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Comparative Reconstruction of Proto-Northern-Western Mande

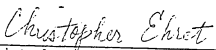
A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Linguistics

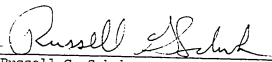
by

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1978

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to Peggo

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ABSTRACT OF THE DISSERTATION

Comparative Reconstruction of Proto-Northern-Western Mande

by

Kent David Bimson

Doctor of Philosophy in Linguistics

University of California, Los Angeles, 1978

Professor Wm. E. Welmers, Chairman

The objective of this dissertation is to reconstruct the proto-consonant and vowel system of a group of West African languages known as Northern-Western Mande (NWM), one of two major divisions in the Mande language group (along with Southern-Eastern Mande). NWM is composed of Northern Mande (NM) and Southwestern Mande (SWM). Following the general introduction in Section I, Section II will focus on the reconstruction of *NM and Section III on the reconstruction of *SWM. The two will then be stirred together to render *NWM in Section IV.

The material used in the reconstruction of Northern Mande was gathered by Long [1971] and includes a Swadesh 100 Word List for 17 NM languages. The material used in the reconstruction of Southwestern Mande was gathered by Welmers (personal communication) and includes a 169 word list for 4 SWM languages.

In Section II, the 17 languages of NM will first be broken down into four groups as determined by lexicostatistical data: (1) Mandekan: Xas-sonke, Maninka, Bambara, Dyula, Konyanka, Wassulunka, Diakhanka, Mauka

Bo and Kuranko; (2) Group C: Kono and Vai; (3) Group B: Hwela, Numu and Ligbi; (4) Group A: Susu and Yalunka. Mandekan will be divided into two groups because of its size. Group A was perhaps the first to break off from *NM, B the second and finally C.

The procedure in the reconstruction of *NM will be as follows.

*Mandekan, the last group to branch from the stock, will be reconstructed first. *C will be reconstructed next. *Mandekan and *C show a cognate percentage of about 73%, which is closer than any of the other groups to either *C or *Mandekan. The reconstructed word lists for *Mandekan will therefore be stirred in with those for *C to obtain *C-M. *B and *A appear to be nearly equidistant from the *NM stock. Due to this close percentage correlation I will first reconstruct *B and then *A and finally stir together *A, *B and *C-M yielding *NM.

*SWM will be reconstructed directly from its four constituent languages with a fifth, Loko, being omitted due to lack of data. Loko is not a crucial language for the reconstruction.

Each subgroup being reconstructed in the pursuit of *NWM will be illustrated by all of the following: (1) tables of regular sound correspondences for all reconstructable consonant and vowel segments in word initial, medial and final positions; (2) a discussion of all regular sound changes suggested by the data and all allophonic variations; (3) an exhaustive discussion of all irregular C and V matchings with tentative reconstructions of such segments given where possible; (4) a section dealing with the reconstruction of vowel sequences within words (since many Mande languages have vowel harmony systems and various constraints on vowel sequences); (5) a chart of the proto-consonant and

vowel systems in all positions; (6) a reconstructed word list for that level.

The final subsection of Section IV will present an hypothesis about the migration history of the Mande languages as suggested by lexicostatistical evidence. I will propose a homeland for *Mande between Sikasso in southeastern Mali and Bobo-Dioulasso in southwestern Upper Volta and a general migration trend southward from this area over the last 3,500 to 4,000 years.

New lexicostatistic evidence will also be presented for a substantial reclassification of some of the Mande languages.

Section I

General Introduction

1. General Introduction

The intent of this dissertation is to reconstruct the phonological system of a West African language group known by the cover term of Northern-Western Mande (NWM). NWM is composed of the Northern (NM) and Southwestern (SWM) subgroups. This reconstruction will be presented in three sections, those being sections II through IV. Section II will deal with the reconstruction of *NM, Section III with the reconstruction of *SWM and Section IV, stirring these latter two together, with the reconstruction of *NWM. The final subsection of Section IV will present a hypothesis about the location of the Proto-Mande homeland, Mande migrations from this setting and tentative glottochronological dating of the major Mande splits.

The specifics concerning the relationship of NWM languages to other African languages and language groups will be presented in the introduction to Section I.

The lexico-statistic evidence relevant to the classification of subgroups within NWM itself will be given at the beginning of each appropriate section or subsection. Lexico-statistic evidence is necessary to the reconstruction process since justification for languages used in this procedure must be provided.

There are five Mande languages whose relations to NWM remain vague despite various attempts at classification, including Welmers [1958], Morse [1967] and Long [1971]. The status of these languages must be determined before any thorough reconstruction of *NWM may be undertaken. The languages in question include Soninke, Bozo, Sembla, Samogo-Gouan and Sya (also known as Bobo-Fing). Recent lexico-statistic calculations

performed by Wm. E. Welmers and myself indicate that, in fact, none of these five languages belong to the NWM group.

Long [1971] was the first to suggest that Soninke may not be a member of the NM subgroup, as was originally contended by Welmers [1958]. Long also established that a closer relationship exists between Soninke and Bozo than between either of these two languages and any of the NM languages. There is one major change which may be proposed in the classification of these two languages. Whereas Long suggests that Bozo is questionably a NM language, we consider Bozo to have branched from the ancestral tree long before *NWM split into *NM and *SWM. According to our counts, languages in NWM show an average shared cognation with each other of 35% or better. The average relation of Bozo or Soninke to any of the NWM languages is approximately 26%. These figures are somewhat lower than Long's, which show the relation to be in the mid to low 30's. The ancestral group represented by *Soninke-Bozo, then, will not be considered in the reconstruction of *NWM. It is instead a member of a more distant subgrouping henceforth referred to as "Extended NWM".

Our counts agree with Long's in terms of the relatively close relation between Sembla and Samogo-Gouan (S-G), these two showing about 45% shared cognation. Once again, however, our counts differ significantly from Long's with regard to the relation between Sembla or S-G and the NWM languages. Long contends that these former two languages belong to the NM subgroup. Our counts average 26.5% cognation between these two languages and the NWM languages, demonstrating conclusively that *NWM split apart only after *Sembla-S-G branched from the group.

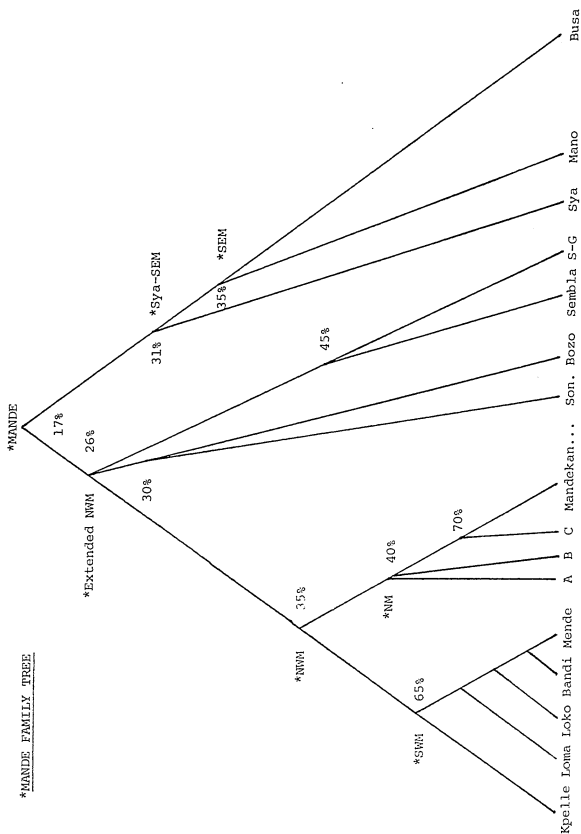
In spite of these figures, all of the languages mentioned above show closer relations to NWM languages than to Southern-Eastern Mande (SEM) languages. Soninke and Bozo share an average 17.5% cognation with SEM languages compared to 26% with NWM languages. Likewise, S-G and Sembla share an average 19% cognation with SEM compared to 26.5% with NWM. We conclude, therefore, that *Mande first split into *SEM and *Extended NWM. *Extended NWM later split into *Sembla-S-G, *NWM and *Soninke-Bozo.

Sya is considered by Long to be isolated from the rest. This may be the proper classification since it is difficult to establish Sya as a member of either NWM or SEM exclusively. On the one hand, its highest cognation percentage is with Mano (SEM) at 31%. On the other hand, it is no more distant from NWM than Sembla, S-G, Soninke or Bozo at 26%. From its present locale near Bobo-Dioulasso and from the lexico-statistic evidence, the most reasonable conclusion is that Sya formed the central dialect of a dialect chain between *NWM to the West and *SEM to the East. Whatever group it originally branched from, it did so very shortly after *Mande split into *NWM and *SEM. We tentatively place it with *SEM due to the relatively high cognate percentage shared with Mano.

A drawing of the Mande family tree is provided on the following page for further clarification. A lexico-statistic chart is given following the family tree which provides cognate percentages between key languages in the Mande family. Some squares remain blank due to the incompatibility of the word lists available.

Notes on methods used in the reconstruction procedure are provided

in the introduction to Section II.



MANDE LEXICOSTATISTICS

Section II

Comparative Reconstruction of Proto-Northern Mande

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COMPARATIVE RECONSTRUCTION OF MANDEKAN

Kent D. Bimson
University of California, Los Angeles

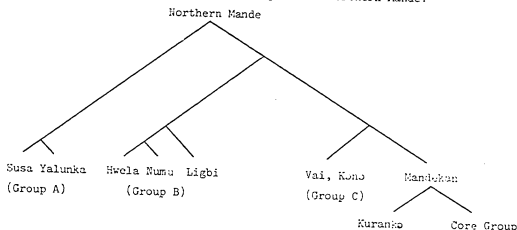
In this article nine languages in the Mandekan subgroup are used to reconstruct the phonological system of Proto-Mandekan, including consonants and vowels in all positions. The standard comparative method is used. Correspondences supporting the reconstruction are presented along with an indication of how many such correspondences are found in the data. Also included are charts of the reconstructed phonological system and word lists at each stage of the reconstruction. Irregular phonological matchings are also discussed in detail in separate sections. This is to be the first in a series of forthcoming papers aimed at reconstructing the phonological system of Proto-Northern Mande, of which the Mandekan languages form a subgroup.

1. Introduction

The objective of this paper is to reconstruct the proto-consonant and vowel system of a group of West African languages known by the cover term Mandekan. It is to be the first in a series of papers aiming at reconstructing the larger subgroup of languages to which Mandekan belongs: Northern Mande. A survey of the linguistic relationship of this subgroup to other African languages, as well as an overview of the geographical setting of these languages, will provide the reader with a better feel for the data to follow.

In 1963 Joseph Greenberg completed a classification of African languages which resulted in the assignment of all African languages into one of four major families: Afro-Asiatic, Nilo-Saharan, Khoisan or Niger-Kordofanian. It has been well argued by Welmers [1956] that Mande may well have been the first major language group to branch from the Niger-Kordofanian family. Further historical developments saw the Mande group branch into two divisions: Northern-Western and Southern-Eastern. Southern-Eastern later divided into the Southern and Eastern subgroups, while Northern-Western divided into the Northern and Southwestern subgroups.

The tree below shows the further development of Northern Mande:



The Northern subgroup of the Mande language group is the prime focus of this study. The languages belonging to Northern Mande are spoken in the heart of West Africa, primarily in and around the countries of Mali, Sierra Leone, Guinea, Gambia, Ivory Coast, and Ghana.

1.1. Materials and method. The material used in this reconstruction was gathered by Long (1971) from a variety of different sources and includes 17 Northern Mande languages. Although a Swadesh list of only 100 words was used, the insufficiency of the word list should be partially overcome by the breadth in number of languages used. Furthermore, a larger word list would have required much greater length of presentation than was possible.

The procedure used in this paper is standard comparative reconstruction methodology. The languages were subdivided into small workable groups of two to five languages each, suggested by the lexico-statistic evidence provided in Long's paper. When Long's calculations seemed questionable for one reason or another they were supplemented with calculations made by Wn. E. Welmers and myself.¹ It should be noted that slight to moderate errors

¹We found a number of reasons for doubting some of the statistics presented by Long. First of all, we found some words to be listed wrong, such as the word for 'five' appearing under the column for 'four'. Secondly, certain figures did not appear to add up right. For example,

in percentage are not nearly as crucial in the determination of grouping for the reconstruction process as they are for the relative classification of languages, since the reconstruction process will ultimately bring all related languages under the scope of comparison with each other.

The 17 languages were first broken down into four groups: (1) Mandekan: Xassonke, Maninka, Bambara, Dyula, Konyanka, Wassulunka, Diakhanka, Mauka and Bo; (2) Group C: Kuranko, Kono and Vai; (3) Group B: Hwela, Mumu and Ligbi; (4) Group A: Susu and Yalunka. Mandekan was then divided into two groups because of its size: (1A) M1: Xassonke, Maninka, Bambara and Dyula; (1B) M2: Konyanka, Wassulunka, Diakhanka, Mauka and Bo.²

Languages were considered as belonging to the Mandekan group on the basis of cognate percentage maxima between them ranging from the low 80's to the mid 90's. While a few comparisons showed percentages below the low 80's (i.e. Bo:Xassonke = 75-79%), a comparison of either of these languages to most of the core group shows much higher cognate percentages (i.e. Bo: Bambara = 88-90% or Xassonke:Bambara = 82-88%).

Kuranko, Kono and Vai were originally grouped together because Long's calculations show a closer relationship between them than with the other languages. Recent calculations done by Welmers and myself, however, indicate a closer relationship of Kuranko to Mandekan than to either Kono or Vai, though Kono and Vai are closer to Kuranko than they are to any other

Long shows a relationship of 49-69% for Mandinka:Mauka, 81-85% for Mandinka: Bo, and 84-89% for Mauka:Bo. This would mean that of two languages which differ from each other from 11-16% (Mauka:Bo), one differs from Mandinka at about 41% and the other differs from Mandinka at about 17% (averages of minima and maxima). This indicates a percentage spread between the two languages of 24% in their respective relationships to Mandinka, yet the maximum differentiation indicated by Long is 16% between the two languages. Thirdly, figures did not seem to match with those anticipated by Welmers, which naturally led to making some of our own cognate counts.

²The groups to be reconstructed were labeled A, B, C, and Mandekan for two good reasons: (1) Of the 4 groups, only Mandekan has a generally accepted cover term in the literature and (2) The labeling of A, B, C will allow the reader to keep in mind what level in the reconstruction he is dealing with, since A represents the first branch-off from Northern Mande, B the second, C the third and Mandekan the fourth. I am indebted to Wm. E. Welmers for the suggestion.

language. As noted above, this ultimately makes no difference in the reconstruction process.

Hwela, Mumu and Ligbi show relationships with each other centering in the low 80's, whereas their relationships to the other languages are no better than the mid 50's.

Susu and Yalunka relate at 83-91%, while comparing them to any other language yields no closer relationship than the mid 40's to low 50's.

After having reconstructed the groups above, the proto-forms will be brought together in the following manner. The two proto subgroups, *M1 and *M2, showing the closest relationship, will be used to reconstruct Proto-Mandekan. In this article we will deal only with the reconstruction of Proto-Mandekan. In a future paper Proto C, B and A will be stirred in respectively, rendering Proto-Northern Mande.

A word about correspondences. In any reconstruction there are matchings which do not parallel correspondences and are therefore aberrant for known or unknown reasons. When this occurs, a tentative guess at the proto segment will be made, with the segment reconstructed in this fashion underscored. For example, if a correspondence [o:o:o:o] is reconstructed */o/, what should be done with [u:o:o:o] if cognation is sure and the matching is unique? A reasonable guess will be made for this segment and it will be underscored in the reconstruction (i.e. *bolo). It should be remembered that these word lists come from many sources and were collected as early as 1901, so some of the transcriptions may well be skewed. Tentative reconstructions of this nature may serve to level out the possible inconsistencies, while underscoring will serve to remind the reader that the reconstructed segment is tentative. Matchings of this nature will be discussed following presentation of the correspondences.

2. Reconstructing Mandekan — M1

As mentioned above, nine languages have been used here to represent the Mandekan group. These nine languages were subdivided into two subgroups to facilitate the comparative method. The first subgroup is made up of Xas-sonke (X), Maninka (M), Bambara (B) and Dyula (D).

2.1. M1 consonants. In the following reconstruction three examples at most

will be given to illustrate the correspondence in question due to the magnitude of this paper. To the right of the examples will be a number indicating the number of such correspondences found in the 100 word list.

Table 1 — Initial Consonants

<u>Labials</u>				<u>No. of Corr.</u>			
	22. 'hand'	28. 'navel'	56. 'big'				
*b/	X: <table><tr><td>b</td></tr></table> ulo	b	<table><tr><td>b</td></tr></table> ata	b	<table><tr><td>b</td></tr></table> on	b	7
b							
b							
b							
	M: <table><tr><td>b</td></tr></table> olo	b	<table><tr><td>b</td></tr></table> ara	b	<table><tr><td>b</td></tr></table> on	b	
b							
b							
b							
	B: <table><tr><td>b</td></tr></table> olo	b	<table><tr><td>b</td></tr></table> ara	b	<table><tr><td>b</td></tr></table> on	b	
b							
b							
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	D: <table><tr><td>b</td></tr></table> oro	b	<table><tr><td>b</td></tr></table> ara	b	<table><tr><td>b</td></tr></table> on	b	
b							
b							
b							
	7. 'person'	9. 'woman'	75. 'hear'				
*m/	X: <table><tr><td>m</td></tr></table> ogo	m	<table><tr><td>m</td></tr></table> uso	m	<table><tr><td>m</td></tr></table> --	m	3
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m							
	M: <table><tr><td>m</td></tr></table> ogo	m	<table><tr><td>m</td></tr></table> oso	m	<table><tr><td>m</td></tr></table> en	m	
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	B: <table><tr><td>m</td></tr></table> ogo	m	<table><tr><td>m</td></tr></table> oso	m	<table><tr><td>m</td></tr></table> en	m	
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	D: <table><tr><td>m</td></tr></table> ogo	m	<table><tr><td>m</td></tr></table> uso	m	<table><tr><td>m</td></tr></table> e	m	
m							
m							
m							
	55. 'dog'	73. 'stand'					
*w/	X: <table><tr><td>w</td></tr></table> ulo	w	<table><tr><td>w</td></tr></table> ule	w		2	
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	M: <table><tr><td>w</td></tr></table> ulu	w	<table><tr><td>w</td></tr></table> uli	w			
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	B: <table><tr><td>w</td></tr></table> ulu	w	<table><tr><td>w</td></tr></table> uli	w			
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w							
	D: <table><tr><td>w</td></tr></table> uru	w	<table><tr><td>w</td></tr></table> uri	w			
w							
w							
	11. 'father'	47. 'leaf'	58. 'black'				
*f/	X: <table><tr><td>f</td></tr></table> a	f	<table><tr><td>f</td></tr></table> ito	f	<table><tr><td>f</td></tr></table> in	f	5
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f							
f							
	M: <table><tr><td>f</td></tr></table> a	f	<table><tr><td>f</td></tr></table> ida	f	<table><tr><td>f</td></tr></table> in	f	
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	B: <table><tr><td>f</td></tr></table> a	f	<table><tr><td>f</td></tr></table> ura	f	<table><tr><td>f</td></tr></table> in	f	
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	D: <table><tr><td>f</td></tr></table> a	f	<table><tr><td>f</td></tr></table> la	f	<table><tr><td>f</td></tr></table> in	f	
f							
f							
f							
	<u>Dentals</u>						
	10. 'child'	18. 'mouth'	57. 'small'				
*d/	X: <table><tr><td>d</td></tr></table> enden-go	d	<table><tr><td>d</td></tr></table> a	d	<table><tr><td>d</td></tr></table> ogo	d	5
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d							
	M: <table><tr><td>d</td></tr></table> en	d	<table><tr><td>d</td></tr></table> a	d	<table><tr><td>d</td></tr></table> ogo	d	
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d							
	17. 'ear'	33. 'fire'	39. 'sun'				
*t/	X: <table><tr><td>t</td></tr></table> ulo	t	<table><tr><td>t</td></tr></table> a	t	<table><tr><td>t</td></tr></table> ilo	t	6
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t							
t							
	M: <table><tr><td>t</td></tr></table> olo	t	<table><tr><td>t</td></tr></table> a	t	<table><tr><td>t</td></tr></table> ele	t	
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t							
	B: <table><tr><td>t</td></tr></table> ulo	t	<table><tr><td>t</td></tr></table> a	t	<table><tr><td>t</td></tr></table> ile	t	
t							
t							
t							
	D: <table><tr><td>t</td></tr></table> oro	t	<table><tr><td>t</td></tr></table> a	t	<table><tr><td>t</td></tr></table> ere	t	
t							
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t							

Dentals

	5. 'four'	20. 'tongue'	49. 'milk'	
* /n/	X: [n] aani	[n] ɛn-ŋo	[n] ɔno	6
	M: [n] aaniŋ	[n] ɛn	[n] ɔno	
	B: [n] aani	[n] ɛn	[n] ɔno	
	D: [n] aani	[n] ane	[n] ɔno	
	41. 'night'	43. 'smoke'	54. 'snake'	
* /s/	X: [s] u-o	[s] isi-o	[s] a	6
	M: [s] u	[s] isi-o	[s] a	
	B: [s] u	[s] isi	[s] a	
	D: [s] u-ra	[s] isi	[s] a	

Resonants

	6. 'five'	69. 'lie'	
* /l/	X: [l] olu	[l] a	2
	M: [l] olu	[l] a	
	B: [d] uuru	[d] a	
	D: [l] olu	[l] a	

Palatals

	16. 'eye'	19. 'tooth'	60. 'good'	
* /ny/	X: [ny] a	[ny] in-ŋo	[ny] in	3
	M: [ny] a	[ny] in	[ny] in	
	B: [ny] a	[ny] in	[ny] i	
	D: [ny] e	[ny] in	--	
	31. 'blood'	45. 'rope'	93. 'long'	
* /j/	X: [j] ɛlo	[j] ulu	[j] an	5
	M: [j] eli	[j] ulu	[j] an	
	B: [j] oli	[j] uru	[j] an	
	D: [j] oli	[j] uru	[j] an	
	77. 'see'	95. 'here'	146. 'tree'	
* /y/	X: [y] e	[y] an	[y] ɪro	3
	M: [y] e	[y] an	[y] ɪri	
	B: [y] e	[y] an	[y] ɪri	
	D: [y] e	[y] an	[y] ɪri	

elsewhere

Velars

	2. 'one'	13. 'head'	99. 'in'	
* /k/	X: [k] ɛlen	[k] un-ŋo	[k] ɔno	10
	M: [k] ɛlen	[k] un	[k] ɔno	
	B: [k] ɛlen	[k] un	[k] ɔno	
	D: [k] ɛlen	[k] un	[k] ɔno	

<u>Dentals</u>				<u>No. of Corr.</u>	
43. 'smoke'		14. 'hair'			
*s/	X: si [s] i-o	kun- [s] igi		12	
	M: si [s] i-o	kun- [s] i			
	B: si [s] i	kun- [s] igi			
	D: si [s] i	kun- [z] igi			
<u>Velars</u>		/N			
57. 'small'		68. 'sit'		62. 'cut'	
*g/	X: do [g] o	si [g] i	ti [g] e	4	
	M: do [g] o	si [g] i	te [g] e		
	B: do [g] o	si [g] i	ti [g] e		
	D: do [g] o	si [g] i	ti [g] e		
7. 'person'		70. 'sleep'		81. 'kill'	
*g/	X: mo [g] o	sino [g] o	fa [g] a	3	
	M: mo [g] o	sino [g] o	fa [g] a		
	B: mo [g] o	suno [g] o	fa [g] a		
	D: mo [y] o	suno [y] o	fa [y] a		
<u>Resonants</u>					
17. 'ear'		39. 'sun'		48. 'root'	
*l/	X: tu [l] o	ti [l] o	li [l] in	11	
	M: to [l] o	te [l] e	li [l] i		
	B: tu [l] o	ti [l] e	di [l] i		
	D: to [r] o	te [r] e	li [r] i		

Table 3 — Final Consonants

<u>Dentals</u>					
21. 'neck'		23. 'foot'		56. 'big'	
*n/	X: ka [n] -ŋo ³	si [n] -ŋo	bo [n]	16	
	M: ka [n]	se [n]	bo [n]		
	B: ka [n]	se [n]	bo [n]		
	D: ka [n]	se [n]	bo [n]		

2.1.1.1. Discussion of Ml consonant irregularities. It is a well known axiom of linguistic theory that although phonetic change is regular, words tend to have their own histories, resulting in a paradoxical mismatch

³The suffix -ŋo is a Xasoske innovation and not reconstructible in Proto-Mandekan.

between two real processes of linguistic change. Northern Mande is no exception, which explains the need for a section on irregular matchings. The following discussion will present certain irregularities in sure cognates, as well as provide arguments for tentative reconstruction of those segments involved.

