



Universiteit
Leiden
The Netherlands

The phonology of Proto-Central Chadic : the reconstruction of the phonology and lexicon of Proto-Central Chadic, and the linguistic history of the Central Chadic languages

Gravina, R.C.

Citation

Gravina, R. C. (2014, December 16). *The phonology of Proto-Central Chadic : the reconstruction of the phonology and lexicon of Proto-Central Chadic, and the linguistic history of the Central Chadic languages*. LOT dissertation series. Retrieved from <https://hdl.handle.net/1887/30139>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/30139>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/30139> holds various files of this Leiden University dissertation.

Author: Gravina, Richard

Title: The phonology of Proto-Central Chadic : the reconstruction of the phonology and lexicon of Proto-Central Chadic, and the linguistic history of the Central Chadic languages

Issue Date: 2014-12-16

THE PHONOLOGY OF PROTO- CENTRAL CHADIC

*THE RECONSTRUCTION OF THE PHONOLOGY AND LEXICON OF
PROTO-CENTRAL CHADIC, AND THE LINGUISTIC HISTORY OF
THE CENTRAL CHADIC LANGUAGES*

Published by
LOT
Trans 10
3512 JK Utrecht
The Netherlands

phone: +31 30 253 6111

e-mail: lot@uu.nl
<http://www.lotschool.nl>

Cover illustration: A view of Méri mountain from Gemzek, © Richard Gravina

ISBN: 978-94-6093-157-4

NUR 616

Copyright © 2014: Richard Gravina. All rights reserved.

The Phonology of Proto-Central Chadic

Proefschrift

ter verkrijging van

de graad van Doctor aan de Universiteit Leiden,

op gezag van Rector Magnificus Prof.mr. C.J.J.M. Stolker,

volgens besluit van het College voor Promoties

te verdedigen op dinsdag 16 december 2014

klokke 13.45 uur

door

Richard Gravina

geboren te Galleywood, Verenigd Koninkrijk

in 1965

Promotiecommissie:

Promotor: Prof. dr. Maarten Mous

Co-promotor: Dr. Christian J. Rapold (Universitt Regensburg)

Overige leden: Prof. dr. Ekkehard Wolff (emeritus, Universitt Leipzig)

Prof. dr. Sasha Lubotsky

Dr. Maarten Kossmann

Dr. Ahmad Al-Jallad

ACKNOWLEDGEMENTS

A project such as this draws on knowledge and expertise from many people, not just in terms of the data required for the analysis, but also in terms of the understanding and experience that has been passed down and shared.

First of all, I would like to thank those who inspired me and introduced me to the study of Chadic languages in Cameroon, namely Stephen Anderson, Keith Snider, Jim Roberts and Robert Hedinger.

I would also like to thank all those who gave me permission to use their data for this research. In many cases the data is unpublished, and I would particularly like to honour the commitment these people have shown to the free sharing of knowledge. Thanks go to Sean Allison, Roger Blench, Cathy Bow, Virginia Boyd, Lee Bramlett, Arjan Branger, Nicholas David, Djibi Gabriel, Dianne Friesen, Martha Giger, Matthew Harley, Kenneth Hollingsworth, Marian Hungerford, Adrian Johnston, Annuka Kinnaird, William Kinnaird, Ruth Lienhard, Doris Löhr, Angelo Mazzucci, Louise McKone, Giuseppe Michielan, Ndokobaï Dakak, Gédéon Noussi, Jonathan Owens, Uwe Seibert, Aaron Shryock, Tony Smith, Alan Starr, Michael Thomas, Melanie Viljoen and Ekkehard Wolff.

Thanks also go to Maarten Mous for accepting me as an external student at Leiden, and to Christian Rapold for his patient supervision and guidance.

I could not complete the acknowledgements without mentioning my friends amongst the Mbuko people of Cameroon, where I lived for many years. It is difficult to mention individual names, but I must extend my thanks to Robert Nelezek, Joseph Koron and Paul Mbukahibay. To everyone I say, ‘Suse à kwanay bayak awan ! Mburom â varak ikwen gədan tə zay anahan.’

