat+na, P sāmdā
26. to carve: *cet
   Ma cēt, Ms cet, Mb cet, P cēf, H cēf, N cēfe, Z cēf
27. charcoal: *v-n
   Ma vēn+ŋa, P vōn, L ŋavan
28. chin: *d-m
   Ma dūm+nā, Ms dūm+mā, Mb dudum+a, P jīm, H dim, Z2 dum
29. co-wife: *h-n
   Ms hēnē+rā, H hin
30. cold: *hep
   Ms ħep, Mb ahep, P hēb, H hēb
31. to come: *mb-
   Ma mba, Ms mba, Mb mba, P mbu, H mbu, Z mba
32. to cough: *ol
   Ma ol, Ms ol, Mb hoł, P ol, H uhoʔ, Z ol
33. crocodile: *hurum
   Ma hūrum+nā, Ms hūrum+mā, Mb hurum+a, P hūrum, H hurum, N hūrum, Z hurum
34. to cultivate: *zum
   Ma zum, Ms zum, Mb zum, H zum
35. to dance: *ndur
   Ma nul, H nduru
36. darkness: *nduvun
   Ma jūfūn+nā, Ms ndūvūn+dā, Mb nduvun+da, H ndufun, Z2 ndufun
37. death, funeral: *mat
   Ma mıt+nā, Ms mät+nā, Mb mat+na, P mät, H mata
38. dew: *mb-ɗ-
   Ma mb̀di+na, Ms mb̀ɗagí+na, Mb mbádi+da, P mbèɗà, H mbəɗa,
   Z2 midà
39. to die: *m-t
   Ma mit, Ms mit, Mb mit, P mat, H mat, Z mat
40. to displace: *j-k
   Ma jok, Ms jok ‘move’, Mb jok, H jik
41. to do: *ri See ‘time’, ‘place’
   Ma li, Ms li, Mb le, P ri, H re
42. dog: *d-
   Ma dii+na, Ms di+na, Mb adi+da, P dà, H øda, N ádá?, Z aida
43. to drink: *ci
   Ma ci, Ms ci, Mb ci, P2 ci, H ce, Z ce
44. ear: *hum
   Ma hùm+na, Ms hùm+bà, Mb hum+ba, P hùm, H hum, N hùm, Z hum
45. to eat: *ti
   Ma ti, Ms ti, Mb te, P ti, H ti, N ti, Z ti
46. to eat meat: *k-m
   Ms kom, P kam, H kam
47. egg: *se
   Ma zè+na, Ms sè+na, Mb asse+na, P jè?, H se?, N je?, Z se?e
48. to enter: *kal
   Ma kal, Ms kal, Mb kal, P2 kal, H kal
49. excrement: *sot
   Ma sùdáy+na, Ms sòt+na, P só̌, H só̌, Z só̌
50. to extract: *pat
   Ma pat, Ms pat, Mb pat, P pat, H pat
51. eye: *ir
   Ma ì+rà, Ms ì+rà, Mb ir+a, P è, H ir, N èr, Z ir
52. to fall: *nd-
   Ms ndi, Mb nde, P ndie, H nde, Z2 nde
53. father: *b-
   Ma bùm+na, Ms bù+nà, Mb abu+na, P bà, H øba, ba, Z2 buba
54. feather: *f-m
   Ma jìmit, Ms jìmit+tà, Mb jìmit+a, P lìm, P2 lìm, H lam
55. field: *sine
   Ma sinè+na, Ms sènè+nà, Mb assine+na, P2 jìne, H sine, Z sine
56. field rat: *njuk
   Ms njùk+ṇà, Mb anjuh+a, P2 njuk, H njuk, Z njuku
57. fig tree: *turum
   Ms tüüüm+nä, Mb tulum+a, P tüüüm
58. fire: *ku
   Ma kü+nä, Ms kü+rà, Mb akku+da, P kü, H ku, Z ku
59. fish: *k-rf-
   Ma küluf+nà, Ms küluf+fà, Mb kluì+a, P kígèfè, H kerfe, N kérfé, Z kife?e
60. five: *val
