

A DIALECTOMETRICAL STUDY OF SOME BANTU LANGUAGES  
(A. 40 - A. 60) OF CAMEROON

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1. WORKING GROUP

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- Maarten MOUS Student-assistant at the Department of African Linguistics at the University of Leiden.
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2. INTRODUCTION

This study is part of a dialectometrical project which included i.a. a comparison of Mbam-Nkam (Eastern Grassfields) languages and a comparison of zone A languages. In the latter study only one language from group A. 40 was included, i.e. Tunen (A. 44). Our study takes nine languages from A. 40 and compares these with each other as well as with a selection of languages from Mbam-Nkam, A. 40 and A. 60, thus providing a link with the two earlier studies.

<u>Mbam-Nkam</u>	<u>A. 40</u>	<u>A. 50</u>	<u>A. 60</u>
Banganté (1)	Bo (5)	Rikpa (18)	Nugunu (14)
Batcha (2)	Bum (6)		Nukalong (15)
Balengou (3)	Basaa (7)		Nubaca (16)
Bazou (4)	Nyokon (8)		Tuki (17)
	Tunen (9)		
	Alinga (10)		
	Mandi (11)		
	Bonek (12)		
	Yambeta (13)		

The linguistic unity of A. 40 has previously been doubted (SCHADEBERG and VOORHOEVE 1977, PHILIPS 1979). It has been our aim to shed some more light on the synchronic subclassification of the A. 40 - A.60 languages.

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## 3. SOURCES AND REFERENCES

- Banganté }  
 Batcha }  
 Balengou } Grassfields Bantu Working Group, wordlists.  
 Bazou }
- Bo : SPELLENBERG (1922)
- Bum : D. BARRETEAU, Questionnaire d'inventaire linguistique de Dibúbúm
- Basaa : LEMB and DE GASTINES (1973)
- Nyokon : D. BARRETEAU, Questionnaire d'inventaire linguistique de Nyɔʔɔ
- Tunen : DUGAST (1967)
- Alinga }  
 Bonek }  
 Yambeta } PHILIPS (1979)  
 Tuki }
- Mandi : PHILIPS (1979), D. BARRETEAU, Questionnaire d'inventaire linguistique du Nùmánd
- Nugunu }  
 Nukalong }  
 Nubaca } C. PAULIAN, wordlists
- Rikpa : PHILIPS (1979), GUARISMA (1969)

DUGAST I., - 1967, *Lexique de la langue Tunen*, Paris, C. Klincksieck

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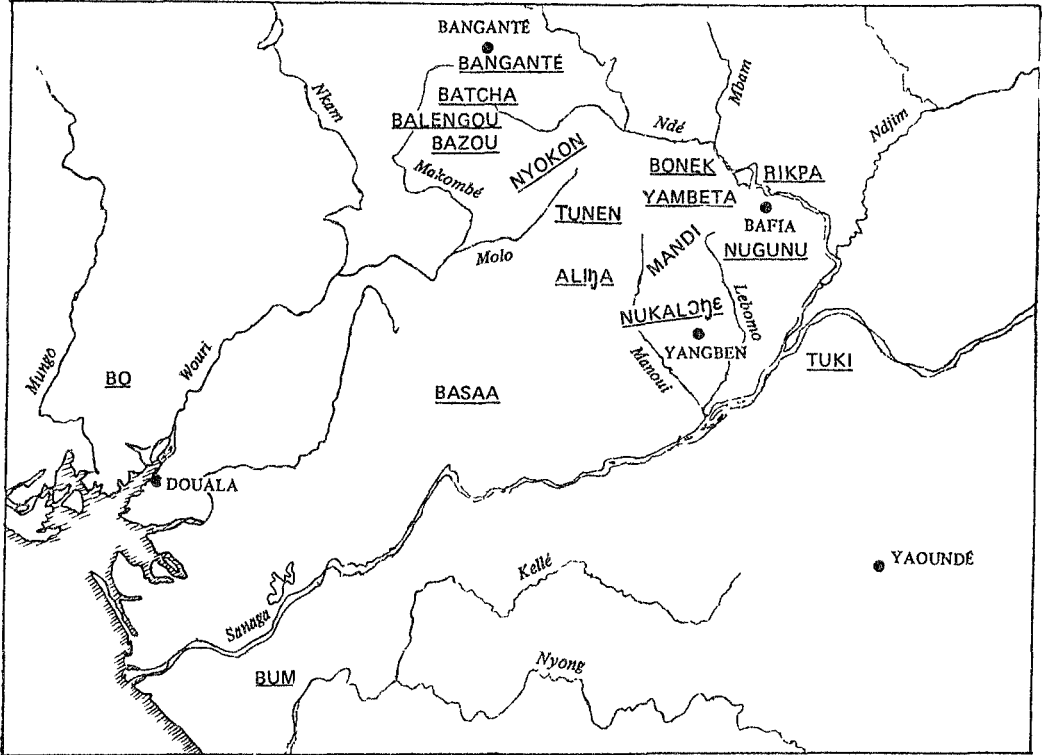
LEMB P. et de GASTINES F., - 1973, *Dictionnaire basaa-français*, Douala, Collège Libermann

MEEUSSEN A.E., - 1980, *Bantu Lexical Reconstructions*, Archives d'anthropologie n° 27, Tervuren, Musée royal de l'Afrique Centrale.

PHILIPS K., - 1979, The initial standardization of the Yambeta language, Ph. D. thesis, University of Yaoundé

SCHADEBERG Th. and J. VOORHOEVE, - 1977, Note provisoire sur les résultats scientifiques de l'ATP Internationale du CNRS, 1976/79 - bantouistique, dans BOUQUIAUX L. éd., *Multilinguisme dans les domaines bantou du nord-ouest et tchadique, le point sur la question en 1977*, pp. 23-27.

SPELLENBERG F., - 1922, *Die Sprache der Bo oder Bankon in Kamerun*, Zeitschrift für Eingeborenen-Sprachen, 3. Beiheft, Berlin, Dietrich Reimer.



Map showing the geographical position of the languages

## 4. CORRESPONDENCES

The phoneme correspondences are based on the comparison of (assumed) cognates in the wordlists. The starred symbols are taken from reconstructions of the words in Proto Bantu by MEEUSSEN (1980). Elsewhere we use the vowel system : u o ɔ a ε e i, because these symbols are mostly used in the sources.

In the column "final vowel" in Table 1 a plus (+) indicates that the final vowel is always preserved, a minus (-) means that the vowel is always deleted.  $\pm$  indicates that the vowel is sometimes deleted, sometimes preserved. The final vowel quality is identical in all languages, but in Nugunu the vowel a becomes ε after i in the preceding syllable, in Nukalong and Nubaca the vowel is always i when the preceding vowel is i.

Table 1 - Vowels correspondences

	*u	*u	*o	*i	*i	*a	final vowel
1. Banganté	o		ɔ	u		a,ɔ <sup>4</sup>	$\pm$
2. Batcha	u		ɔ	e		a,ɔ <sup>4</sup>	$\pm$
3. Balengou	u		ɔ	e		a,ɔ <sup>4</sup>	$\pm$
4. Bazou	u		ɔ	i		a,ɔ <sup>4</sup>	$\pm$
5. Bo	u	o	ɔ	ε	i	a,ɔ <sup>4</sup>	$\pm$
6. Bum	u	o	ɔ	ε	i	a,ɔ <sup>4</sup>	$\pm$
7. Basaa	u		ɔ,o <sup>3</sup>	ε	i	a,ɔ <sup>4</sup>	$\pm$
8. Nyokon	u	o,u <sup>1/2</sup>	ɔ	e	i	e,ɔ <sup>4</sup>	-
9. Tunen	u	o	ɔ	ε	i	a,ɔ <sup>4</sup>	$\pm$
10. Alinga	u	o,u <sup>1/2</sup>	ɔ,o <sup>3</sup>	e	i	a	$\pm$
11. Mandi	u	o,u <sup>1/2</sup>	ɔ,o <sup>3</sup>	e	i	a	-
12. Bonek	u	o	ɔ	ε	i	a	$\pm$
13. Yambeta	u	o	ɔ	ε	i	a	$\pm$
14. Nugunu	u	o	ɔ	ε	i	a	+
15. Nukalong	u	o,u <sup>1/2</sup>	ɔ	ε	i	a	$\pm$
16. Nubaca	u	o,u <sup>1/2</sup>	ɔ	e	i	a	$\pm$
17. Tuki			ɔ,o <sup>1</sup>	ε	i	a	+
18. Rikpa	u		ɔ	ɛ	i	a	-

1) /w\_

2) /\_v

3) /\_(C)i

4) /u\_

Table 2 - Consonant correspondences

	*p/ᶑ/ᶑ_#	*b/ᶑ/ᶑ_#	*b/ᶑ/ᶑ_#	*b/ᶑ/ᶑ_#	*t/ᶑ/ᶑ_#	*d/ᶑ/ᶑ_#	*d/ᶑ/ᶑ_#	*di	*c	*j
1.	p	f,s <sup>2</sup>	∅	bh	t	∅	l	z	l	z
2.	p,β <sup>1</sup>	f,s <sup>2</sup>	∅	v	∅	∅	d	z		z,s <sup>12</sup>
3.	p,β <sup>1</sup>	f,s <sup>2</sup>	∅	v	∅	∅	d	z		z,s <sup>12</sup>
4.	p,β <sup>1</sup>	f,s <sup>2</sup>	∅	v	∅	∅	l	z		z,s <sup>12</sup>
5.	p	u	b	b	∅	∅	l	j		j,β <sup>13</sup> ,y <sup>11</sup>
6.	p	p,h	p	b	t	r	l	j		j,(d)z <sup>14</sup> ,y <sup>11</sup>
7.	b	p,h	b	b	∅	∅	l,β <sup>1</sup>	j		j,y <sup>11</sup>
8.	p	f	m,β <sup>3</sup>	p	l	t	n	N		c
9.	b	f	f	b,m <sup>5</sup>	l	l	n,β <sup>7</sup>	n		s,t
10.	p	f	f	m	l	l	n,β <sup>8</sup>	n		s,t
11.	p	f	f	p,b <sup>1</sup>	t	t,d <sup>1</sup>	n,β <sup>9</sup>	n		č
12.	p	f	f,w <sup>4</sup>	bw	t	t,d <sup>1</sup>	n,β <sup>8</sup>	N		č
13.	p	f	m,β <sup>3</sup>	b	t	t,d <sup>1</sup>	n	n		j
14.	p	p	b	b	d	d	n,β <sup>8</sup>	l		c
15.	p	f	p	p,b <sup>5</sup>	t	t	n,β <sup>9</sup>	t		s
16.	p,b <sup>1</sup>	f	p	p,b <sup>5</sup>	t	t	n,β <sup>9</sup>	t		c
17.	p	f	b	b	t	t	n,β <sup>10</sup>	d,r <sup>1</sup>		s,s <sup>11</sup>
18.	p	p	b	b	∅	t	d	d		z

<sup>1)</sup> /V\_V<sup>2</sup>/i<sup>3</sup>/m(V)\_i<sup>4</sup>)f in verbs, w in nominals<sup>5</sup>/m<sup>7</sup>/CVV<sup>8</sup>/i<sup>9</sup>/\_{\*i,\*j} i<sup>10</sup>/i<sup>11</sup>/i<sup>12</sup>

<sup>2)</sup> in class 9a (animals)<sup>13</sup>/n<sup>14</sup>/N<sup>15</sup>/\_{\*u<sup>16</sup>}/\_{\*u,\*y} i<sup>17</sup>/\_{\*i,e} i<sup>18</sup>/V+back<sup>19</sup>/a<sup>20</sup>/i<sup>21</sup>/i<sup>22</sup>/\_#

In this table, the column under \*di states the correspondences of prefix of class 5 and the correspondences of the word "di" 'to eat' (item number 25). The symbol # means stem boundary, in nominals it can be preceded by a nominal prefix. The symbol N represents a homorganic nasal.