2.1.1.1. Labials. There are no exceptions to the labial correspondences in initial position, and no labial consonants are found in Proto-M1 in final position. In medial position there is one irregularity out of nine occurrences. The matching [b:b:g:y] for 'meat' (35): (X) subo, (X) sobo, (B) sogo, (D) soyo. (Henceforth the words will be arranged in the order, from top to bottom, in which they are presented in the Swadesh list, with no language labels given.) The first question to be answered is whether these are indeed cognates. If not the matter is a simple one, since then both a */b/ and */g/ are easily reconstructed. However, we are not certain one way or the other. Assuming they are cognate, we might be tempted to guess a labio-velar, except for the fact that there is no support in the data for such a reconstruction, either in terms of the medial consonant system of Proto-M1, or in terms of evidence from the other 13 languages. Proto-M2, it will be shown, has the same difficulty with this correspondence. There is some motivation for reconstructing a */b/ tentatively, given the evidence from Group A (Susu-Yalunka) which reconstructs with */b/. If the proto form were */g/, Susu and Yalunka would have had to innovate [b] quite independently from those Mandekan languages which also innovated [b]. Positing a proto */b/ is therefore a more probable reconstruction than */g/.

A second seeming irregularity is found in [m:m:n#m] for 'eat' (79): dumu, damun, dun, dumu. In Bambara, however, final nasals are in reality phonetically nasalised vowels. Further evidence for an historical [m] in this word is the present participle 'eating', which is phonetically [dumuni]. Clearly, this should be reconstructed as */m/.

Thirdly, the word for 'knee' (24) reveals a unique medial [mb]. Both Groups A and C show exactly the same phonetic realisation of this cluster in the cognate form, yet this is the only example in the Swadesh list attesting to such a cluster. Certain types of attrition (e.g. [k] → [x])

between 'knee' in M1 and Group A point up its having been around in N.M. a good while, and make borrowing unlikely. It is at best a highly tentative */m/ and */b/, and should be entered with a question mark.

2.1.1.2. Dentals. Dentals in initial positions are extremely consistent. There is only one aberrance in twenty-four examples: [t:t:t:n] in 'name' (1) (togo, togo, togo, nogo). The data in M1 and throughout Mandekan speak for */t/. The explanation for [n] in Dyula is unknown at this point.

The dental series has another similar example in medial position, where only two irregular matchings occur in fourteen examples. The word 'nail' (14) yields [n:r:n:n] (sonin-go, sorin, sonin, seni). Again the overwhelming evidence from Mandekan and other languages, such as Ligbi, is for */n/.

The second irregularity in medial position is [t:d:r:l] in 'leaf' (14) (fito, fida, fura, fla). This matching only differs from the */t/ correspondence in Dyula's [l], and is probably due to the contact of [f] with [r]. Such [Cl] clusters occur commonly in words syncopeing medial vowels. Bambara, for instance, may have [tilel] or [tiele] for 'sun', but [Cr] clusters do not occur. This may have triggered an [r] to [l] change, a very frequent occurrence in languages of this family.

*/n/ is the only final consonant in Proto-M1, and in 16 occurrences there are no exceptions.

2.1.1.3. Resonants. */r/ is very difficult to reconstruct for *M1 which shows only one matching of [r:r:r:r] in 'tree': yiro, yiri, yiri, yiri. This is reconstructed as */r/ but only very hesitantly and entered with a question mark in the Proto-M1 consonant chart (section 2.3.).

Medial resonants, as the reader will discover, are a very sticky problem in N.M. Although there exist 11 examples of an [l:l:l:r] correspondence rendering */l/, there are three examples of [l:l:r:r], two examples of [r:r:l:r], one example of [l:l:l:l] and one of [l:r:r:r]. A chart is provided to illustrate these correspondences and matchings:

(1)	X	M	B	D	
	l	l	r	r	6. 'five': lolu, loolu, duuru, looru;
					45. 'rope': julu, julu, juru, juru;
					98. 'path': sila, ----, sira, sira
	r	r	l	r	40. 'moon': xaro, karo, kalo, kari;
					84. 'sew': xara, kara, kala, kara

(1) cont.

<u>X</u>	<u>M</u>	<u>B</u>	<u>D</u>	
l	l	l		2. 'one': kelen, kelen, kelen, kɛlɛn
l	r	r	-	24. 'knee': kumbalin, kumberen, kumbere, -----

The [l:l:l:l] matching may have an explanation in Dyula's close association with Bambara. Welmers [personal communication] suggests that the borrowing of this particular word in this language area is widespread and that it is not at all unlikely that the form in Dyula was thus influenced. The proto segment was undoubtedly */l/.

[r:r:l:r] is trickier. The prevalence of [r] suggests a proto */r/. The evidence from Southwestern Mande places this interpretation in doubt. The word for 'moon' shows up in S.W.M. as [gɛlɔn], indicating a probable */l/ reconstruction. It also appears as an [l:l:r:r:l] correspondence in M2 and as [l] in Vai. Furthermore, both examples of this correspondence occur in words with initial */k'/. None of the 11 regular */l/ correspondences occur after */k'/, suggesting that this may well be a conditioned variant of */l/ in this environment. The evidence together points strongly toward a conditioned variant of */l/.

Of all the correspondences, [l:l:r:r] is the most confusing. */l/ is suggested by Susu and Yalunka ([l:l:l]) and by Group C ([l:l:l]) for 'five'. */r/ is suggested by Susu and Yalunka ([r:r:r]) and by M2 ([r:r:r:l:l]) for 'path', while Group C suggests */l/ ([l:l:l:l]). The evidence is strong for reconstructing */l/ for 'five' and a bit weaker for reconstructing */r/ for 'path', yet they show a correspondence with each other in M1. However, it would be difficult to reconstruct */r/ for 'path' for other reasons, since this is the only example in the Swadesh list warranting such a reconstruction for M1, and a poor one at that. Positing an */l/ for 'path', it appears what may have happened is that Group C retained the original [l]. After the separation of Group C and Mandekan, an [l] to [r] change began to take place, but only after Kuranko had separated from the core of Mandekan. Susu and Yalunka (Group A), then, converged accidentally. As noted above, changes of [l] to [r] and the reverse are frequent in N.M. languages. The word for 'rope' shows the same support as 'five'. Since there is no apparent conditioning factor for this correspondence to differ

from the regular */l/ correspondence, we reconstruct a tentative */l'/.

The matching in (24) 'knee' is [l:r:r:ø]. Although cognate forms exist in Group A, the segment has been lost. Group C supports an */l/. M2 is mixed. Faute de mieux, we reconstruct a highly tentative */l'/.

2.1.1.4. Palatals. Only one of twelve initial palatal consonant correspondences is irregular: (53) 'fish': nyego, jəgɛ, jəgɛ, yigen yielding an [ny:j:j:y] matching. Group C supports an */ny/ reconstruction, while Group A supports */y/. Only because it is more natural for [ny] to become [y] (loss of nasalisation) than the reverse (gain of nasalisation) is */ny/ selected as a highly tentative reconstruction, leaving accidental convergence to once again explain away the Group A [y] reflex.

2.1.1.5. Velars. Velar anomalies consist of [-:ky:c:c] for 'man' (---, kyɛ, cɛ, kyɛ) and 'sand' (kenye, kinye, cɛncɛn, cɛnɛn) in medial position. Not much can be said about these, since correspondences such as (51) occur (e.g. 'egg': kilo, kili, kili, kiri) in which a high front vowel fails to palatalize [kɪ]. Groups A, B and C suggest */k/ for 'man' and Group C the same for 'sand'. M2, however, shows some reflexes of [t] and [ty] for 'sand'. This is not as irregular as would seem at first blush. Bambara, for example, has free variation between [tɪɛ] and [kɪɛ] for 'day', and the proto form is undoubtedly [tɪɛ]. M2 is probably undergoing the same alternation. A */c/ is not proposed because nowhere else is it reconstructable, and furthermore, a change from [c] to [k] is less probable than the reverse. The tentative reconstruction for these forms is */k/.

2.1.1.6. Labio-velars. There are no examples of labio-velars other than what has been presented above.

A consonant chart will be presented after presentation of the vowels, allowing a presentation of the entire phonological system of Proto-M1 at one time to avoid reduplication.

2.2. M1 vowels. There are no initial vowels presented because none occur in the Swadesh list. The pronouns, monosyllabic vowels, will be treated as final consonants due to this language internal pattern.

Table 4 — Medial Vowels

Front				No. of Corr.
	19. 'tooth'	43. 'smoke'	48. 'root'	
* / i /	X: ny i n-ŋo	s i si-o	l i lo	10
	M: ny i n	s i si-o	l i li	
	B: ny i n	s i si-o	d i li	
	D: ny i n	s i si	l i ri	
	10. 'child'	66. 'straight'		
? * / e /	X: d e nden-ŋo	ti e n		2
	M: d e n	te e n		
	B: d e n	ti e n		
	D: d e n	te e n		
	53. 'fish'	50. 'grease'		
? * / ε /	X: ny ε go	- -		2
	M: j ε ge	k ε n		
	B: j ε ge	k ε n		
	D: y i gen	k ie n		
Mid				
	4. 'three'	21. 'neck'	40. 'moon'	
* / a /	X: s a ba	k a n-ŋo	x a ro	11
	M: s a ba	k a n	k a ro	
	B: s a ba	k a n	k a lo	
	D: s a ba	k a n	k a ri	
Back				
	45. 'rope'	61. 'new'	91. 'what'	
* / u /	X: j u lu	k u to	m u n	9
	M: j u lu	k u da	m u n	
	B: j u ru	k u ra	m u n	
	D: j u ru	k u ra	m u n	
	22. 'hand'	29. 'skin'	35. 'meat'	
* / o /	X: b u lo	g u lo	s u b	3
	M: b o lo	gb o lo	s o bo	
	B: b o lo	g o lo	s o go	
	D: b o ro	- -	s o yo	
	1. 'name'	7. 'person'	49. 'milk'	
* / ɔ /	X: t ɔ go	m ɔ go	n ɔ no	10
	M: t ɔ go	m ɔ go	n ɔ no	
	B: t ɔ go	m ɔ go	n ɔ no	
	D: t ɔ go	m ɔ go	n ɔ no	

Table 5 — Final Vowels

Front

	34. 'water'	68. 'sit'	78. 'give'	No. of Corr.
* /i/	X: j i -o M: j i B: j i D: j i	sig i sig i sig i sig i	d i d i d i d i	7
	77. 'see'			
? /e/	X: j e M: y e B: y e D: y e			1
	44. 'sand'	82. 'cut'	92. 'not'	
* /ε/	X: kɛn j ε M: kɛn j ε B: cɛn j ε n D: cɛn j ε n	tɪg ε tɛg ε tɪg ε tɪg ε	t ε t ε t ε t ε	3

Mid

	4. 'three'	11. 'father'	18. 'mouth'	
* /a/	X: sɛb a M: sɛb a B: sɛb a D: sɛb a	f a f a f a f a	d a d a d a d a	13

Back

	6. 'five'	41. 'night'	45. 'rope'	
* /u/	X: ʃo l u M: lool u B: duur u D: loor u	s u -o s u s u -ra s u	jul u jul u jur u jur u	5
	9. 'woman'	17. 'ear'	22. 'hand'	
* /o/	X: mus o M: mos o B: mus o D: mus o	tul o tol o tɪl o tor o	bul o bol o bol o bor o	3
	52. 'bird'	57. 'small'	70. 'sleep'	
* /ɔ/	X: kɔn ɔ M: kɔn ɔ B: kɔn ɔ D: kɔn ɔ	dɔg ɔ dɔg ɔ dɔg ɔ dɔg ɔ	sɪnɔg ɔ sɪnɔg ɔ sɪnɔg ɔ sɪnɔg ɔ	6

2.1.1. ML vowel irregularities. Much speculation will be advanced in this section in an attempt to offer some possible and plausible explanation for irregularities. It is, of course, impossible to be certain of these interpretations without many more confirming examples.

2.2.1.1. Front. High front vowels in medial position are irregular in seven of seventeen cases. Four of these examples involve a change of [i] to [u] and the other three involve a change from [i] to a lower front vowel [e] or [ɛ].

The [i] to [u] change twice involves a [u:i:i:i] correspondence and twice an [i:i:u:u] correspondence:

(2)	<u>X</u>	<u>M</u>	<u>B</u>	<u>D</u>	
	u	i	i	i	26. 'breast': sun-ji-o, sin, sin, sin
	u	i	i	i	3. 'two': fula, fila, fila, ----
	i	i	u	u	70. 'sleep': sinogo, sinogo, sunogo, sunogo
	i	i	u	ø	47. 'leaf': fito, fida, fura, fla

Note that Maninka alone does not undergo this change. Little can be said about these correspondences that is not extremely ad hoc. For example, 'two' and 'leaf' provide almost identical environments, yet [i] becomes [u] in Xassonke [fula] but not in [fito]. Likewise, [i] becomes [u] between [s] and [n] in Xassonke [sun-ji-o] but not in [sinogo], whereas Bambara does the reverse, remaining [i] in [sin] but becoming [u] in [sunogo]. Environments which are nearly exactly the same treat the same vowel in opposite fashion in Xassonke, Bambara and Dyula. However, we can be quite certain despite this deviant behavior that the proto-segment in these cases was indeed */i/, since Group A supports */i/ for 'breast', 'two' and 'sleep' and Group C further supports it for 'breast' and 'two'. Although no cognate is attested for 'sleep' in the other groups, it can be implied from the general pattern that the proto form was */i/.

The [i] to lower front vowel change in medial position occurred in three words:

(3)	<u>X</u>	<u>M</u>	<u>B</u>	<u>D</u>	
	i	e	i	ɛ	39. 'sun': tilo, tele, tile, tere
	i	e	i	e	66. 'straight': tilen, telen, tilen, teren
	i	c	i	i	82. 'cut': tige, tege, tige, tige

The interesting point here is the consistency of the assimilation in MI languages. Anticipatory assimilation takes place in Maninka and Dyula across resonants. In 'cut', Maninka shows an extension of this process across [g]. That this process is extending in Maninka is further illustrated by the word 'woman'. The Proto-MI form for this word is $^*/muso/$, which renders [moso] in Maninka and remains [muso] in the other three languages. These correspondences, then, are not as irregular as they might seem, but rather appear to be conditioned variants of $^*[i]$.

Of the twelve high front vowels in final position, seven are regular correspondences and five appear to be irregular. Three of these irregularities involve the replacement of [i] with [o] or [ɔ] in Xassonke. The [o] reflex may well be a definite suffix, which is sometimes assimilated to the preceding vowel and sometimes not. In many languages of this area, nouns must be elicited in lists in their definite form. Consider [san-ji-o] 'rain' or [su-o] 'night' as compared with [je]o 'blood' (< $^*/jeli/$) or [yiro] 'tree' (< $^*/yiri/$). Why this vowel takes the form [o] in some instances and [ɔ] in others is not understood. Nevertheless, the words 'tree': yiro, yiri, yiri, yiri; 'root': lilo, lilin, dili, liri(n); and 'egg': sise-kilo, sise-kili, kili, kiri may all be reconstructed with $^*/i/$ in final position, a definite suffix disrupting the otherwise regular correspondences. As will be demonstrated, the same form of definite suffix is used in Diakhanka (cf. M2) with the same results, a strong support for this analysis.

The other two irregularities are 'rain': san-ji-o, san-ji, san-ji, san-ye and 'stand': wule, wuli, wuli, wuri yielding matchings of [i:i:i:e] and of [e:i:i:i]. The reasons for these lowerings are not known, but speculation will be made further along in the discussion in connection with another vowel changing to [e]. The evidence from M2 points towards a tentative $^*/i/$ reconstruction.

Medial high-mid front vowels are not found in as frequent use in the Swadesh list as high front vowels. Only two examples of [e:e:e:e] are available with two irregularities in 'one': kelen, kelen, kelen, kelen and 'foot': sin-gɔ, sen, sen, sen. The evidence from Group A and C supports $^*/e/$ for 'one' and $^*/ɛ/$ for 'foot'. There is no possibility of

reconstructing */e/ for 'foot', however, since there is no phonetic justification for it in M1 and */e/ is reconstructable from a totally different correspondence. The most reasonable conclusion is that 'foot' be reconstructed */e/ tentatively, allowing nasalisation in a monosyllable to explain vowel lowering in Groups A and C.

There is only one example of [e:e:e:e] in final position, but there is another case of [o:e:e:e] in 'sun': tɪlo, tele, tile, tɪre. This, too, reconstructs as */e/ disturbed in its regular correspondence by the vowel suffix once again. This gives a little more credence to the existence of a final */e/, these being the only two examples.

Mid-low front vowels are also sparse medially. Even the suggested correspondences are weak. The two irregularities for this set are 'tongue': nən-ŋo, nən, nən, nane and 'sand': kene-kenye-nyo, kinye, cencen, cenjen providing matchings of [e:e:e:e] and [e:i:e:e]. Support is adequate from Group C to reconstruct */e/ for 'sand'. 'Tongue' is more difficult, and will be reconstructed */e/ on the strength of number of occurrences alone. Both are very tentative, as is the whole of the */e/ reconstruction in medial position.

The evidence is much stronger for */e/ in final position. Three fine examples are provided and another definite suffix interference in 'fish': nyego, jɛgɛ, jɛgɛ, yigɛn yielding [o:e:e:e]. Evidence from M2 and Group C also supports */e/ for 'white': xwe, gbɛ, jɛ, gbɛ which gives [e:e:e:e]. These may both be reconstructed */e/, 'white' tentatively, and 'fish' more assuredly.

2.2.1.2. Mid. The mid vowel [a] is extremely common in medial and final positions, with no exceptions out of eleven examples in medial position and only three out of sixteen finally. Of the three, two are further examples of phonetic interference with the definite suffix. 'Leaf': fito, fida, fura, fla and 'new': kuto, kuda, kuda, kura reconstruct with */a/.

The third irregularity is 'eye': nya, nya, nya, nye. It is interesting that [a] is raised to [ɛ] after [ny] here and [i] is lowered to [ɛ] after [y] in the word 'rain' in the same language. In none of the other eleven examples of [i] in final position is it preceded by another palatal glide type consonant, nor is [a]. Could it be that Nyula likes mid front vowels

after glides? Perhaps [ɔ] is assimilated to the palatal glide, while [ɪ] is dissimilated so that it will not be absorbed, resulting in a phonetic merger produced by two opposing tendencies. Needless to say, this is speculation to the highest degree. Nevertheless, this may be reconstructed */a/ tentatively but strongly.

2.2.1.3. Back. High back vowels are prevalent medially. There are three irregularities to nine regular correspondences. As mentioned earlier, 'ear': tulo, tolo, tulo, tolo and 'woman': muso, moso, muso, muso are examples of [u] assimilating to [o] in Maninka (cf. 2.2.1.2.). The word 'say': xuma, kuma, kuma, kooma alone stands as an unexplained irregularity. M2 and Group C indicate a tentative */u/ reconstruction.

Final high back vowels are abnormal in one of six cases, again an example of the definite suffix in 'dog': wulo, wulu, wulu, wuru. This reconstructs as */u/ with no problem.

High-mid back vowels occur six times in medial position, three of which are regular [u:o:o:o] correspondences. The final vowel in each of these cases is also reconstructed */o/. This indicates a possible dissimilation rule operating in Xassonke which changes the first of two successive occurrences of [o] to [u], such that */bolo/ 'hand' → [bulolo], etc. A would be exception to this dissimilation rule is found in 'belly': kono, kono, kono, kono. Welmers [personal communication] has suggested that this is a problem of transcription in the case of Xassonke. If this suggestion is not correct, then recourse must be made to another explanation for this deviance. This explanation will be presented below in connection with a problem which may be related.

In view of the [o] to [u] dissimilation rule, we have an explanation for shy 'big': bon, bon, bon, bon does not follow the general [u:o:o:o] pattern: there is no need for dissimilation. This then may be reconstructed */o/.

'Five' (lolu, loolu, duuru, looru) is interesting from two points of view. First, this is the only case of assimilation in Bambara thus far and secondly, this is a case of upward assimilation (e.g. [o] > [u]) whereas the cases of Maninka and Dyula have all been downward (e.g. [u] > [o] and [ɪ] > [e], [e]). Another way to view this same phenomenon is that all

three languages assimilate progressively, but Bambara assimilates to high vowels and Maninka and Dyula assimilate to mid. Which interpretation, if either, may be correct is difficult to say without further information. It should also be noted that all of the cases of assimilation in M1 presented in the Swadesh list are examples of assimilation within a series, e.g. a front vowel may raise or lower to assimilate, as may a back vowel, but they may not move cross-laterally from front to back or back to front. These points are far from proven, but highly suggestive, to say the least. */o/ may be tentatively reconstructed for 'five'.

'Nail' is indeed an oddity: sonin-gɔ, bolo-sorin, sonin, boro-sani. Why the [o:ɔ:ɔ:a] matching is unknown. The support is skimpy and could be either */o/ or */ɔ/ but is reconstructed as an extremely tentative */o/.

'Bone' is also inexplicable: ----, kolo, kolo, koro. The evidence from M2 and Ligbi point towards a tentative */o/ in medial and final position.

Final [o] is less stable, four of seven cases being irregular. One example, 'bone', was discussed above.

'Meat' is also inexplicable: suto, sobo, sogo, soyo. This [ɔ:ɔ:ɔ:ɔ] matching is reconstructed a tentative */o/.

'Moon', likewise, cannot be adequately explained at this point: xaro, karo, kelo, kari. Why the innovated [i] is not known. This segment should probably be reconstructed */o/.

Only 'wash' appears to have light shed on it from another group. M2 suggests that it was probably a form with the shape [kuo] or [ku-ro], which became [o] in some languages and [u] in others while some, such as Dyula [kwɔ], still show vestiges of the original form: ku, ko, ko, kwo.