   Ma vål, Ms vål, Mb vål, P vål, H vål, N vål, Z vål
61. flour: *fut
   Ms füt+tà, Mb affut+a, P füt, P2 fur, H fut, Z2 fut
62. flute: *d-f
   Ma dif+nä, Ms dif+fà, Mb adif+a, P dúp, H duf
63. fly: *raw
   Ma ràw+nä, Mb aro+na, P rîrèw, H rirew, Z larau
64. foot, leg: *sem
   Ma sém, Ms sém+má, Mb assem+a, P jéém, H sam, L sém, N sám, Z sem
65. to forge: *ği
   Ma già, Ms già, Mb ãgé, P ãgàm, H ãl
66. fork, forked stick: *garak
   Ms gàràk+nà, Mb grak+a, L garak
67. four: *fidi
   Ma fìdi, Ms fìdi, Mb фódi, P fódi?, H fódi?, N fódi, Z fódi
68. front: *v-k
   Ma vòk+nà, Ms vòk+nà, Mb voh+a, P vük, H vuk
69. to fry: *haw
   Ma haw, Ms haw, Mb haw, P haw, H haw, Z hau
70. girl: *way
   Ms wày+rà, P wày, H wai
71. to give birth: *vut
   Ma vut, Ms vut, Mb vut, P förà?, H vèrà?, Z vra?a
72. to go: *t-
   Ma tuì, Ms tut, P ta, H ta, Z ta
73. goat: *hu
   Ma fiù+nà, Ms fiù+nà, Mb ahu+na, P hù, H uhu, Z afu
74. granary: *z-ŋ
   Ms zàŋ+nà 'shelter', Mb azàŋ+a 'shelter', P2 zéna, H sèna, Z ziŋa
75. grass: *-s-
   Ma wūs+nà, Ms úùzú+nà, Mb assu+na, P2 za, H ña
76. grave: *us
   Ma wūs+nā, Ms ūs+sā, Mb assu+da, H wa us
77. to grill: *war
   Ms war, P wor, H war
78. hair: *ŋusa
   Ms ŋūs+sā, P sā wā, H ŋisā wa, Z ŋisa wa
79. hare: *v-t
   Ma vèt+nā, Ms vèt+tā, Mb avvivet+a, P fò+fī?, H fiti, Z viti
80. harmattan: *kut
   Ms kūt+nā, Mb akkukut+na, P kūt, H kut
81. to hatch: *eł
   Ma el, Ms el, P iel, H el
82. to hear, understand: *hum
   Ma hum, Ms hum, Mb hum, P hum, H hum, N hum, Z2 hum
83. heart: *g-l-s
   Ma gles+nā, Ms gīlīs ‘kidney’, P gēla wəsə
84. hedgehog: *cem
   Ma cemcem+nā, Ms cēmcação+mā, Mb cicem+a, P cēcimè, H caŋcime
85. to help: *njin
   Ms njun, Mb njun, P jin, H jin
86. to hit: *p-m
   Ms poŋ, P pum, H pum
87. to hit, kill: *ci
   Ma ci, Ms ci, Mb ci, P ci, H ci, N ci, Z ci
88. hole: *z-r
   Ma zūl+lā, Ms zūl+lā, Mb zul+a, P zūrā, H zəra, Z zra
89. horn: *mek
   Ma mīyōk+nā, Ms mēk+kā, P mēk, L mēké, Z mek
90. hunger: *me
   Ma māy+nā, Ms māy+rā, Mb mey+da, P mīē?, H me?e, Z2 me
91. hunt: *ram
   Ms lām+bā, Mb alam+ba, P rāŋ, H rāŋ
92. hut, compound: *z-
   Ma zī+nā, Ms zī+nā, Mb azi+da, P só, P2 zəba, H za, Z za
93. intestines: *r-w-t
   Ma rwāt+nā, Mb arruwat+na, P rāwfi, H raw
94. knee: *gif
   Ms gif+fā, Mb gigif+a, H cin gif, Z vun gif
Classification of the Masa group of languages