Thanks also should go to the Fieldworks and Webonary development teams for their help with the technicalities of managing and presenting large quantities of data in an unusual way.

Finally, my gratitude goes to my wife Sue, my mother Ann, and my children Dominic, Sophia and Alex, for humouring me whilst I was working on this project, and for successfully feigning interest when I talked about it.

Contents

Index of Tables, Maps and Figures	xiii
Figures.....	xiii
Maps	xiii
Tables.....	xiv
Reference information.....	xxi
Proto-Central Chadic Consonants	xxi
The Classification of the Central Chadic Languages.....	xxi
Abbreviations.....	xxiii
Section I - Background.....	1
1 Introduction.....	3
1.1 Goals.....	3
1.2 Methodology.....	5
1.3 The Languages and Peoples.....	8
1.4 Sources and Conventions.....	10
2 Genetic and Areal Affiliations	17
2.1 Introduction.....	17
2.2 Research on the Classification of Central Chadic Languages	17
2.2.1 Studies in African Linguistic Classification (Greenberg 1950).....	17
2.2.2 Chadic Classification and Reconstruction (Newman 1977a)	19
2.2.3 Lexicostatistical Classification (Barreteau, Breton, and Dieu 1984)	22
2.2.4 The Internal Classification of Chadic Biu-Mandara (Gravina 2011)	26
2.2.5 Comparison of the classifications	28
2.3 Contact-induced Change.....	31
2.3.1 Geography	32

2.3.2	Synthesis of the classifications.....	32
2.3.3	Phonological Systems.....	37
2.3.4	Linguistic areas	38
3	Presentation of the Classification	41
3.1	Sound Changes at Sub-branch level	42
3.1.1	South sub-branch	43
3.1.2	North sub-branch.....	44
3.1.3	Hurza sub-branch	45
3.2	Sound Changes at Major Group Level.....	45
3.2.1	Mafa, Sukur and Daba.....	46
3.2.2	Margi-Mandara-Mofu Major Group.....	46
3.2.3	North Kotoko-Musgum Major Group	46
3.3	Sound Changes at Group Level and Below	47
3.3.1	Bata Group	47
3.3.2	Daba Group	48
3.3.3	Mafa Group.....	49
3.3.4	Tera Group	49
3.3.5	Sukur Group	50
3.3.6	Hurza Group	50
3.3.7	Margi Group.....	50
3.3.8	Mandara Group	51
3.3.9	Mofu Group	53
3.3.10	Maroua Group	55
3.3.11	Lamang Group	56
3.3.12	Higi Group	57
3.3.13	Kotoko Island Group	58
3.3.14	Kotoko North Group	58
3.3.15	Musgum Group	60

3.3.16	Kotoko Centre Group	60
3.3.17	Kotoko South Group	61
3.3.18	Gidar Group	61
3.4	General and Non-systematic Sound Changes.....	62
3.4.1	*ts→t	62
3.4.2	*n→ŋ word-finally	62
3.4.3	*ɗ→j.....	63
3.4.4	Velar consonants	63
3.4.5	Compensatory reduplication	63
3.4.6	Compensatory prefixation	65
3.4.7	Fusion.....	66
3.5	Language Contact and Language Separation	67
4	Studies on Central Chadic Phonology.....	71
4.1	Linguistic Issues.....	71
4.1.1	Prosodies	71
4.1.2	How Many Underlying Vowels?.....	71
4.1.3	The Status of Schwa	72
4.1.4	Palatalized and Labialized Consonants	73
4.1.5	Pre-nasalized Consonants	73
4.2	Literature Review.....	73
4.2.1	A Grammar of the Margi Language (Hoffmann 1963).....	73
4.2.2	Higi Phonology (Mohrlang 1972)	74
4.2.3	Notes on the Phonology of Gude (Hoskison 1975)	75
4.2.4	Daba (parler de Pologozom): Description phonologique (Lienhard and Giger 1975)	76
4.2.5	Y-prosody as a morphological process in Ga'anda (Ma Newman 1977)	76
4.2.6	The Phonology of Dghwede (Frick 1977)	77