Continuation of Table 2

	*k/_#	*k/#_	*g/_#	*g/#_	*m	*mb/_#	*n	*nd/_#	*n/_#
1.	?	k		V	m	m	n	n	ø
2.	?	k, X <sup>15</sup>	ø	Y	p	p	ø	ø	k
3.	?	k, kF-kX <sup>16</sup>	ø	(Y)V	p	p	ø	ø	ø
4.	?	k, kF-kX <sup>16</sup>	YV	Y	p	ø	ø	ø	ø
5.		k, w <sup>15</sup> , j <sup>11</sup>	g	k		mb	n	nd	ø
6.	ø	k, w <sup>15</sup> , c <sup>17</sup>	k	k	m	m	n	n	ø
7.	ø	k, w <sup>15</sup> , j <sup>11</sup> , c <sup>17</sup>	k	k	m	mb	n	n	ø
8.	ø	k, ø <sup>10</sup> , g <sup>14</sup>	k	k	m	m	ø, n <sup>21</sup>	ø	ø
9.	ø	k, ø <sup>10</sup> , g <sup>14</sup>	kV	k	m	mb	n	nd	ø
10.	ø	k, ø <sup>10</sup> , g <sup>14</sup> , h <sup>19</sup>	k	k	m	mb	n	nd	ø
11.	ø	k, ø <sup>10</sup> , g <sup>14</sup>	kV	k	m	mb	n	nt	ø
12.	ø	k, ø <sup>10</sup> , g <sup>14</sup>	k	k	m	mb	n, n <sup>11</sup>	nd	ø
13.	k	k	?	ø	m	m	n	n	ø
14.	g	g	ø	g	m	mb	n	nd	ø
15.	k	k	ø	k	m	mb	n	nd	ø
16.	k	k	ø	k	m	mb	n, n <sup>11</sup>	nd	ø
17.	ø	g, j <sup>20</sup>	ø	g	m	mb	n, n <sup>11</sup>	nd	ngV
18.	ø	k, c <sup>11</sup> , w <sup>15</sup>	?	k	m	m	n	n	ø

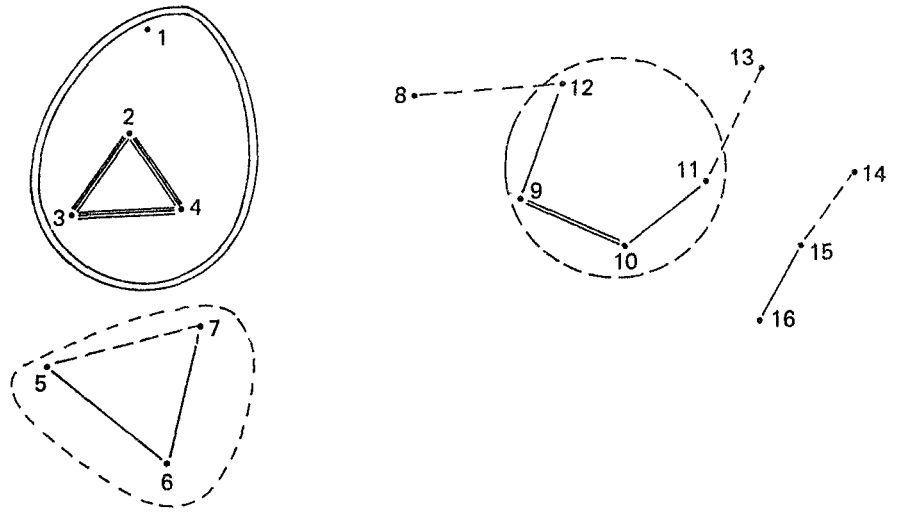
## 5. DIALECTOMETRICAL ANALYSIS AND RESULTS

First we reduced a list of 120 items, which is the same list used by MÖHLIG in similar studies, to 100 because there were insufficient data for some of the items in too many languages. After preparing index cards, we scored them while at the same time making notes of what we considered as a regular sound correspondence and what we classed as phonological or morphological difference. On the basis of these notes we checked and systematized the sound correspondences and then redid the scoring.

For each pair of languages the weighted percentage of resemblance was calculated (see table 3). This percentage is calculated as follows: If the words for one item do not differ or differ only by regular sound correspondences, the resemblance is counted as 4; if these words have a morphological difference, it is counted as 3; if they have a phonological difference, it is counted as 2; if they have more than one difference, morphological and/or phonological (and the words are of the same root), it is counted as 1; if the words are of different roots, it is counted as 0. The sum of the scores for all 100 items is divided by the maximum possible score. This, multiplied by 100, gives the percentage of resemblance between a pair of languages.

For some columns and rows of table 3 the percentages are less reliable than for others because of the higher number of missing words (see table 4). The percentages of table 3 were arranged in descending order and divided into six groups representing degrees of resemblance by making use of gaps in the sequence of percentages (see the rightmost column of fig. 3). The information of table 1 is more clearly displayed visually in figures 1-3. In fig. 1 the degrees of resemblance between all the languages are displayed; percentages above 52.7% (the four highest degrees of resemblance of the six groups) are indicated by various types of connecting lines. Languages within a circle have a percentage of resemblance to all others within the circle of at least the degree represented by the type of line used. Fig. 2 is a detail of fig. 1, but restricted to the languages 7-17 and the three lowest degrees of resemblance. Fig. 3 gives the same information as figures 1 and 2 or as table 3, but displayed differently. The type of line represents the degree of resemblance (1-6) and the length of the line reflects the complement of the exact percentage (100% -x%).



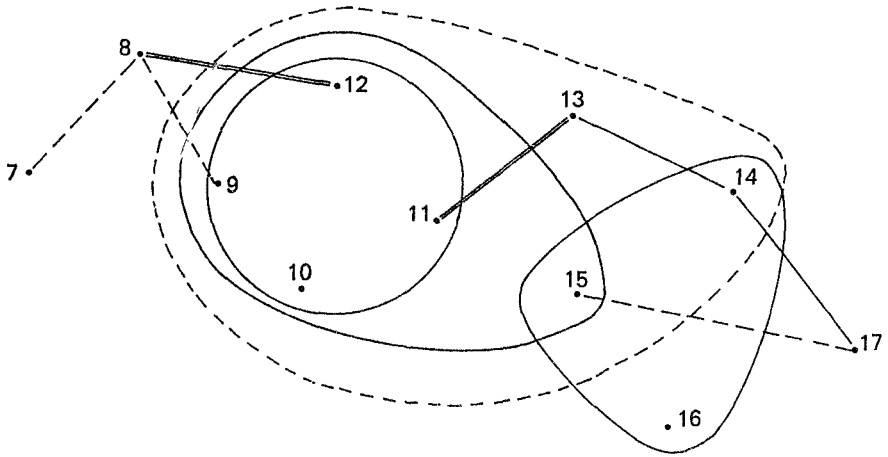


.18

.17

- ≡≡≡ = 97.7 - 93.0 %
- ≡≡ = 83.4 - 79.9 %
- = 68.9 - 64.5 %
- - - = 60.7 - 52.7 %

no connection line = no resemblance above 52.7 %.



- ≡≡ = 60.7 - 52.7 %
- = 47.8 - 40.8 %
- - - = 37.5 - 35.6 %

no connection line = no resemblance above 35.6 % and below 60.7 %.

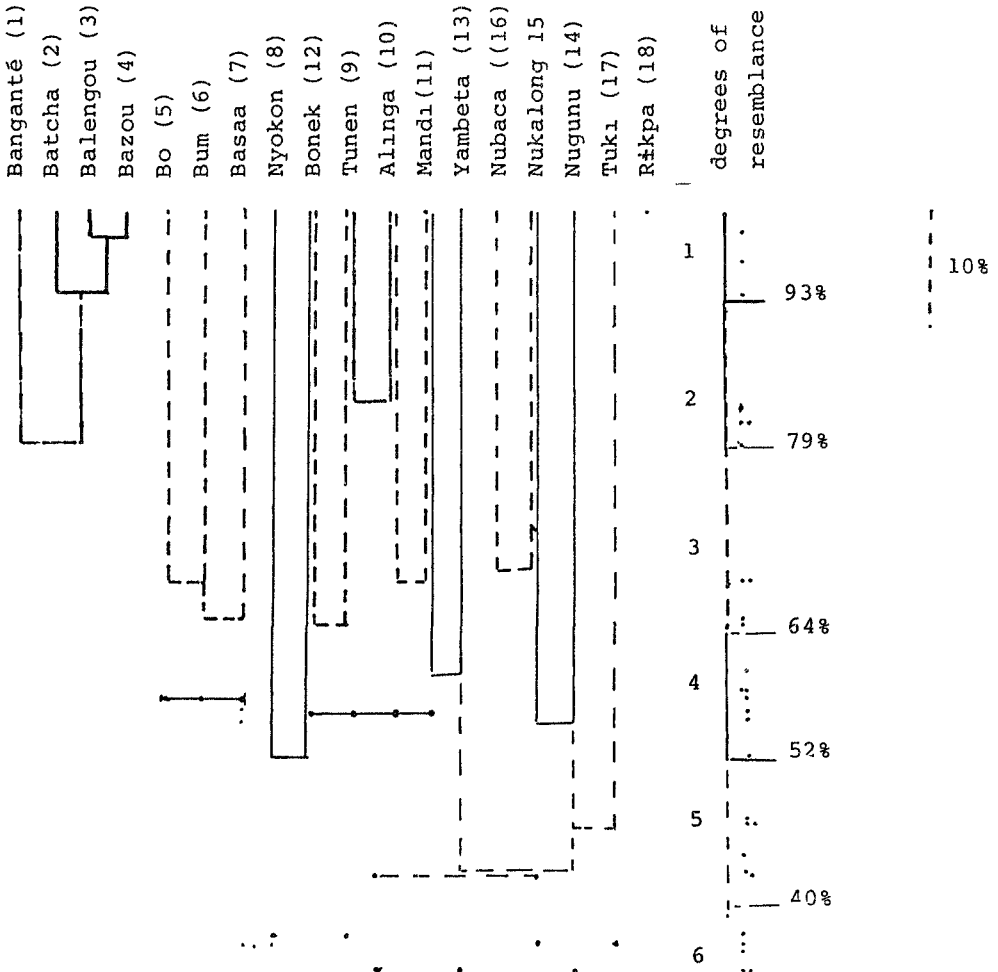
Table 3 - Percentages (x 10) of resemblance of pairs of languages

1.	Banganté																			
2.	Batcha	1																		
3.	Balengou	799	2																	
4.	Bazou	822	960	3																
5.	Bo	823	930	977	4															
6.	Bum	316	345	328	334	5														
7.	Basaa	290	317	311	294	680	6													
8.	Nyokon	264	284	267	259	583	653	7												
9.	Tunen	186	206	201	192	222	232	372	8											
10.	Alinga	212	213	207	212	253	242	311	361	9										
11.	Mandi	246	250	264	235	270	298	329	452	834	10									
12.	Bonek	195	216	216	183	205	242	270	444	568	679	11								
13.	Yambeta	218	239	232	221	257	274	288	527	645	591	591	12							
14.	Nugunu	266	266	270	263	224	223	235	274	362	358	607	345	13						
15.	Nukalong	232	244	236	227	228	255	278	306	373	375	408	375	429	14					
16.	Nubaca	296	296	270	285	230	247	240	331	445	473	478	432	356	558	15				
17.	Tuki	244	259	235	250	217	224	235	278	298	372	374	348	324	426	689	16			
18.	R&kpa	227	221	218	212	220	207	222	260	280	270	308	257	291	467	375	328	17		
		267	288	273	271	333	339	334	235	316	324	270	291	276	319	303	260	301		

Table 4 - Number of missing items for pairs of languages

1.	1.																			
2.	13	2.																		
3.	13	13	3.																	
4.	14	14	14	4.																
5.	13	13	13	14	5.															
6.	13	14	14	15	1	6.														
7.	13	13	13	14	1	2	7.													
8.	14	14	14	14	1	1	2	8.												
9.	14	13	13	14	0	1	1	1	9.											
10.	30	31	31	32	25	27	27	27	26	10.										
11.	14	13	13	14	0	1	1	1	0	26	11.									
12.	30	31	31	32	25	27	27	27	26	26	26	12.								
13.	24	23	24	25	14	16	16	16	15	26	14	26	13.							
14.	13	13	13	14	0	1	1	1	0	26	0	26	15	14.						
15.	13	13	13	14	0	1	1	1	0	26	0	26	15	1	15.					
16.	14	15	14	15	1	2	2	2	1	26	0	26	15	2	1	16.				
17.	13	13	13	14	0	1	1	1	0	26	0	26	15	1	0	1	17.			
18.	14	14	14	15	1	2	2	2	1	26	1	26	15	2	1	2	18.			

Fig. 3



1. Mbam-Nkam (1-4) and Rikpa (18) are clearly separate from the other languages. The highest percentage by which these languages are linked to any other language of our sample is about 33%, i.e. Bo, Bum, Basaa.
2. Bo (5), Bum (6), and Basaa (7) form a group (58-68%). These languages are quite distinct from the other languages; the highest percentage is Basaa (7) - Nyokon (8), 37%.
3. Tunen (9), Alinga (10), Mandi (11), and Bonek (12) form a group (56-83%). Within this group Nen and Alinga have such a high percentage (83%) that it can be assumed that they are mutually intelligible.
4. Nyokon (8) is linked with Tunen (9), Alinga (10), Mandi (11), and Bonek (12) by percentages of 36.1 - 52.7%. These are the highest percentages Nyokon shares with other languages. The percentages between Nyokon and Bo (5), Bum (6), Basaa (7) are of a lower level (22.2-37.2%).
5. Nukalong (15) and Nubaca (16) have a percentage of 69%. It is remarkable that Nukalong belongs to the group of Tunen, Alinga, Bonek and Mandi at a level of 43%, but Nubaca only at a level of 26%. Nugunu (14), Nukalong (15) and Nubaca (16) form a group at a level of 43%. At that level Nukalong is a member of two groups, namely the Tunen-Alinga-Mandi-Bonek-group and the Nugunu-Nubaca-Nukalong-group. Nugunu (14) has a central position. It has a percentage of 47% with Tuki (17), of 43% with Yambeta (13) and of 56% with Nukalong (15).
6. Yambeta (13) occupies a position in between different groups. With Mandi (11) it has a percentage of 60%, but with the other languages under 2 - Tunen, Alinga and Bonek - it forms a group at a level of 34.5%. At that level Yambeta also has connections with Nugunu (14), Nukalong (15) and Nubaca (16).
7. Tuki (17) falls partly outside the rest. It has the highest percentage with Nugunu (14) (47%); and with Nukalong 37.5%, with Nubaca 32.8%.
8. At a low level of 36% the languages 9-15, Tunen, Alinga, Mandi, Bonek, Yambeta, Nugunu, and Nukalong, form a group in which Nyokon (8), Nubaca (16) and Tuki (17) are not included.