Low-mid back vowels are consistent in medial position, only two of eleven being irregular. 'Belly' was discussed above: kono, kono, kono, kono. One speculative explanation for the aberrant form [kono] in Xassonke is found in rule ordering. If we assume that the dissimilation rule ([o] → [u] / __Co) operates prior to an assimilation rule (e.g. 1. kono-o → kono and 2. kono → kono), the result will be correct, and we will have an answer for why in the first place Xassonke has an [o-o] reflex of an [o-o] word, and secondly why it does not undergo the

dissimilation rule. Whether this is the case, or the transcription is in error, the tentative reconstruction should be */ɔ/.

'Who' is also irregular: ----, jon, jon, jon. This irregularity is not of crucial importance, since the form cannot be reconstructed past Proto-Mandekan. It may have been */o/ or */ɔ/ and */ɔ/ is selected extremely tentatively.

Final low-mid back vowels are also consistent, one irregularity appearing in nine occurrences. 'Old': xoto, koro, koro, koro shows the same [o] influence as is present in nouns. It may be that this is a citation form even in some words other than nouns, or perhaps this is the noun 'age'. Nevertheless, this is most probably */ɔ/.

2.3. Proto-Ml C and V systems and word list. This section serves to present an overview of the entire Proto-Ml phonological system in initial, medial and final positions. The reconstructed forms of the words from the Swadesh list will also be given.

Table 6 — Proto-Ml System

<u>Initial</u>			
<u>Consonants</u>			<u>Vowels</u>
	*t	*k, *k'?	
*b	*d	*j	*gb
*f	*s		
*m	*n	*ny	
	*l		
*w	*y		
<u>Medial</u>			
<u>Consonants</u>			<u>Vowels</u>
	*t	*g, *g'	
*b			*i *u
	*s		*e? *o
			*ɛ? *ɔ
*m	*n		*a
	*l, *l'?		
	*r??		

Final
Consonants

*n

Vowels

*i *u
*e? *o
*e *ɔ
*ə

Table 7 — Reconstructed Word List - Proto-M1

1. 'name' : *togo	26. 'breast' : *sin	51. 'egg' : *sise-kill
2. 'one' : *kelen	27. 'belly' : *kono	52. 'bird' : *kono
3. 'two' : *filla?	28. 'navel' : *bata	53. 'fish' : *nyege(n)
4. 'three' : *saba	29. 'skin' : *gbolo?	54. 'snake' : *sa
5. 'four' : *naanin	30. 'bone' : *kolo?	55. 'dog' : *wulu
6. 'five' : *lool'u	31. 'blood' : *joli	56. 'big' : *bon
7. 'person' : *mog'o	32. 'sky' : *san-kolo	57. 'small' : *dogo
8. 'man' : *ke?	33. 'fire' : *ta	58. 'black' : *fin
9. 'woman' : *muso	34. 'water' : *ji	59. 'white' : *gbe
10. 'child' : *den(den)	35. 'meat' : *sobo	60. 'good' : *nyin
11. 'father' : *fa	36. 'salt' : *k'og'o	61. 'new' : *kuta
12. 'mother' : *na?	37. 'many' : * ?	62. 'old' : *k'oto
13. 'head' : *kun	38. 'stone' : *kaba?	63. 'hot' : *gban?
14. 'hair' : *kun-sigi	39. 'sun' : *tile	64. 'cold' : *suman?
15. 'nose' : *nun	40. 'moon' : *k'alo	65. 'dry' : *ja-len
16. 'eye' : *nya	41. 'night' : *su	66. 'straight' : *tilen
17. 'ear' : *tulo	42. 'rain' : *san-ji	67. 'come' : *na
18. 'mouth' : *da	43. 'smoke' : *sisi (-o)	68. 'sit' : *sigi
19. 'tooth' : *nyin	44. 'sand' : *kenyen??	69. 'lie' : *la
20. 'tongue' : *nen(e)	45. 'rope' : *jul'u	70. 'sleep' : *sinog'o
21. 'neck' : *kan	46. 'tree' : *yiri	71. 'die' : *sa
22. 'hand' : *bolo	47. 'leaf' : *fita	72. 'fall' : * ?
23. 'foot' : *sen	48. 'root' : *lili(n)	73. 'stand' : *wuli
24. 'knee' : *kumbel'en	49. 'milk' : *nono	74. 'say' : *k'uma
25. 'nail' : *bolo-sonin	50. 'grease' : *ken	75. 'hear' : *men?

76. 'wash' : * <u>kuo</u>	89. 'they' : * ?
77. 'see' : *ye	90. 'who' : *jən?
78. 'give' : *di	91. 'what' : *mun
79. 'eat' : *dymun	92. 'not' : * tɛ
80. 'drink' : *min	93. 'long' : *jan
81. 'kill' : *fag'a	94. 'short' : *sutun
82. 'cut' : *tjɛ	95. 'here' : *yan
83. 'hit' : * ?	96. 'few' : *dooni?
84. 'sew' : *k'a_l'a	97. 'all' : *bɛɛ?
85. 'I' : *nɛ	98. 'ath' : *sil'a?
86. 'you' : *i	99. 'in' : *kono
87. 'he' : *a	100. 'if' : *ni
88. 'we' : *an?	

Key: : underscoring reflects tentative reconstruction.

? : indicates that the reconstruction was from less than all four languages.

3. Reconstructing Mandekan - M2

M2, the second Mandekan subgroup, is composed of Bo (B), Konyanka (K), Wassulunka (W), Diakhanka (D) and Mauka (M).

3.1. M2 consonants.

Table 8 — Initial Consonants

<u>Labials</u>			<u>No. of Corr.</u>																																	
	22. 'hand'	24. 'navel'	97. 'all'																																	
*b/	B: <table><tr><td>b</td><td>o</td></tr><tr><td>K: b</td><td>oro</td></tr><tr><td>W: b</td><td>olo</td></tr><tr><td>D: b</td><td>ulo</td></tr><tr><td>M: b</td><td>oo</td></tr></table>	b	o	K: b	oro	W: b	olo	D: b	ulo	M: b	oo	<table><tr><td>b</td><td>a -ku</td></tr><tr><td>b</td><td>ara-kun</td></tr><tr><td>b</td><td>ara-kun</td></tr><tr><td>b</td><td>ato-</td></tr><tr><td>b</td><td>a -gun</td></tr></table>	b	a -ku	b	ara-kun	b	ara-kun	b	ato-	b	a -gun	<table><tr><td>-</td><td>-</td></tr><tr><td>b</td><td>ɛ</td></tr><tr><td>b</td><td>ɛ</td></tr><tr><td>b</td><td>ɛ</td></tr><tr><td>b</td><td>a</td></tr></table>	-	-	b	ɛ	b	ɛ	b	ɛ	b	a	5		
b	o																																			
K: b	oro																																			
W: b	olo																																			
D: b	ulo																																			
M: b	oo																																			
b	a -ku																																			
b	ara-kun																																			
b	ara-kun																																			
b	ato-																																			
b	a -gun																																			
-	-																																			
b	ɛ																																			
b	ɛ																																			
b	ɛ																																			
b	a																																			
	7. 'person'	9. 'woman'	80. 'drink'																																	
*m/	B: <table><tr><td>m</td><td>ogo</td></tr><tr><td>K: m</td><td>ɔ ɔ</td></tr><tr><td>W: m</td><td>ogo</td></tr><tr><td>D: m</td><td>oxo</td></tr><tr><td>M: m</td><td>ɔ ɔ</td></tr></table>	m	ogo	K: m	ɔ ɔ	W: m	ogo	D: m	oxo	M: m	ɔ ɔ	<table><tr><td>m</td><td>uso</td></tr><tr><td>m</td><td>uso</td></tr><tr><td>m</td><td>uso</td></tr><tr><td>m</td><td>uso</td></tr><tr><td>m</td><td>oso</td></tr></table>	m	uso	m	uso	m	uso	m	uso	m	oso	<table><tr><td>m</td><td>i</td></tr><tr><td>m</td><td>in</td></tr><tr><td>m</td><td>in</td></tr><tr><td>m</td><td>in</td></tr><tr><td>m</td><td>i-</td></tr><tr><td>m</td><td>in</td></tr></table>	m	i	m	in	m	in	m	in	m	i-	m	in	5
m	ogo																																			
K: m	ɔ ɔ																																			
W: m	ogo																																			
D: m	oxo																																			
M: m	ɔ ɔ																																			
m	uso																																			
m	uso																																			
m	uso																																			
m	uso																																			
m	oso																																			
m	i																																			
m	in																																			
m	in																																			
m	in																																			
m	i-																																			
m	in																																			

	55. 'dog'	73. 'stand'	No. of Corr.
* /w/	B: - ulu K: w ulu W: w ulu D: w ulu M: w u u	- uli w uli w uli w uli w i i	2

Note that [w] is absorbed by the following [u] in Bo.

	3. 'two'	58. 'black'	81. 'kill'	
* /t/	B: - --- K: f ila W: f ila D: f ula M: f ila	f i f in f in f i f in-ni	- --- f a f aga f axo f a a	5

Dentals

	10. 'child'	78. 'give'	
* /d/	B: d i K: d en-nin W: d en D: d indin-ŋə M: d ien	d i d i d i d ima-ro d i	2
	18. 'mouth'	57. 'small'	79. 'eat'
* /d/	B: d a K: d a W: d a D: d a M: l a	- --- d ə-ya d əgon - --- l ə	d u d un d ən d əmo-ro l ə

The [l]:[d] variation in Mauka appears to be conditioned by [i] vs. elsewhere respectively. More evidence is needed to ascertain whether indeed the [l] and [d] in Mauka are allophones in this environment.

	17. 'ear'	39. 'sun'	33. 'fire'	
* /t/	B: t o K: t oro W: t olo D: t ulo M: t o o	t e t ere t eie t ilo t e	- - t a t a-suma t a t a	4

	49. 'milk'	67. 'come'	100. 'ir'	No. of Corr.
* /n/	B: n ono K: n ono W: n ono D: n ono M: n ono	n a n a n a n a n a	- - n i n i n i n i	5
	26. 'breast'	32. 'sky'	43. 'smoke'	
* /s/	B: s i K: s in W: s in D: s in-ji-o M: s in	s a s an s an s an-gbo s an-gbo	s isi s isi s isi s isi-o s isi	15

Resonants

	6. 'five'	69. 'lie'	
* /l/	B: - --- K: l oru W: l olu D: l ulu M: l oru	d a l a l a l a l a	2

Whether these two examples are actually correspondences cannot be known for certain without further exemplification.

Palatals

	16. 'eye'	19. 'tooth'		
* /ny/	B: ny a K: ny a W: ny a D: ny a M: ny a	ny i ny in ny in ny in-ŋo ny in	2	
	34. 'water'	65. 'dry'	93. 'long'	
* /j/	B: j e K: j i W: j i D: j i-o M: j i	- - j a j a-le j a-re j a	- - j e j an j an j an	3

Velars

	21. 'neck'	36. 'salt'	40. 'moon'	
* /k/	B: k a K: k an W: k an D: k an-gbo M: k an	k oko k o o k ogo k oko k o o	k alo k alo k alo k aru k alo	16

It should be noted here that the correspondence reconstructed as */k'/ in *Kl reconstruct perfectly as */k/ in *Wl.

Lab. Vel.

	63. 'hot'	59. 'white'	83. 'hit'	No. of Corr.
* /gb/	B: - --	py ě	by ě	3
K:	gb an	gb ɛ	gb asi	
W:	- --	gb ɛ	gb ese	
D:	g ando	g ɛ	g oso-ro	
M:	gb an	gb a-ni	gb asi	

Several things speak for a */gb/ reconstruction here. First, nowhere else is [g] found initially. Secondly, the correspondence is good for K-W-D-M and only B presents a problem with voiced [by] vs. voiceless [py]. Thirdly, it is unlikely that a labio-velar would develop from a velar proto-form or from a labial proto-form, yet not so unlikely that velars and labials both would develop independently from a labio-velar ancestor. Finally, the cognates to these words in *Ml reconstruct as */gb/, as they do also in *Grou. C. A further note is that these two words are two of the only words in the data for which tone was supplied. It should be mentioned that the voiced:voiceless distinction is the only one differentiating these two words and may therefore carry some degree of functional load.

Table 9 — Medial Consonants

	h. 'three'	38. 'stone'	No. of Corr.
* /b/	B: -- [] -	-- [] -	2
K:	sa b a	ka b a	
W:	sa b a	ka b a	
D:	sa b a	-- - -	
M:	sa [w] a	ka [w] a	
?	74. 'say'		
* /m/	B: -- [] -		1
K:	ku m a		
W:	ku m a		
L:	ku m a		
M:	ku m a		

* /m/ is reconstructed here very tentatively due to the nondeviance of the [m] throughout the forms, and because it reconstructs nicely as * /m/ in *Ml. Two other apparent irregular * /m/ matchings will be dealt with in the discussion of irregularities.

Dentals

	28. 'navel'	61. 'new'	62. 'old'	No. of Corr.
*/t/	B: ba [] -ku K: ba r a-kun W: ba r a-kun D: ba t o M: ba [] -gun	ku [] a ku r a ku r a ku t o -- [] -	ko [] o ko r o ko r o -- [] - ko [] o-ni	3
*/n/	5. 'four'	49. 'milk'	70. 'sleep'	5
B: -- [] -	no [] o	si [] n ogo		
K: na n i	no n o	su n u		
W: na n i	no n o	su n ogo		
D: na n i	no n o	si n ogo		
M: na n i	no n o	si n o o-ke		
*/s/	9. 'woman'	43. 'smoke'	51. 'egg'	3
B: mu [] o	si [] i	-- [] - kli		
K: mu s o	si s i	-- [] - kli		
W: mu s o	si s i	si [] e-kli		
D: mu s o	si s i-o	si s e-kli		
M: mo s o	si s i	si s i-kli		

Resonants

	2. 'one'	55. 'dog'	51. 'egg'	
* /l/	B: -- [] ~ K: ke [] e W: ke [] e D: ke [] e M: ke [] e	u [] u wu [] u wu [] u wu [] o wu [] u	--k [] i --ki [] i --ki [] i --ki [] i --ki [] i	10
	<p>The [l] syncopates medially in Manka very frequently, which case for all resonants. The conditioning factor for deletion does not appear to be environmental, but rather may be a freely v. ø allophone.</p>			
	46. 'tree'	47. 'leaf'		
* /r/	B: yi [] i K: ji [] i W: yi [] i D: yi [] o M: yi [] i	-- -- [] -- fla -bu [] u fula-bu [] u -- -- [] -- fla -bo [] --		2

Here, too, the [r] syncope medially in M.

Velars

	1. 'name'	7. 'person'	81. 'kill'	No. of Corr.						
*/g/	B: to <table><tr><td>g</td><td>o</td></tr></table>	g	o	mo <table><tr><td>g</td><td>o</td></tr></table>	g	o	-- <table><tr><td>-</td><td>-</td></tr></table>	-	-	4
g	o									
g	o									
-	-									
	K: do <table><tr><td>-</td><td>o</td></tr></table>	-	o	mo <table><tr><td>-</td><td>o</td></tr></table>	-	o	fa <table><tr><td>-</td><td>-</td></tr></table>	-	-	
-	o									
-	o									
-	-									
	W: to <table><tr><td>g</td><td>o</td></tr></table>	g	o	mo <table><tr><td>g</td><td>o</td></tr></table>	g	o	fa <table><tr><td>g</td><td>a</td></tr></table>	g	a	
g	o									
g	o									
g	a									
	D: to <table><tr><td>x</td><td>o</td></tr></table>	x	o	mo <table><tr><td>x</td><td>o</td></tr></table>	x	o	fa <table><tr><td>x</td><td>o</td></tr></table>	x	o	
x	o									
x	o									
x	o									
	M: do <table><tr><td>-</td><td>o</td></tr></table>	-	o	mo <table><tr><td>-</td><td>o</td></tr></table>	-	o	fa <table><tr><td>-</td><td>a</td></tr></table>	-	a	
-	o									
-	o									
-	a									

Mauka (as well as Konyanka) syncopates [g] medially, much as it treats resonants. In section 2.2.1.1. (p. 210) there is a discussion of how [g] and resonants are treated similarly in Maninka, in which vowel harmony occurs across both [g] and resonants.

Table 10 — Final Consonants

<u>Dentals</u>				<u>No. of Corr.</u>
* /n/	15. 'nose'	21. 'neck'	95. 'here'	
B:	nyu	ka	ya	15
K:	nu	ka	ya	
W:	nu	ka	ya	
D:	nu	ka	ja	
M:	nu	ka	ja	

In none of the 15 examples does Bo retain final [n]. The MSC of Bo has changed from allowing a final [n] consonant to admitting none at all.

3.1.1. Discussion of M2 consonant irregularities. This section, as in the *M1 reconstruction, presents irregular matchings in sure cognates with arguments for tentative reconstruction of those segments involved.

3.1.1.1. Labials. Only one irregular matching is attested in initial position which is 'father': fa, fa, fa, fa, baba. This is more than likely non-cognate and */f/ is reconstructed for four of the languages, in accordance with *M1.

Two irregularities present themselves in medial position: 'cold': ---, suman, suma, suma-re, suwa and 'eat': du, dun, don, domo-ro, lo.

The final [n] indicated in the monosyllabic forms of 'eat' may be either a case of the transcriber signalling nasalization of final vowels with [n], or it may simply be a case of final phonetic [m] being changed to [n], Mandekan languages allowing no other consonant in final position. In any case, the segment was */m/ originally, as attested by *M1 and Hw-1n, from Group B. It is significant that in every case in which the present

cognate remains bisyllabic, the [m] reflex obtains and where the cognate has been reduced to a monosyllable, final [n] is attested.

'Cold' is also clearly reconstructable with */m/ as witnessed by *M1 and Groups A, B and C. It is interesting that the weakening here of [m] > [w] is paralleled in the same language with a regular [b] > [w] weakening in medial position.

3.1.1.2. Dentals. There are several irregularities in the dental series in initial position.

Of the three matchings to be reconstructed */t/, only one has a plausible explanation: 'straight': ---, tɛtɛ, tɛlini, tiilin, latɛn-ni. This is most probably a case of metathesis if the forms are cognate.

The two other aberrances are 'name': togo, dɔ, togo, toxo, dɔɔ and 'not': ---, tɛ, tɛ, tɛ, dɛ. No attempted explanation is offered here. *M1 suggests */t/ for both words, while Ligbi and Group C likewise support this reconstruction for 'name'.

'Not' is difficult in that two negative morphemes exist in these languages (if not more), /ma/ and /tɛ/, which are used differently. Unfortunately, some informants gave one form while others gave the second, making reconstruction of one or the other less complete than might otherwise be expected.

The */s/ series also has three aberrances in seventeen occurrences in initial position.

'Night': syu, su, su, su, su-o is the only example of [s] before [u] in a monosyllable, which may provide an environment for a glide. In spite of this uncertainty, *M1 clearly suggests an */s/ reconstruction, as does Group C.

'Many': ---, sia-ma, ca-ma, siya-ma, sia-ma should probably be reconstructed as */s/ in *M2. *M1 is very questionable and no cognate forms show up in any of the other groups. This, therefore, is of little importance to the reconstruction. Wassulunka is undergoing a palatalization of [s] and [t] in initial position (cf. 'sand' above).

'Mail': ---, bolo-konin-fara, bolo-soni, sonin, soin-va shows a strange [s] > [k] in Konyanka. No environmental or other conditioning factor is known. M1 provides a sure */s/, with no other cognates in other groups.

Initial $*/n/$ has only two irregularities in seven occurrences, both palatalizations.

'Nose': nyu, nun, nūn, nūn-gə, nūn is interesting because it adds partial confirmation that Bo does tend to palatalize some consonants in monosyllables before {u}, as suggested in the initial $*/s/$ reconstruction for 'night' above. This is reconstructed $*/n/$, again strongly supported by $^{*}M$.

'Tongue': ne, nen, nēn, nen-gə, nye(n) shows the same tendency in Mauka before high front vowels. In fact, 'ir' appears to have free variation between [ni]:[nyi] in this language, pointing up the same palatalization process. $*/n/$ should be reconstructed.

In medial position, $*/t/$ presents one irregularity in four examples. 'Short': sunu, suya, suru, situ, sonta provides this interesting matching with [ny]:[nt]. The [y] reflex in this matching is not understood. The $^{*}M$ reconstruction of the cognate form is a strong $*/sufun/$, suggesting a metathesis to explain the [nt] reflex. However, this "explanation" would necessarily have to be invoked for the [n] reflex as well. On the other hand, the proto-form of $^{*}M$ may have been the result of metathesis itself: $*/suntu/ > */sufun/$. Mauka and Bo speak for an [nt] reflex in medial position, as does Kurunka. Kurunka was probably the first language to break off from the Mandekan Group. Of the languages remaining in Mandekan, Mauka and Bo were probably the next to break off. If this is the case, the diverse cognate forms for 'short' can be reasonably accounted for: after Group C, Mauka and Bo had broken off from the rest of the core group, the proto-form underwent a metathesis $*/suntu/ > */sufun/$. The former therefore show vestiges of [nt] medially, whereas the other languages show no such reflex. The reason for the metathesis may be found in the relative unacceptability of consonant clusters in these languages.

The reconstructed form for 'hair' is $*/kun-sigi/$ in $^{*}M$. This is a compound of "kun-" 'head' and "sigi" 'hair'. Although the $*/s/$ is morpheme initial, it must be treated as a medial consonant. In $^{*}M$ the cognates are: kun-sye, kun-zi, kun-si, ---, kun-ze. Here, as in $^{*}M$, [s] > [z] after [n] in Koryunka and Mauka. In Bo the [s] has been palatalized by the high front vowel. It is interesting to speculate that this type of phenomenon

occasioned the [nt] contact in 'short' discussed above.

Two irregularities occur in seven examples of medial [n], both involving [nd] reflexes.

'Belly': ko, kono, kondo, kono, koo reconstructs as */n/ in *M1. There are no cognate forms in Groups A and C. The cognate forms in Group B have been shortened to monosyllables, placing the segment in final position. No segment other than [n] being allowed finally, this does not help the reconstruction a great deal. This must remain a tentative */n/, keeping the phonetic [nd] in mind.

The second example is 'few': ---, dooni, doni, dondi, ---. Interestingly, although *M1 shows an [n] reflex, Group A, the most distantly related group, shows an [nd] reflex. At this point this should remain an */n/ reconstruction, leaving */nd/ as a possibility.

Only one of sixteen occurrences of final [n] is irregular, if it is cognate: 'hear': me, men, men, mero, ---. The [r] in mero is unexplainable. The reconstruction for the cognate forms in M1 is */n/. Ligbi also has [n]. There is no other evidence of [r], and it will thus be reconstructed in *M2 as */n/.

It should be noted that although there are several words which might tentatively be reconstructed with a medial [-nd-] cluster there is no evidence whatsoever for prenasalized stops in Northern Mande languages. The complete absence of such clusters in initial and final positions is, of course, additional testimony to this fact.

3.1.1.3. Resonants. There are ten regular */l/ correspondences and only one regular */r/ matching. The other examples are a seemingly odd mixture of the two. The resonants in these languages are very unstable in medial positions. The apparent randomness of the change comes to light nicely in the example of the two words 'hand' and 'nail'. In Konyanka the former is [boro] and the latter is [bolo-konin], a compound of 'hand' and 'claw'. The words are from the same cognate ancestor, yet 'hand' shows [r] while [l] is manifested in 'nail'.

Many attempts have been made to uncover a possible pattern in the resonant series, and all have proven to be ad hoc solutions to a sticky problem. The only reasonable presentation at this time is to provide a

chart of the matchings with tentative suggestions made for reconstructions. This is done below.