4.2.7	Reconstructing Vowels in Central Chadic (Wolff 1983a).....	78
4.2.8	A grammar of the Lamang language: gwàd làmàn (Wolff 1983b)	79
4.2.9	Du vocalisme en tchadique (Barreteau 1987b).....	80
4.2.10	Palatalization in West Chadic (Schuh 2002)	81
4.2.11	Suffix petrification and prosodies in Central Chadic (Lamang-Hdi) (Wolff 2006).....	82
4.2.12	A Timeline of Central Chadic phonological studies	82
4.3	Summary	85
Section II	- Typology of Central Chadic Phonologies	87
5	Vowel Prosody	89
5.1	Introduction	89
5.2	Case Study – Moloko	90
5.2.1	Consonants.....	90
5.2.2	Vowels and Prosodies	91
5.2.3	Local Conditioning.....	92
5.2.4	Consonants and Prosodies.....	93
5.2.5	Spread of Prosodies	93
5.3	Analysis and Reconstructions.....	95
5.3.1	Mofu Group	96
5.3.2	Daba Group	103
5.3.3	Musgum Group.....	108
5.3.4	Maroua Group.....	113
5.3.5	Mafa Group.....	116
5.3.6	Hurza Group	122
5.3.7	Gidar Group	125
5.3.8	Mandara Group	126
5.3.9	Tera Group	126
5.4	Summary	128

6	Consonant Prosody.....	131
6.1	Introduction.....	131
6.2	Case Study – Jimi and Sharwa.....	134
6.2.1	Consonant phonemes.....	134
6.2.2	Labialized and Palatalized Consonants.....	134
6.2.3	Vowels in Sharwa.....	136
6.2.4	Vowels in Jimi.....	137
6.2.5	Consonant Palatalization in Jimi.....	139
6.3	Bata group.....	144
6.3.1	Gude.....	145
6.3.2	Tsuvan.....	146
6.3.3	Bata and Bachama.....	146
6.3.4	Reconstructing Proto-Bata phonology.....	146
6.4	Margi group.....	153
6.4.1	Margi.....	154
6.4.2	Bura.....	154
6.4.3	Kilba.....	157
6.4.4	Reconstructing Proto-Margi phonology.....	158
6.5	Higi group.....	165
6.5.1	Bana.....	166
6.5.2	Psikye.....	167
6.5.3	Higi.....	168
6.5.4	Kamwe Nkafa.....	169
6.5.5	Kamwe Futu.....	170
6.5.6	Kirya-Konzel.....	170
6.5.7	Reconstructing Proto-Higi.....	171
6.6	Issues for reconstructing Proto-Central Chadic.....	178
6.6.1	The existence of back-rounded vowels.....	179

6.6.2	The number of underlying vowels	179
6.6.3	Labialized labial consonants	179
6.6.4	Palatalized consonants	179
7	Mixed Prosody Languages.....	181
7.1	Introduction.....	181
7.2	The Mandara Group.....	182
7.2.1	Podoko	184
7.2.2	Matal	186
7.2.3	Mandara	188
7.2.4	Malgwa.....	189
7.2.5	Glavda.....	190
7.2.6	Dghwede	192
7.2.7	Reconstruction	193
7.3	The Lamang Group.....	197
7.3.1	Overview	197
7.3.2	Vowel systems	198
7.3.3	Extended roots	199
7.3.4	Back-rounded vowels.....	200
7.3.5	Front vowels and palatalization	201
7.3.6	Summary.....	203
7.4	The Sukur Group.....	203
7.4.1	Palatalization	204
7.4.2	Labialization	206
7.4.3	Vowels.....	206
7.4.4	Summary.....	207
7.5	Conclusion	207
8	Kotoko Languages.....	209
8.1	Introduction.....	209