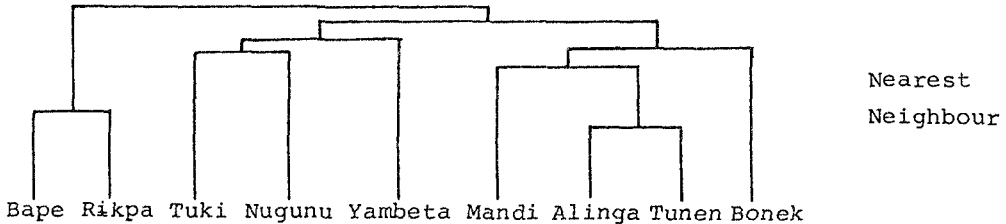
## 6. COMMENTS

In her study of Yambeta K. PHILLIPS examined (among other things) mutual intelligibility and has carried out a lexico-statistic survey of a number of languages which are also included in our study. On the basis of judgements by speakers about mutual intelligibility, she arrives at three groups :

- (1) Alinga, Bonek, Mandi, Tunen, (Yambeta).
- (2) Nugunu, (Tuki), (Yambeta).
- (3) Rikpa, Bape (A. 50), (Tuki).

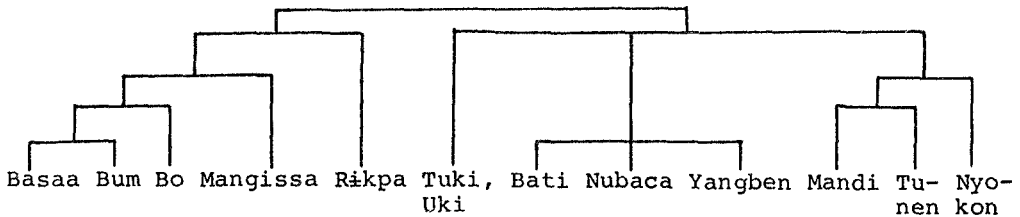
This neatly corresponds with our results in the recognition of (1) and (2) as two groups, with Yambeta being a member of both.

The results of her lexico-statistic survey are :



The close relationship between Alinga and Tunen within the Tunen-Mandi-Alinga-Bonek group, with Rikpa being outside the group, is confirmed by our study, but not the inclusion of Yambeta in a group with Tuki and Nugunu.

The lexico-statistical study by SCHADEBERG and VOORHOEVE resulted in the following tree :



These results agree with our own : Basaa, Bum and Bo are separate from the other A. 40 languages ; Rikpa is closer to Basaa, Bum and Bo than to Mandi, Tunen and the others.

## 7. EVALUATION AND PERSPECTIVES

In conclusion we can say that the A. 40 languages do not form a unity. Tunen, Alinga, Mandi and Bonek have more in common with A. 60 languages such as Nugunu, Nubaca and Nukalong.

A reclassification seems justified :

Group 1 : Bo, Bum, Basaa and other A. 41-43 languages.

Group 2 : Tunen, Alinga, Bonek, Mandi, Yambeta, Nugunu, Nukalong, Nubaca, Tuki and other A. 60 languages.

Within group 2, Tunen, Alinga, Bonek and Mandi form a subgroup. The position of Nyokon is not clear, but probably in group 2.

In this lexical comparison there is no significant similarity between the Bamileke languages (1-4) and group 2, though they share some peculiarities which are not common generally in Bantu : A mu-class as the plural of class 19, prefixes of the form VN- as well as of the form mV- for the same class. Other peculiarities in group 2 are :

- a distinction between class 6 (plural of 5) and 6a (liquids)
- deviant word order : SOV instead of SVO (Tunen, Nyokon)
- a prefix mi- for animals (Tunen)
- collective classes as well as plural classes (Tunen)
- noun suffixes, -VC, as well as prefixes (Bonek)
- vowel harmony (Tunen, Yambeta, Nugunu)

These peculiarities have led J. VOORHOEVE to propose a research project on the languages of group 2 ; fieldwork, which should include a grammatical survey, would be carried out by an international research group.

## DOCUMENTATION

1. all - tout, tous

A1 = -sò	: 5, 7
A2 = súndè	: 6
B1 = kìm	: 8, 9, 11
ìmḡ	: 14
ìm	: 15
βfmá	: 17
B2 = cèm	: 18
C = kítikít	: 15, 16

A1 : A2 = acc., B1 : B2 = phon.

2. ashes - cendres

A1 = bhé	: 1
vũ	: 2
vā	: 3, 4
A2 = dî.bú, cl.5	: 6, 7
A3 = kî.bú, cl.7	: 18
B = issue	: 5
C1 = mò.ís, cl.6	: 9, 10
mòòt, cl.6	: 11
mò.tó.m, cl.6	: 12
mà.dḡ, cl.6a	: 14
mà.tú, cl.6	: 17
C2 = ò.tó, cl.3	: 15
C3 = mù.é1, cl.6	: 8
D = mò.kò, cl.6	: 13

A1 : A2 : A3 = morph., C1 : C2 = morph., C1 : C3 = phon.,  
C2 : C3 = acc.

3. goat - chèvre

A1 = mbhé	: 1
ñzwí	: 2
ndzwā	: 3, 4
m.bwí, cl.9	: 17





A2 =	à.pún, cl.9	: 8	
	ìmwíŋ, cl.9	: 9	
	ì.mún, cl.9	: 10	
	ì.búŋi, cl.9	: 11	
	è.búŋ.ey, cl.9	: 12	
	m.búŋì, cl.9	: 14	
	m.bŋŋ, cl.9	: 15, 16	
	búl, cl.9	: 18	
A3 =	m.bòn, cl.9	: 13	
B1 =	nembɛ, cl.9	: 5	
B2 =	kémbè, cl.9	: 6, 7	
A1 :	A2 = acc., A1 :	A3 = acc., A2 :	A3 = phon.,
B1 :	B2 = phon.		

#### 4. bad - mauvais

A1 =	bɛ	: 5, 6, 7, 9
	pé	: 11
	gè.bé	: 14
	m.bé	: 17
A2 =	ɬeptɛn ('to be bad')	: 18
B =	tʃɛk.ək	: 8
C1 =	tà.lóŋgè	: 6
C2 =	kì.lòk, cl.7	: 15
A1 :	A2 = morph., C1 :	C2 = acc.

#### 5. belly - ventre

A1 =	pàm	: 1
	vòp	: 2, 4
	vèp	: 3
A2 =	dì.bùm, cl.5	: 6
A3 =	nì.pùndí, cl.5	: 15 (= .pùm - ndí)
A4 =	nì.pùntʃó, cl.5	: 16 (= .pùm - ntʃó)
A5 =	ɔ.ùm, cl.5	: 18
B1 =	.lou, cl.5	: 5
B2 =	pì.nòm, cl.8	: 8
	pè.nów.èp, cl.8	: 12
C =	tò.nà, cl.13	: 9, 10
	tò.òn, cl. 13	: 11

D = kà.àdè : 13

gà.dé : 14

E = í.sútù : 17

A1 : A2 = phon., A1 : A3 = acc., A1 : A4 = acc., A1 : A5 = acc., A2 : A3 = morph., A2 : A4 = morph., A2 : A5 = phon., A3 : A4 = morph., A3 : A5 = acc., A4 : A5 = acc., B1 : B2 = morph.

#### 6. big - grand

A = nin : 5

B1 = kéη, cl.7 : 6

B2 = aη : 7, 11

B3 = éηέη : 9

C = kì.mbón.nék, cl.7 : 8

D = gè.àntá, cl.7 : 14

kì.àndá, cl.7 : 15

E = à.hát : 16

F = àkáná. : 17

G = gól : 18

B1 : B2 = phon., B1 : B3 = acc., B2 : B3 = acc.

#### 7. bird - oiseau

A = sáηé : 1

sék : 2

sēη : 3, 4

kè.sàk, cl.7 : 13

B1 = fì.nun, cl.19 : 5, 6, 7, 8

hì nùη, cl.19 : 10, 11

B2 = ì.nóní, cl.19 : 9, 12, 14, 15

B3 = fìnòηó, cl.19 : 16

B4 = ì.ηíì.ηí, cl.19 : 17

C = fì.ììì, cl.19 : 18

B1 : B2 = phon., B1 : B3 = acc., B1 : B4 = acc., B2 : B3 = phon., B2 : B4 = phon., B3 : B4 = acc.

8. to bite - mordre

A = dúm	: 1
lḡp	: 2, 3
nóm	: 8, 9, 10, 12, 13, 14
ḡ.nóm	: 11, 15, 16
ù.númā	: 17
lóm	: 18
B = cóká	: 1
cōh	: 3
cūk	: 4
C1 = kɔɣɔl	: 5
kḡgḡl	: 7
C2 = kḡkḡ	: 6
C1 : C2	= morph.

9. black - noir

A1 = séné	: 1
sḡḡ	: 2, 3, 4
A2 = fī	: 8
A3 = fí·tít	: 11
pŷ·dídì	: 14
fŷ·títìe	: 15
fŷ·títì	: 17
B1 = hīndá	: 6
fín	: 18
B2 = hénd	: 7
C = nson mu ndū	: 5
D = tḡb <sup>w</sup> ḡkátò	: 9
E = fḡdá	: 16
A1 : A2	= phon., A1 : A3 = acc., A2 : A3 = morph.,
B1 : B2	= phon.

10. blood - sang

A = lóm	: 1
dŷḡp	: 3
lḡγā	: 4
B = nsì	: 2

C	=	mà.kē, cl.6	:	5
		mà.cè, cl.6	:	6
		mà.jel, cl.6	:	7
D1	=	mà.noŋ, cl.6	:	8, 11
		ma.noŋ, cl.6	:	9, 15
		mà.nòŋ.àm, cl.6	:	12
		mà.nóŋó, cl.6a	:	14
D2	=	mà.nò, cl.6	:	10
D3	=	mà.ŋó, cl.6	:	13
E	=	mà.táj, cl.6a	:	16
F	=	m.ìná, cl.6	:	17
G	=	búáp, cl.9	:	18
D1 : D2 = phon., D1 : D3 = acc., D2 : D3 = phon.				

#### 11. to cook - cuire

A1	=	ná	:	1
A2	=	nāk	:	2
		nāŋ	:	3, 4
B1	=	lamb	:	5, 7
		lám	:	6, 18
B2	=	náám	:	8
B3	=	námbu	:	11
		gò.námbà, cl.15	:	14, 15, 16, 17
C	=	tàlè	:	9
D	=	kòòy ('to boil')	:	13
A1 : A2 = phon., B1 : B2 = phon., B1 : B3 = phon.,				
B2 : B3 = phon.				

#### 12. bone - os

A1	=	vòk	:	1
		vēh	:	2, 3, 4
A2	=	kì.ú, cl.7	:	8
		y.ùhè, cl.7	:	9
		y.ùh, cl.7	:	10
		y.úú1, cl.7	:	11
		y.ùh.èy, cl.7	:	12

A3 = kì.gú, cl.7 : 13  
 A4 = gí.gúəgúə, cl.7 : 14  
 A5 = kì.kókó, cl.7 : 15  
 A6 = kì.kóh, cl.7 : 16  
 A7 = kì.wóp, cl.7 : 18  
 B = kì.fes, cl.7 : 5  
     è.hès, cl.7 : 6, 7  
 C = à.tété, cl.7 : 17

A1 : A2 = acc., A1 : A3 = acc., A1 : A4 = acc., A1 : A5 =  
 acc., A1 : A6 = acc., A1 : A7 = acc., A2 : A3 = phon,  
 A2 : A4 = acc., A2 : A5 = acc., A2 : A6 = phon., A2 : A7 =  
 acc., A3 : A4 = acc., A3 : A5 = acc., A3 : A6 = phon.,  
 A3 : A7 = acc., A4 : A5 = acc., A4 : A6 = acc., A4 : A7 =  
 acc., A5 : A6 = morph., A5 : A7 = acc., A6 : A7 = phon.

### 13. breasts - seins

A1 = pún : 1  
     pēē : 2, 3, 4  
     dì.bē, cl.5 : 6  
     lì.Ḃéè, cl.5 : 7  
     nè.péḡ, cl.5 : 10, 15, 16  
 A2 = nì.púì, cl.5 : 8  
 A3 = ḡè.bán, cl.5 : 11  
     è.bâ·ḡè, cl.5 : 14  
     ì.bánē, cl.5 : 17  
 A4 = nì.bwúnì, cl.5 : 12  
 A5 = dì.éìì, cl.5 : 18  
 B1 = tòò : 5  
 B2 = nè.lòmb, cl.5 : 9  
     nè.dóm, cl.5 : 13

A1 : A2 = phon., A1 : A3 = phon., A1 : A4 = phon., A1 : A5 =  
 phon., A2 : A3 = acc., A2 : A4 = acc., A2 : A5 = acc.,  
 A3 : A4 = acc., A3 : A5 = acc., A4 : A5 = phon., B1 : B2 =  
 phon.