(4)	B	K	W	D	M	*M1	
	-	r	l	l	r	*l	6. 'five': ---, loru, lolu, lufu, loru
	Ø	r	l	l	Ø	*l	17. 'ear': to, toro, tolo, tulo, too
							22. 'hand': bo, loto, bolo, bulo, boo
							30. 'bone': ko, koro, kolo, kulo, koo
							39. 'sun': te, tere, trole, tile, te
	l	l	r	r	l	*l	40. 'moon': kalo, kalo, karo, karu, kalo
	r	r	l	l	Ø	*l	45. 'rope': yuru, juru, julu, julo, juu
	Ø	r	l	r	Ø	*l	84. 'sew': ka, kara, kala, kara-lo, kaa
	r	r	r	l	Ø	*l	98. 'path': sira, siran, sira, sila, sian

The [ɛ:r:l:l:Ø] correspondence is the most striking relationship. The */l/ > [r] change in Konyanka occurs between two [ols] in three of the four words. It is difficult to understand, however, why 'sun' ([tɛrɛ]) has a phonetic [r] while 'straight' ([tɛtɛ]) has a phonetic [l] in almost identical environments. In both cases the evidence is strong that the segment was etymologically */l/. Furthermore, words such as [gofo] ('skin') and [bolo] ('hand') rule out the possibility that [l] > [r] / o__o diachronically.

It is probably significant that Konyanka undergoes the [l] > [r] change in eight of the nine words above. This may indicate that a phonologization process is taking place in this language. In eighteen examples of resonants in medial position, ten have remained [l] while eight have changed to [r]. The environments in which this change has occurred are so similar to the ones in which [l] has been retained that one is drawn to the conclusion that proto */l/ is presently separated into an /l:/r/ contrast. These two units appear to be of equally frequent occurrence in the language. It is interesting that these words are reconstructed strongly as */l/ in *M1, and that the only language which is irregular in this correspondence from the regular */l/ correspondence in Konyanka, in which there seems to be a much more widespread [l] > [r] change than in any other language. Although this correspondence differs slightly from the regular */l/ correspondence in the Konyanka forms, the evidence nevertheless points to an */l/ reconstruction.

The chart also indicates that the words strongly reconstructed with */i/ in *M1 appear as the [ø:r:l:l:ø] correspondence in M2, only Konyanka disturbing the otherwise regular */i/ correspondence. The other words presented in the chart are inconsistent matchings in M2 and it is indicated that this same instability is shared by the cognate forms for these words in M1, as illustrated by the subscript. That is, the forms which were irregular in their [l] ~ [r] variations between languages in M1 continue their inconsistent patterning in M2 languages. The forms which were stable in M1 remain relatively stable in M2, Konyanka notwithstanding.

The [r] in Diakhanka [kara-lo] ('sew') may reflect a dissimilation with the morpheme-initial [l].

The occurrence of [r] in Bo [yuru] ('rope') and [sira] ('path') may not be as irregular as appears at first blush. Resonant deletion occurs in all other examples in Bo with the exception of 'moon'. There are five examples of deletion and three of retention, the environments for retention being quite different from the environments for deletion. Loosely, the rule is to delete resonants between non-high like vowels. That the vowels were originally identical rather than becoming identical due to assimilation after C deletion is suggested by the fact that most of the other languages retaining the medial C attest to identical vowels in words retaining the C in Bo. The same rule holds true in Bo for all examples of resonant deletion and retention attested in the data. Due to the consonant deletion it is impossible to tell which resonant was present in each case. If [r] is assumed to be the phonetic shape in Bo of 'ear', 'hand', 'bone', and 'sun' then the patterning is identical to 'rope': [r:r:l:l:ø].

This is the extent of the generalizations which can be made about resonants in M2 at present. The corroborative evidence for tentative reconstruction of these forms is found in the *M1 reconstruction. The items reconstructed */i/ in *M1 have no consistent relationship in M2, lending more weight to the possibility that these forms falling together in the */i/ correspondence were in fact cases of accidental convergence. These, then, will tentatively be reconstructed as */i/ in *M2.

3.1.1.4. Palatals. Like the resonants, the palatal changes are complex in these languages. A chart is provided for these matchings and correspondences.

The *M1 reconstruction is provided for comparison, as in the resonant chart.

(5)	<u>B</u>	<u>K</u>	<u>W</u>	<u>D</u>	<u>M</u>	<u>*M1</u>	
	(j)	j	j	j	j	*j	34. 'water': je, ji, ji, ji-o, ji
							65. 'dry' : --, ja, ja-le, ja-re, ja
							93. 'long' : --, je, jan, jan, jan
	y	j	j	j	j	*j	45. 'rope' : yuru, juru, julu, julo, juu
	y	j	j	y	y	*j	31. 'blood': yu, jeli, jeli, yeŋo, ye
	y	j	y	y	y	*y	46. 'tree' : yiri, jiri, yiri, yiro, yii
	j	y	y	j	y	*y	77. 'see' : je, ye, ye, je-ro, ye
	y	y	y	j	j	*y	95. 'here' : ya, yan, yan, jan, jan

All reconstructions for *M1 are solid reconstructions with the exception of 'here', which shows three occurrences of [y] to one of [j].

Bo appears to allow [j] only in monosyllables with high front vowels such as in 'water', and changes an etymologic /y/ to [j] in a similar environment in 'see'. Elsewhere */j/ and */y/ merge to [y].

Wassulunka makes no changes in the reconstructed forms predicted by *M1 and Konyanka changes only [y] to [j] in the word for 'tree'. In Bambara, the same word allows free variation between [yiri] and [jiri] in some dialects.

If the *M1 reconstructions are correct for *Mandekan, then Diakhanka and Mauka aberrances are difficult to explain with any generality. However, this is the case for some languages no matter what the reconstruction. With the reconstruction as it is only two of the nine languages reveal unexplainable irregularities and these in only one and two words respectively. Both Diakhanka and Mauka change */j/ to [y] in 'blood' for no apparent reason, while Diakhanka changes */y/ to [j] in 'see'.

'Fish': yige, jee, nyegɛ, yego, yee is reconstructed */ny/ for the same reasons offered in the *M1 reconstruction. The Wassulunka form lends further confirmation to this reconstruction.

'Good': dyi, nyi, nyi, ---, nyi has only one exception in [dyi]. The evidence from M1 and the rest of M2 is strong for */ny/.

The problem in reconstructing palatals in *M2 is the apparent randomness of change within the series, along with the general lack of insight

offered by the other groups of languages under study. Often complex general changes give the impression of randomness when the data is insufficient. It should be constantly remembered in a reconstruction from a one hundred word list that this problem will present itself in most instances where complex changes have obtained. This does not mean that the reconstruction, being tentative for various segments, is therefore useless. Rather, it tends to illuminate problem areas for further in-depth research.

Medial position shows what appears to be an example of a palatal [-ny-] in the word 'sand': tye, tinye, cen, kɛnyo, cen. The same word shows [-ny-] in Ml languages. This should be considered a cluster, however, and not a palatal phoneme. As in the cases of [-mb-] and [-nd-] clusters discussed previously, [-ny-] is most likely the result of final [n] and initial [j] or [y] of two separate words which were in compound relation at a former point in time (or perhaps still at present). The fact that there are no other palatal consonants which may occur in medial position strongly suggests such an analysis.

3.1.1.5. Velars Only three of nineteen examples of velars in initial position are irregular.

'Man': ce, ce, ce, ke, ce. Although the segment is widely manifest as a palatal affricate, evidence is strong that it derives from [k] with a palatalization change as suggested in the *Ml reconstruction. The segment is tentatively reconstructed */k/.

'Sand': ce, tinye, cen, kɛnyo, cen differs from 'man' only in [tinye] and will also be tentatively reconstructed as */k/ on evidence from Group C.

'Grease': ke, ce, --, --, ce is another example of the same palatalization process.

Of five medial examples, only one is slightly irregular. 'Salt': koko, koo, kogo, koxo, koo shows a medial [k] in Bo, rather than [g]. This may be a case of assimilation, assisted by both the phonetic similarity of the velars and of the syllables themselves. The reconstruction is a tentative but firm */g/.

3.1.1.6. Labio-velars. Only one irregularity occurs in four examples of labio-velars in initial position, that being 'skin': wo, golo, golo, wulo, gboo. The one noticeably different environment is the high back vowel. Whatever the reason for the change, the original form was undoubtedly labio-velar and is attested in M1 and Groups B and C.

3.2. M2 vowels. As in M1, there are no initial vowels per se in M2 languages.

Table 11 — Medial Vowels

Front No. of Corr.

	19. 'tooth'	43. 'smoke'	46. 'tree'	
* / i /	B: ny i	s i si	y i ri	10
	K: ny i n	s i si	j i ri	
	W: ny i n	s i si	y i ri	
	D: ny i n-ŋo	s i si-o	y i ro	
	M: ny i n	s i si	y i i	

* / e / The mid vowels in M2, as in M1, are a messy problem. There is a seemingly random variation in this word list with no recursive pattern, resulting with unique matchings for each word and no correspondences. A further problem lies in the fact that many of these vowels occur in words which historically had a final C which has since been lost, placing the V in final position presently: ---, kele, kele, kele, kele < /^hkele/ . It should be kept in mind that although ^h/n/ has been lost, it may have had an effect on the vowels which have been retained in some languages while being erased in others. These matchings will be discussed in the section on irregularities.

	4. 'three'	40. 'moon'	84. 'sow'	
* / a /	B: - a --	k a lo	k a	11
	K: s a ba	k a lo	k a ra	
	W: s a ba	k a ro	k a la	
	D: s a ba	k a ru	k a ra-lo	
	M: s a wa	k a lo	k a -a	

Back

	13. 'head'	45. 'rope'	55. 'dog'	
* / u /	B: k u ngo	y u ru	- u lu	9
	K: k u n	j u ru	w u lu	
	W: k u n	j u lu	w u lu	
	D: k u n-ŋo	j u lo	w u lo	
	M: k u n	j u u	w u u	

	6. 'five'	22. 'hand'	30. 'bone'	No. of Corr.
* /o/	B: - - -- K: l o ru W: l o lu D: l u lu M: l o ru	b o ro b o lo b u lo b o o	k o ro k o lo k u lo k o o	5

The [u] reflex of */o/ in Diakhanka may be explained by the [l] environment. Only one example of the six does not have medial [l]: 'meat': sogo, so, sogo, subo, soo. Here it may be the case that [subo] is non-cognate with the other forms, but this is only speculation.

	1. 'name'	7. 'person'	49. 'milk'	
* /o/	B: t o go K: d o W: t o go D: t o xo M: d o	m o go m o o m o go m o xo m o o	n o no n o no n o no n o no n o no	8

Bo, it appears, does not permit [o] in medial position.

Table 12 — Final Vowels

	5. 'four'	43. 'smoke'	73. 'stand'	No. of Corr.
* /i/	B: - - - K: nan i W: nan i D: nan i M: nan i	sis i sis i sis i sis i sis i	-ul i wul i wul i wul i wi i	7
2*/e/	85. 'I' B: - - K: n e W: n e D: n e M: n e	39. 'sun' t e tcr e tel e til e t e	77. 'see' j e y e y e j e y e -ro	4

The */e/ examples are correspondences by virtue of the fact that the [ol] in Diakhanka [tilol] is the same as in Diakhanka [isilol] above, i.e. some type of suffix which sometimes absorbs the preceding vowel. The reason for ascertaining [el] or [tel] in final position in Po and Diakhanka is that most of these languages appear to assimilate across resonants first, and then drop the resonant, leaving a homophonous succession of vowels.

	8. 'man'	82. 'cut'	50. 'grease'	No. of Corr.
* ϵ /	B: c e K: c ϵ W: c ϵ D: k ϵ M: c ϵ	--- - t ϵ ϵ t ϵ g ϵ --- - t ϵ ϵ	k e c ϵ - - - - c ϵ	3

Mid

	16. 'eye'	18. 'mouth'	3. 'two'	
* a /	B: ny a K: ny a W: ny a D: ny a M: ny a	d a d a d a d a l a	--- - fil a fil a ful a fil a	16

Back

	6. 'five'	41. 'night'	55. 'dog'	
* u /	B: --- - K: lor u W: lol u D: lul u M: lor u	sy u s u s u s u s u -o	-ul u wul u wul u wul - wul u	5

There are five examples of this correspondence, two of which have this /-o/ suffix in Diakhanka.

	9. 'woman'	17. 'ear'	30. 'bone'	
* o /	B: mus o K: mus o W: mus o D: mus o M: mus o	t o tor o tol o tul o to o	k o kor o kol o kul o ko o	6

Bo's final vowel in 17 and 30 actually corresponds to both the medial and final vowels of the other languages (as exemplified in Mauka), and was either shortened after resonant syncope or the transcriber may have failed to hear length.

	1. 'name'	7. 'person'	49. 'milk'	
* o /	B: tog o K: d o W: tog o D: tox o M: do o	mog o mo o mog o mox o mo o	non o non o non o non o non o	7

As is clear from these examples and those for * ϵ / and * ϵ / in medial position, Bo has merged proto * ϵ / and * ϵ / into / ϵ /.

3.2.1. M2 vowel irregularities. Many of the vowel irregularities in this section are unsolved problems, as is the case with M1 languages. The following presentation is meant to be as brief as possible.

3.2.1.1. Front. There are four exceptions in fourteen examples of high front vowels in medial position:

- (6) 'two' : ---, fila, fila, fula, fila
 'leaf' : ---, fla-buru, fula-buru, ---, fia
 'sleep' : sinogo, sunu, sunogo, sinoxo, sinoo-ke
 'you' : -, e, i, i, e

In 'leaf', the [i] > [u] change is probably due to the [i] environment. In Diakhanka there are six examples of V > [u] / __[i]. Arguments for an */i/ reconstruction for 'leaf', 'two', and 'sleep' were put forth in the *M1 reconstruction and they apply here as well.

The lowering of [i] to [e] in 'you' cannot be adequately dealt with since only one example exists. *M1 strongly suggests */i/ as do Groups A and C.

As aforementioned, the mid front vowels present problems. The only three words which appear to correspond are:

- (7) 'tongue': ne, nen, nen, nen-go, nye(n)
 'hear' : me, men, men, mero, ---
 'cut' : ---, tegt, tegt, ---, tet

These should be reconstructed */e/. A few examples differ slightly from the above:

- (8) 'fish': yige, jet, nyege, yego, yet
 'foot': sen-, sen, sen, sin-go, se(n)
 'sand': tye, tinye, cen, Kenya, cen

All of the above examples involve a [e] > [i] change, two of the three in palatal environments, shedding some light on the matter. All should be reconstructed tentatively as */e/. The reconstruction for 'fish' and 'sand' are supported by *M1. Though 'foot' is tentatively reconstructed */e/ in *M1, the evidence from Groups A and C support the */e/ suggestion. There are reflexes of [i], [e] and [e] throughout Mandekan languages for 'foot'. */e/ is chosen only because it is best supported by all groups.

The problem for 'one': ---, kele, kele, kele, kele is one of an [e] reflex in Konyanka. Although the majority of the M2 languages signal an */e/

reconstruction, *M1 as well as Groups A and C support an */e/ reconstruction, Kuranko being the one exception. The proto-form was probably */ε/ with subsequent lowering in M2.

'Child': di, den-ma, den, dindin-ŋo, dien poses problems with variations between high and mid front vowels. The body of the data points equally to both possibilities. *M1 shows an */e/ reconstruction. The other groups, however, are mixed equally. Group C attests to */e/. Group B shows two languages with [e] and one with [i]. Group A reconstructs with */i/. Without further evidence, the most reasonable approach appears to be to infer vowel lowering in pronasal position and reconstruct a proto */i/. The word 'child' is one word which is cognate through all the languages under study, indicating that it is a form of long ancestry in N. Mande. The attrition attested in vowel lowering, therefore, may have occurred in this form over time, whereas younger forms may not have undergone the same change.

The following words all have unique matchings with no apparent explanations:

- (9) 'blood': yu, jeli, jeli, yelo, ye
 'sun' : te, tere, tele, tiŋo, te
 'fall' : --, pe, bi, --, bi

*/ε/ is a reasonable reconstruction for 'blood' with *M1 as support.

Although the patterning of M1 languages appears to support an */i/ reconstruction for 'sun', the same does not hold true for *M2 (cf. p. 339). The tentative "explanation" offered in M1 of vowel assimilation is a very general process throughout N. Mande. However, Groups B and C firmly suggest an */ε/ or */e/ reconstruction, unless the assimilation process occurred in most of these languages after their separation. Neither of these possibilities should be ruled out. The *M2 form should be reconstructed as */ε/ very tentatively, having taken all the evidence into consideration.

The forms for 'fall' are probably cognate. A choice of */e/ or */i/ as the proto-vowel again is extremely difficult. In M1 the proto-form was not reconstructed due to the diversity of its phonetic representation in

the different languages: boye, be, bin, be . From the M2 evidence it is fairly clear that the be forms are cognate. The other forms, however, are extremely suspicious. The sure cognates from both corpuses are: (M1) be, be (M2) pe, bi, bi . The cognate forms in Group C are: ---, bia, βela, and from Group A: bira, --- . In view of this evidence, the vowel chosen will be */i/ since it appears to be the most widespread throughout the languages. Again, the reconstruction is tentative.

'Straight': ---, tɛɛ, tɛlini, tilin, latɛn-ni is probably a case of metathesis in the final form. The other three forms make the consonant structure clear, but the vowel structure again is guesswork. The two vowels in the proto-form were probably different high front vowels, with assimilation leveling the difference in languages such as Konyanka and Diakhanka. *M1 speaks for a */tilen/ reconstruction, whereas W above and Kuranko from Group C speak for */tɛlinin/. Which is the correct reconstruction is impossible to say, and both will be entered as possible reconstructions, one in *M1 and one in *M2.

Seven words have straight [i] correspondences in M2 in final position. Three words have an [o] reflex in Diakhanka, found in many cognate forms just as was seen in M1. These may be reconstructed */i/.

The other four irregularities concerning high front vowels in final position are: 'water': je, ji, ji, ji-o, ji ; 'hair': kun-sye, kun-zi, kun-si, ---, kun-ze; 'rain': ---, sɛn-ji, ---, sɛn-ji-o, sɛn-ge. and 'hit': ---, gbasi, gbɛse, goso-ro, gbasi .

'Water' and 'rain' are from the same word */ji/ and are clearly cases of vowel lowering. The same should be said for the other two words. *M1 clearly supports this reconstruction for both words, and Group C adds confirmation for 'hit'. The /-o/ suffix is seen again in 'water' and 'hit', assimilating in the one and not the other.

The high-mid front vowels are consistent in four cases in M2, the only irregularity being 'one': ---, keɛ, keɛ, keɛ, keɛ . The consensus of the languages with this cognate form is for an */e/ reconstruction for final position.

There are two exceptions in five occurrences of low-mid front vowels in final position: 'fish': yige, jɛɛ, nyɛɛ, yɛgo, yɛɛ and 'not': --, tɛ, tɛ,

te, de . The support for an */ɛ/ reconstruction for 'fish' is given strongly in M1 and Group A. It is evenly divided between */ɛ/ and */e/ in Groups B and C. The choice is a tentative */ɛ/.

The cognate forms in M1 also suggest an */ɛ/ reconstruction for 'not'.

3.2.1.2. Mid. In medial position there is only one aberrance in twelve occurrences of [a]: 'hit': ---, gbasi, gbest, goso-ro, gbasi . This vowel is reconstructed as */a/ on very skimpy evidence. There is only one example of it in M1, and two of three forms confirm it in Group C, the other supporting */ɛ/. The fact that the latter language in Group C is Kuranko, much more closely related to the Mandekan Group than the other two languages, suggests a shared change in Kuranko and the core of Mandekan not undergone in Group C. The [o] reflex in Diakhanka may again be the suffix absorbing the final vowel followed by assimilation across [s].

The mid vowel is extremely stable in final position in M2 as it is in M1. Only four of twenty examples are irregular, and those deviate only slightly. All of these irregularities involve the /-o/ replacement of final [a] in Diakhanka. These reconstructions are strongly */a/. The curious circumstance here is that this suffix appears in the verbs 'kill' and 'say'. It may be that the /-o/ suffix is a citation form for many kinds of words, or it may be that the informant supplied the nominal forms of these verbals to the investigator. The question cannot be answered here.

3.2.1.3. Back. The high back vowels in medial position are relatively consistent. There are only four exceptions in thirteen occurrences.

'Stand': uli, wuli, wuli, wii shows a [u] to [i] assimilation.

'What': ---, mun, mun, mun, min shows the same apparent change as 'stand' in a completely different environment. This may be a confusion of 'what' with 'which', a relative pronoun in languages such as Bambara which phonetically are identical to the Mauka elicitation in these data. If this is not the case, then there is no explanation offered. All of the groups suggest a */u/ reconstruction.

'Eat': du, dun, don, domo-ro, --- is problematic. When compared with M1, there is a strong prejudice to opt for a */u/ reconstruction with vowel lowering to explain the [o] and [ɔ] reflexes above. However,

Kuranko also shows an [o] reflex, as do the rest of Groups A and C. This suggests an */o/ to [u] change after the Mandekan Group split from Group C and possibly after Kuranko separated from the core of Mandekan. Nevertheless, a couple of the languages in Mandekan have retained the */o/ . Interesting to note also is that it is Diakhanka, one of the [o] retaining languages which shows vestiges of bisyllabicity not shown in the other languages of M2. M1 also retains bisyllabic forms in three of the four languages, all pointing up an */m/ nasal.

'Ear': to, toro, tolo, tulo, too appears to fit well into the pattern of the */o/ correspondence with [o: o: o: u: o]. There is evidence, however, that it in fact should be reconstructed as */u/ . M1 languages are divided, two suggesting */o/ and two suggesting */u/ . Group C also shows an [o] reflex. On the other hand, Groups A and B show a [u] reflex. It is much more probable in these languages for [u] to assimilate across [] to the final [o] than to assume some type of [o] raising to [u], Diakhanka notwithstanding. Furthermore, it is more likely to assume that Group C changed in accordance with some of the Mandekan languages to which it is closely related, than to assume Groups A and B changed in accordance with the other Mandekan languages to which they are more distantly related. The support lends itself more probably to a */u/ reconstruction with a widespread assimilation process in Mandekan to explain the [o] reflex. If this is the case, then the Diakhanka [u] either did not change because of its environment, or it changed to [o] and then later changed back to [u] because of the [o] to [u] vowel change current in Diakhanka in this environment.

The last high back vowel exception concerns what must be a recent suffix in 'leaf': ---, fla-buru, fula-buru, ---, fla-bo. This suffix form is only shared by Dyula in M1 and is therefore not of great importance to the overall reconstruction. The vowel was most likely a final */u/ .

There are no aberrances in five examples of final high back vowels.

Only three occurrences of high mid back vowels are deviant.

'Moon': kalo, kalo, karo, karu, shows an [o] to [u] change in final position. Little insight can be offered here, except that this is

the only example in the data in which the vowel [u] follows [a]. */o/ is indicated as the proto-segment in *M1 and Group C.

'Big': bu, buya, jo, bon, bo is a case of questionable cognation. If the first two words are cognate with the last three, the [o] to [u] change is not understood. The last three words correspond nicely with M1 and Groups A and B. In the absence of further evidence, 'big' will be reconstructed on the basis of the last three languages alone with */o/.

'Nail': ---, bolo-konin-fara, bolo-soni, sonin-go, soin-va is an extremely tentative */o/ reconstruction, as in *M1.