95. to know, see: *wi
   Ma wi, Ms wi, Mb we, P wa?, H ye, Z we
96. land, uninhabited and uncultivated: *fur
   Ms ful+là, H fur
97. larynx, voice: *hor
   Ms fòò+nà, Mb hor+à, P hòr, H hor
98. leaf, foliage: *lab
   Ms ëáp+mà, Mb ałap+ma ‘shrub, bush’, P łap, H łapa, Z łab
99. to leave, forbid: *hin
   Ma hin, Ms hin, Mb hin, P hin
100. left: *gur
    Ms gùl, P2 gur, H2 gura, Z gur
101. to lift: *ti
    Ma ti, Ms ti, Mb te, P òe
102. liver: *duk
    Ma dúk+ŋà, Ms dúdúk+kà, Mb aduduk+a, P2 duk, H tuk, L dúk, Z2 aduk
103. to lose, disappear: *vid
    Ms vit, Mb vit, P fíd, H vid
104. mahogany (Khaya senegalensis): *g-m
    Ma gám+nà, Ms gám+mà, L guma, Z2 guma
105. man, husband: *nj-f
    Ma jùf+nà, Ms njùf+fà, Mb njúf+a, P njì, H njì, N njìf, Z njì
106. mat: *lòt
    Ma lòt+nà, Ms lòt+nà, Mb lòt+na, P là?, H là?a
107. to mature: *cén
    Ms jén, P cén
108. meat, flesh: *lìw
    Ma lìw+nà, Ms lìw+nà, Mb lìu+na, P lìéw, H lèw, Z lù
109. melon: *b-
    Ma bú+na, Ms bú+nà, Mb bubu+da, P2 bo?, H po?, Z2 bo?o
110. milk: *mbir
    Ma mbí+ra, Ms mbì+ra, Mb ambì+ra, P mbír, H mbir, Z2 mbir
111. to mix: *lìm
    Ms lìm, P lìm, H lìm
112. monkey: *vìr
    Ma vì+ra, Ms vì+ra, Mb vi+ra, P vìr, H vìr, Z vì
113. moon: *tír
    Ma tíl+tà, Ms tìlà, Mb til+a, P cér, H tér, Z ter
114. mortar: *zu
   Ma zuù+nà, Ms zuù+na, Mb zuzo+da, P2 zu?, H zuʔu
115. mouth: *vun
   Ma vù+nà, Ms vù+na, Mb vun+a, P vûn, H vûn, Z vin
116. mud, clay: *rubu
   Ms lubù+na, Mb lubu+na, P rûbà, P2 rub, H rûbû, Z lubu
117. mud: *dorbo
   Ms doròbòp+mà, Mb dorbop+ma, H dôrbô, Z2 dorbo
118. mushroom: *bik
   Ms bík+kà, Mb abigi+da, P bïk, H bik
119. name: *sem
   Ma sëm+nà, Ms sëm+mà, Mb simi+na, P jëm, H sam, N sôm, Z sem
120. navel: *fuk
   Ms fûk+kà, Mb uf+a, P fû, H úfû, Z2 afuk
121. nose: *cin
   Ma cìn+nà, Ms cìn+na, Mb acin+a, P cûn, H cûn, Z cûn
122. to obtain: *fi
   Ma fi trouver, Ms fi, Mb fe, P fie, H fe, Z fe
123. to offer a sacrifice: *fi vun
   Ms fi vùn, P bie vûn, H bûe vûn
124. oil, grease, fat: *mbur
   Ma mûl+là, Ms mbûl+là, Mb mbul+a, P mbûr, H mbûr, N mbûr, Z mbûr
125. okra: *-gor-
   Ms ãòônò+rà, Mb zulo+da, P ãûr, H ãûr, Z ãûr
126. penis: *diw
   Ms ãîw+rà, Mb diw+da, P2 diu, H diw
127. people: *su
   Ms sùù, Mb suma+na, H suno, L suno
128. person: *s-
   Ma sa+na, Ms sa+nà, Mb sa+na, P sù, H su, N sû, Z su
129. place: *ri
   Ma lîi+nà, Ms lî+nà, P rî, H ri, Z li
130. placenta: *tuʔom
   Ms tôʔom+ma, Mb atohom+a, P tuʔôm, L tuʔom
131. to play: *riu
   Ma liu, Ms luu, Mb lu, P2 ru, H riu, N riu ‘to dance’, Z liu
132. pus: *r--
   Ms lûû+rà, P rîw, H rîrew
133. to put: *tin
   Ma tun, Ms tin, tun, Mb tin, P cin, H tin, Z tin
134. to rain: *si
   Ma si, Ms si, Mb se, P je, L se
135. rainy season: *ndor
   Ms ndol+là, Mb andol+a, P ndór, H ndor, Z2 ndor
136. to receive: *fi
   Ma vi, Ms vi, Mb ve, P vie, H fe
137. to recline: *b-r
   Ma bur, Ms bur, Mb bur, P par, H bar, Z bar
138. red: *tew
   Ma ław, Ms ław, Mb łew, P ńéw, H ęeo, Z2 ęeo
139. to return: *hom
   Ms hOl, Mb huloł, H hom, Z hom
140. rhinoceros: *gay
   Ma gáy+ná, Ms gáy+rà, P gáí?, H gay, L gəʔi
141. to ripen: *ne
   Ms ne, Mb ne, P nie, H ne, Z neʔe
142. road, path: *vot
   Ms vót+tá, Mb lovot+a, P vāri, H vārī, N fààrī, Z2 vari
143. to roast: *cuf
   Ma cuf, Ms cuf, Mb cuf, P cu, H cuʔu, Z cu
144. rooster: *golok
   Ms gögölók+ŋa, P gùlòk, H gùlòk
145. root: *s-r
   Ma súdāy+ná, Ms sári+ná, Mb sidey+na, L sér, Z sed
146. rope: *zew
   Ms zëw+ná, Mb zyeu+na, P jëw, H zëu, Z zeu
147. roselle (hibiscus Sabdarifla): *jembe
   Ma jëm+ná, Ms jëm+má, Mb ajem+a, P jëb, H jëbe, Z jëbe
148. saliva: *ne
   Ma nëenë+ná, L neʔe
149. salt: *vu
   Ms vùvù+ná, P vù, H úvù, Z2 avu
150. sand: *ŋeľ
   Ma ŋeľ+ná, Ms ŋeľ+lá, Mb yeľ+a, P nyėľ, H ńeľe, Z ńgeľ
151. sauce: *mbar
   Ms mbàlá+rá, Mb ambla+da, P mbár, H mbár, Z mbar
152. to scratch: *hurok
   Ms horok ‘to plow, farm’, P hurok, H hurok