14. war - guerre

A = ñcù	: 1, 2, 3, 4
B = wala	: 5, 6
C1 = w.é1, cl.3	: 18
C2 = gw.èt, cl.8	: 7
pì.1, cl.8	: 8
bì.1è, cl.8	: 9, 10
bì.ìt, cl.8	: 11
pì.ìd.íp, cl.8	: 12
pèdá, cl.8	: 13
bìdó, cl.8	: 14
pì.tí, cl.8	: 15, 16
βì.tá, cl.8	: 17
C1 : C2 = morph.	

15. child - enfant

A1 = mĕn	: 1
mũṽ	: 2
ŋwṽ	: 3, 4
man/bon, cl.1/2	: 5, 6
wòó·/pàá·, cl.1/2	: 8
mòn, cl.1	: 9
mòn, cl.1	: 10
ò.n.òy, cl.1	: 12
mòón/ṛòón, cl.1/2	: 13
mùónó/ bǎáná, cl.1/2	: 14
mùón/pǎ·n, cl.1/2	: 15
mǒn/pǎ·n, cl.1/2	: 16
mwàná/βàná, cl.1/2	: 17
ran, cl.1	: 18
A2 = màngé/bòngé, cl.1/2	: 7
B = ònòòmp, cl.1	: 11
A1 : A2 = morph.	

16. cold - froid

A	= fi	: 1, 2, 3, 4
	fō	: 5
B1	= pù.tán	: 8
B2	= tánán	: 9
B3	= dən	: 14
	dóŋ	: 17 ('être froid')
C1	= súni	: 7
C2	= ò.syòŋgòn	: 11
C3	= kù.sfn	: 15, 16
	ì.jíiná	: 17
D	= kàt	: 6
E	= kèéŋkèéŋ	: 18
B1 : B2 = morph., B1 : B3 = phon., B2 : B3 = acc.,		
C1 : C2 = morph., C1 : C3 = phon., C2 : C3 = acc.		

17. to come - venir

A1	= sè?	: 1
	sò?	: 4
A2	= hò?	: 2, 3
B1	= low	: 5
	lò	: 6, 7
B2	= gǔ.lènè	: 14
B3	= yù	: 18
C1	= few	: 5
C2	= fyà	: 8
C3	= ò.fày	: 11
D	= pélà	: 12
E	= mèn	: 13
F	= kùólùkùn	: 15
G	= kùám	: 16
H	= wàrà	: 17
I	= són	: 9, 10
A1 : A2 = phon., B1 : B2 = acc., B1 : B3 = phon., B2 : B3 =		
acc., C1 : C2 = acc., C1 : C3 = acc., C2 : C3 = phon.		

18. country - pays

A1 = pù.nòn, cl.14 : 8

A2 = bò.nòŋ, cl.14 : 9, 11

A3 = gè.dòŋò, cl.7 : 14

A4 = kì.tòŋ, cl.7 : 15, 16

kì.lòŋ, cl.7 : 18

A5 = à.dòŋò, cl.6 : 17

B = ca'a : 1, 2, 3, 4

C = n.kòn, cl.3 : 5 ('village')

D1 = ì.mba' : 6 ('village')

D2 = ì.báy : 7 ('village')

E = ì.gúú, cl.5 : 13

A1 : A2 = phon., A1 : A3 = phon., A1 : A4 = acc., A1 : A5 =  
acc., A2 : A3 = phon., A2 : A4 = morph., A2 : A5 = morph.,  
A3 : A4 = acc., A3 : A5 = acc., A4 : A5 = morph., D1 : D2 =  
phon.

19. to cut - couper

A1 = t'fúóm : 8

A2 = sómp : 11

gò.sómbà : 14

kù.sómb : 15

kù.sómbà : 16

ù.súmbâ : 17

B = sàl : 9

sàà : 13

D = sèk : 7

E = rén : 18

A1 : A2 = phon.

20. daytime - jour

A : hì.lò : 7

B1 : ì.wú, cl.5 : 5

è.rú, cl.5 : 6

B2 : pù.tú, cl.14 : 8



C1 : bù.òs, cl.14 : 9  
       pù.ós, cl.14 : 11, 15, 16  
       wòós, cl.14 : 13  
 C2 = ñúós, cl.3 : 18  
 D = sÿ·sf, cl.1 : 14  
 E = ùngúná : 17  
 B1 : B2 = morph., C1 : C2 = morph.

21. to die - mourir

A1 = kú : 1  
       χūō : 2  
       kfūō : 3, 4  
       wow : 5  
       wó : 6, 7  
       kú : 13, 15  
       gù.gùe : 14  
       kù.kúè : 16  
       ùgwá : 17  
       wú : 18  
 A2 = ví : 8  
       ùwé : 9, 10  
       ò.ówè : 11  
       ú.wà : 12  
 A1 : A2 = acc.

22. dog - chien

A1 = mbnú : 1  
       mvō : 2, 3  
       mvūō : 4  
       è.mó, cl.9 : 9  
       è.mó, cl.9 : 10  
       è.bý, cl.9 : 11  
       ùù.bwǎy, cl.9 : 12  
       m.bò, cl.9 : 13  
       m.bóà, cl.9 : 14  
       m.búà, cl.9 : 15, 16  
       m.bwá, cl.9 : 17

A2 = mbio, cl.9 : 5

m.byó, cl.9 : 6

A3 = ηgwo, cl.9 : 7

A4 = bú, cl.9 : 18

B = γ.èp : 8

A1 : A2 = phon., A1 : A3 = acc., A1 : A4 = phon., A2 : A3 =  
acc., A2 : A4 = acc., A3 : A4 = acc.

23. to drink - boire

A1 = ηów : 5

ηó : 6, 7

ηά : 9

gò.ηóà : 14

wàηó : 17

ηó : 18

A2 = nu : 1, 2, 3, 4

A3 = ηό : 13

B1 = mó : 8, 10

B2 = ò.mwáη : 11

B3 = mwáà : 12

C = kùpúwâ : 15

D = kù.húàn : 16

A1 : A2 = phon., A1 : A3 = phon., A2 : A3 = acc.,

B1 : B2 = morph., B1 : B3 = morph., B2 : B3 = phon.

24. to hit - frapper

A = cwāā : 2, 3, 4

B1 = lápé : 1

B2 = zap : 3, 4

súb : 9

sup : 10

ò.fúp : 11

cúp : 12

B3 = kù.súpìt : 15

C1 = bom	: 5
C2 = búm	: 6
D1 = gò.góbà	: 14
D2 = ù.wúbá	: 17
E = Bép	: 7
F = típ	: 8
G = kó	: 13
H = kù.kùdà	: 16
I = rì.Ḃó?	: 18
B1 : B2 = phon., B1 : B3 = morph., B2 : B3 = acc.,	
C1 : C2 = phon., D1 : D2 = phon.	

25. ear - oreille

A1 = tòḡ	: 1
tùγú	: 2
tòḡú	: 3, 4
ì.wón, cl.5	: 5
A2 = ù.tóḡ, cl.3	: 8
Ḃ.tóḡà.1ḡy, cl.3	: 12
A3 = ró, cl.5	: 6
A4 = óó, cl.3	: 7
A5 = mù.1ù, cl.3	: 9, 10
òò.tý, cl.3	: 11
Ḃ.tòéy, cl.3	: 13
ò.dḡ, cl.3	: 14
è.tḡ, cl.3	: 15, 16
A6 = ù.tsó, cl.3	: 17
B = ì.rée, cl.3	: 18
A1 : A2 = morph., A1 : A3 = phon., A1 : A4 = acc., A1 : A5 =	
acc., A1 : A6 = acc., A2 : A3 = acc., A2 : A4 = phon.,	
A2 : A5 = phon., A2 : A6 = acc., A3 : A4 = morph., A3 : A5 =	
morph., A3 : A6 = acc., A4 : A5 = morph., A4 : A6 = acc.,	
A5 : A6 = phon.	

26. to eat - manger

A1 = zú	: 1
zō	: 2, 3, 4
A2 = je	: 5, 7
ǰè	: 6
ǰé	: 8
ne	: 9
nì.ák	: 10
ò.ǰ.ák	: 11, 12
ù.ǰá	: 17
kù.ǰá	: 15
kù.íǰá	: 16
ǰí	: 18
A3 = gò.ǰáǰà	: 14

A1 : A2 = phon., A1 : A3 = acc., A2 : A3 = morph.

27. egg - oeuf

A = pùm°	: 1
pèp	: 2, 3
pùp	: 4
nè.bòm, cl.5	: 13
B1 = i.je, cl.5	: 5
dì.kyé, cl.5	: 6
lì.dze, cl.5	: 7
è.gě, cl.5	: 14
nì.kě, cl.5	: 15
B2 = nìkyèn, cl.5	: 8
nè.kèn.én, cl.5	: 12
B3 = ò.hègé, cl.5	: 16
B4 = ò.gă, cl.5	: 17
B5 = ǰī, cl.5	: 18
C = y.òn, cl.7	: 9, 10, 11

B1 : B2 = phon., B1 : B3 = morph., B1 : B4 = phon.,

B1 : B5 = phon., B2 : B3 = acc., B2 : B4 = acc., B2 : B5 = acc., B3 : B4 = acc., B3 : B5 = acc., B4 : B5 = acc.

28. eye - oeil

A = d.is, cl.5	: 5, 6
ɔ̃z.ĩs, cl.5	: 7
ɲĩĩs, cl.5	: 8, 11, 16
nis, cl.5	: 9, 13, 15
nĩsin, cl.5	: 12
nĩsò, cl.5	: 14
dĩs, cl.5	: 18
B = lák	: 1
zõh	: 3, 4, 5

29. to fall - tomber

A1 = vǔ	: 1
γùɔ	: 2, 4
vùɔ	: 3
kwɔ	: 5, 6, 7, 8
kò	: 9
kwà	: 10, 11
kówà	: 12
kù.kùà	: 15, 16
A2 = kpǐ	: 18
B = gò.bà	: 14
C = téŋ	: 13
D = w.àdúmà	: 17
A1 : A2 = phon.	

30. fat - graisse

A1 = hõp	: 2
A2 = ma.fɔŋ, cl.6	: 5
dì.hóŋ, cl.5	: 6
li.hɔŋ, cl.5	: 7, 9
A3 = kǐ.fómíí?, cl.7	: 18
B = nǐlǐ	: 1
nǐt	: 3
zǐt	: 4

C1 = m̀è.gút, cl.6	: 13
m̀è.gúḁḁ, cl.6a	: 14
me.kút, cl.6a	: 15
C2 = m̀ì.í1, cl.6	: 8
m̀ò1, cl.6	: 10
m̀òút, cl.6	: 11
mwèè̀túm, cl.6	: 12
m̀òó·tá, cl.6	: 17
D = m̀šyà, cl.6a	: 16
A1 : A2 = phon., A1 : A3 = morph., A2 : A3 = acc.,	
C1 : C2 = phon.	

31. louse - pou

A1 = ki.ē, cl.7	: 5, 6
y.el, cl.7	: 7
tʃ.éé, cl.7	: 18
A2 = ì.ìn.òy, cl.7	: 12
y.ìnə, cl.7	: 9
A3 = ỳù̀n, cl.7	: 10
A4 = w.ìn, cl.3	: 11
A5 = ǹì·ná, cl.5	: 17
B1 = àn.dzì1, cl.9	: 8
B2 = k̀ì.sɛ1, cl.7	: 16
C = òn.naŋ, cl.3	: 13
D = ñk̀ó̀è̀nà, cl.9	: 14
E = k̀ì.pà1, cl.7	: 15
A1 : A2 = phon., A1 : A3 = phon., A1 : A4 = acc., A1 : A5 =	
acc., A2 : A3 = phon., A2 : A4 = morph., A2 : A5 = morph.,	
A3 : A4 = acc., A3 : A5 = acc., A4 : A5 = morph., B1 : B2 =	
acc.	

32. fire - feu

A1 = mohóké	: 1
mūh	: 2, 3, 4
y.ùk, cl.19	: 13
í.yùkè, cl.19	: 14
ỳì·k, cl.19	: 15
A2 = f̀ì·k, cl.19	: 16

B1 = fi.ei, cl.19	: 5
hìé, cl.19	: 6, 7
B2 = hì.wè, cl.19	: 9, 10
C1 = ù.kùs, cl.3	: 8
C2 = ò.òtʃ, cl.3	: 11
C3 = ù.gùdʒ.ù, cl.3	: 12
D = ìdʒìyà, cl.19	: 17
E = d.uu, cl.5	: 18
A1 : A2 = phon., B1 : B2 = phon., C1 : C2 = acc.,	
C1 : C3 = phon., C2 : C3 = acc.	

33. fish - poisson

A = titi ('meat, animal')	: 5
B = sú	: 6, 13
C = tʃwí	: 17
D1 = hì.obì, cl.19	: 7
hì.òfò, cl.19	: 9, 10
hì.yòf, cl.19	: 11
hè.òbò, cl.19	: 14
yò.pó, cl.19	: 15
D2 = nò.gòf.ún, cl.19	: 12
E = hèmbé, cl.9	: 16
F = kì.zén, cl.7	: 18
G = y.ìis, cl.19	: 8
H1 = mbāp nfì ('meat water')	: 2, 4
H2 = mbāp fá ('meat ?')	: 3
I = ɲgũn tsē	: 1
D1 : D2 = morph., H1 : H2 = morph.	