8.2	The Kotoko South Group.....	210
8.2.1	Zina Vowels.....	211
8.2.2	Zina Consonants	212
8.2.3	Mazera.....	212
8.2.4	Reconstructions	212
8.3	The Kotoko Centre Group	212
8.3.1	Lagwan.....	212
8.3.2	Mser.....	213
8.3.3	Reconstruction	213
8.4	The Kotoko North Group.....	215
8.4.1	Mpade.....	215
8.4.2	Afade	216
8.4.3	Malgbe.....	216
8.4.4	Maltam	217
8.4.5	Reconstructions	217
8.5	The Kotoko Island Group	219
8.6	The Question of Proto-Kotoko	220
9	Summary of the Phonologies	223
	Section III - Phonological Reconstruction	229
10	Proto-Central Chadic Consonants.....	231
10.1	Introduction.....	231
10.1.1	Nasals and Pre-nasalized Plosives	231
10.1.2	Implosives.....	232
10.2	Labial Consonants	232
10.2.1	*p.....	232
10.2.2	*b.....	236
10.2.3	*v	236
10.2.4	*ɓ.....	238

10.2.5	*m	239
10.2.6	* ^m b	241
10.3	Alveolar Consonants	243
10.3.1	*t	243
10.3.2	*d	245
10.3.3	*ɬ	246
10.3.4	*ɮ	248
10.3.5	*ɖ	250
10.3.6	*n	252
10.3.7	* ⁿ d	255
10.3.8	*r	256
10.4	Laminal Consonants	258
10.4.1	*ts	258
10.4.2	*dz	261
10.4.3	*s	263
10.4.4	*z	265
10.4.5	* ⁿ dz	267
10.4.6	*j	267
10.5	Velar Consonants	269
10.5.1	*k	269
10.5.2	*g	271
10.5.3	*h	271
10.5.4	*ɣ	273
10.5.5	* ^ŋ g	275
10.6	Labialized Velar Consonants	275
10.6.1	*k ^w	276
10.6.2	*g ^w	278
10.6.3	*h ^w	280

10.6.4	*ɣ ^w	281
10.6.5	*ŋg ^w	282
10.6.6	*w.....	283
10.7	A Comparison with Newman's Consonantal Inventory	286
10.8	Statistics.....	288
10.8.1	Phonemes ordered by place and point of articulation.....	289
10.8.2	Phonemes ordered by total number of instances	290
10.8.3	Statistics by place of articulation.....	291
10.8.4	Statistics by manner of articulation	291
11	Proto-Central Chadic Prosodies	293
11.1	Introduction.....	293
11.2	The Palatalization Prosody	293
11.2.1	Reconstructing the Palatalization Prosody for Proto-Central Chadic	294
11.2.2	Further Data for the Palatalization Prosody.....	314
11.2.3	The Realisation of the Palatalization Prosody in Proto-Central Chadic	318
11.2.4	Reflexes of the Palatalization Prosody	319
11.3	The Emergence of Labialization in Central Chadic.....	326
11.3.1	Overview.....	326
11.3.2	Labialized Velar Phonemes	326
11.3.3	Labialized Labial Phonemes	327
11.3.4	The Labialization Prosody	328
11.3.5	Summary	330
12	Proto-Central Chadic Vowels.....	333
12.1	Vowel Systems.....	334
12.2	Reconstructing *i.....	334
12.2.1	*pitsi 'sun'	336

12.2.2	*tira ‘moon’	339
12.2.3	*vida ‘hare’	342
12.2.4	*hĩĩ ‘work’	343
12.2.5	Other roots	345
12.3	Reconstructing *a	350
12.4	Reconstructing *i	351
12.5	Distribution	354
12.6	Conclusion	354
13	Summary	355
13.1	Summary of sound changes	356
13.2	Lexical Isoglosses	357
13.2.1	Body parts	359
13.2.2	Numerals	364
13.2.3	Animals	370
13.2.4	Other	378
13.2.5	Summary	387
13.3	Developments	388
13.4	Further research	390
14	Bibliography	393
	English Summary	403
	Nederlandse Samenvatting	406
	Curriculum Vitae	409

Index of Tables, Maps and Figures

Figures

Figure 1 - Development of reflexes of the palatalization prosody	320
Figure 2 - Evolution of 'dream'	348