153. seed: *ir
   Ms íí+rà, P ì

154. to send: *s-n
   Ma sun, Ms sun, Mb sun, P jin, H sin, N sin, Z sin

155. seven: *sid’a
   Ma sìdíyá, Ms kìdíísíyá, Mb kidisya, P jédáʔ, H sëdfá, N sèdfáʔ, Z2 seda

156. to shake: *gasak
   Ma gas, Mb gas, P2 gəzak, L gəsàk

157. sheep: *time
   Ms tímí+rà, Mb timi+da, P cìmé, H tìmé, Z time

158. to shine, flash: *wile
   Ms welet, Mb wile+da, P wudi, H wuli, L wileʔe

159. shoulder, upper arm: *bike
   Ms bìk+ŋà, Mb bik+a, P bikè bà, Z2 wa bike ba

160. side, rib: *hay
   Ma háy+nà, Ms hāy+rà ‘stomach’, Mb hay+da ‘stomach’, P háiʔ ‘beside’,
   H hai

161. six: *kargi
   Ma kargi+yá, Ms kārgīyá, Mb karagaya, P kǎnkìʔ, H kəŋkì, H kāŋgì, Z2 kandi

162. sleep: *sen
   Ma sën+nà, Ms sën+nà, Mb sey+na, P jën, H sen, N sën, Z sen

163. small: *g-
   Ma gòr, Ms gòr, Mb gugor, H gaʔ, Z2 gaʔa

164. spear: *sap
   Ms sāp+pà, Mb assap+a, P sāb, H sābà, Z asaɓa

165. spirit: *ful
   Ma fùl+là, Ms fùl+là, P ífràyā , H, Z2 afì ‘sky’