34. five - cinq

A1 = tan	: 1, 5, 6, 7, 11, 12, 13, 14, 15, 16, 18
tá	: 3, 4
tê	: 8
lan	: 9, 10
A2 = ìsá.nù	: 17
A1 : A2 = phon.	

35. foot - pied

A1 = kù	: 1
χù	: 2
kχù	: 3, 4
ì.kó, cl.5	: 5
è.kwò, cl.5	: 6
A2 = ù.kòl, cl.3	: 8
mòkòlò, cl.3	: 9, 10
ò.kóìy, cl.3	: 11
ò.kòlío.y, cl.3	: 12
A3 = ù.ngùrú, cl.3	: 17
A4 = ì,kòò, cl.3	: 18
B = mbend, cl.5	: 7
C1 = ò.ngòò, cl.3	: 13
C2 = gè.góndó, cl.7	: 14
kì.kónd, cl.7	: 15
C3 = nù.kónd, cl.11	: 16
A1 : A2 = acc., A1 : A3 = acc., A1 : A4 = morph.,	
A2 : A3 = phon., A2 : A4 = phon., A3 : A4 = phon.,	
C1 : C2 = acc., C1 : C3 = acc., C2 : C3 = morph.	

36. four - quatre

A = kwà	: 1
χuò	: 2
kχwà	: 3
kfuà	: 4
B1 = nán	: 5
B2 = nà	: 6
nā	: 7
C1 = nis	: 8, 9, 10, 12
nís	: 11
C2 = nì?	: 13
níhì	: 16
C3 = nni	: 14
nì	: 15
bí.pf	: 17
C4 = nìn	: 18



B1 : B2 = phon., C1 : C2 = phon., C1 : C3 = phon., C1 : C4 = phon., C2 : C3 = phon., C2 : C4 = phon., C3 : C4 = phon.

37. to give - donner

A = fa : 1, 14, 15, 16, 17, 18

hã : 2, 3, 4

B = bɔŋg : 5

C = tí : 6, 7

D = ndà? : 8

E1 = indi : 9, 10

E2 = índzè : 11

E3 = índzìn : 12

F = ékèn : 13

E1 : E2 = phon., E1 : E3 = acc., E2 : E3 = phon.

38. to go - aller

A1 = kè : 7

kìnd.ùk : 12

èndà : 13, 14, 17

kù.èndè : 15

kènd : 9, 10

kèn : 18

A2 = kù.ènd.ít : 16

A3 = ó.kànt : 11

A4 = kɛw : 5

A5 = kèkè : 6

A6 = kîè : 8

B = nènó : 1

C = γà : 2, 3, 4

A1 : A2 = morph., A1 : A3 = phon., A1 : A4 = phon., A1 : A5 = morph., A1 : A6 = acc., A2 : A3 = acc., A2 : A4 = acc., A2 : A5 = acc., A2 : A6 = acc., A3 : A4 = Acc., A3 : A5 = acc., A3 : A6 = phon., A4 : A5 = acc., A4 : A6 = acc., A5 : A6 = acc.

39. good - bon

A	= bhòó	: 1
	pòk	: 2
	pòŋ	: 3, 4
B	= lam	: 5
	lama	: 7
C	= lóŋgè	: 6, 7
D1	= sē	: 8
	pèsě.	: 15
	pàsìé	: 16
	wùfì	: 17
D2	= ès	: 9
E	= mbáŋ	: 11
F	= gè.nóǵó	: 14
D1	: D2 = phon.	

40. grass - herbe

A1	= é.hútì, cl.7	: 11
A2	= kì.kùt, cl.7	: 15
A3	= kì.kùs, cl.7	: 16
B1	= ù.mbù, cl.3	: 9
B2	= c.ábí, cl.7	: 18
C1	= mè.fùgè, cl.6	: 14
C2	= ù.fòwà, cl.3	: 17
D	= kì.sana, cl.7	: 5
E	= è.ká, cl.7	: 6
F	= ma.koki, cl.6	: 7
G	= kì.am, cl.7	: 8
H	= ò.pén	: 13
A1	: A2 = phon., A1 : A3 = acc., A2 : A3 = phon.,	
B1	: B2 = acc., C1 : C2 = phon.	

41. hair - cheveux

A	= nèγè	: 2
	nèŋá	: 3
	ŋìŋ	: 4
B	= ŋí'áŋ	: 1
C	= kí.sì, cl.7	:

D1 = y.òŋ, cl.19	: 6
hyòŋ, cl.19	: 7
fì.òŋ, cl.19	: 18
D2 = kî.ndzŋŋ, cl.7	: 8
E1 = tù.hwíŋ, cl.13	: 9
nù.híŋ.ùn, cl.11	: 12
E2 = tùú.ŋ, cl.13	: 11
E3 = hùwiyén	: 13
E4 = nùéhíŋà, cl.11	: 16
F1 = bò.hòtà, cl.14	: 9
F2 = à.òtjə, cl.3	: 11
G = tsóè, cl.9	: 14
H = nófə	: 17
D1 : D2 = acc., F1 : F2 = phon., E1 : E2 = phon., E1 : E3 = acc., E1 : E4 = phon., E2 : E3 = acc., E2 : E4 = acc., E3 : E4 = acc.	

42. hand (arm) - main (bras)

A1 = bhú	: 1
pũ	: 2, 3, 4
ù.pé, cl.3	: 8
ò.bó, cl.3	: 11
ò.mbək, cl.3	: 13, 15, 16
ò.mbógò, cl.3	: 14
ù.mbə, cl.3	: 17
A2 = w.òó, cl.3	: 6
B1 = ikā, cl.5	: 5
B2 = mò.kàt, cl.3	: 9, 10
ò.gát.òy, cl.3	: 12
C = nàm, cl.7	: 7, 9
D = cǎ?, cl.7	: 18
A1 : A2 = phon., B1 : B2 = acc.	

43. head - tête

A = thú	: 1
tuĩ	: 2, 3, 4
mɔ, cl.3	: 5
̀m.ró, cl.3	: 6

- A = ò.ó, cl.3 : 7  
     mò.1ó, cl.3 : 9, 10  
     à.tú, cl.3 : 11  
     ò.tò, cl.3 : 13  
     òdóè, cl.3 : 14  
     ètè, cl.3 : 15  
     à.túè, cl.3 : 16  
     h.tó, cl.3 : 18  
 B1 = kí.ò1, cl.7 : 8  
 B2 = è.èd.èy : 12  
 C = ù.kpé, cl.3 : 17  
 B1 : B2 = phon.

44. to dance - danser

- A = niáñé : 1  
     nèk : 2  
     nèñ : 3, 4  
 B = say : 5  
     sák : 6, 7  
 C = pín : 8  
     bín : 9, 11  
     bínè : 14  
     pínè : 15  
     pínà : 16  
     bínâ : 17  
 D = éé1è : 18

45. horn - corne

- A1 = ndó : 1  
     ndók : 2  
     ndón : 3, 4  
     ton, cl.9 : 5  
 A2 = tón, cl.7 : 6  
     ton, cl.7 : 7  
     èndon 7 : 9, 10

A3 =	hì.ndòṅ, cl.19	: 11
	è.dòṅ, cl.19	: 13
	è.dóṅò, cl.19	: 14
	ìtóṅsóò, cl.19	: 17
A4 =	ì.lòṅ, cl.19	: 15, 16
A5 =	rì.tóṅ, cl.5	: 18
B1 =	à.ndòòm, cl.9	
B2 =	ù.ndòmb.òy, cl.3	: 12

A1 : A2 = morph., A1 : A3 = morph., A1 : A4 = acc., A1 : A5 = morph.,  
 A2 : A3 = morph., A2 : A4 = acc., A2 : A5 = morph.,  
 A3 : A4 = phon., A3 : A5 = morph., A4 : A5 = acc., B1 : B2 = morph.

#### 46. house - maison

A =	pā?	: 1
	pà?à	: 3, 4
B =	ndá	: 1
	ndyā	: 2
	ndau	: 5
	ndap	: 7
C =	mim	: 9, 10
D =	òòk	: 11
	yòòk	: 13
E =	è.gód.èy	: 12
F =	ṅṅàṅá	: 14
	nàṅṅá	: 17
G =	kì.àns	: 15
	kì.antf	: 16
H =	mà.réé	: 18

#### 47. hunger - faim

A =	ṅzì	: 1
	nzì	: 2, 3, 4
	njà	: 5
	nzà	: 6
	nyàl	: 7

- A = à.tfàn : 8, 11, 12  
 mè.tànà : 9, 10  
 ò.dzàn : 13  
 ò.tfàná : 14  
 ò.sàná : 15  
 zàl : 18  
 B = pù.óŋó1 : 16  
 C = ndzéŋgé : 17

48. to hunt - chasser

- A1 = púúm : 8  
 búm : 9, 11  
 kù.púmè : 15  
 búém : 18  
 A2 = gù.búiyimə : 14  
 A3 = búù : 7  
 B = nètá'á : 1  
 tǎ' : 3  
 C = yùk : 2  
 yùŋ : 3, 4  
 D = bεng : 5  
 E = msùm : 6  
 F = kù.pìnà : 16  
 A1 : A2 = morph., A1 : A3 = phon., A2 : A3 = acc.

49. kill - tuer

- A = zwi' : 1  
 3wi' : 2, 3, 4  
 B1 = wóó : 8  
 B2 = ɔn : 9, 10, 11, 12, 13, 15, 16  
 gǒ.nà : 14  
 wùnǎ : 17  
 wó1 : 18  
 B3 = nɔ1 : 5, 7  
 nó : 6  
 B1 : B2 = phon., B1 : B3 = acc., B2 : B3 = morph.

50. liver - foie

A1 = mbì	: 1, 2, 3, 4
dì.ḅà, cl.5	: 6, 7
A2 = nì.pàn, cl.5	: 8
B = kì.σεγ, cl.7	: 5
C1 = bù.ḅè, cl.14	: 9
bù.ḅì, cl.14	: 11
C2 = pù.ḅò, cl.14	: 15, 16
D = mĕ.ndà, cl.6a	: 14
E = ù.témá ('coeur')	: 17
F = kà.kòm, cl.7	: 18
A1 : A2 = phon., C1 : C2 = phon.	

51. to know - savoir

A1 = l'èné	: 1
A2 = l'èη	: 13
A3 = gò.l'èntjà	: 14
B = zó	: 1
zĩ	: 2, 3, 4
yIw	: 5
yí	: 6, 7, 18
C1 = ólóηém	: 10
C2 = ó.lógòn	: 11
D = ɔk	: 9
pí.òk	: 12
E1 = màḅ	: 9
mèḅ	: 11
E2 = kùmèḅèn	: 15
kù.mèy(àn) (=E1)	: 16
F = mì	: 8
G = βìdζímà	: 17
A1 : A2 = phon., A1 : A3 = morph., A2 : A3 = morph.,	
C1 : C2 = acc., F1 : F2 = morph.	

52. swell - enfler

A = nùt	: 6, 11
ù.nùl	: 8
núd.ùk	: 12
B1 = kùómò, kùòmbò	: 15
B2 = kù.húmà	: 16
B3 = gǔ.mbè	: 14
C = òmbók	: 9
rì.bók	: 18
D = εκογγ	: 5
E = ùηάνάκί	: 10
F = wímà	: 13
G = w.àránà	: 17
B1 : B2 = phon., B1 : B3 = phon., B2 : B3 = acc.	

53. to laugh - rire

A = зқи	: 1, 2, 3, 4
B = һуò	: 6
C = тфүés	: 8
тфétf	: 11
D1 = òn	: 9
kù.ònbò	: 15, 17
w.òl	: 18
D2 = ηònbò	: 13
D3 = γò.hònbò	: 14
kù.rònbà	: 16
D4 = нoл	: 5, 7
D1 : D2 = morph., D1 : D3 = phon., D1 : D4 = morph.,	
D2 : D3 = morph., D2 : D4 = morph., D3 : D4 = acc.	

54. long - long

A1 = sàkó	: 1
sàk	: 2
sàh	: 3, 4
sàá	: 13



A2 = tʃà : 11  
 A3 = kù.yà : 15, 16  
 B1 = ntanda : 7  
 B2 = tàtán : 9  
 B3 = làntà : 13  
 C = ngā : 5  
 D = rà : 6  
 E = tʃiìŋ : 8  
 F = gè.ntă.làlà : 14  
 G = àkáná : 17  
 H = fùùrèn : 18  
 A1 : A2 = phon., A1 : A3 = phon., A2 : A3 = phon.,  
 B1 : B2 = acc., B1 : B3 = acc., B2 : B3 = acc.

55. man - homme

A = mbāyà : 2, 4                      C = mùd : 7  
       mbāŋà : 3                         D = ù.nyamɔ : 8  
       bāŋà : 18  
 B1 = mèn : 1  
 B2 = mò.lóm : 5, 6  
 B3 = mè.léméndò : 9  
       mò.nómòndò : 10  
       ì.nìmìnjòy : 12  
       ènúmèndó : 15  
 B4 = ò.nòmòtʃ : 11  
       ò.nòméèt : 13  
 B5 = ò.nómòtó : 14  
       ù.númútú : 17  
 B6 = à.némbèdé : 16  
 B1 : B2 = acc., B1 : B3 = acc., B1 : B4 = acc., B1 : B5 =  
 acc., B1 : B6 = acc., B2 : B3 = acc., B2 : B4 = acc.,  
 B2 : B5 = acc., B2 : B6 = acc., B3 : B4 = phon., B3 : B5 =  
 acc., B3 : B6 = acc., B4 : B5 = phon., B4 : B6 = acc.,  
 B5 : B6 = acc.