There are three exceptions to the */o/ correspondence in medial position in twelve occurrences.

'Belly': ko, kono, kondon, kono, koo was tentatively reconstructed */o/ in *M1, with one reflex of [o] and three of [ɔ]. Studying the other groups is not much help, since Group B, the only group with cognate forms, shows both reflexes also. S.W. Mande shows a [ko] cognate form, however, suggesting the vowel may have been [o] with lowering in nasal environments throughout these languages. The reconstruction will be a tentative */o/ for that reason.

'Bird': ko, kono, ---, kono, koon reconstructs strongly as */o/ in *M1. The support from the other languages under study is scattered. A tentative */o/ is reconstructed in *M2.

'Sleep': sinogo, sunu, sunogo, sinoxo, sinoo-ke reconstructs as */o/ in *M1. Here, too, it is tentatively reconstructed */o/.

One exception exists in eight examples of low mid back vowels in final position: 'belly': ko, kono, kondon, kono, koo. If in fact this final vowel was [o] and the medial vowel was the same, then it is difficult to know which vowel changed and which was assimilated subsequently. The reconstruction is guesswork at best, with the possibility of both vowels having been either [o] or [ɔ]. Choosing the former would necessarily imply more widespread change. The latter will tentatively be assumed with a subsequent change of the vowel in monosyllables.

22. 'hand' : *bolo	48. 'root' : *lili?	74. 'say' : *kuma
23. 'foot' : *sgn	49. 'milk' : *nono	75. 'hear' : *men
24. 'knee' : ?	50. 'grease' : *ke *tulu?	76. 'wash' : *k(w)o
25. 'nail' : *bolo-sonin	51. 'egg' : *kili	77. 'see' : *ye
26. 'breast' : *sin	52. 'bird' : *kono	78. 'give' : *di
27. 'belly' : *kon(d)o	53. 'fish' : *nyege	79. 'eat' : *domo
28. 'navel' : *bata-kun	54. 'snake' : *sa	80. 'drink' : *min
29. 'skin' : *gbolo	55. 'dog' : *wulu	81. 'kill' : *faga
30. 'bone' : *kolo	56. 'big' : *bon?	82. 'cut' : *tege
31. 'blood' : *ile	57. 'small' : *dogo(n)?	83. 'hit' : *gbasi
32. 'sky' : *san	58. 'black' : *fin	84. 'sew' : *kala
33. 'fire' : *ta	59. 'white' : *gbe	85. 'I' : *ne
34. 'water' : *ji	60. 'good' : *nyi	86. 'you' : *i
35. 'meat' : *sogo	61. 'new' : *kuta	87. 'he' : *a
36. 'salt' : *kogo	62. 'old' : *koto	88. 'we' : *an?
37. 'many' : *sia-ma	63. 'hot' : *gban(do)	89. 'they' : *a(n)?
38. 'stone' : *kaba	64. 'cold' : *suma(n)	90. 'who' : *jon
39. 'sun' : *tele	65. 'dry' : *ja-le?	91. 'what' : *mun
40. 'moon' : *kalo	66. 'straight' : *telini	92. 'not' : *te
41. 'night' : *su	67. 'come' : *na	93. 'long' : *jan
42. 'rain' : *san-ji	68. 'sit' : *sigi	94. 'short' : *suntu?
43. 'smoke' : *sisi	69. 'lie' : *la	95. 'here' : *yan
44. 'sand' : *kenye	70. 'sleep' : *sinogo	96. 'few' : *don(di)
45. 'rope' : *julu	71. 'die' : *sa?	97. 'all' : *be
46. 'tree' : *yiri	72. 'fall' : *bi	98. 'path' : *sila
47. 'leaf' : *fila	73. 'stand' : *wuli	99. 'in' : *kono
		100. 'if' : *ni

Key: ____ : underscoring reflects tentative reconstruction of a segment.
 () : indicates uncertainty of a reconstructed segment having existed.
 ? : indicates that the reconstruction was from less than all four languages.

4. Reconstructing Proto-Mandekan

Proto-Mandekan will be reconstructed using *M1 and *M2 cognates.

4.1. Mandekan consonants.

Table 15 — Initial Consonants

<u>Labials</u>			No. of Corr. -
22. 'hand'	28. 'navel'	56. 'big'	
*M1: [b] olo	[b] ata	[b] on	4
*M2: [b] olo	[b] ata-kun	[b] on?	
7. 'person'	9. 'woman'	75. 'hear'	
*M1: [m] oq'o	[m] uso	[m] ɛn?	7
*M2: [m] ogo	[m] uso	[m] ɛn	
55. 'dog'	73. 'stand'		
*M1: [w] ulu	[w] uli		2
*M2: [w] ulu	[w] uli		
3. 'two'	11. 'father'	58. 'black'	
*M1: [f] iɪa	[f] a	[f] in	5
*M2: [f] iɪa	[f] a?	[f] in	
<u>Dentals</u>			
10. 'child'	78. 'give'	18. 'mouth'	
*M1: [d] en	[d] i	[d] a	5
*M2: [d] in	[d] i	[d] a	
17. 'ear'	39. 'sun'	33. 'fire'	
*M1: [t] uɔ	[t] iɪe	[t] a	7
*M2: [t] uɔ	[t] iɪe	[t] a	
49. 'milk'	67. 'come'	15. 'nose'	
*M1: [n] ɔnɔ	[n] a	[n] un	7
*M2: [n] ɔnɔ	[n] a	[n] un	
4. 'three'	23. 'foot'	26. 'skin'	
*M1: [s] aba	[s] ɛn	[s] in	16
*M2: [s] aba	[s] ɛn	[s] in	
<u>Resonants</u>			
6. 'five'	69. 'lie'	48. 'root'	
*M1: [l] ooɪ'u	[l] a	[l] iɪi	4
*M2: [l] oɔ	[l] a	[l] iɪi	

<u>Palatals</u>			No. of Corr.
34. 'water'	45. 'rope'	65. 'dry'	
*j/			
*j1: [j] i	[j] uu	[j] a-len	4
*j2: [j] i	[j] ulu	[j] a-le	
16. 'eye'	19. 'tooth'	60. 'good'	
*ny/			
*ny1: [ny] a	[ny] in	[ny] in	4
*ny2: [ny] a	[ny] in	[ny] i	
46. 'tree'	77. 'see'	95. 'here'	
*y/			
*y1: [y] i ri	[y] e	[y] an	3
*y2: [y] i ri	[y] e	[y] an	
<u>Velars</u>			
13. 'head'	30. 'bone'	36. 'salt'	
*k/			
*k1: [k] un	[k] olo	[k] ɔq'o	17
*k2: [k] un	[k] olo	[k] ɔgɔ	

The [k:k] correspondences and the [k':k] correspondences do not differ in their environments and appear to both be etymologically reconstructed */k/ in Proto-Mandekan. The Xassonke [x] reflex in M1 appears to be some type of random variant.

Labio-velars

63. 'hot'	59. 'white'	83. 'hit'	
*gb/			
*gb1: [gb] an?	[gb] ɛ	[gb] ?	3
*gb2: [gb] an(d)o	[gb] ɛ	[gb] asi	

Table 16 — Medial Consonants

<u>Labials</u>			No. of Corr.
4. 'three'	38. 'stone'		
*b/			
*b1: sa [b] a	ka [b] a		2
*b2: sa [b] a	ka [b] a		
64. 'cold'	74. 'say'	79. 'eat'	
*m/			
*m1: su [m] an	k'u [m] a	du [m] un	3
*m2: su [m] an	k u [m] a	do [m] o	
<u>Dentals</u>			
28. 'navel'	61. 'new'	62. 'old'	
*t/			
*t1: ba [t] a	ku [t] a	k'o [t] o	3
*t2: ba [t] a-kun	ku [t] a	ko [t] o	

5. 'four'	49. 'milk'	70. 'sleep'	No. of Corr.
*n/ *M1: naa [n] in	no [n] o	si [n] o	7
*M2: na [n] i	no [n] o	si [n] o	
9. 'woman'	43. 'smoke'		2
*s/ *M1: mu [s] o	si [s] i		
*M2: mu [s] o	si [s] i		
<u>Resonants</u>			
2. 'one'	3. 'two'	22. 'hand'	14
*l/ *M1: ke [l] en	fi [l] a	bo [l] o	
*M2: ke [l] e	fi [l] a	bo [l] o	
46. 'tree'	47. 'leaf'		2
*r/ *M1: yi [r] i	-----		
*M2: yi [r] i	fila-bu [r] u		
<u>Velars</u>			
1. 'name'	53. 'fish'	57. 'small'	8
*g/ *M1: to [g] o	nye [g] e	do [g] o	
*M2: to [g] o	nye [g] e	do [g] o(n)	

Table 17 — Final Consonants

<u>Dental</u>		No. of Corr.
10. 'child'	15. 'nose'	23. 'foot'
*n/ *M1: de [n]	nu [n]	se [n]
*M2: di [n]	nu [n]	se [n]

4.1.1. Discussion of Mandekan consonant irregularities. Many of the irregularities which would have normally obtained have been leveled by the reconstruction methods used in this paper. Since irregular matchings are submitted to comparison with other language groups, the tentatively reconstructed forms tend to be much more homogeneous at the level where *M1 and *M2 are stirred together to reconstruct Proto-Mandekan.

4.1.1.1. Labials. Only one inconsistency exists in the labial series in any position. 'Mother': *na, *ma shows an [n:m] matching in initial position. It is most probable that these forms are not cognate. In fact, three forms seem to vary throughout the Mandekan languages: [ma], [na] and [ba]. These may be but are probably not cognate.

4.1.1.2. Dentals. 'Short': *sutun, *suntu is the only inconsistent dental matching. As argued in section 3.1.1.2., the best tentative guess is that the form was originally */suntu/ in Proto-Mandekan and underwent a metathesis.

4.1.1.3. Resonants. The resonants, irregular in the languages of Mandekan, are regular at this level of the reconstruction. The assumption made, and the tentative reconstructions proposed, point to the conclusion that */l/ was the primary resonant in Proto-Mandekan, the exception being */yiri/. The [r] has developed in medial position since that time to various degrees in the different languages.

4.1.1.4. Palatals. Palatals likewise are very irregular throughout the languages. */j/ is the most reconstructable palatal, with a few tentative reconstructions of both */y/ and */ny/.

4.1.1.5. Velars. The velar irregularities have also been ironed out, especially as concerns what appears to be a somewhat random palatalization of */k/ to [c] in some present forms. There also appears to be no reasonable explanation for what was reconstructed as */k'/ and */g'/ in Ml. These forms appear to reconstruct nicely with */k/ and */g/ in Proto-Mandekan. All that can be said at this point is that Xassonke (Ml) developed an [x] in some words which etymologically had */k/ in initial position, while other words retained the [k]. Similarly, Dyula (Ml) developed [ɣ] in some words which etymologically had */g/, while retaining [g] in others.

4.1.1.6. Labio-velars. These also show no irregularities.

4.1.1.7. Proto-Mandekan consonant system. It is important after having discussed individual proto-segments in depth to spend some time discussing the proto-system as a whole. The first major observation to be made is the absence of palatal consonants in medial position. Medial position is also devoid of */t/, */w/, */d/ and */gb/. Although initial position has a system of labials, dentals, palatals, velar and labio-velar, medial position has only labials, dentals and a velar. The only proto-segment occurring in medial position to the exclusion of initial position is */r/ which, as previously mentioned, is a highly tentative reconstruction. It is clear that many of the occurrences of [r] in the modern languages come from original */t/ or */l/.

The patterning of these series (i.e. dentals, velars, etc.) is also an interesting phenomenon in Proto-Mandekan. By far the most frequently used phonemes in both initial and medial positions were dental and velar. Within the dental series it is most interesting to note that */l/ was very common in medial position but not in initial position. On the other hand */s/ was very common and */t/ relatively common in initial position but not in medial position. */n/ was relatively common in both positions, as well as being the only consonant permitted in final position (where it was very frequent). */k/ and */g/ were in complimentary distribution, the former occurring initially and the latter medially. One might prefer to analyze [k] and [g] as allophones of one phoneme */k/ but this does not seem necessary for the purposes of this paper. */k/ and */g/ best preserve the phonetic quality of these segments in their respective positions. Whatever the analysis, velars were very common especially in initial position.

The most problematic aspect of the reconstruction of Proto-Mandekan consonants concerns laterals in medial position and palatals in initial position. Further data must be gathered before these problems can be solved with any assurance of success.

4.2. Mandekan vowels.

Table 18 — Medial Vowels

<u>Front</u>				<u>No. of Corr.</u>				
	19. 'tooth'	43. 'smoke'	51. 'egg'					
*/i/	M1: *ny <table border="1"><tr><td>i</td></tr></table> n	i	s <table border="1"><tr><td>i</td></tr></table> si	i	k <table border="1"><tr><td>i</td></tr></table> li	i	16	
	i							
i								
i								
M2: *ny <table border="1"><tr><td>i</td></tr></table> n	i	s <table border="1"><tr><td>i</td></tr></table> si	i	k <table border="1"><tr><td>i</td></tr></table> li	i			
i								
i								
i								
	2. 'one'	65. 'dry'						
*/e/	*M1: k <table border="1"><tr><td>e</td></tr></table> l <table border="1"><tr><td>e</td></tr></table> n	e	e	ja-l <table border="1"><tr><td>e</td></tr></table> n	e		3	
	e							
e								
e								
*M2: k <table border="1"><tr><td>e</td></tr></table> l <table border="1"><tr><td>e</td></tr></table> n	e	e	ja-l <table border="1"><tr><td>e</td></tr></table> ?	e				
e								
e								
e								
	20. 'tongue'	23. 'foot'	53. 'fish'					
*/ε/	*M1: n <table border="1"><tr><td>ε</td></tr></table> n	ε	s <table border="1"><tr><td>ε</td></tr></table> n	ε	ny <table border="1"><tr><td>ε</td></tr></table> gɛ	ε	5	
	ε							
ε								
ε								
*M2: n <table border="1"><tr><td>ε</td></tr></table> n	ε	s <table border="1"><tr><td>ε</td></tr></table> n	ε	ny <table border="1"><tr><td>ε</td></tr></table> gɛ	ε			
ε								
ε								
ε								
<u>Mid</u>								
	4. 'three'	21. 'neck'	28. 'navel'					
*/a/	*M1: s <table border="1"><tr><td>a</td></tr></table> ba	a	k <table border="1"><tr><td>a</td></tr></table> n	a	b <table border="1"><tr><td>a</td></tr></table> tɔ	a	14	
	a							
a								
a								
*M2: s <table border="1"><tr><td>a</td></tr></table> ba	a	k <table border="1"><tr><td>a</td></tr></table> n	a	b <table border="1"><tr><td>a</td></tr></table> tɔ-kun	a			
a								
a								
a								

<u>Back</u>						<u>No. of Corr.</u>
*/u/	*M1:	m	u	so	13.	'head'
	*M2:	m	u	so		
*/o/	*M1:	b	o	lo	22.	'hand'
	*M2:	b	o	lo		
*/ɔ/	*M1:	t	ɔ	go	1.	'name'
	*M2:	t	ɔ	go		
*/ɛ/	*M1:	k	ɛ		53.	'fish'
	*M2:	k	ɛ			
*/a/	*M1:	f	i	a	3.	'two'
	*M2:	f	i	a		
*/ɔ/	*M1:	tɔg	ɔ		7.	'person'
	*M2:	tɔg	ɔ			

Table 19 — Final Vowels

<u>Front</u>						<u>No. of Corr.</u>
*/i/	*M1:	j	i		31.	'blood'
	*M2:	j	i			
*/e/	*M1:	t	e		39.	'sun'
	*M2:	t	e			
*/ɛ/	*M1:	k	ɛ		6.	'man'
	*M2:	k	ɛ			
*/a/	*M1:	f	i	a	4.	'three'
	*M2:	f	i	a		
*/u/	*M1:	l	oo	l	41.	'night'
	*M2:	l	oo	l		
*/o/	*M1:	m	u		9.	'woman'
	*M2:	m	u			
*/ɔ/	*M1:	tɔg	ɔ		1.	'name'
	*M2:	tɔg	ɔ			

Back

*/u/	*M1:	l	oo	l	41.	'night'
	*M2:	l	oo	l		
*/o/	*M1:	m	u		9.	'woman'
	*M2:	m	u			
*/ɔ/	*M1:	tɔg	ɔ		1.	'name'
	*M2:	tɔg	ɔ			

4.2.1. Discussion of Mandekan vowel irregularities. Only a few problems remain to be solved in the vowel series.

4.2.1.1. Front. There are three irregularities in medial position which accidentally converge into an [i:ɛ] correspondence. 'Sun': *t_ile, *t_ile, 'straight': *t_ilen, *t_elin and 'cut': *t_ige, *t_ege all share the same correspondence.

'Cut' was probably an [i-ɛ] vowel sequence in which [i] assimilated to [ɛ] in some of the languages of Ml. The high front vowel is also attested in Group C in Vai [t_iɛ]. Kuranko also shows the high front vowel in the monosyllable [t_i], while Kono has assimilated it to [ɛ] in [t_e] after consonant deletion. This will tentatively be reconstructed as */t_ige/.

'Straight' is best reconstructed as an [ɛ-i] sequence. Kuranko [t_elinin] supports this reconstruction. Ligbi [t_elene] at least supports a reconstruction of [ɛ] with the second vowel having been lowered. This will tentatively be reconstructed as */t_elin/.

'Sun' is more difficult even to guess at. Since these languages do not as a rule raise mid front vowels to high front vowels, the assumption will be made that the *t_il form */t_ile/ is correct, with lowering in *t_e2 being an assimilatory process across [i].

'Child': *den(dən), *d_in poses a similar problem to 'sun' requiring much the same solution. The other N. Mande groups support the */d_in/ reconstruction.

'I': *n_e, *ne is easily resolved. All languages of Ml except Dyula have deleted the final vowel leaving [n] as the phonetic shape of this word. The vowel needed to be reconstructed in *Ml since it is attested. However, this is the only instance of [ɛ] in all of the languages under consideration, the rest having deleted the vowel or attesting [e]. This should then be reconstructed */ne/.

4.2.1.2. Mid. These vowels are entirely regular.

4.2.1.3. Back. There are four problems to be resolved concerning back vowels in Proto-Mandekan.

'Belly': *k_ono, *kon(d)o has been previously dealt with (cf. section 3.2.1.3.). The evidence from S.W. Mande suggests */o/o/.

'Eat': *dumun, *domon has also been discussed (section 3.2.1.3.).
The tentative reconstruction will be */o/.

'Who': *jɔn, *jon is difficult to sort out. The best solution appears to be a tentative */o/ reconstruction with vowel lowering explaining the [ɔ] reflex.

Reconstruction of vowels in the words above is difficult because of the inconsistent patterning within the vowel system change. Although there appear to be general tendencies, such as vowel lowering in prenasal positions, the exceptions are so many that any attempt at explanation is ad hoc. This is especially true concerning slight vowel changes such as [u] to [o] or [o] to [ɔ]. However, a few words showing great divergence in vowel forms are difficult problems also. For example, 'blood': *jɔli, *jɛli shows an [o:ɛ] matching for which a solution has not yet been found. The most distantly related cognates show high back vowels, so */o/ will be opted for tentatively.

4.2.1.4. Proto-Mandekan vowel system. It is important especially for the Mande languages to investigate the vowel system as a whole because of the harmony systems involved. The chart below illustrates the point. Words of two or more syllables were compared to each other for vowel sequences. The i-i or e-e listings represent the vowel sequences in the words. The numbers to the right of these listings indicate the number of occurrences of the listing found in the data.

Table 20 — Vowel Sequence

<u>Like Vowels</u>		<u>'i' Combinations</u>	
i-i (7)	u-u (4)	---	---
e-e (2)	o-o (8)	i-e (1)	---
ɛ-ɛ (1)	ɔ-ɔ (9)	i-ɛ (1)	i-ɔ (1)
	a-a (5)		i-a (4)
<u>TOTAL: 36</u>			
<u>Other Combinations</u>		---	u-i (1)
?u-e (1), u-a (3), u-o (2)		---	o-i (2)
o-u (1), a-o (2)		ɛ-i (1)	ɔ-i (1)
?ɛ-e (1)			a-i (2)
<u>TOTAL: 10</u>		<u>TOTAL: 14</u>	

The "like vowel" combinations were not counted in the "non-like vowel" combinations. The breakdown for "like vowel" combinations and "non-like vowel" combinations is as follows:

(11) Like vowel combinations =	36
i combinations =	14
a combinations =	11
u combinations =	8
o combinations =	7
e combinations =	3
ɛ combinations =	3
ɔ combinations =	2

It should be mentioned that the totals do not add up for a reason. "Non-like vowel" combinations such as a-i were entered twice in the breakdown above, once as an a combination and once under i.

These statistics are significant evidence of the preference of Proto-Mandekan for like vowel sequences, explaining in part the rampant vowel assimilation occurring in these languages.

A few other interesting facts can be drawn from the data. First of all, the most likely vowels to combine with other vowels are [i] and [a], the least likely being the mid vowels [e], [ɛ] and [ɔ] which are very rare in "non-like vowel" combinations. This is not particularly remarkable for [e] and [ɛ] which are difficult to reconstruct even in "like vowel" sequences. They are simply vowels which are infrequently used (in these data). [ɔ], on the other hand, is extremely common in "like vowel" sequences yet very rare in "non-like vowel" sequences, occurring only twice, both times in combination with [i].

In Proto-Mandekan, then, the overwhelming tendency seems to have been vowel harmony. When this did not obtain in polysyllabic words [i] and [a] played a neutral role, combining with the other vowels fairly frequently. The mid vowels ([ɛ] excepted) had a much more restricted frequency of occurrence.

Table 21 — Proto-Mandekan System

<u>Consonants</u>			<u>Initial</u>		<u>Vowels</u>	
	*t		*k			
*b		*d		*j		
*f		*s			*gb	
	*m		*n	*ny		
			*l			
*w				*y?		
<u>Consonants</u>			<u>Medial</u>		<u>Vowels</u>	
	*t					
*b			*g		*i	*u
	*s				*e?	*o
*m?		*n			*e?	*o
		*l				
		*r?			*a	
<u>Consonants</u>			<u>Final</u>		<u>Vowels</u>	
					*i	*u
					*e?	*o
					*e	*o
						*a
	*n					

Table 22 — Reconstructed Word List - Proto-Mandekan

1. 'name' : *togo	9. 'woman' : *muso	17. 'ear' : *tulo
2. 'one' : *ke len	10. 'child' : *din	18. 'mouth' : *da
3. 'two' : *fjila	11. 'father' : *fa?	19. 'tooth' : *nyin
4. 'three' : *seba	12. 'mother' : *ma? ~ *na?	20. 'tongue' : *nen(e)
5. 'four' : *naani(n)	13. 'head' : *kun	21. 'neck' : *kan
6. 'five' : *lolu	14. 'hair' : *kun-si(gi)?	22. 'hand' : *bolo
7. 'person' : *mogo	15. 'nose' : *nun	23. 'foot' : *sen
8. 'man' : *ke	16. 'eye' : *nya	24. 'knee' : *kumbe len ?