Maps

Map 1 - Chadic and Afroasiatic (Starostin 2008)	8
Map 2 - The branches of Chadic	9
Map 3 - Modern map of the Central Chadic region	10
Map 4 - Newman's classification	19
Map 5 - Barreteau and Jungraithmayr (1993) classification	25
Map 6 - Gravina (2011) classification	28
Map 7 - Location of the groups within Central Chadic	36
Map 8 - Phonological types	38
Map 9 - Central Chadic Sub-branches	43
Map 10 - Distribution of the Vowel Prosody system	96
Map 11 - Mofu group languages	97
Map 12 - Daba group languages	103
Map 13 - The Musgum group	109
Map 14 - Maroua Group	114
Map 15 - Mafa Group	116
Map 16 - Hurza group	122
Map 17 - Gidar group	125
Map 18 - Tera group	126
Map 19 - Vowel prosody languages (excluding Tera group)	128
Map 20 - Consonant Prosody languages	132
Map 21 - Bata group	144
Map 22 - Margi group	153
Map 23 - Higi group	165
Map 24 - Phonological Types	181
Map 25 - Mandara group	183
Map 26 - Lamang group	197
Map 27 - Sukur	204
Map 28 - The Kotoko languages	209
Map 29 - Phonological types	295

Map 30 - Phonological sub-types	322
Map 31 - Harmonisation of /ə/	323
Map 32 - Distribution of vowel prosodies	330
Map 33 - Vowel systems.....	335
Map 34 - Isoglosses for 'arm'	359
Map 35 - Isoglosses for 'eye'.....	360
Map 36 - Isoglosses for 'head'	361
Map 37 - Isoglosses for 'leg'	362
Map 38 - Isoglosses for 'neck'	363
Map 39 - Isoglosses for 'two'	365
Map 40 - Isoglosses for 'five'	366
Map 41 - Isoglosses for 'six'	367
Map 42 - Isoglosses for 'seven'	368
Map 43 - Isoglosses for 'ten'	369
Map 44 - Isoglosses for 'donkey'	370
Map 45 - Isoglosses for 'elephant'	371
Map 46 - Isoglosses for 'hare'	372
Map 47 - Isoglosses for 'horse'	373
Map 48 - Isoglosses for 'camel'	374
Map 49 - Isoglosses for 'lion'	375
Map 50 - Isoglosses for 'mouse'	376
Map 51 - Isoglosses for 'porcupine'	377
Map 52 - Isoglosses for 'horn'	378
Map 53 - Isoglosses for 'baobab'	379
Map 54 - Isoglosses for 'beer'	380
Map 55 - Isoglosses for 'to give birth'	381
Map 56 - Isoglosses of 'broom'	382
Map 57 - Isoglosses for 'field'	383
Map 58 - Isoglosses for 'left'	384
Map 59 - Isoglosses for 'millet'	385
Map 60 - Isoglosses for 'moon'	386

Tables

Table 1- Sample cognates of the root 'nose'	6
Table 2 - Sample phonemic forms for 'nose'	7
Table 3 - Lexical data sources.....	16
Table 4 - Newman's Proto-Chadic consonantal inventory	21
Table 5 - Lexicostatistical classification of Cameroonian Chadic languages	23

Table 6 - Lexicostatistical Classification of Central Chadic	24
Table 7 - Internal Classification of Central Chadic	27
Table 8 - Comparison of Newman and Gravina subclassifications	29
Table 9 - Overview of Barreteau and Jungraithmayr (1993)	33
Table 10 - The genetic classification of Central Chadic languages	42
Table 11 - Compensatory prefixation in the Mandara group	52
Table 12 - Velarisation of palatalized alveolars in the Mandara group	53
Table 13 - Compensatory reduplication in the Mofu group	55
Table 14 - Groups with the change *ts→t	62
Table 15 - Comparing vowels in the Lamang and Mandara groups	78
Table 16 - Moloko consonants	90
Table 17 - Moloko vowels	91
Table 18 - Works on vowel prosody languages	95
Table 19 - Labialization in the Mofu group	99
Table 20 - Palatalization in the Mofu group	100
Table 21 - Palatalization due to /j/	101
Table 22 - Vowel reconstructions in the Mofu group	102
Table 23 - Origins of labialization in the Daba group	104
Table 24 - Labialization in Daba	105
Table 25 - Palatalization in the Daba group	105
Table 26 - Possible palatalization in the Daba group	106
Table 27 - Vowel reconstructions in the Daba group	108
Table 28 - Palatalization in the Musgum group	110
Table 29 - Labialization in the Musgum group	111
Table 30 - Long vowels in the Musgum group	112
Table 31 - Palatalization in the Maroua group	115
Table 32 - Labialization in the Mafa group	118
Table 33 - Palatalization in the Mafa group	119
Table 34 - Inconsistent palatalization in the Mafa group	120
Table 35 - Underlying vowels in the Mafa group	121
Table 36 - Palatalization in the Hurza group	123
Table 37 - Development of the labialization prosody in Mbuko	124
Table 38 - Jimi and Sharwa basic consonants	134
Table 39 - Jimi and Sharwa labialized consonants	135
Table 40 - Jimi and Sharwa palatalized consonants	135
Table 41 - Sharwa vowels	136
Table 42 - Sharwa plural formation	137
Table 43 - Jimi verbs ending with /-a/	140