56. meat - viande

A = mbàp°	: 1
mbàp	: 2, 3, 4
B = títí, cl.9	: 5
tít, 'animal'	: 6
C1 = nuga, cl.9	: 7
C2 = pù.nùk /mè., cl.14/16	: 8
C3 = óṛòk, cl.3	: 11
D = à.ṛàm /ì., 'animal', cl.9/10	: 8
mè.ṛàm, cl.9/10	: 9, 10
è.ṛàm /ma., 'animal', cl.9/6	: 11
E = pò.hábùndóíóp	: 12
F = kì.líṅ	: 13
G = bù.sùgú /mè., cl.14/6a	: 14
H = pù.âṛ /mà.âṛ, cl.14/6a	: 15, 16
I = yènè, cl.7	: 17
bí.én, cl.8	: 18
C1 : C2 : C3 = morph.	

57. moon - lune

A1 = ṛwā	: 1
mu.ĩ /mí., cl.3/4	: 5
mù.ìl /mì, cl.3/4	: 9, 10
òò.lì /yī:.lì, cl.3/4	: 11
wè.lùṽ, cl.3	: 12
ǒ:l /sìó1, cl.3/4	: 15
A2 = māmūc	: 2
máṛwō	: 3, 4
A3 = ṛk'íl, cl.9	: 8
A4 = ṛj'íí, cl.1	: 18
A5 = à.hó1 /ø., cl.3/4	: 16
B = sʷǒ'ṛ	: 6
soṅ	: 7
C1 = ù.wé, cl.3	: 13
C2 = ò.fé /è., cl.3/4	: 14
ò.βé	: 17

A1 : A2 = morph., A1 : A3 = acc., A1 : A4 = morph.,  
 A1 : A5 = acc., A2 : A3 = acc., A2 : A4 = acc., A2 : A5 =  
 acc., A3 : A4 = acc., A3 : A5 = acc., A4 : A5 = acc.,  
 C1 : C2 = phon.

58. mountain - montagne

A1 = mbát : 1  
 A2 = dì.béték, cl.5 : 6  
 B1 = kɔ̃k. : 2  
     kɔ̃ŋ : 3, 4  
     n.kògɔ̃ : 5  
 B2 = hì.koa, cl.19 : 7  
 B3 = ù.ŋgùbò, cl.3 : 8  
 B4 = ùngwèn'é, cl.3 : 17  
 C = ò.má, cl.3 : 9  
 D1 = nò.kòntɔ̃, cl.11 : 11  
 D2 = kòndò, cl.9 : 14  
 E = kì.púlìkìè, cl.7 : 15  
     kì.pólíkè, cl.7 : 16  
 F = dòn, cl.9 : 18  
 A1 : A2 = acc., B1 : B2 = phon., B1 : B3 = acc., B1 : B4 =  
 acc., B2 : B3 = morph., B2 : B4 = acc., B3 : B4 = phon.,  
 D1 : D2 = morph.

59. mouth - bouche

A = nfù : 1  
     nfùì : 2  
     ncùì : 3  
 B1 = nò, cl.3 : 6  
 B2 = nò, cl.5 : 7  
     n.ùúl, cl.5 : 8  
     n.ùt, cl.5 : 11  
     nì.d.ìn, cl.5 : 12  
     nǔ·dé, cl.5 : 14  
     nĩ·t, cl.5 : 15  
     nìít, cl.5 : 16  
 C1 = mù.nù, cl.3 : 9  
     mù.nùn, cl.3 : 10

C1 = mù.nù, cl.3 : 9  
 C2 = mù.nùn, cl.3 : 10  
 C3 = ù.nù?, cl.3 : 13  
 D1 = n.dum, cl.3 : 5  
 D2 = ɣù.óm, cl.3 : 18  
 E = ùḡgwátá, cl.3 : 17  
 B1 : B2 = morph., C1 : C2 = phon., C1 : C3 = phon.,  
 C2 : C3 = phon., D1 : D2 = phon.

60. name - nom

A = lĕn : 1  
 B = zĕĕ : 2, 4  
     zĕĕ : 3  
 C = j.o, cl.5 : 5, 6  
     j.o¹, cl.5 : 7  
     nìsò, cl.5 : 17  
 D1 = n.ii, cl.5 : 8, 18  
 D2 = n₁n, cl.5 : 9, 10  
     nĭ·nĭ, cl.5 : 11  
     nĭn, cl.5 : 13  
 D3 = ò.ndz.oy, cl.3: 12  
 E = ò.fínò, cl.3 : 14  
 F = kì.sién, cl.7 : 15  
     kìsĕ·n, cl.7 : 16  
 D1 : D2 = phon., D1 : D3 = acc., D2 : D3 = acc.

61. navel - nombril

A1 = tò : 1  
     tèk : 2  
     tòḡ : 3, 4  
     kì.dùk, cl.7 : 13  
 A2 = nì.tí, cl.5 : 8  
     nì.1ó, cl.5 : 9, 10  
     nì.dú, cl.5 : 11  
     nì.t.ín, cl.5 : 12  
 A3 = gì.dégù, cl.7 : 14  
     kì.tèk, cl.7 : 15, 16

B = lou, cl.5 : 5  
     j.op, cl.5 : 6, 7  
 C = à.tónó, cl.7 : 17  
 D = gep, cl.9 : 18  
 A1 : A2 = phon., A1 : A3 = phon., A2 : A3 = morph.,

62. neck - cou

A = tó 'gorge' : 1  
     ntāk 'gorge' : 2  
     ntōη 'gorge' : 3, 4  
 B = kiη : 5, 6, 7  
 C = kī.tāp, cl.7 : 8  
 D1 = è.men, cl.3 : 9, 11, 12, 15  
 D2 = kī.mīī, cl.7 : 18  
 D3 = è.mèn, cl.9 : 10  
 E = kè.nák, cl.7 : 13  
 F = pòló, cl.5 : 14  
 G = àtòkì, cl.7 : 17  
 H = kī.lògó, cl.7 : 16  
 D1 : D2 = acc., D1 : D3 = morph., D2 : D3 = acc.

63. night - nuit

A1 = twó? : 1  
     sū? : 2  
     tsū? : 3, 4  
     ùtjó, cl.3 : 17  
 A2 = è.rú, cl.5 : 6  
     wu, cl.5 : 7  
 A3 = pù.tú, cl.14 : 8, 11  
     bù.lù, cl.14 : 9, 10  
     pù.dù.p, cl.14 : 12  
     bù.dúgú, cl.14 : 14  
     pù.túk, cl.14 : 15, 16  
 A4 = ù.dúk, cl.3 : 13  
 A5 = ì.rú, cl.3 : 18  
 B = ngoγo, cl.9 : 5

A1 : A2 = phon., A1 : A3 = acc., A1 : A4 = phon., A1 : A5 =  
 phon., A2 : A3 = morph., A2 : A4 = morph., A2 : A5 = acc.,  
 A3 : A4 = morph., A3 : A5 = acc., A4 : A5 = phon.

64. nose - nez

A = nʒɛ̃ : 2, 3  
     ndzɛ̃ : 4  
 B1 = j.o, cl.5 : 5, 6  
     dʒ.ol, cl.5 : 7  
     nì.ón, cl.5 : 9, 10, 12  
     nènú, cl.5 : 11  
     nǝ·nò, cl.5 : 14  
 B2 = ɲ.ǝ, cl.5 : 8  
 B3 = nì.út, cl.5 : 13  
 C = m̥fɛ̃n, cl.9 : 15  
     pfɛ̃n, cl.9 : 16  
 D = ùfùmbá, cl.3 : 17  
 E = ntsɛ́lák : 1  
 B1 : B2 = phon., B1 : B3 = phon., B2 : B3 = phon.

65. one - un

A = nʃù? : 1  
     ncə? : 2, 3, 4  
 B1 = mò? : 2, 4  
     mótè : 9  
     mótè : 10  
     móót : 11  
     mù? : 13  
 B2 = mǝ : 8  
     mǝm : 15, 12  
 B3 = muə : 14  
 B4 = múhú : 16  
 B5 = mǝ·ʃf : 17  
 C = á : 5, 6  
 D = ada : 7  
 E = fó? : 18

B1 : B2 = phon., B1 : B3 = phon., B1 : B4 = phon.,  
 B1 : B5 = acc., B2 : B3 = phon., B2 : B4 = phon., B2 : B5 =  
 acc., B3 : B4 = phon., B3 : B5 = morph., B4 : B5 = acc.

66. path - chemin

A1 = n̄zè : 1  
     mānzì : 2  
     nzà : 3  
     māndzì : 4  
     nje· : 5  
     n̄.nzè : 6  
 A2 = nje1 : 7  
 A3 = ñ.ñìíí, cl.9 : 15  
     ñ.gìíí, cl.9 : 16  
 B1 = k̄i.nóŋ, cl.7 : 8  
 B2 = è.nóm, cl.7 : 9  
 C1 = è.hàn, cl.7 : 10  
 C2 = ò.hún, cl.3 : 11  
 C3 = ù.hwén.úy, cl.3: 12  
 D1 = ŋ.gé : 13  
 D2 = pé : 14, 17  
     béé : 18

A1 : A2 = phon., A1 : A3 = acc., A2 : A3 = acc., B1 : B2 =  
 phon., C1 : C2 = acc., C1 : C3 = acc., C2 : C3 = acc.,  
 D1 : D2 = phon.

67. person - person

A1 = mèn : 1  
     mò : 2  
     mèntà : 3, 4  
     mònd : 10  
     mònd : 9  
     mùnd : 16

mònd	:	15
A2 = mu:t	:	5
mòt	:	6
mud	:	7
m.òòt	:	13
mò.tò	:	14
mò.tù	:	17
A3 = v.ès	:	8
òòtʃ	:	11
A4 = m.úm	:	18
A5 = ʉ.ndʒ.oy	:	12
A1 : A2 = phon., A1 : A3 = acc., A1 : A4 = acc., A1 : A5 = phon.,		
A2 : A3 = phon., A2 : A4 = acc., A2 : A5 = acc., A3 : A4 = acc.,		
A3 : A5 = phon., A4 : A5 = acc.		

68. rain - pluie

A1 = mbàŋ	:	1
mbèk	:	2
mbèŋ	:	3, 4
A2 = è.mbòŋ	:	9
B = lɔu	:	5
lòp	:	6
nɔb	:	7
C1 = tò.pòl, cl.13	:	10
nò.òpòl /tò., cl.11/13	:	11
nò.bólá /dò., cl.11/13	:	14
nù.pòl /tù., cl.11/13	:	16
C2 = nò.búra, cl.11/13	:	17
C3 = è.mòl, cl.9	:	9
bòl, cl.9	:	18
D = mè.ní, 'rain, water'	:	8
E = ù.mwàn.ùy	:	12
F = nò.ó	:	13
A1 : A2 = phon., C1 : C2 = acc., C1 : C3 = morph., C2 : C3 = acc.		



69. red - rouge

A1 = bǎ	: 1
pàk	: 2
pàŋ	: 3, 4
bàŋ	: 18
A2 = pam	: 5
A3 = màŋ	: 8
B = còkòp	: 6
C = to	: 7
D = ɲo (verbe)	: 9
E = bólotòt	: 11
búrútùtù	: 17
F = gò.ēlà (verbe)	: 14
G = ɲuán	: 15
yùán	: 16

A1 : A2 = phon., A1 : A3 = phon., A2 : A3 = acc.

70. river - fleuve

A1 = n.sua /mi., cl.3/4	: 5
ò.sòm /ñ., cl.3	: 13
A2 = ò.sǎ /é., cl.3/4	: 14
à.sǎ /ì., cl.3/4	: 15
à.sǎ /ø., cl.3/4	: 16
ò.sá, cl. 3/4	: 17
A3 = nslòm, cl.3	: 18
B = è.lĩp kəŋ, 'eau grosse'	: 6
C = lòm	: 7
D1 = nì.í /tì.í, cl.5/13	: 8
nù.íy /m <sup>w</sup> ə., cl.5	: 9
nù.í, cl.5	: 10
nù.y.ùn, cl.5	: 12
D2 = nù.ùtʃ, cl.5	: 11

A1 : A2 = phon., A1 : A3 = phon., A2 : A3 = acc., D1 : D2 = acc.

71. salt - sel

A =	ɲgwá	:	1
	ɲgwāk	:	2
	ɲgwāɲ	:	3, 4
B =	nkwo	:	5
C1 =	mà.sòk, cl.6a	:	15, 16
C2 =	mà.sègè, cl.6a	:	14
C3 =	è.sòkò, cl.7	:	6
D =	bas	:	7
	è.bàsà /bè.	:	9
	èè.pàsà	:	10
E =	mà.ké1	:	11
F1 =	ɲ.gùnù, cl.9	:	17
F2 =	kì.kòn, cl.7	:	18
F3 =	tʃì.gòy, cl.7	:	12
G =	mè.bèlì	:	13
H =	tʃìì?	:	8
C1 : C2 = phon., C1 : C3 = morph., C2 : C3 = acc.,			
F1 : F2 = phon., F1 : F3 = acc., F2 : F3 = phon.			