Table 22 (continued)

25. 'nail' : * <u>bolo</u> -sonin	50. 'grease' : * <u>ken</u> ~* <u>tulu</u> ?	75. 'hear' : * <u>m</u> en
26. 'breast' : *sin	51. 'egg' : *(sise-)kili	76. 'wash' : *k(<u>w</u>)o
27. 'belly' : * <u>kondo</u>	52. 'bird' : * <u>k</u> ono	77. 'see' : * <u>y</u> e
28. 'navel' : *bata(-kun)	53. 'fish' : * <u>n</u> vEge	78. 'give' : * <u>d</u> i
29. 'skin' : * <u>gb</u> olo	54. 'snake' : *sa	79. 'eat' : * <u>d</u> omo(n)
30. 'bone' : *kolo	55. 'dog' : *wulu	80. 'drink' : *min
31. 'blood' : * <u>j</u> oli	56. 'big' : * bon?	81. 'kill' : *faga
32. 'sky' : *san(-kolo)	57. 'small' : * <u>d</u> ogo(n)?	82. 'cut' : * <u>t</u> ige
33. 'fire' : *ta	58. 'black' : *fin	83. 'hit' : * <u>g</u> basi?
34. 'water' : *ji	59. 'white' : * <u>g</u> bE	84. 'sew' : * <u>k</u> ala
35. 'meat' : *sogo?~*sobo?	60. 'good' : * <u>n</u> yi(n)	85. 'I' : *ne
36. 'salt' : * <u>k</u> ogo	61. 'new' : *kuta	86. 'you' : * <u>i</u>
37. 'many' : * <u>s</u> ia-ma?	62. 'old' : *koto	87. 'he' : *a
38. 'stone' : *kaba	63. 'hot' : * <u>g</u> bando	88. 'we' : *an?
39. 'sun' : * <u>t</u> ile	64. 'cold' : *suma(n)	89. 'they' : *a(n)?
40. 'moon' : * <u>k</u> alo	65. 'dry' : *ja-le(n)?	90. 'who' : *jon
41. 'night' : * <u>s</u> u	66. 'straight' : * <u>t</u> eli ⁿ i	91. 'what' : *mun
42. 'rain' : *san-ji	67. 'come' : *na	92. 'not' : * <u>t</u> e
43. 'smoke' : *sisi	68. 'sit' : * <u>s</u> igi	93. 'long' : *jan
44. 'sand' : * <u>k</u> enyE(n)	69. 'lie' : *la	94. 'short' : * <u>s</u> untu?
45. 'rope' : *ju ^u	70. 'sleep' : * <u>s</u> inggo	95. 'here' : *yan
46. 'tree' : *yiri	71. 'die' : *sa?	96. 'few' : * <u>d</u> ondi
47. 'leaf' : * <u>f</u> ila	72. 'fall' : * <u>b</u> i?	97. 'all' : * <u>b</u> e
48. 'root' : *lili(n)?	73. 'stand' : *wu ^{li}	98. 'path' : * <u>s</u> ila
49. 'milk' : *nono	74. 'say' : * <u>k</u> uma	99. 'in' : *kono
		100. 'if' : *ni

Key: : underscoring reflects tentative reconstruction of a segment.
 () : indicates uncertainty of a reconstructed segment having existed.
 ? : indicates that the reconstruction was from less than all languages.

5. Reconstructing Group C

Group C of NM is composed of Vai and Kono. After reconstructing *C it will be stirred together with *Mandekan to reconstruct *C-Mandekan.

As stated in subsection 1., Kuranko was originally grouped with Vai and Kono to form one group in Long's paper. Recent calculation, however, indicate a closer relationship of Kuranko to Mandekan than to either Kono or Vai, as shown in (12) below. Long suggests that Kuranko

(12)	<u>Languages</u>	<u>Mean Percent Cognation</u>
	Kuranko-Maninka	75%
	Kuranko-Bambara	77%
	Kuranko-Vai	70%

may be part of a dialect chain connecting Mandekan languages to Vai and Kono:

"What has been unclear in the past is the relationship between Vai, Kono and the Mande core or Mandekan. From my calculations ...there is some evidence that these two languages are connected to Mandekan by a dialect chain which passes through the little known Kuranko dialect spoken in Sierra Leone. Kuranko has previously been assumed to be simply Maninka as it is spoken in Sierra Leone. However, even though Kuranko is closely related to Maninka and other of the core dialects, it is more closely related to Vai and Kono." (Long, 1971, Ch. 2, pp. 6-7)

By the calculations provided above, Kuranko is closer to Mandekan than to Vai or Kono, unlike Long's findings, making Kuranko a Mandekan rather than Group C language.

There remains one unsolved problem, however. Generally speaking, idiolects of the Mandekan Group consistently score in the 80 to 90 percent range with each other. These statistics do not match the scores of 75% and 77% which Kuranko has with the core languages Bambara and

Maninka. If Kuranko is a member of Mandekan, why does it score so low with the core languages?

The answer seems to lie in the geographic relation of Group C to Kuranko, which are adjacent languages. Kuranko appears to have borrowed very heavily from its nearest neighbor, Kono, even in core vocabulary. There are fourteen instances in Long's 100 word list in which a word in Kuranko is not cognate with Mandekan but is cognate with Group C. This is a very high percentage indeed when one considers that Kuranko is genetically closer to Mandekan than to C. If these fourteen lexical items are assumed to have been borrowed into Kuranko from Kono, perhaps replacing fourteen items originally cognate with Mandekan, then an explanation for these low percentages suggests itself. Recall that Kuranko presently relates to Mandekan at about 76%. However, if 14% of its cognates with Mandekan were replaced by non-cognate items, i.e. items borrowed from Group C, then a 14% discrepancy will have arisen between Kuranko and Mandekan. The statistics suggest this may be the case. Adding 14% to 76% we obtain a sum of 90% presumed cognation between Kuranko and Mandekan prior to borrowing from Kono, placing Kuranko in the heart of Mandekan. Even if only half of the items borrowed from Kono were assumed to have replace items cognate with Mandekan the sum remains in the mid 80's. I conclude that although it was probably the first to branch from Mandekan, Kuranko nevertheless is a Mandekan rather than Group C language.

It should be noted here as well that such extensive lexical borrowing into Kuranko from Kono has resulted in higher cognation percentages between these two than would otherwise be the case, another factor

leading to a possible false grouping of Kuranko with Group C.

There is still a more convincing argument for the classification of Kuranko with Mandekan rather than Group C which involves shared grammatical constructions. Of fifteen grammatical expressions taken by Welmers (personal communication) at random from New Testaments of Kono, Kuranko, and Maninka, seven were found to agree between Kuranko and Maninka to the exclusion of Kono (or Vai, for that matter). The other eight expressions were inconclusive for classification purposes. His conclusion is that there is absolutely no grammatical evidence to support the inclusion of Kuranko in Group C and considerable evidence for its inclusion in Mandekan.¹

5.1. Group C Consonants. As in the previous reconstructions, three examples of each sound correspondence will be given in the right column. K will be used to signify Kono and V to signify Vai.

Table 23 - Initial Consonants

<u>Labials</u>			<u>No. of Corr.</u>	
	22. 'hand'	27. 'belly'	28. 'navel'	
*b/	K: [b] oo	[b] u	[b] aa	6
V:	[β] olo	[β] u'	[β] ala	
	7. 'person'	9. 'woman'	80. 'drink'	
*m/	K: [m] usn	[m] usu	[m] in	5
V:	[m] o	[m] usu	[m] i	
	31. 'blood'	55. 'dog'		
*w/	K: [w] i	[w] uu		2
V:	[w] oli	[w] ulu		

LabialsNo. of Corr.

11. 'father'	3. 'two'	58. 'black'	
*/f/ K: f a	f éáŋ	f in	5
V: f a	f éla	f íŋ	

Dentals

18. 'mouth'	10. 'child'	79. 'eat'	
*/ð/ K: ð a	ð e	ð aun ²	4
V: ð a	ð eŋ	ð oŋ	
17. 'ear'	39. 'sun'	82. 'cut'	
*/t/ K: t oo	t ee	t t̥	7
V: t olo	t ele	t t̥	
20. 'tongue'	67. 'come'	5. 'four'	
*/n/ K: n ɛnɛ (-nɛ)	n a	n ani	5
V: n t̥	n a	n aani	
15. 'nose'	41. 'night'	69. 'lie'	
*/s/ K: s un(-ɛ)	s u	s a	10
V: s uŋ	s ulo	s a	

Resonants. No examples.

Palatals

16. 'eye'	34. 'water'	47. 'leaf'	
*/y/ K: y a	y i	y amba	5
V: j a(kpɔ)	j i	j amba	

The above correspondence is in fact what might be termed a 'misleading correspondence'. In Kono, all palatals (* /y/, */j/ and */ny/) have merged to /y/, whereas in Vai they have merged to /j/. Any cognate forms with proto */y/, */j/ or */ny/, therefore, induce the same [y:j] correspondence between Kono and Vai. Cf. section 5.1.1.4. for more details.

PalatalsNo. of Corr.

19. 'tooth'	60. 'good'	53. 'fish'	
* /ny/ K: ny in-ε	ny í	ny ε	4
V: e- ny iq	ny í	ny íε ²	

Velars

13. 'head'	21. 'neck'	52. 'bird'				
K: <table border="1"><tr><td>k</td></tr></table> un(-ε)	k	<table border="1"><tr><td>k</td></tr></table> an(-ε)	k	<table border="1"><tr><td>k</td></tr></table> unde	k	17
k						
k						
k						
V: <table border="1"><tr><td>k</td></tr></table> uŋ	k	<table border="1"><tr><td>k</td></tr></table> aŋ	k	<table border="1"><tr><td>k</td></tr></table> onde	k	
k						
k						
k						
*/k/						
23. 'foot'	64. 'cold'	98. 'path'				
K: <table border="1"><tr><td>c</td></tr></table> en(-ε) ²	c	<table border="1"><tr><td>c</td></tr></table> ima(e) ²	c	<table border="1"><tr><td>c</td></tr></table> ia	c	6
c						
c						
c						
V: <table border="1"><tr><td>k</td></tr></table> eŋ ²	k	<table border="1"><tr><td>k</td></tr></table> ima(-le)	k	<table border="1"><tr><td>k</td></tr></table> ila	k	
k						
k						
k						

In Kono, /k/ palatalizes to [c] before front vowels.
The one exception will be discussed.

Lab. Vel.

59. 'white'	65. 'dry'	83. 'hit'	
* /gb/ K: gb ε	gb ai	gb asi	5
V: kp εεma	kp ala	kp asi	

In the available data all reflexes of */gb/ as reconstructable per *Mandekan and elsewhere appear as [kp] in V except words which are demonstrably loan words such as [banda] 'sky' and [gbi] 'all', which appear to have cognates in the other groups. It is probably the case that V underwent a devoicing of */gb/ > /kp/. This change also affected labio-velars in medial position, as in V [sakpa] 'three'.

Table 24 - Medial ConsonantsLabialsNo. of Corr.

64. 'cold'	
* /m/ K: ci m a(e) ²	1
V: ki m a(-le)	

Dentals

No. of Corr.

	5. 'four'	42. 'rain'	89. 'they'	
* /n/	K: na [n] i	so [n] a	a [n] u	4
	V: naa [n] i	so [n] a	a [n] u	
	9. 'woman'	43. 'smoke'	83. 'hit'	
* /s/	K: mu [s] u	si [s] i	gba [s] i	5
	V: mu [s] u	si [s] i	kpa [s] i	

Resonants

	17. 'ear'	22. 'hand'	39. 'sun'	
* /l/	K: to [l] o	bo [l] o	te [l] o	16
	V: to [l] o	bo [l] o	te [l] e	

Kono has deleted intervocalic /l/.

Palatals. No examples.

Velars. No examples. That these segments existed is very likely. However, they probably also occurred far less frequently in medial position than dentals, for example, and therefore were easily eliminated from occurrence in cognate forms as these words were lost.

Lab. Vel.

	4. 'three'	
?*/kp/	K: sa [w] an ³	1
	V: sa [kp] a	

Here the K form was likely borrowed from Kuranko [sawan]. See footnote 3 for extensive comments on the borrowing of Kuranko numerals into Kono.

Table 25 - Final Consonants

<u>Dentals</u>			<u>No. of Corr.</u>		
	13. 'head'	15. 'nose'	21. 'neck'		
*n/	K: ku [n] (-ε)	su [n] (-ε)	ka [n] (-ε)	10	
V:	ku [ŋ]	su [ŋ]	ka [ŋ]		

In V, [ŋ] as a final nasal has now generalized to all forms ending in nasals.

5.1.1. Discussion of Group C Consonant Irregularities.

5.1.1.1. Labials. There are no irregularities in the bilabial series in initial or medial position.

5.1.1.2. Dentals. There are no exceptions to dentals in initial position in Group C. One problem does appear in 'five': dulun, soolu. The Kono form [dulun] has clearly been borrowed into the language from nearby Kuranko.³ On the basis of both Groups A and B, *soólu can be reconstructed.

There are no irregularities in medial position.

'Drink': min, mi is the only example of final dental irregularity. The absence of [ŋ] in V is not understood, but its existence etymologically is irrefutable nevertheless.

5.1.1.3. Resonants. Resonants are sparse in Group C in initial position. There is only one word which attests resonants at all, but without much cognation in the other groups under study. It is offered here for reference for further research.

'In': o, lo are probably cognate forms and correspond to the */l/ correspondence below in medial position.

The only point of interest involving resonants in medial position regards the free alternation of intervocalic [l] with [Ø] in Vai.

'Night': su, sulo shows one occurrence of [l] in Vai where it is not supported by most of the remainder of NM. Maninka, a closely related language not used in this reconstruction, does show a [t] reflex. This is interesting in view of #28 'navel'. The form for this item in Vai is [βala], although it reconstructs as */bata/ in *M. These two examples are enough to at least suggest a */t/ to /l/ change in Vai. That there are no examples of medial [t] in Vai (or [r], for that matter) adds support to the conclusion that these proto-forms merged to /l/ in Vai. Whether this change occurred before *C split apart or not is difficult to say for certain. The lack of [t] or [r] in Kono may indicate that the proto-form was indeed */l/ and that the */t/ >*/l/ change occurred after *C-M split apart, but before Kono split from Vai. Even granted that */suto/ was the form for *C, it is still difficult to establish whether the second syllable in this form was in fact a suffix or an integral part of the root. Most of the other bisyllabic manifestations of the item in question are quite distinctly elicited as root plus suffix, but in none of these forms does the suffix resemble the second syllable of Vai or Maninka. */su(-lo)/ is tentatively reconstructed.

5.1.1.4. Palatals. Chart (13) below illustrates the [y:j] correspondence discussed in the palatal subsection in 5.1.. It is clear from the chart that this correspondence is misleading. One is led to reconstruct a single segment for this correspondence, either */y/ or */j/. However, although 'long', for example, should be reconstructed in *NM

as */y/ and 'eye' as */ny/, the correspondence in Group C is the same for both. The indication here is that all palatals have merged in Kono to /y/ and in Vai to /j/. The problem, however, is that */ny/ reconstructs very nicely in *C in 'fish' */nye/, in 'good' */nyi/ and in 'tooth' */nyin/. Here, once again, 'eye' has taken an individual path which is irregular.

(13)

	Mandekan										C		B			A	
	X	M	B	D	B	K	W	DIA	MAU	KUR	K	V	L	N	H	S	Y
16. 'eye'	ny	ny	ny	ny	ny	ny	ny	ny	ny	y	y	j	-	-	-	ny	y
34. 'water'	j	j	j	j	j	j	j	j	j	y	y	j	y/j-	-	-	y	y
45. 'rope'	j	j	j	j	y	j	j	j	j	y	y	j	j	-	-	-	-
93. 'long'	j	j	j	j	-	j	j	j	j	y	y	j	-	-	-	-	-
47. 'leaf'										y	y	j	j	j	j	-	-
77. 'see'	j	y	y	y	j	y	y	j	y	y	y	-	-	-	-	-	-
46. 'tree'	y	y	j	y	y	j	y	y	y	-	-	-	-	-	-	w	w

I am forced to conclude by the regularity of the data that Group C had but one proto-form for all of the above, even though once the reconstruction goes beyond C this no longer obtains. The problem throughout these correspondences is determining whether or not *NM had two phonemes (*y/ and */j/) or only one with a range of phonetic variation between [y] and [j]. This is where SWM may be of service. Here there is no reconstructable */j/ but only */y/. Until further evidence to the contrary, then, I reconstruct a */y/ and assume phonetic variation of this phoneme between [y] and [j].

KUR above refers to Kuranko, which I have represented here to illustrate the shared /y/ correspondences with its neighbor Kono. The influence of the latter on the former is remarkable.

There are no examples of palatals in medial position except 'sand':

---, kɛɲɛ, which should be reconstructed tentatively with */ny/.

5.1.1.5. Velars. There are no irregularities in the velar series.

5.1.1.6. Lab. Vel. One exception occurs in six examples of initial labio-velars.

'All': gbɛ, gbi may be a loan word. Although the form for 'all' in *Mandekan is */bɛɛ/, it may not be cognate. [gb] is attested for this form only in Groups C and B. The form is tentatively reconstructed nevertheless, keeping in mind this possibility.

5.2. Group C Vowels

Table 26 - Medial Vowels

<u>Front</u>								<u>No. of Corr.</u>	
		43. 'smoke'		64. 'cold'		19. 'tooth'			
*/i/	K:	s [i] si		c [i] ma(e)		ny [i] n (-ε)		5	
	V:	s [i] si		k [i] ma(-le)		ny [i] ŋ			
		10. 'child'		38. 'stone'		39. 'sun'			
*/e/	K:	d [e] n		s [e] n(-ε)		t [e] e		6	
	V:	d [e] ŋ		s [e] ŋ		t [e] le			
*/ε/ No examples in medial position.									
<u>Central</u>									
		4. 'three'		21. 'neck'		28. 'navel'			
*/a/	K:	s [a] wan		k [a] n(-ε)		b [a] a		10	
	V:	s [a] kpa		k [a] ŋ		ɓ [a] la			

BackNo. of Corr.

9. 'woman'	13. 'head'	55. 'dog'	
* /u/ K: m u su	k u n(-ε)	w u u	11
V: m u su	k u ŋ	w u lu	
17. 'ear'	22. 'hand'	42. 'rain'	
* /o/ K: t o o	b o o	s o na	6
V: t o lo	b o lo	s o na	
46. 'tree'	62. 'old'		
* /ɔ/ K: k ɔ n(-ε)	k ɔ ɔ(-ma) ²		2
V: k ɔ ŋ	k ɔ lo		

Table 27 - Final VowelsFrontNo. of Corr.

34. 'water'	43. 'smoke'	68. 'sit'	
* /i/ K: y i	sis i	s i	11
V: j i	sis i	s ii	
39. 'sun'	52. 'bird'	78. 'give'	
* /e/ K: te e	kond e	b e	5
V: tel e	kond e	βel e	
20. 'tongue'	59. 'white'	35. 'meat'	
* /ε/ K: nɛn ε	gb ε	su ε	3
V: nɛ ε	kp ε' ma'	su ε	

Central

11. 'father'	33. 'fire'	67. 'come'	
* /a/ K: f a	t a	n a	16
V: f a	t a	n a	

	9. 'woman'	27. 'belly'	48. 'root'	
* /u/	K: mus u	b u	su u	4
	V: mus u	ɓ u	sul u	
	22. 'hand'	29. 'skin'	76. 'wash'	
* /o/	K: bo o	gbò o ²	k o	4
	V: bol o	kpól o	k o	
	1. 'name'	62. 'old'	73. 'stand'	
* /ɔ/	K: t ɔ	kɔ́ ɔ (-ma) ²	yas ɔ	5
	V: t ɔ	kɔl ɔ	s ɔ	

5.2.1. Discussion of Group C Vowel Irregularities. Many of the apparent irregularities in the vowel matchings in Long's lists were corrected with lists provided by Wm. E. Welmers for both Kono and Vai. The phonetic quality of Welmers' items are clear when one compares the reconstructed *C word list with Long's lists for both languages. If Long's items disagree, but the item appears as a sure reconstruction in the word list, then it may be inferred that Welmers' list leveled the inconsistency in favor of the reconstructed form.

5.2.1.1. Front. There is only one irregularity in the */i/ series in medial position.

'Egg': (ts-)ci, keli shows an [i:e] matching. */i/ is tentatively reconstructed here because of the strong indication from *Mandekan.

There are no exceptions in eleven examples of */i/ in final position.

There are no exceptions to low mid front vowels in medial position.

In final position there is one exception in six occurrences.

'All': gbe, gbi is difficult to reconstruct on the evidence available, since Ligbi (Group B) suggests an */o/. */ɛ/ is tentatively reconstructed.

5.2.1.2. Central. In ten examples of [a] in medial position there are no exceptions.

Final position shows no irregularities in twenty-one occurrences.

5.2.1.3. Back. Four of fifteen examples of [u] in medial position are of interest here, only one of which is aberrant.

'Salt': kuye, kowo. It is difficult to say for certain whether or not these are cognate. The form is really not reconstructable in *C, but rather should be referred to for confirmation where needed in the reconstruction as individual language data.

The other three examples of medial [u] of interest should be stirred in with examples of final [u]. The rule in Kono is to delete [l] between vowels, leaving one [u] in place of two:

'bone': ku, kulu

'rope': yu, julu

'dog' : wuu, wulu.

This has been demonstrated already in the Resonant subsection of Table 24.

In final position there are no other problems in eight occurrences.

Mid high back vowels are very regular in Group C in medial and final position. There are no problems in five occurrences in medial position and four in final.

Low mid back vowels have one irregularity in three examples medially: 'eat': daun, dɔŋ. The [d] and [n] ensure cognation. The vowel is unusual, however. If it is assumed that the vowel was */ɔ/ in *C, then lowering explains the [a] reflex as has been shown to be the case often throughout NM languages. The guess here is that it was */ɔ/ in *C and */o/ prior to that, the *Mandekan form reflecting the latter case.

There are no irregularities in five examples of final low mid back vowels.

5.2.1.4. Proto-Group C Vowel Sequences

Table 28 - Vowel Sequences

<u>Like Vowels</u>		<u>'i' Combinations</u>	
i-i (4)	u-u (8)	---	---
e-e (3)	o-o (4)	i-e (1)	---
ɛ-ɛ (2)	ɔ-ɔ (2)	i-ɛ (1)	---
	a-a (7)		i-a (4)
<u>TOTAL: 30</u>			
<u>Other Combinations</u>		---	---
u-e (1), u-a (1), o-u (1), u-ɛ (1)		---	o-i (1)
o-e (1?), ɛ-o (1), o-a (1)		---	---
a-o (1), a-u (1)			a-i (3)
<u>TOTAL: 9</u>		<u>TOTAL: 10</u>	

*C, like *Mandekan, displays an overwhelming preference for like vowel combinations. */i/ and */a/ appear to combine rather freely with other vowels, accounting for most of the non-like vowel sequences.

Table 29 - Proto-Group C System

		<u>Initial</u>	
<u>Consonants</u>		<u>Vowels</u>	
	*t	*k	
	*b	*d	*y/*j
			*gb
*f	*s		
	*m	*n	*ny
		<u>Medial</u>	
<u>Consonants</u>		<u>Vowels</u>	
	*s	(*kp??)	
			*i
			*u
*m	*n (*ny?)		*e
			*o
	*l		(*ɛ?)
			(*ɔ?)
			*a
		<u>Final</u>	
<u>Consonants</u>		<u>Vowels</u>	
	*n		
			*i
			*u
			*e
			*o
			(*ɛ?)
			*ɔ
			*a

Key: (__ ?) : indicates a questionable reconstruction.