Table 44 - Jimi verbs containing a laminal consonant.....	140
Table 45 - Jimi verbs with alveolar and labial consonants.....	140
Table 46 - Jimi verbs with alveolar and velar consonants.....	141
Table 47 - Jimi verbs with velar and labial consonants	141
Table 48 - Jimi verbs with two consonants at the same place of articulation..	141
Table 49 - Jimi verbs with modified consonants.....	142
Table 50 - Jimi verbs containing /j/	142
Table 51 - Jimi verbs containing /i/	142
Table 52 - Proto-Bata vowels	147
Table 53 - Reconstructing *a for Proto-Bata.....	147
Table 54 - Reconstructing Proto-Bata *i.....	148
Table 55 - Difficult correspondences for *i in the Bata group	148
Table 56 - Reconstructing *i in Proto-Bata.....	149
Table 57 - Labialized consonants in the Bata group	150
Table 58 - Palatalized consonants in the Bata group	151
Table 59 - Sporadic palatalization in the Bata group	151
Table 60 - Bura consonants (Warren)	155
Table 61 - Proto-Margi *k ^w	159
Table 62 - Proto-Margi labialized labials.....	160
Table 63 - Palatalized consonants in Proto-Margi	161
Table 64 - Proto-Margi *a.....	163
Table 65 - Proto-Margi *i.....	163
Table 66 - Proto-Margi *i.....	164
Table 67 - Labialized velars in Proto-Higi.....	172
Table 68 - Proto-Higi palatalized laminals	174
Table 69 - Palatalization of non-laminal consonants in Proto-Higi.....	174
Table 70 - Origins of palatalized consonants in the Higi group.....	175
Table 71 - Proto-Higi *a.....	176
Table 72 - Proto-Higi *i	177
Table 73 - Proto-Higi *i.....	177
Table 74 - Reflexes of Proto-Higi vowels.....	178
Table 75 - Palatalization in Matal	188
Table 76 - Palatalization in Mandara	189
Table 77 - /i/ in Mandara and Malgwa.....	190
Table 78 - [e] in Malgwa.....	190
Table 79 - Palatalization in Glavda.....	191
Table 80 - Dghwede vowels.....	192
Table 81 - Palatalization in Proto-Mandara	194