72. say - dire

A =	tʃüpō, 'parler'	:	1
B1 =	kwal	:	5
	kā	:	6
	kâl	:	7
	kálì	:	18
B2 =	γòò, 'parler'	:	2
	γò, 'parler'	:	3
	γò, 'parler'	:	4
	kòn	:	11
C =	sê	:	13
D1 =	lè	:	8
	là	:	9
	làà	:	10
D2 =	lòn	:	12
E1 =	gò:yà	:	14

E2 = kuòy.èt : 16

E3 = ùdzà : 17

B1 : B2 = phon., D1 : D2 = morph., E1 : E2 = morph.,

E1 : E3 = phon., E2 : E3 = acc.

73. see - voir

A1 = yúné : 1

yē : 2

yū : 3

yēγā : 4

A2 = εn : 9, 15

gò.εna : 14, 17

kùán : 16

γέν : 18

B1 = nεn : 5, 6

B2 = nùn : 7

C = ndák : 8

D1 = ùsìn : 10

E = ò.lètʃ : 11

D2 = yàsèn : 12

F = l'éqàn : 13

A1 : A2 = phon., B1 : B2 = phon., D1 : D2 = acc.

74. to sit - être assis

A1 = tsùé : 1

ʃī : 2

tsā : 3

tsī : 4

A2 = twèn : 9

B1 = yel : 5

B2 = yen : 7

C1 = lì : 6

C2 = lìmìn : 11

D = ɲóʔò : 8

E = gù.lìkùmènò : 14

F = kù.ɲómbèt : 15

G = kùnìmìkìn : 16

H = índzìndzɪ : 17

I = kòʔ : 18

A1 : A2 = acc., B1 : B2 = morph., C1 : C2 = acc.

75. skin - peau

A1 = ngùp mèn	: 1
ngèp	: 2, 3
ngùp	: 4
A2 = kìɔp	: 8
y.ǎbò	: 9
yópò	: 10
ybòp	: 11
kì.òpó	: 15
A3 = kìkòp	: 16
B = koyo	: 5
é.kòkò	: 6
gògòò	: 18
C1 = ko	: 7
è.kòl	: 9, 16
ùngòlòy	: 12
C2 = giólà	: 14
kìól	: 15
C3 = ìkù.	: 17
D = kì.oy	: 13

A1 : A2 = acc., A1 : A3 = morph., A2 : A3 = phon.,

C1 : C2 = acc., C1 : C3 = acc., C2 : C3 = acc.

76. sky - ciel

A = ndùt°	: 1
B = dɔè	: 2, 3, 4
C = lɔu	: 5
lóp	: 6
D = ηgi	: 7
E = múè	: 8
F1 = òmólúmúkònd	: 10
F2 = ènúlúmwón	: 11

G1 = nǒmènà : 9  
 G2 = ùmwènù : 12  
 G3 = ìbálámwèn : 13  
     ìpólómènâ : 14  
 G4 = mènémènè : 15  
 G5 = mùémènè : 16  
 G6 = máná : 17  
 H = áíóó : 18

F1 : F2 = acc., G1 : G2 = morph., G1 : G3 = morph.,  
 G1 : G4 = morph., G1 : G5 = morph., G1 : G6 = acc.,  
 G2 : G3 = morph., G2 : G4 = morph., G2 : G5 = morph.,  
 G2 : G6 = acc., G3 : G4 = acc., G3 : G5 = acc., G3 : G6 =  
 morph., G4 : G5 = phon., G4 : G6 = acc., G5 : G6 = acc.

77. sleep - dormir

A1 = zí : 1  
 A2 = dī : 2, 3, 4  
 B1 = lɔ : 5, 6, 7  
 B2 = tʃò : 8  
 B3 = tínó : 17  
 C1 = lalaye : 5  
 C2 = lál : 18  
 D1 = hén : 8  
 D2 = tʃòpè.hín : 11  
 E1 = gò.bédèmènà : 14  
 E2 = kù.pítìmàn : 15  
 E3 = kù.písímìn : 16  
 F = siàn : 9

A1 : A2 = phon., B1 : B2 = phon., B1 : B3 = phon.,  
 B2 : B3 = phon., C1 : C2 = morph., D1 : D2 = morph.,  
 E1 : E2 = acc., E1 : E3 = acc., E2 : E3 = phon.

78. small - petit

A = kúké : 1  
     χ±ò : 2  
     kχõh : 3, 4

B	=	tɔɔɔ	:	5
C1	=	sáà	:	6
C2	=	sii	:	7
C3	=	sáʔ	:	18
D	=	à.krík	:	8
E	=	tètè	:	9
F	=	tíkítík	:	11
		ìkítítíʔ	:	17
G	=	sòḡè	:	14
H	=	pù.két	:	15
C1 : C2 = phon., C1 : C3 = phon., C2 : C3 = acc.				

79. smoke - fumée

A1	=	fi.tut, cl.19	:	5
A2	=	hy.útùk, cl.19	:	6
B	=	hida	:	7
C	=	yí	:	8
		yèíí	:	12
D1	=	mùsý, cl.3	:	9
		mòíh	:	10
D2	=	tʃiólì	:	11
E	=	mò.gín	:	13
F	=	h̄tʃókì, cl.9	:	14
G1	=	òḡk, cl.3	:	15
G2	=	yḡk, cl.9	:	16
H	=	ìḡwíʔ	:	17
I	=	fì.sílì, cl.19	:	18
A1 : A2 = phon., D1 : D2 = morph., G1 : G2 = morph.				

80. snake - serpent

A	=	nú	:	1
		nū	:	3, 4, 5
		nɔ	:	5, 6, 7
		àyò	:	8
		h̄.nógò	:	14

83. star - étoile

A1 = sà°	: 1
sàk	: 2
sàŋ	: 3, 4, 5
A2 = è.tásyòŋ	: 6
B1 = hi.odot	: 7
hì.ótótì	: 14
B2 = hì.ndzòtì	: 11
B3 = yì.ótíotìo	: 15
B4 = ìtsótjɛ	: 17
C1 = hì.senj	: 9
C2 = fì.éntjéntjé	: 16
D = ì.tjìis	: 8
E = yèdèdè?	: 13
F = fí.ó1	: 18

A1 : A2 = acc., B1 : B2 = acc., B1 : B3 = phon.,.

B2 : B3 = acc., B2 : B4 = acc., B3 : B4 = phon., C1 : C2 =  
morph., B1 : B4 = acc.

84. stick - bâton

A = n.ton	: 5
B = kék, cl.7	: 6, 7
C1 = mù.lúmb, cl.3	: 9
ò.túmp, cl.3	: 11
C2 = gì.dímbò, cl.7	: 14
C3 = ìtímbɔ	: 17
D = nù.àndá, cl.11	: 15, 16
E = kì.fá?, cl.7	: 8
F1 = kì.ŋgəŋ, cl.7	: 13
F2 = kì.gèn, cl.7	: 18
C1 : C2 = acc., C1 : C3 = acc., C2 : C3 = morph.,	
F1 : F2 = phon.	

85. stone - pierre

A	=	ḥ.nʒk	:	15
		yʒk	:	16
		nʒḅ	:	17
		nóó	:	18
B1	=	mì.aχ	:	9
		tʃì.óχ	:	11
		yùhŷy	:	12
B2	=	míá	:	10
C	=	ò.kùt	:	13
B1	:	B2	=	phon.

81. spear - lance

A1	=	kò	:	1
		kòk	:	2
		kɔŋ	:	3, 4, 5, 6, 7, 11, 12, 18
		nì.kùŋ	:	8
		nòŋ	:	13
		nì.òŋó	:	15
		nòŋó	:	16
		ídzòŋó	:	17
		nè.kòŋò	:	9, 10
A2	=	è.yòŋó	:	14
A1	:	A2	=	phon.

82. to vomit - vomir

A	=	lɔ	:	5, 6, 7, 18
B1	=	nɔda	:	13, 14
B2	=	kù.nòt	:	15
		kù.nòdà	:	16
B3	=	ùnùtá	:	17
C1	=	àpàk	:	9, 11
C2	=	àpákák	:	10
		ápáy.àk	:	12
D	=	tíkà?	:	8
B1	:	B2	=	phon., B1 : B3 = phon, B2 : B3 = phon.,
C1	:	C2	=	morph.



A1 = ηgù?	: 1
gð?	: 18
A2 = η.gðk	: 6, 7
A3 = ikɔg	: 5
A4 = mɔk	: 9
B1 = lùγù	: 2
B2 = lòηù	: 3
lùηù	: 4
C1 = nì.tán, cl.5	: 8
à.táán, cl.5	: 13
è.dáné, cl.5	: 14
ìtá.né, cl.5	: 17
C2 = ηè.ndán, cl.5	: 11
nì.tán, cl.5	: 15, 16
A1 : A2 = phon., A1 : A3 = acc., A1 : A4 = acc., A2 : A3 = morph., A2 : A4 = phon., A3 : A4 = acc., B1 : B2 = morph., C1 : C2 = phon.	

86. sun - soleil

A = nàm	: 1
nèp	: 2, 3
ηàm	: 4
B1 = wòós, cl.14	: 8, 13
bwòòs, cl.14	: 11
pwòs.èp, cl.14	: 12
ηúós, cl.14	: 18
B2 = bù.ísí, cl.14	: 14
C = jɔu, cl.5	: 5
jɔb, cl.5	: 7
nìðf, cl.5	: 9
ηð.p, cl.5	: 16
D = fì.aηa, cl.19	: 5
ηyàngá, cl.19	: 6
E = ò.ηέη, cl.3	: 15
F = ùngúná	: 17
G = ηìòtòt, cl.19	: 10
B1 : B2 = phon.	

87. tail - queue

A1 =	ηkwàn°	:	1
	ηkù·	:	2, 3
	ηkò·	:	4
	n.kondo, cl.3	:	5
	η.kùn, cl.3	:	6
	ù. ηgùnd.ùγ, cl.3	:	12
A2 =	nì.ηgíí, cl.5	:	8
A3 =	ò.kèn, cl.3	:	15
B1 =	muε1, cl.3	:	7
B2 =	h.γé¹, cl.3	:	18
C1 =	mò.1èη, cl.3	:	9
	mò.1ìη, cl.3	:	10
C2 =	ò.dàη, cl.3	:	11
D =	ò.míò, cl.3	:	14
E =	à.pfíómb, cl.3	:	16
F =	ùnñì	:	13
G =	ùmwá	:	17

A1 : A2 = acc., A1 : A3 = acc., A2 : A3 = acc., B1 : B2 =  
phon.

88. wing - aile

A1 =	pàp	:	1
	pàβà	:	2, 3, 4
	ipape, cl.5	:	5
	dì.páp, cl.5	:	6
	lì.pàbí, cl.5	:	7
A2 =	kì.pàpò, cl.7	:	15
	kì.pàbá, cl.7	:	16
B1 =	κì.mbà1, cl.7	:	8
B2 =	à.mbàmbàd.ây	:	12
B3 =	ùmbàí, cl.3	:	17
C1 =	ìb <sup>w</sup> ék, cl.7	:	9
	ì.púk, cl.7	:	10
	è.békù, cl.7	:	11
C2 =	gè.bàgà, cl.7	:	14

D = ò.fáàn : 13

E = rì.kép : 18

A1 : A2 = morph., B1 : B2 = acc., B1 : B3 = acc.,

B2 : B3 = acc., C1 : C2 = phon.

89. three - trois

A = tát : 1, 15, 16, 17

tyē : 2

tyē : 3

tē : 4

ǎ : 5

rá : 6

aǎ : 7

tá : 8

làl : 9, 10

tá:t : 11

tàt : 12

dàt : 13

dàdò : 14

ráá : 18

90. tongue - langue

A1 = lím.dím, cl.5 : 1

dyēp, cl.5 : 2

dìdiēp, cl.5 : 3

lē, cl.5 : 4

nì.nyém, cl.5 : 8

nò.rómbé, cl.5 : 17

rì.lémà, cl.5 : 18

A2 = fì.lēm, cl.19 : 5

hì.lēmb, cl.19 : 7

A3 = è.līm : 6

gè.lēmbè, cl.7 : 14

kì.lēmb, cl.7 : 15

B1 = nè.bómb, cl.5 : 9

nè.pòmb, cl.5	: 10
B2 = nò.bémp:, cl.11	: 11
B3 = nò.mbēmb.òn, cl.11	: 12
nò.mè̄m, cl.11	: 13
C = kî.pēn, cl.7	: 16
A1 : A2 : A3 = morph., B1 : B2 = morph., B1 : B3 = acc.,	
B2 : B3 = phon.	