Table 30 - Reconstructed Word List - Proto-Group C

1. 'name' : *to	26. 'breast' : *su <u>u</u> suu
2. 'one' : *dɔ́ndɔ	27. 'belly' : *bu
3. 'two' : *fɛ́lǎ	28. 'navel' : *bala
4. 'three' : *sákpa	29. 'skin' : *gbolo
5. 'four' : *naani	30. 'bone' : *kulu
6. 'five' : *soolu?	31. 'blood' : *woli
7. 'person' : *mo	32. 'sky' : *banda
8. 'man' : *kai	33. 'fire' : *ta
9. 'woman' : *musu	34. 'water' : *yi
10. 'child' : *den	35. 'meat' : *sue
11. 'father' : *fa	36. 'salt' : ?
12. 'mother' : *ba?	37. 'many' : ?
13. 'head' : *kun	38. 'stone' : *sen
14. 'hair' : *kun- <u>dii</u>	39. 'sun' : *tele
15. 'nose' : *sun	40. 'moon' : *kalo
16. 'eye' : *y <u>a</u>	41. 'night' : *su(- <u>lo</u>)
17. 'ear' : *tolo	42. 'rain' : *sona
18. 'mouth' : *da	43. 'smoke' : *sisi
19. 'tooth' : *nyin	44. 'sand' : *kenye(n)?
20. 'tongue' : *nene	45. 'rope' : *julu
21. 'neck' : *kan	46. 'tree' : *kon
22. 'hand' : *bolo	47. 'leaf' : *yamba
23. 'foot' : *ken	48. 'root' : *sulu
24. 'knee' : *kumbe(le)	49. 'milk' : ?
25. 'nail' : ?	50. 'grease' : *tulu

51. 'egg'	: *()- <u>kili</u>	76. 'wash'	: *k(w)o
52. 'bird'	: *konde	77. 'see'	: * <u>ye</u> ?
53. 'fish'	: *nye	78. 'give'	: ?
54. 'snake'	: *kala	79. 'eat'	: * <u>d</u> on
55. 'dog'	: *wulu	80. 'drink'	: * <u>min</u>
56. 'big'	: *kolo	81. 'kill'	: * <u>faga</u>
57. 'small'	: * <u>doo</u>	82. 'cut'	: * <u>tige</u>
58. 'black'	: *fin	83. 'hit'	: * <u>gbasi</u> ?
59. 'white'	: *gbe	84. 'sew'	: *ka(<u>la</u>)
60. 'good'	: *nyi	85. 'I'	: *n(e)
61. 'new'	: *nama	86. 'you'	: *i
62. 'old'	: *kolo	87. 'he'	: *a
63. 'hot'	: *gban(di)	88. 'we'	: ?
64. 'cold'	: *kima(le)	89. 'they'	: *a(n)u?
65. 'dry'	: *gbala	90. 'who'	: ?
66. 'straight'	: ?	91. 'what'	: ?
67. 'come'	: *na	92. 'not'	: ?
68. 'sit'	: *sii	93. 'long'	: * <u>yan</u>
69. 'lie'	: *sa	94. 'short'	: *kundu
70. 'sleep'	: * <u>kino</u>	95. 'here'	: ?
71. 'die'	: *faa	96. 'few'	: ?
72. 'fall'	: *bela	97. 'all'	: * <u>gb</u>
73. 'stand'	: *so	98. 'path'	: *kila
74. 'say'	: *kuc/* <u>fo</u>	99. 'in'	: *lo
75. 'hear'	: (*min)	100. 'if'	: *ni?

Key: : underscoring reflects a tentative reconstruction.
 ? : indicates reconstruction from less than all languages.

6. Reconstructing Proto-Group C-Mandekan

The following reconstruction will combine *Group C with *Mandekan.

6.1. Proto-C-Mandekan Consonants

Table 31 - Initial Consonants

<u>Labials</u>			<u>No. of Corr.</u>
22. 'hand'	28. 'navel'	72. 'fall'	
*b/ *C: b olo	b ala	b ela	4
*M: b olo	b ata(-kun)	b i?	
7. 'person'	9. 'woman'	80. 'drink'	
*m/ *C: m o	m usu	m in	6
*M: m ogo	m uso	m in	
55. 'dog'	73. 'stand'		
?w/ *C: w ulu	w ---		2
*M: w ulu	w uli		
3. 'two'	11. 'father'	58. 'black'	
*f/ *C: f ela	f a	f in	4
*M: f ila	f a	f in	
<u>Dentals</u>			
10. 'child'	18. 'mouth'	57. 'small'	
*d/ *C: d en	d a	d o	3
*M: d in	d a	d ogo(n)	
1. 'name'	17. 'ear'	33. 'fire'	
*t/ *C: t o?	t olo	t a	6
*M: t ogo	t ulo	t a	

DentalsNo. of Corr.

5. 'four'	20. 'tongue'	67. 'come'	
*C: [n] aani	[n] ɛnɛ	[n] a	6
*M: [n] aani(n)	[n] ɛn(e)	[n] a	
4. 'three'	41. 'night'	43. 'smoke'	
*C: [s] akpa(n)	[s] u(lo)	[s] isi	6
*M: [s] aba	[s] u	[s] isi(-o)	
6. 'five'	69. 'lie'	48. 'root'	
*C: [s] oolu	[s] a	[s] ulu	3
*M: [l] oolu	[l] a	[l] ili(n)	

This [s:l] correspondence may well be a conditioned variation. See section 6.1.1. for discussion.

Resonants - No examples.

Palatals

19. 'tooth'	60. 'good'	53. 'fish'	
*C: [ny] in	[ny] i?	[ny] ɛ	4
*M: [ny] in	[ny] i(n)	[ny] ɛgɛ	
34. 'water'	45. 'rope'	93. 'long'	
*C: [j] i	[j] ulu	[j] an	5
*M: [j] i	[j] ulu	[j] an	

Velars

13. 'head'	30. 'bone'	63. 'old'	
*C: [k] un	[k] ulu	[k] olo	16
*M: [k] un	[k] olo	[k] oto	
23. 'foot'	54. 'snake'	70. 'sleep'	
*C: [k] en	[k] aa	[k] ino	6
*M: [s] ɛn	[s] a	[s] inogo	

See section 6.1.1 for discussion of this correspondence.

<u>Lab. Vel.</u>				<u>No. of Corr.</u>
	29. 'skin'	59. 'white'	63. 'hot'	
*gb/	*C: gb olo	gb ε	gb andi	3
*M:	gb olo	gb ε	gb ando	

Table 32 - Medial Consonants

<u>Labials</u>			<u>No. of Corr.</u>
	64. 'cold'	74. 'say'	
?*/m/	*C: ki m a(-le)	ku - ɔ?	2
	*M: su m a(n)	ku m a	

There do not appear to be any examples of */b/ in medial position in *C-Mandekan. One example of */b/ in *M reconstructs as */kp/ in *C-Mandekan.

Dentals

	28. 'navel'	62. 'old'	61. 'new'	
*t/	*C: ba l a	kɔ l ɔ	-- - -	3
	*M: ba t a(-kun)	kɔ t ɔ	ku t a	

One possibility here is that most */t/ forms changed to [r] and subsequently all [r] forms in medial position were generalized to [l] in Group C as discussed in that reconstruction. Cf. section 6.1.1.3. for further discussion.

	5. 'four'	20. 'tongue'	89. 'they'	
*n/	*C: naa n i	nɛ n ε?	a n u	5
	*M: naa n i(n)	nɛ n (e)	a n ?	
	9. 'woman'	43. 'smoke'	83. 'hit'	
*s/	*C: mu s u	si s i	gba s i	3
	*M: mu s o	si s i	gba s i?	

ResonantsNo. of Corr.

	51. 'egg'	3. 'two'	6. 'five'	
* /l/	*C: ki [l] i	fe [l] a	soo [l] u	17
*M:	kī [l] i	fī [l] a	loo [l] u	

Palatals

	44. 'sand'
?*/ny/	*C: kε [ny] ε (n)
*M:	kε [ny] ε (n)

This is the only matching of the nasal palatal in medial position and must therefore be extremely tentative.

Velars

	53. 'fish'	57. 'small'	68. 'sit'	
* /g/	*C: ny [g] ε	dɔ [g] ɔ	si [g] i	5
*M:	nyε [g] ε	dɔ [g] ɔ (n)	si [g] i	

Note that Group C has deleted medial /g/, much as Kono has recently done with /l/ and /m/ medially.

Lab. Vel.

	4. 'three'	
?*/kp/	*C: sa [kp] a(n)	1
*M:	sa [b] a	

This is the only possible example of medial */kp/ and, like */ny/ above, cannot really be reconstructed on this basis. It is provided as a possibility in case further evidence becomes available.

Table 33 - Final ConsonantsDentalNo. of Corr.

	10. 'child'	13. 'head'	19. 'tooth'	
* /n/	*C: de [n]	ku [n]	nyi [n]	14
*M:	dī [n]	ku [n]	nyi [n]	

6.1.1. Discussion of *C-Mandekan Consonant Correspondences

6.1.1.1. The [s:l] correspondence. Of particular interest is the [s:l] correspondence in the Dental section of 6.1.. The fact that this is indeed a viable correspondence and not a case of accidental convergence is best illustrated in chart (14) below, which shows the three items under consideration to be cognate throughout the 17 NM languages being used in the reconstruction.

(14)	<div> <div>Mandekan</div> <div>C</div> <div>B</div> <div>A</div> </div>																
	X	M	B	D	B	K	W	DIA	MAU	KUR	K	V	L	N	H	S	Y
6. 'five'	l	l	d	l	-	l	l	l	l	l	(d)	s	s	s	s	s	s
69. 'lie'	l	l	d	l	d	l	l	l	l	s	s	s	s			s	s
48. 'root'	l	l	d	l	-	l	l	(s)	d	-	s	s					

The above correspondence is too good to be accidental throughout 17 languages. If these items are cognate, it must be determined what the proto-segment was and what environment, if any, conditioned the change.

The first thing which should be mentioned is that [l] and [d] in many of these languages are phonetically similar. That there is some variation between these two here is therefore understandable.

The most noticeable thing about this correspondence is that the [l/d] reflex is mostly shared by the Mandekan languages while Groups A, B and C generally share [s] where the forms are attested, with an overlap occurring in Diakhanka [s] in 'root' and Kuranko and Kono [l/d] in 'five'. These two are very likely borrowings in the respective languages. This suggests that the change was most probably one of *C-M */s/ to *M */l/ after *Mandekan had broken off from *Group C. If

this were not the case and instead */l/ was the proper reconstruction, it would be difficult to imagine how Groups A, B and C might all have undergone an */l/ to */s/ change independently. Therefore, I assume that the change was from *C-M */s/ to *Mandekan */l/.

Let us now turn our attention to a search for some conditioning factor for this change, since both */s/ and */l/ are reconstructable through other regular and well motivated correspondences. A look at the phonetic shape of the *C-M forms gives us a clue to the factor conditioning the factor conditioning the change in *M:

*C-M 'root': *sulu

*C-M 'five': *soolu

*C-M 'lie': *sa.

The most reasonable speculation is that the second [l] in the two bisyllabic words above conditioned anticipatory assimilation as in *C-M *sulu to *M *lulu for 'root'. There have been numerous cases in this reconstruction in which it appears that assimilation has done considerable damage to regular correspondences. This reasoning, of course, leaves the development of *M *la for *C-M *sa unexplained, unless the word 'lie' was etymologically bisyllabic with a realization on the order of *sala. There is however, no evidence for etymological bisyllabicity in this particular root in NM.

There is further support for an */s/ reconstruction particularly in the cases of the bisyllabic items above. First, there are no items in the word list in *M which can be reconstructed with initial */s/ and medial */l/. This is further evidence that in such environments the change from */s/ to */l/ holds true. Secondly, consider the very

interesting evidence from SWM, SM, and EM in (15) below.

(15)	<u>NM</u>		<u>SWM</u>	<u>SM</u>	<u>EM</u>
	<u>M</u>	<u>A,B,C</u>			
6. 'five'	l	s	l	s	s
69. 'lie'	l	s	l		
48. 'root'	l	s			z
					(Busa only)

Here the correspondence is quite remarkable. SWM appears to support an */l/ reconstruction and SM and EM an */s/ reconstruction. By far the greatest problem would be to try to explain an independent development of */s/ in five separate groups: A, B, C, SM and EM. Much simpler would be, once again, the explanation of an */s/ to */l/ change. The question still remains, however, as to why this change obtained in both NM and SWM.

There are two viable possibilities. First, the change could have been quite independent. That is, it just so happens both *SWM speakers and *M speakers independently assimilated initial */s/ to medial */l/. The second possibility is that these are in no way independent changes. To illustrate how this interdependency might have worked let us briefly review the history of NM and SWM. Initially, of course, *NWM split into *NM and *SWM. Long before *SWM split into what are its present day daughter languages, Groups A, B and C-Mandekan had split from the NM stock. Also, since SWM languages score an average of about 67% lexico-statistically and C-Mandekan languages score at only 57-65% we can assume that *C-Mandekan split into *C and *Mandekan before the *SWM split apart. That is, *Mandekan and *SWM appear to have been

somewhat contemporary languages at one point in time. In this case, either one of these two proto-languages might have initially innovated the */s/ to */l/ before medial */l/. This phonological rule was then borrowed by the other. It appears to me that the latter is the more sensible hypothesis.

One further bit of information adds possible confirmation to the 'assimilation hypothesis' put forth for this correspondence. The Susu word for 'bend down' is [sɔ́solɔ̃]. The Bambara word is [solɔlɔ]. Although it is in medial position this time it appears this is another example of the [s] in Susu changing to [l] in Bambara before another [l]. It is possible that the */l/ in *A changed instead to [s] in Susu due to perseveratory assimilation instead, but two arguments can be given in favor of the former change: (1) most instances of consonant assimilation in NM appear to be anticipatory rather than perseveratory and (2) the */s/ to */l/ change is already an established fact with good motivation behind it, whereas the purported */l/ to */s/ change is not.

6.1.1.2. The [nd:n] correspondence. Because of its pertinence here, as in the [s:l] correspondence above, a chart is provided below to illustrate the correspondences throughout NM of what is to be reconstructed at the *C-Mandekan level as a medial */nd/ consonant cluster. By the type of correspondences one expects that the */-nd-/ to */-n-/ change occurred after the split of *C and *Mandekan and perhaps after *Mandekan began to branch apart itself. Several vestiges of a medial cluster can be seen in different words in Diakhanka, Mauka and Kuranko. This */nd/ cluster is best testified to by C languages as well.

(16)

	Mandekan										C		B		A		
	X	M	B	D	B	K	W	DIA	MAU	KUR	K	V	L	N	H	S	Y
52. 'bird'	n	n	n	n	∅	n	-	n	∅	nd	nd	nd	nd	nd	nd	n	-
63. 'hot'	-	-	n#	n#	-	n#	-	nd	n#	-	n#	nd	-	-	-	-	-
94. 'short'	t	d	r	r	n	-	r	t	nt	nd	nd	nd	-	-	-(nd)	(nd)	(nd)
96. 'few'	n	n	n	-	-	n	n	nd	-	n	-	-	-	-	-	nd	nd

(- = no cognate found; ∅ = deleted C; # = word final)

The [t,d,r] reflexes were discussed at some length in the reconstruction of *M1, section 3.1.1.2.. As for the other reflexes, the data speak for themselves. Since clusters are not permitted in final position the once medial */-nd-/ has changed to [n] in this position, as best testified by Kuranko. Once again, Kuranko continues to share the phonetic shape of the Kono forms.

6.1.1.3. The [l:t] correspondence. The argument for a */t/ reconstruction of this correspondence rather than a */l/ reconstruction is based on the fact that */l/ is reconstructed medially by a very strong [l:l] correspondence whereas */t/ can be reconstructed by no other correspondence. Furthermore, there is no indication of a */l/ for any of these words in any of the Mandekan languages. As illustrated in chart (17), */t/ has changed regularly to a flap [r] in medial position in some languages and to a [d] in Maninka. Vai shows only [l] and has no [r].

(17)

	Mandekan										C		B		A		
	X	M	B	D	B	K	W	DIA	MAU	KUR	K	V	L	N	H	S	Y
28. 'navel'	t	d	r	r	∅	r	r	t	∅	r	∅	l	-	-	-	-	-
62. 'old'	t	d	r	r	r	r	r	t	-	r	∅	l	-	-	-	-	-
61. 'new'	t	d	r	r	∅	r	r	t	∅	r	-	-	-	r	r	-	-

The correspondence here is convincing. There does not appear to have been any one time diachronically in which */t/ changed to [r]. Rather, it appears that the general tendency throughout these languages is consonant weakening in medial position, reducing an obstruent [t] to a flap [r]. This is best illustrated by Bo, Mauka and Kono, in which the weakening has continued to the eventual loss of the consonant altogether intervocally. Welmers [1976] indicated also in a section on Vai consonants that it is much more common for /l/ to be deleted intervocally than to be retained, another instance of ultimate weakening.

The most reasonable solution to the development of present /l/ in Vai is a sequence from */t/ to perhaps [r] to [l] in medial position. The */t/ therefore underwent a change first to a resonant flap and finally to a lateral resonant in Vai.

6.1.1.4. The [k:s] correspondence. The chart below illustrates this correspondence throughout NM languages. At the left hand side of the chart are listed the *Mandekan reconstructions of the vowel following this initial consonant in each word. In Kono are likewise listed the vowels actually occurring in this language in order to illustrate a point which will be discussed below.

(18)

Mandekan											C		B		A	
X	M	B	D	B	K	W	DIA	MAU	KUR	K	V	L	N	H	S	Y
23. 'foot'	ε	s	s	s	s	s	s	s	s	k	ce	k	-	-	-	s (s)
253. 'snake'	a	s	s	s	s	s	s	s	s	k	ka	k	k	k	k	-
64. 'cold'	u	-	s	s	s	-	s	s	s	k	ci	k	k	k	k	(x x)
70. 'sleep'	i	s	s	s	s	s	s	s	s	k	ci	k	-	-	-	x x
94. 'short'	u	s	s	s	s	s	s	s	s	k	-	k	-	-	-	-
98. 'path'	i	s	-	s	s	s	s	s	s	k	ci	k	k	-	k	k

Welmers [1958] has suggested that */k/ > [s]/__i in Mandekan languages diachronically. This is a reasonable hypothesis. First of all, there are no instances of initial /k/ followed by /i/ in reconstructable words in the Mandekan languages, a case of complimentary distribution. There is one apparent exception: -*kili 'egg'. Here is an instance of initial */k/ not becoming [s] before */i/. However, in most languages 'kili' is preceded by a possessor noun such as 'sise' 'chicken'. In SWM Welmers notes (personal communication) that 'egg' (*galog in *SWM) is a member of the relational noun class which requires a possessor preceding it. This means that *kili may not be an example of initial */k/ before */i/ but rather a case of a protected */k/ before */i/, which acts unlike initial */k/ in this environment, which became [s] and unlike medial */k/, which became [g]. Finally, the proper reconstruction for 'egg' is probably *kali in NM, as discussed in section 9.2.1.1..

A further argument in favor of a */k/ reconstruction is the evidence from Groups B and A, which support this consonant.

It appears, therefore, that the initial consonant for these items was */k/ until after *C split from *Mandekan. Following this branching, */k/ > [s] before high front vowels. At this point in the sequence, Kono and Kuranko came into contact with the resultant phonological influence of the former on the latter already talked about in some detail. This resulted in a [k] manifestation in Kuranko. If Kuranko was indeed the first Mandekan language to branch from *Mandekan, this too would explain the shared phonological correspondences with Group C languages. The change to */s/ in the remainder of *Mandekan

would have taken place subsequent to the split off of Kuranko from the core.

Kono suggests still another stage in the $*/k/ > [s]$ change. Since Vai has split from Kono, this latter has begun to palatalize $/k/$ to $[c]$ in the same words which underwent the $*/k/ > [s]$ change in *Mandekan, presumably for the same reasons. This suggests that the actual change to present $[s]$ was perhaps $*/k/ > [c] > [s]$, which is one natural direction for the palatalization of $[k]$. Kono has gone one step further in this process, palatalizing $[k]$ before all front vowels.

There is one more point of considerable interest. Note that Kono 'snake' $[ka]$ is exempt from the palatalization process. This invites the speculation that if the *Mandekan form of the word had been $*ka$, no palatalization would have occurred there either. Perhaps the form was rather $*kia$ or the like, the $*/i/$ being absorbed by the palatalized consonant. By the time Kono developed the palatalization rule on its own the $*/i/$ was lost from the form, hence no $[c]$.

This brings up an interesting point of methodology in the comparative method. Is the vowel which is most strongly suggested by the actually occurring vowels to be reconstructed, or the vowel suggested by regular sound change? In 'sleep', 'path' and 'cold' the actually occurring vowel and the suggested vowel is probably the same: $*/i/$. In all of these words $[i]$ occurs in at least some of the Mandekan languages. However, in 'short' there is only one $[i]$ in the data and in 'snake' there is none.

Where all else fails one must answer on the basis of what the most natural explanation could be. In the case of 'short', $*suntu$

was reconstructed for *M. Note that the final vowel in this word is a sure */u/ reconstruction. I hypothesize, therefore, that the actual *M reconstruction should be *kintu. The */i/ caused the palatalization of */k/ which finally resulted in [s]. This change was followed by an assimilatory */i/ to [u] change, hence *kintu > *cintu > *sintu > *suntu.

'Foot' was reconstructed as *sen in *M and as *sen in *C. It is reasonably clear that this was a mid vowel. */e/ is closed due to the apparent palatalization of */k/ in its environment. That */k/ changed to [s] before a mid vowel is perhaps not without precedent, since Kono has palatalized /k/ before all front vowels, including /e/ and /ɛ/.

*M *sa and *C *kala for 'snake' pose quite another problem. At present, the best solution is to count these forms as non-cognate until evidence to the contrary can be produced.

For 'sleep' there is evidence that the same type of change has occurred, changing */k/ to [s]. Groups A and C show that the initial consonant is correctly reconstructed as */k/ for *C-M. This means that the change in *M was likewise one of */k/ to */s/. Furthermore, many of the Mandekan languages are showing signs of assimilation as well, as in Konyanka [sunu].

In conclusion, all of the above words are to be reconstructed, tentatively of course, with initial *ki-. The */s/ reflex in *M is therefore a result of palatalization of */k/ before */i/, as suggested by Welmers.

6.1.2. Discussion of *C-Mandekan Consonant Irregularities

6.1.2.1. Labials. Only one irregularity occurs in the labial series and that is in medial position.

'Eat': *don, *domo(n) shows an irregular [n:m] matching. All other bisyllabic cognates for this form throughout the Mandekan languages attest */m/, which is what will be tentatively reconstructed for *C-M. In both Kono and Vai since the nasal is presently in final position it is difficult to determine what its original phonetic shape might have been.

6.1.2.2. Dentals. The chart below exemplifies the only idiosyncrasy in the dental series in any position.

(19)

	Mandekan										C		B		A			
	X	M	B	D	B	KON	W	DIA	MAU	KUR	K	V	L	N	H	S	Y	
'hair'	s	s	s	s	z	s		s	t	z	s	d	d	t	t	t	s	s

'Hair': *kun-dii, *kun-sigi is interesting due to the */t/ and */d/ reflexes shared by Groups C and B, and the */s/ reflexes shared by Groups A and Mandekan. If the proto-segment was */s/, then a change of */s/ to */t/ must have occurred after *A separated from the tree, but before *B-C-Mandekan split apart. This would explain the dental obstruent in B and C. Another change would then have had to occur at the time *M split from *C which changed */t/ back to */s/ in *M, explaining the occurrence of the latter in the Mandekan languages. This sequence seems highly unlikely.