Table 82 - *i in Proto-Mandara	195
Table 83 - *a in Proto-Mandara	195
Table 84 - *i in Proto-Mandara	196
Table 85 - *u in Proto-Mandara	196
Table 86 - Shared roots in the Lamang group	199
Table 87 - Petrification of *-k in Hdi	199
Table 88 - Petrified *-a in Lamang	200
Table 89 - [u] from consonant labialization in the Lamang group	200
Table 90 - Vocalisation of *w in the Lamang group	200
Table 91 - Mixed reflexes of *w in the Lamang group	201
Table 92 - Creation of [o] in Lamang	201
Table 93 - [e] in the Lamang group	202
Table 94 - Reconstructing /i/ in the Lamang group	202
Table 95 - Vowel harmony in the Lamang group	203
Table 96 - Palatalization in Sukur	205
Table 97 - Root vowel integrating suffixes in Lagwan	213
Table 98 - Creation of /u/ in Kotoko Centre	214
Table 99 - /e/ in Proto-Kotoko Centre	214
Table 100 - Final *i in Proto-Kotoko Centre	214
Table 101 - Labialized velars in Kotoko Centre	215
Table 102 - Development of labial-velars in Malgbe	216
Table 103 - Labialized velars in Proto-Kotoko North	217
Table 104 - /a/ in Proto-Kotoko North	217
Table 105 - /i/ in Proto-Kotoko North	218
Table 106 - /o/ in Proto-Kotoko North	218
Table 107 - /u/ in Proto-Kotoko North	218
Table 108 - /i/ in Proto-Kotoko North	219
Table 109 - /e/ in Proto-Kotoko North	219
Table 110 - Summary of Phonological Characteristics	226
Table 111 - Proto-Central Chadic consonants	231
Table 112 - Proto-Chadic consonants	286
Table 113 - Proto-Central Chadic consonants	286
Table 114 - Reflexes of Proto-Bata 'nose'	296
Table 115 - Reflexes of Proto-Higi 'nose'	296
Table 116 - Reflexes of Proto-Margi 'nose'	297
Table 117 - Reflexes of Proto-Mofu 'nose'	297
Table 118 - Reflexes of Proto-Hurza 'nose'	298
Table 119 - Reflexes of Proto-Daba 'nose'	298

Table 120 - 'nose' in the Maroua group	299
Table 121 - Reflexes of Proto-Mafa 'nose'	299
Table 122 - Reflexes of Proto-Tera 'nose'	299
Table 123 - Reflexes of Proto-Mandara 'nose'	300
Table 124 - Reflexes of Proto-Lamang 'nose'	300
Table 125 - Reflexes of Proto-Kotoko South 'nose'	300
Table 126 - Reflexes of Proto-Kotoko Centre 'nose'	301
Table 127 - Reflexes of Proto-Kotoko North 'nose'	301
Table 128 - Reflexes of Proto-Central Chadic 'nose'	301
Table 129 - Reflexes of Proto-Bata 'dream'	302
Table 130 - Reflexes of Proto-Higi 'dream'	302
Table 131 - Reflexes of Proto-Margi 'dream'	302
Table 132 - Reflexes of Proto-Daba 'dream'	303
Table 133 - Reflexes of Proto-Mafa 'dream'	303
Table 134 - Reflexes of Proto-Mofu 'dream'	303
Table 135 - 'dream' in further Vowel Prosody languages	304
Table 136 - Reflexes of Proto-Mandara 'dream'	304
Table 137 - Reflexes of Proto-Lamang 'dream'	304
Table 138 - Reflexes of Proto-Kotoko Centre 'dream'	305
Table 139 - Reflexes of Proto-Kotoko North 'dream'	305
Table 140 - Reflexes of Proto-Central Chadic 'dream'	305
Table 141 - Reflexes of Proto-Bata 'fish'	306
Table 142 - Reflexes of Proto-Higi 'fish'	306
Table 143 - Reflexes of Proto-Margi 'fish'	307
Table 144 - Reflexes of Proto-Daba 'fish'	307
Table 145 - Reflexes of Proto-Mafa 'fish'	307
Table 146 - Reflexes of Proto-Maroua 'fish'	308
Table 147 - Reflexes of Proto-Mofu 'fish'	308
Table 148 - 'fish' in other Vowel Prosody languages	308
Table 149 - Reflexes of Proto-Mandara 'fish'	309
Table 150 - Reflexes of Proto-Lamang 'fish'	309
Table 151 - Reflexes of Proto-Kotoko South 'fish'	309
Table 152 - Reflexes of Proto-Central Chadic 'fish'	309
Table 153 - Reflexes of Proto-Bata 'tooth'	310
Table 154 - Reflexes of Proto-Higi 'tooth'	310
Table 155 - Reflexes of Proto-Margi 'tooth'	310
Table 156 - Reflexes of Proto-Mofu 'tooth'	311
Table 157 - Reflexes of Proto-Hurza 'tooth'	311