91. tooth - dent

A = sò°	: 1
sək°	: 2
sòŋ	: 3, 4
i.sòŋ, cl.5	: 5
dì.sòŋ, cl.5	: 6
lì.sòŋ, cl.5	: 7
B1 = ɲíí, cl.5	: 8
ɲífy, cl.5	: 16
B2 = nĩŋ, cl.5	: 9
níŋ, cl.5	: 10
ɲ.ìŋ.ín, cl.5	: 12
nĩ:ɲò, cl.5	: 14
nì?ŋ, cl.5	: 15
B3 = ɲìĩŋ, cl.5	: 11
nì.ìŋ, cl.5	: 13
B4 = n.ìó	: 17
B5 = ɔ.ín, cl.5	: 18
B1 : B2 = phon., B1 : B3 = phon., B1 : B4 = phon.,	
B1 : B5 = phon., B2 : B3 = phon., B2 : B4 = acc.,	
B2 : B5 = phon., B3 : B4 = acc., B3 : B5 = phon.,	
B4 : B5 = acc.	

92. tree - arbre

A1 = tʰ	: 1
tə̄h	: 2, 3
k.ě:, cl.7	: 5

à.ré	: 6
ε	: 7
A2 = thī	: 4
A3 = bò.lè, cl.14	: 9
pò.lè, cl.14	: 10
pò.òt, cl.14	: 11
bò.ētè, (=A4) cl.14	: 14
pù.tē, cl.14	: 15
A4 = kī.èt, cl.7	: 13
A5 = pò.dzú.p, cl.14	: 12
B = pù.òs	: 8
pò.sò, cl.14	: 16
C = wò.róté	: 17
D = rì.kùm	: 18
A1 : A2 = phon., A1 : A3 = morph., A1 : A4 = phon.,	
A1 : A5 = acc., A2 : A3 = acc., A2 : A4 = acc.,	
A2 : A5 = acc., A3 : A4 = acc., A3 : A5 = acc.,	
A4 : A5 = acc.	

93. elephant - éléphant

A1 = syō	: 2
f̄uu	: 3
sōγē	: 4
njog, cl.9	: 5
h̄zòk~h̄zòk, cl.9	: 6
n.òòk (←n.jòk)	: 7
à.tfìk, cl.9	: 8
m̄isòkù, cl.9	: 9
m̄l.sùk, cl.9	: 10
ì.tfòkù, cl.9	: 11
h̄dzò?, cl.9	: 13
h̄tjò, cl.9	: 14

A1 =	̀̀sò, cl.9	: 15
	tʃò, cl.9	: 16
	̀̀dzúù, cl.9	: 17
	zò?, cl.9	: 18
A2 =	ò.tʃəgɔy, cl.3	: 12
B =	nzén pàm	: 1
A1 :	A2 = morph.	

94. two - deux

A1 =	pá'á	: 1
	pá	: 2, 3, 4
	mú.bá	: 17
	βēē	: 18

A2 = a : 5, 6, 7

B1 = fándè : 9

fànd : 10

fánt : 12

B2 = fínt : 11

B3 = bán : 13

B4 = andε : 14, 15

B5 = àntʃí : 16

B6 = fò : 8

A1 : A2 = phon., B1 : B2 = phon., B1 : B3 = phon.,

B1 : B4 = phon., B1 : B5 = acc., B1 : B6 = phon., B2 : B3 = acc., B2 : B4 = acc., B2 : B5 = acc., B2 : B6 = phon.,

B3 : B4 = phon., B3 : B5 = acc., B3 : B6 = acc., B4 : B5 = phon., B4 : B6 = acc., B5 : B6 = acc.

95. water - eau

A =	̀̀ntsē	: 1
	nsì	: 2, 4
	ntsà	: 3
B =	mì·mpò, cl.6a	: 14
	mò·mb, cl.6a	: 15
	mì·mb, cl.6a	: 16

C1 = ma.leu, cl.6	: 5
mà.líp, cl.6	: 6
mà.leb, cl.6	: 7
mè.ní, cl.6	: 8
m <sup>w</sup> è.nìf, cl.6	: 9
mì.nàf, cl.6	: 10
me.nífí, cl.6	: 11
mì.níf.úm, cl.6	: 12
mà.ní, cl.6	: 13
C2 = mλ.ná?, cl.6	: 18
D = màtéyâ	: 17
C1 : C2 = acc.	

96. white - blanc

A1 = pup	: 5, 18
pópà	: 6
puba	: 7
púú	: 17

A2 = fùm : 8

A3 = fúmwénén : 11

A4 = gí.múmpú : 14

A5 = fúmfúè : 15

B = nàηànàη : 9

C = póyâ : 16

A1 : A2 = acc., A1 : A3 = acc., A1 : A4 = acc., A1 : A5 = acc.,  
 A2 : A3 = morph., A2 : A4 = acc., A2 : A5 = morph.,  
 A3 : A4 = acc., A3 : A5 = morph., A4 : A5 = acc.

97. wind - vent

A1 = fèmbàη : 1

    fèmbàη : 4

A2 = fèfè : 2, 3

A3 = pupε : 5

A4 = ò.fùfù : 14

A5 = ò.féfè̀m : 13

B	=	bèp	:	6, 18
C	=	hù.gúbé	:	7
D1	=	kì.hún	:	8
		è.hùn	:	11
D2	=	ù.hùn.ùy	:	12
D3	=	èmfún	:	15
D4	=	à.pfún	:	16
E	=	ùmbwíj	:	9
		umbwáj	:	10
F	=	pèpènò	:	17

A1 : A2 = acc., A1 : A3 = acc., A1 : A4 = acc., A1 : A5 = acc.,  
 A2 : A3 = phon., A2 : A4 = phon., A2 : A5 = acc.,  
 A3 : A4 = phon., A3 : A5 = acc., A4 : A5 = acc., D1 : D2 =  
 morph., D1 : D3 = acc., D1 : D4 = acc., D2 : D3 = phon.,  
 D2 : D4 = phon., D3 : D4 = phon.

98. woman - femme

A	=	mènzwí	:	1
		mènzqĩ	:	2, 3, 4
B1	=	mù.táj	:	5
B2	=	à.tá	:	6
C	=	ɲwa	:	7
D	=	ù.nís	:	8
E1	=	mùènd	:	9
		mwándò	:	10
		òóndzɔ	:	11
E2	=	ù.nùndz.ùy	:	12
E3	=	à.ká'ánd	:	15
		à.kánd	:	16
F1	=	ò.kéèt	:	13
F2	=	ò.kódò	:	14
		ùkútú	:	17
G	=	gíp	:	18

B1 : B2 = phon., E1 : E2 = acc., E1 : E3 = phon., E2 : E3 =  
 acc., F1 : F2 = phon.,



99. firewood - bois

A1 = nùn, cl.5	: 11
A2 = ò.kón, cl.3	: 13
ò.gúní, cl.3	: 14
A3 = ùgí, cl.3	: 17
A4 = nù.kún, cl.11	: 15, 16
A5 = fà.wén, cl.19	: 18
A6 = ncwen	: 1
ɒχī	: 2
ɒkχe	: 3, 4
we	: 5
A7 = tùín, cl.13	: 9
nù.ín, cl.19	: 10
A8 = yéàníí, cl.19	: 12
A9 = rée, cl.11	: 6
dʒé	: 7
yìé	: 8

A1 : A2 = morph., A1 : A3 = acc., A1 : A4 = morph.,  
 A1 : A5 = acc., A1 : A6 = acc., A1 : A7 = acc., A1 : A8 =  
 phon., A1 : A9 = acc., A2 : A3 = acc., A2 : A4 = morph.,  
 A2 : A5 = acc., A2 : A6 = phon., A2 : A7 = acc., A2 : A8 =  
 acc., A2 : A9 = acc., A3 : A4 = acc., A3 : A5 = acc.,  
 A3 : A6 = phon., A3 : A7 = acc., A3 : A8 = acc., A3 : A9 =  
 acc., A4 : A5 = acc., A4 : A6 = morph., A4 : A7 = phon.,  
 A4 : A8 = acc., A4 : A9 = acc., A5 : A6 = morph., A5 : A7 =  
 phon., A5 : A8 = acc., A5 : A9 = acc., A6 : A7 = acc.,  
 A6 : A8 = acc., A6 : A9 = acc., A7 : A8 = morph., A7 : A9 =  
 acc., A8 : A9 = acc.

100. year - année

A = ngù?	: 1, 2, 3, 4
B = mu	: 5, 6
C = nùí	: 7
D = pù.á, cl.14	: 8, 9
wààk, cl.14	: 13
wàà, cl.14	: 17

E = hì.òŋ : 9, 11, 15  
       núòŋ : 16  
 F = ìŋómá : 14  
 G = bəʔ : 18

A1 : A2 = morph. means that the divergence of the words under A1 and those under A2 is morphological.

A1 : A2 = phon. means that the divergence of the words under A1 and those under A2 is phonological.

A1 : A2 = acc. means that the divergence of the words under A1 and those under A2 is accumulative, i.e. that there is more than one difference between them, morphological and/or phonological.

Words under different letters are not related.

Differences between words under one heading, e.g. A1, are regular and not counted.

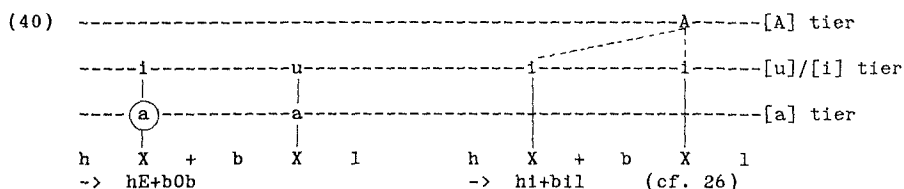
The numbers refer to the languages.

cl.3 means class 3.

A . means a morphological boundary, e.g. pù.á

If a language is not listed under a certain item, no data for that item were available.

If this vowel occurs in an environment where there is no floating instance of [A], RR (37) will apply and insert [a]. This happens in the lefthand example. If, however, there is a floating instance of [A] no [a] is inserted, as in the righthand example:

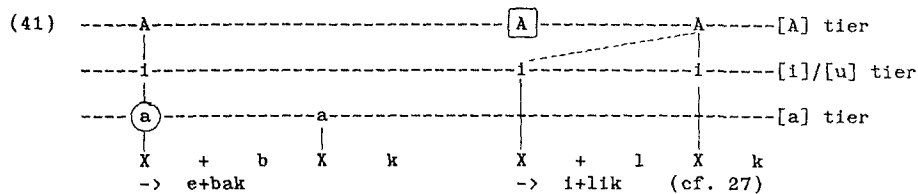


The circled [a] is inserted before spreading has taken place. Presumably this ordering is universal. We will assume that RR's, being everywhere rules, always apply before other processes.

#### 3.2.4. The /e/ - /i/ alternation

In this type no alternation with respect to tongue root position takes place. In the framework assumed, the feature [A] is specified underlyingly in this case, since it is not involved in an alternation. Since there is a height alternation, as in the preceding case, we underspecify the vowel for [a]:

In (41) we represent the two relevant cases:



The boxed [A] in the right-hand example will disappear as a result of the OCP; cf. section 2. In this case, RR (37) will be checked, and found not to be applicable. In the left-hand example, on the other hand, RR (37) is met due to the fact that there is no FLOATING instance of [A]. An [a] is therefore inserted here. This example shows the crucial importance of the way in which we have formulated RR (37).

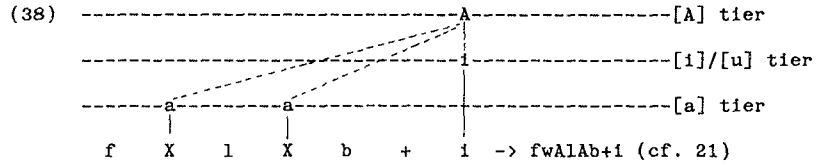
#### 3.2.5. The /o/ - /u/ alternation and a transparency effect

Unlike the /e/ - /i/ alternation, which only occurs in prefixes, the present alternation occurs in all morphemic classes. The analysis is parallel to the /e/ - /i/ case. The relevant vowel is left unspecified for [a], and specified for [u] only.

In following sections, we will discuss the data presented in section 3.1. Each subsection here corresponds to the appropriate subsection of 3.1.

### 3.2.1. The alternation /a/ - /A/

Roots or affixes may contain an instances of a floating [A], which by the association conventions is associated with vowels from left to right:

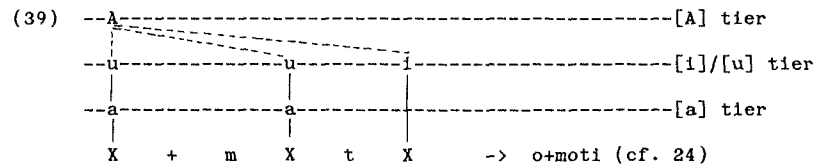


Observe that in this case the RR in (37) is not met. There is a floating instance of [A].

In the corresponding cases where no morpheme possessing [A] is involved, no spreading takes place and the underlying representations are directly phonetically interpreted.

### 3.2.2. The alternation /o/ - /o/

This cases is no different from the preceding one. There are, however, no affixes showing this alternation. It occurs only in roots combined with a dominant affix:



The alternations discussed so far are straightforward and involve nothing but the feature [A]. In the following sections, we deal with cases where the alternation involves a height difference, alongside or instead of a difference in tongue root position.

### 3.2.3. The alternation /E/ - /i/

The root in (39) alternates with [motE]. The /E/ - /i/ alternation is also found in several suffixes and one prefix. In this case the vowel is left unspecified for the feature [a], and specified with [i] only.