166. spirit, shadow: *ŋg-s
   Ma ŋùs+nà, Ms ŋgùs+sá, Mb aŋus+a, P nyís, H ñgísí

167. to squeeze: *em
   Ms em, Mb em, P iem, H em

168. to stand up: *cor
   Ma col, Ms col, Mb col, P car, H car, Z car

169. star: *ciw
   Ms cìwcìw+rà, Mb ciciw+da, P cìcìw, H ìcìu, Z2 ciciu
170. to steal: *kur
Ma kul, Ms kul, Mb kul, P kəy, H kir, Z kir
171. stone: *goy
Ms gɔy+rà, P2 goi?, H gwoi?i, N kwòi, Z2 goy
172. story: *nd-n
Ms njùn̩jùn+dà, Mb jujun+dà, P njì n, H ndin, Z ndindìŋ
173. to strike: *p-m
Ms poŋ, P pum, H pum
174. to suck: *sop
Ms sop, Mb sop, P soɓ, H soɓ, Z soɓ
175. sun: *fat
Ma fàt+nà, Ms fàt+tà, Mb affat+a, P vètì, H fútá, Z faɗa
176. sweat: *z-mb-r
Ms zàmâl+là, Mb zumâl+a, P sùmbûr, L sùmbûr
177. to swim: *lus
Ms lus, P lus, H lus
178. tail: *c--
Ma càw+nà, Ms njàw+rà, Mb anjaw+da, P cèw, H cèu, Z ceu
179. to take out: *pat
Ma pat, Ms pat, Mb pat, P pat, H pata
180. tamarind: *cîn
Ma cîn+nà, Ms cîn+dà, Mb acîn+da, P mècîn, H mîsîn, L maicîn, Z minjin
181. ten: *gup
P gûɓ, H guɓ, N gwùɓ, Z guɓ
182. three: *hindi
Ma fiɗi, Ms hîndi, Mb hindi, P hîndì, H hîndì, N hîndì?, Z hindi
183. throat, voice: *de̱r
Ma dèl+là, Ms dèl+là, Mb del+a, H dìrâì, Z der
184. to throw: *g-
Ma gi, Ms gi, Mb ge, P gie, H ge, Z2 ge
185. throwing knife: *b-r
Ma bîl+là, Ms bîl+nà, Mb abîl+a, P pèrà, H brà
186. time: *ri
Ms li+nà, P ri, H ri
187. tongue: *si
Ma sin+nà, Ms sin+dà, Mb sin+a, P jîɗì, H sîlé, N sîli, Z cil
188. tooth: *s-
Ma sîi+nà, Ms sîi+nà, Mb si+na, P jè?, H se?, N sèʔé, Z sed
189. tree, wood: *gu
   Ma gú+ná, Ms gú+ná, Mb aggu+na, P gú, H úgú, N ükú, Z ago
190. urine: *jumbur
   Ma zumū+ra, Ms súmúú+ra, Mb sumu+ra, P jòbūr, L jubur
191. to vomit: *vin
   Ma vin, Ms vin, Mb vin, L vinè?è
192. vulture: *bak
   Ma bák+ŋa, Ms bák+ŋa, Mb abah+a, P2 bwok, L bok
193. warthog: *z-ŋ
   Ma zen+ŋa, Ms zéŋ+ná, Mb azen+a, P zíŋ, H zìŋ, Z zìŋ
194. to wash: *mbus
   Ma mus, Ms mbus, Mb mbus, P mbi, H mbis, L mbus, Z mbus
195. to wash grain: *sal
   Ms sal, P sal, H sal
196. wasp: *viŋ
   Ms viŋviŋ+ŋa, Mb viviŋ+a, H vi vi
197. to watch: *gol
   Ms gol, Mb gol, H gôl
198. water: *mb-
   Ms mbô+na, Mb mbyo+na, P mbi, H mbi, Z mbi
199. what: *mi
   Ma mi ge, Ms mï, Mb me, P mɔ , P2 mi su, L mi
200. to whistle: *f-t
   Ms fet, Mb ge fet, P fɔdiw, H fidiu
201. wind: *simbet
   Ma sîmèd+ná, Ms sémèt+ná, Mb simet+na, P2 simbed, H sîmbë?, Z2 sîmed'
202. wound, sore: *mbir
   Ma mîl+lâ, Ms mîl+lâ, Mb mîl+a, P mbîr, H mbîr
203. year: *kim
   Ms kîm+bâ, P kîm, H kîm, Z2 kîm
204. yesterday: *k-mb-
   Ma kâmâ+tā, Mb kama, P kûm, L kûmbu, kəmbat
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