Table 158 - Reflexes of Proto-Daba 'tooth'	311
Table 159 - Reflexes of Proto-Maroua 'tooth'	312
Table 160 - Reflexes of Proto-Mafa 'tooth'	312
Table 161 - 'tooth' in other Vowel Prosody groups	312
Table 162 - Reflexes of Proto-Mandara 'tooth'	312
Table 163 - 'tooth' in Proto-Lamang	313
Table 164 - 'tooth' in Proto-Kotoko South	313
Table 165 - 'tooth' in Proto-Kotoko Centre	313
Table 166 - 'tooth' in Proto-Kotoko North	313
Table 167 - Reflexes of Proto-Central Chadic 'tooth'	314
Table 168 - /j/ reanalysis in Mafa	318
Table 169 - Development of labialized labials	327
Table 170 - Development of the labialization prosody in Mbuko	329
Table 171 - Development of the labialization prosody in Merey	329
Table 172 - Reflexes of Proto-Central Chadic *ɿni 'work'	336
Table 173 - Reflexes of Proto-Central Chadic *ɿmidʸ 'ear'	336
Table 174 - Reflexes of Proto-Central Chadic 'sun'	339
Table 175 - Reflexes of Proto-Central Chadic 'moon'	341
Table 176 - Reflexes of Proto-Central Chadic 'hare'	343
Table 177 - Reflexes of Proto-Central Chadic 'work'	345
Table 178 - Roots associated with areal diffusion	387

Reference information

Proto-Central Chadic Consonants

	Labial	Alveolar	Laminal	Velar	Labialized Velar
Plosive	p	t	ts	k	k ^w
	b	d	dz	g	g ^w
Implosive	ɓ	ɗ			
Fricative		ʈ	s	h	h ^w
	v	ʒ	z	ɣ	ɣ ^w
Nasal	m	n			
Pre-nasalized	^m b	ⁿ d	ⁿ dz	(^ŋ g)	(^ŋ g ^w)
Liquid		r			
Approximant			j		w

The Classification of the Central Chadic Languages

Sub-branch	Major Group	Group	Subgroup	Language
South		Bata	Bata	Bachama, Bata, Fali, Gude, Gudu,
			Proper	Holma, Jimi, Ngwaba, Nzanyi, Sharwa
			Tsuvan	Tsuvan, Zizilivakan
		Daba	Daba	Daba, Mazagway Hidi
			Mina	Mina, Mbudum
			Buwal	Buwal, Gavar
		Mafa		Mafa, Mefe, Cuvok
		Tera	East	Boga, Ga’anda, Hwana
				Jara, Tera
		Sukur		Sukur
Hurza		Hurza		Vame, Mbuko
North	Margi-Mandara-	Margi	Bura	Bura, Cibak, Kofa, Putai,

Mofu		Nggwahyi
		Margi Kilba, Margi South, Margi
	Mandara	Wandala Mandara, (Malgwa), Glavda
		Dghwede Cineni, Dghwede, Guduf Gava, Gvoko
		Podoko Podoko, Matal
	Mofu	Tokombere Ouldeme, Mada, Muyang, Moloko
		Meri Zulgo, (Gemzek), Merey, Dugwor
		Mofu Mofu North, Mofu-Gudur
	Maroua	Giziga North, Giziga South, Mbazla
	Lamang	Lamang, Hdi, Mabas
Higi	Bana, Hya, Psikye, Kamwe	
Musgum-North Kotoko	Kotoko Island	Buduma
	Kotoko North	Mpade, Afade, Malgbe, Maltam
	Musgum	Musgum, Mbara, Muskum
	Kotoko Centre	Lagwan, Mser
Kotoko South	Zina, Mazera	
Gidar	Gidar	

Abbreviations

... ^y	Palatalization prosody
... ^w	Labialization prosody
/.../	Phonemic form
[...]	Phonetic form
*...	Reconstructed form
→	Historic change
1pEx	1st person exclusive plural
1s	1st person singular
C	Consonant
LAB	Labialization prosody
n	noun
N	Nasal
n.d.	no date
NUL	Null (place-holder) suffix
PAL	Palatalization prosody
PCC	Proto-Central Chadic
PERF	Perfect
SF	Surface Form
UF	Underlying Form
v	verb
V	Vowel