If, on the other hand, the segment was originally */t/, then the change is best explained by a */t/ to */s/ change at the time *M split from *C. The [s] reflex in Susu and Yalunka may be explained by

language contact, since these two distantly related languages are adjacent to Mandekan languages in an area near the coast, around the Sierra Leone/Guinea border. A tentative */t/ is reconstructed with a more distant possibility of */s/.

It is interesting to correlate the */t/ to */s/ change in 'hair' with the */k/ to */s/ change discussed in section 6.1.1.4.. In both cases, the initial obstruent is followed by */i/, causing softening. In the former case, however, the change does not appear to be regular, since there are other cases of */t/ followed by */i/ in which the change does not occur, as in *M *tige for 'cut' and *tile for 'sun'. It is possible that */t/ changed to */s/ in 'hair' alone because this is the only word with an [i:i] sequence in it, but this must remain speculative.

'Nose': *sun, *nun shows the same kind of distribution found in 'hair' above. Once again, *A shares */n/ with *M, while *C and *B share */s/. The available evidence in this case indicates that these two forms are non-cognate. In SWM, Kpelle has [suwa], corresponding to the shared *C/*B form above. However, Mano, from EM, has [nyu], corresponding instead to the *A/*M form. Other forms for Susu, from lists collected by Welmers, also show [nyu]. For *C/M, therefore, both possibilities are listed.

6.1.2.3. Resonants There are no resonant irregularities which have not been discussed.

6.1.2.4. Palatals. Three irregularities occur in initial position in the palatal series.

'Blood': *woli, *joli shows a [w:j] matching. The only other cognate form found in NM is from Susu, which shows a [w] reflex. Bozo, however, shows a [j] in [jolo]. Great care must be taken before reconstructing a */w/ for a form this weak, especially since only one other item in the word list is reconstructable with */w/. I therefore reconstruct a tentative */y/, leaving the quality of the high back vowel to explain a possible labialization of [j] or [y] to [w].

'See': *je?, *ye. I suggested a fairly strong */y/ reconstruction here for *M in section 3.1.1.4.. It appears here that a tentative */y/ should be reconstructed due to the [j:y] matching. However, it may well be the case that *C-M, and *NM for that matter, had no phonological distinction between [j] and [y], but that they were rather variants of one phoneme. In the *C-M consonant chart this is therefore listed as */y/ only.

'Eye': *ja, *nya. This is still another instance of palatals merging in *C. A strong *nya is reconstructed for *C-M on the evidence of *M, *A and Bozo as well.

6.1.2.5. Velars. There are no velar irregularities other than those already discussed.

6.1.2.6. Lab.-Vel. Two irregularities occur in five occurrences of */gb/ in initial position.

'Dry': *gbala(n), *ja-le(n) has a [gb:j] matching and is probably non-cognate.

'All': *bes, *gbe/i is probably non-cognate. Both possibilities will be listed.

6.2. Proto-C-Mandekan Vowels

Table 34 - Medial Vowels

Front			No. of Corr.							
19. 'tooth'	43. 'smoke'	68. 'sit'								
*C: ny <table><tr><td>i</td></tr><tr><td>i</td></tr></table> n	i	i	s <table><tr><td>i</td></tr><tr><td>i</td></tr></table> si	i	i	s <table><tr><td>i</td></tr><tr><td>i</td></tr></table> i	i	i		10
i										
i										
i										
i										
i										
i										
*M: ny <table><tr><td>i</td></tr><tr><td>i</td></tr></table> n	i	i	s <table><tr><td>i</td></tr><tr><td>i</td></tr></table> si(-o)	i	i	s <table><tr><td>i</td></tr><tr><td>i</td></tr></table> gi	i	i		
i										
i										
i										
i										
i										
i										
24. 'knee'	77. 'see'									
*C: kumb <table><tr><td>e</td></tr><tr><td>e</td></tr></table> (le)	e	e	y <table><tr><td>e</td></tr><tr><td>e</td></tr></table> n	e	e			2		
e										
e										
e										
e										
*M: kunb <table><tr><td>e</td></tr><tr><td>e</td></tr></table> len	e	e	y <table><tr><td>e</td></tr><tr><td>e</td></tr></table>	e	e					
e										
e										
e										
e										
20. 'tongue'										
?*/ε/ *C: n <table><tr><td>ε</td></tr><tr><td>ε</td></tr></table> nε	ε	ε				1				
ε										
ε										
*M: n <table><tr><td>ε</td></tr><tr><td>ε</td></tr></table> n(e)	ε	ε								
ε										
ε										
Central										
4. 'three'	21. 'neck'	28. 'navel'								
*C: s <table><tr><td>a</td></tr><tr><td>a</td></tr></table> kpa(n)	a	a	k <table><tr><td>a</td></tr><tr><td>a</td></tr></table> n	a	a	b <table><tr><td>a</td></tr><tr><td>a</td></tr></table> la	a	a		11
a										
a										
a										
a										
a										
a										
*M: s <table><tr><td>a</td></tr><tr><td>a</td></tr></table> ba	a	a	k <table><tr><td>a</td></tr><tr><td>a</td></tr></table> n	a	a	b <table><tr><td>a</td></tr><tr><td>a</td></tr></table> ta(-kun)	a	a		
a										
a										
a										
a										
a										
a										
Back										
9. 'woman'	13. 'head'	45. 'rope'								
*C: m <table><tr><td>u</td></tr><tr><td>u</td></tr></table> su	u	u	k <table><tr><td>u</td></tr><tr><td>u</td></tr></table> n	u	u	j <table><tr><td>u</td></tr><tr><td>u</td></tr></table> lu	u	u		8
u										
u										
u										
u										
u										
u										
*M: m <table><tr><td>u</td></tr><tr><td>u</td></tr></table> so	u	u	k <table><tr><td>u</td></tr><tr><td>u</td></tr></table> n	u	u	j <table><tr><td>u</td></tr><tr><td>u</td></tr></table> lu	u	u		
u										
u										
u										
u										
u										
u										
22. 'hand'	29. 'skin'	31. 'blood'								
*C: b <table><tr><td>o</td></tr><tr><td>o</td></tr></table> lo	o	o	gb <table><tr><td>o</td></tr><tr><td>o</td></tr></table> lo	o	o	w <table><tr><td>o</td></tr><tr><td>o</td></tr></table> li	o	o		4
o										
o										
o										
o										
o										
o										
*M: b <table><tr><td>o</td></tr><tr><td>o</td></tr></table> lo	o	o	gb <table><tr><td>o</td></tr><tr><td>o</td></tr></table> lo	o	o	j <table><tr><td>o</td></tr><tr><td>o</td></tr></table> li	o	o		
o										
o										
o										
o										
o										
o										
1. 'name'	7. 'person'	57. 'small'								
*C: t <table><tr><td>ɔ</td></tr><tr><td>ɔ</td></tr></table> ?	ɔ	ɔ	m <table><tr><td>ɔ</td></tr><tr><td>ɔ</td></tr></table>	ɔ	ɔ	d <table><tr><td>ɔ</td></tr><tr><td>ɔ</td></tr></table>	ɔ	ɔ		5
ɔ										
ɔ										
ɔ										
ɔ										
ɔ										
ɔ										
*M: t <table><tr><td>ɔ</td></tr><tr><td>ɔ</td></tr></table> go	ɔ	ɔ	m <table><tr><td>ɔ</td></tr><tr><td>ɔ</td></tr></table> go	ɔ	ɔ	d <table><tr><td>ɔ</td></tr><tr><td>ɔ</td></tr></table> go	ɔ	ɔ		
ɔ										
ɔ										
ɔ										
ɔ										
ɔ										
ɔ										

Table 35 - Final Vowels

<u>Front</u>			<u>No. of Corr.</u>	
14. 'hair'	34. 'water'	31. 'blood'		
* /i/ *C: kun-di [i]	j [i]	wol [i]	10	
*M: kun-sig [i]	j [i]	jol [i]		
39. 'sun'	85. 'I'			
? * /e/ *C: tel [e]	n [(e)]		2	
*M: til [e]	n [e]			
53. 'fish'	59. 'white'	82. 'cut'		
* /ε/ *C: ny [ε]	gb [ε']	tì [ε]	4	
*M: nyεg [ε]	gb [ε]	tig [ε]		
<u>Central</u>				
11. 'father'	33. 'fire'	74. 'say'		
* /a/ *C: f [a]	t [a]	ku [a]	17	
*M: f [a]	t [a]	kum [a]		
<u>Back</u>				
45. 'rope'	55. 'dog'	94. 'short'		
* /u/ *C: jul [u]	wul [u]	kund [u]	4	
*M: jul [u]	wul [u]	sunt [u]		
17. 'ear'	22. 'hand'	40. 'moon'		
* /o/ *C: tol [o]	bol [o]	kal [o]	5	
*M: tul [o]	bol [o]	kal [o]		
1. 'name'	7. 'person'	57. 'small'		
* /ɔ/ *C: t [ɔ]	m [ɔ]	do [ɔ]	6	
*M: tog [ɔ]	mog [ɔ]	dog [ɔ] (n)		

6.2.1. Discussion of *C-Mandekan Vowel Irregularities

6.2.1.1. Front. Only three high front vowels in thirteen occurrences in medial position are irregular.

'Cold': *kima(-le), *sum(n). I concluded in section 6.1.1.4. that this is most probably to be reconstructed as *kima(n) for *C-M. The change from */i/ to [u] in *M is not understood, though the [m] environment may have conditioned such a change. It most certainly occurred prior to the major Mandekan split with the exception of Kuranko, which still retains [i].

'Child': *den, *din is a messy matching of [e] and [i] throughout the Mandekan languages. Both Group C languages have the [e] reflex, as do both the Group A languages. The guess must be very tentative, but I assume that the lowering process is a greater probability in these languages in pre-nasal position than raising and therefore reconstruct a tentative */i/.

'Sun': *tele, *tile. Here I assume that the vowels would tend to assimilate rather than to dissimilate. A tentative *tile is reconstructed. It would be somewhat more improbable for languages which tend to harmonize vowels to dissimilate them than vice versa.

In four occurrences of high mid front vowels in medial position there are no irregularities.

There is one exception in three occurrences of final */e/.

'Bird': *kono, *konde. This is difficult because most languages show a final [o]. Group B, however, shows an [e] or [ɛ] and SWM shows an [i] in *gōni. This remains very tentative, but I reconstruct a *konde, allowing a possible *kondo.

There are only three examples of low mid front vowels, one of which is irregular.

'Hear': *min?, *m_{en} shows an [i:ɛ] matching. Other than Group C, there is only one [i] reflex in fourteen occurrences of the cognate form. Both Groups B and A attest */ɛ/, as do *M, *SWM and SM. I reconstruct a strong */ɛ/ on this evidence.

The reconstruction of 'hear' as *m_{en} does not jibe with the reconstruction of 'foot': *k_{in}, *s_{en} as *C-M *kin or with 'child': *den, *d_{in} as *d_{in}. If vowel lowering is commonplace before nasal consonants, how is the *m_{en} to *min change in *C to be explained? All that can be said at present concerning this matter is that */ɛ/ is attested for 'hear' in *A, *SWM and SM and is clearly the reconstructed form for *Mande.

6.2.1.2. Central. There is only one exception to the */a/ correspondence in medial position.

'Man': *kai, *k_s. Groups B and A testify first of all to the possibility that this item was originally bisyllabic. *B, with *kini, speaks for like high vowels. Similarly, since most Mandekan languages have an initial [c], I assume that *M most likely had some type of a high front vowel, resulting in the palatalization of initial */k/. However, in Group A, Susu shows [xame] and Yalunka [xɛmɛ]. Furthermore, Bozo, an Extended NWM language not in the NM subgroup, has [kaigu]. I propose, once again, that the original form had non-like vowels in *C-M, that it was bisyllabic and that it quite possibly had a medial nasal which has since been deleted intervocalically. I therefore reconstruct *kai or *kani as the strongest possibilities. Vowel

assimilation produced *kini, as in *B, and consonant loss produced *ki in *M. Consonant loss alone resulted in *C *kai.

In final position there is but one irregularity in sixteen occurrences of */a/.

'Say': *kuɔ?, *kuma. There is some evidence that the forms provided by Long [1971] are not correct for Group C. Welmers [personal communication] notes that the reconstructable form for 'say' is *fɔ rather than *kuma. This item must therefore remain in doubt. If *kuma is a viable form for Group C, however, then the majority of these languages suggest a medial nasal and final */a/. The only possible cognate for this item in A or B is [kura] in Numu, which is doubtfully cognate at best.

6.2.1.3. Back. High back vowels show only two aberrances in ten occurrences in medial position.

'Bone': *kulu, *kolo. The only piece of evidence either way is from *A, which reconstructs */ɔ/. It is more likely that *kolo changed to *C *kulu, *M *kolo and *A *kolo than for *kulu to have had similar results. I therefore tentatively reconstruct *kolo. In any case, these two vowels were both back and higher than low mid.

'Ear': *tolo, *tulo. Here I have decided tentatively in favor of medial */u/ with assimilation in *C producing *tolo.

High mid back vowels show two mismatches in five occurrences in medial position.

'Woman': *musu, *muso. Here the more likely change is assimilation of final */o/ to medial */u/, even though the direction of assimilation is somewhat unusual for NM, assimilation generally being anticipatory.

'Eat': *domo(n), *don is difficult to reconstruct with any assurance. There are instances of [dano] in several languages, suggesting that perhaps occurrences of [domo] or [don] are due to assimilation of */a/ medially to */o/ finally. The vast majority of the language, however, favor the first vowel being either */o/, */ɔ/ or possibly */u/. I tentatively reconstruct */o/ for several reasons. First, there are no instances of [ɔ] in cognate forms which are still polysyllabic, but only in forms such as [don]. This eliminates the */ɔ/ possibility, occurrences of [ɔ] being due to vowel lowering in pre-nasal environments in monosyllables. */u/ is a possibility but is not as acceptable as */o/ in accounting for the [ɔ] reflexes. Furthermore, Susu, from Group A, has [don] to support */o/. I therefore tentatively reconstruct *domo(n), leaving *dumu(n) a distinct possibility, especially in view of Bambara [dumuni] for the predicate nominal 'eating'.

Low mid back vowels have no irregularities in five occurrences in medial position and none in six occurrences in final position.

6.2.1.4. Proto-C-Mandekan Vowel Sequences

Table 36 - Vowel Sequences

<u>Like Vowels</u>		<u>'i' Combinations</u>	
i-i (6)	u-u (6)	---	i-u (1)
e-e (2)	o-o (5)	i-e (1)	---
ɛ-ɛ (3)	ɔ-ɔ (5)	i-ɛ (1)	i-ɔ (1)
a-a (4)		i-a (5)	

TOTAL: 31

Table 36 (continued)

<u>Other Combinations</u>	---	---
u-o (4), u-a (1), o-u (1)	---	o-i (1)
a-u (1), a-o (1)	---	---
		a-i (4)
<u>TOTAL: 8</u>	<u>TOTAL: 14</u>	

As in *M and *C, *C-M shows a high preference for like vowel sequences, followed by combinations with [i] (14) and [a] (12). [u] and [o] are next with (7) each. Note, however, that five of the seven instances of [o] are in final position, suggesting perhaps that final [o] served as a determiner of some sort. Reviewing the reconstructed word list, four of these five items are indeed nominals: 'woman', 'ear', 'moon' and 'night'.

In conclusion, it appears *C-M freely combined high and central vowels. Mid vowels were frequently attested only in like vowel combinations.

Table 37 - Proto-C-Mandekan System

		<u>Initial</u>	
<u>Consonants</u>		<u>Vowels</u>	
	*t		*k
*b	*d	*y	*gb
*f	*s		
	*m	*n	*ny
	(*w?)		

Table 37. (continued)

<u>Medial</u>			
<u>Consonants</u>		<u>Vowels</u>	
*t	(*kp?)	*i	*u
*d	*g	*e	*o
*s		(*ɛ?)	*ɔ
*m	*n (*ny?)	*a	
*l			
<u>Final</u>			
<u>Consonants</u>		<u>Vowels</u>	
*n		*i	*u
		(*e?)	*o
		*ɛ	*ɔ
		*a	

Table 38 - Reconstructed Word List - Proto-C-Mandekan

1. 'name' : *togo	11. 'father' : *fa
2. 'one' : *kelen	12. 'mother' : ?
3. 'two' : *fɛlǎ́(n)	13. 'head' : *kun
4. 'three' : *sakpa/*saba?	14. 'hair' : *(kun-)ti (gi)
5. 'four' : *naani(n)	15. 'nose' : *sun/*nun
6. 'five' : *soolu	16. 'eye' : *nya
7. 'person' : *mogo	17. 'ear' : *tulo?
8. 'man' : *kai/*kani?	18. 'mouth' : *da
9. 'woman' : *muso	19. 'tooth' : *nyin
10. 'child' : *din	20. 'tongue' : *neng

21. 'neck' : *kan	47. 'leaf' : ?
22. 'hand' : *bolo	48. 'root' : *sulu/* <u>sili</u> ?
23. 'foot' : * <u>ken</u>	49. 'milk' : ?
24. 'knee' : *kumbele(n)	50. 'grease' : *tulu
25. 'nail' : ?	51. 'egg' : *-kili
26. 'breast' : ?	52. 'bird' : * <u>konde</u> /o
27. 'belly' : ?	53. 'fish' : *nye(ge)
28. 'navel' : *bata(-kun?)	54. 'snake' : *kala/*sa?
29. 'skin' : *gbolo	55. 'dog' : * <u>wulu</u>
30. 'bone' : * <u>kolo</u>	56. 'big' : ?
31. 'blood' : * <u>joli</u> (*w?)	57. 'small' : *dogo(n)
32. 'sky' : ?	58. 'black' : *fin
33. 'fire' : *ta	59. 'white' : *gbé
34. 'water' : *ji	60. 'good' : *nyi(n)
35. 'meat' : ?	61. 'new' : ?
36. 'salt' : ?	62. 'old' : *koto
37. 'many' : ?	63. 'hot' : *gbandi/o
38. 'stone' : ?	64. 'cold' : *kima(n)
39. 'sun' : * <u>tile</u>	65. 'dry' : *gba(la)/*ja
40. 'moon' : *kalo	66. 'straight': ?
41. 'night' : *su(lo)	67. 'come' : *na
42. 'rain' : ?	68. 'sit' : *sigi
43. 'smoke' : *sisi(-o)	69. 'lie' : *sa
44. 'sand' : *kenye(n)	70. 'sleep' : *kin ^o (go)
45. 'rope' : * <u>julu</u>	71. 'die' : cf. #81
46. 'tree' : ?	72. 'fall' : * <u>bi</u> (la)

73. 'stand'	: *so/*w <u>u</u> li	87. 'he'	: *a
74. 'say'	: *k <u>u</u> ma/*fɔ?	88. 'we'	: *mu?
75. 'hear'	: *m <u>e</u> n	89. 'they'	: *anu
76. 'wash'	: *ko	90. 'who'	: *nye?
77. 'see'	: *j <u>e</u>	91. 'what'	: ?
78. 'give'	: *bele	92. 'not'	: *ma
79. 'eat'	: *d <u>o</u> mo	93. 'long'	: *jan
80. 'drink'	: *m <u>i</u> n	94. 'short'	: *k <u>i</u> ntu
81. 'kill'	: *f <u>a</u> à	95. 'here'	: *n <u>i</u> e
82. 'cut'	: *t <u>i</u> è	96. 'few'	: ?
83. 'hit'	: *gbasi	97. 'all'	: *gb(ɛ~i)/*bɛɛ?
84. 'sew'	: *ka	98. 'pathp	: *kila
85. 'I'	: *n(e)	99. 'in'	: *lo/*kono
86. 'you'	: *i	100. 'if'	: *ni?

Key: __: underscoring reflects tentative reconstruction of a segment.

(): indicates uncertainty of a reconstructed form (or segment)

having existed in both of the languages.

? : indicates that the reconstruction is from less than both languages.

7. Reconstructing Proto-Group B

Group B of the Northern Mande language subgroup is composed of Ligbi (L), Numu (N), and Hwela (H). These languages share an average of about 80% cognation with each other, the statistics varying between 80%-84%. Also, now that some sticky correspondences in Group B have been established, I found that Group B languages in general relate to Mandekan languages at a higher percentage than Long [1971] had previously established in his statistical pretesting. For example, Long gives a mean score of 46% for Ligbi-Bambara and 31% for Hwela-Maninka as opposed to my scores of 53% for the former and 43% for the latter. I likewise find a mean score of 50% for the Hwela-Vai relation and a mean score of 56% for the Ligbi-Vai relation to Long's scores of 47% and 46% respectively. This places Group C and Mandekan languages 5%-10% closer to Group B than was previously assumed to be the case.

7.1. Reconstructing Proto-Group B Consonants

Table 39 - Initial Consonants

<u>Labials</u>				<u>No. of Corr.</u>			
	22. 'hand'	83. 'hit'	44. 'sand'				
*b/	L: e- <table><tr><td>b</td></tr></table> olo ¹	b	<table><tr><td>b</td></tr></table> ere	b	<table><tr><td>b</td></tr></table> uru	b	3
b							
b							
b							
	N: m' <table><tr><td>b</td></tr></table> olo	b	<table><tr><td>b</td></tr></table> éto	b	<table><tr><td>b</td></tr></table> uru	b	
b							
b							
b							
	H: <table><tr><td>b</td></tr></table> ulo	b	<table><tr><td>b</td></tr></table> éri-ke	b	<table><tr><td>b</td></tr></table> unu	b	
b							
b							
b							
	80. 'drink'	86. 'you'	89. 'they'				
*m/	L: <table><tr><td>m</td></tr></table> en	m	e- <table><tr><td>m</td></tr></table> a	m	no- <table><tr><td>m</td></tr></table> ono	m	3
m							
m							
m							
	N: <table><tr><td>m</td></tr></table> i	m	- <table><tr><td>-</td></tr></table> -	-	-- <table><tr><td>-</td></tr></table> ---	-	
m							
-							
-							
	H: <table><tr><td>m</td></tr></table> é	m	e- <table><tr><td>m</td></tr></table> ain	m	nu- <table><tr><td>m</td></tr></table> ono	m	
m							
m							
m							

Labials

No. of Corr.

3. 'two'

?*/f/ L: $\begin{bmatrix} f \\ f \\ f \end{bmatrix}$ àlá
 N: $\begin{bmatrix} f \\ f \\ f \end{bmatrix}$ ala
 H: $\begin{bmatrix} f \\ f \\ f \end{bmatrix}$ ala

Because the reconstructions from this 100 word list are weak we have included additional data supporting the reconstruction of various segments at the end of this chapter.

Dentals

2. 'one'

10. 'child'

18. 'mouth'

* /d/	L: $\begin{bmatrix} d \\ d \\ d \end{bmatrix}$ iye	$\begin{bmatrix} d \\ d \\ d \end{bmatrix}$ e	e- $\begin{bmatrix} d \\ d \\ d \end{bmatrix}$ a	5
	N: $\begin{bmatrix} d \\ d \\ d \end{bmatrix}$ ye	$\begin{bmatrix} d \\ d \\ d \end{bmatrix}$ e	$\begin{bmatrix} d \\ d \\ d \end{bmatrix}$ a	
	H: $\begin{bmatrix} d \\ d \\ d \end{bmatrix}$ ie	$\begin{bmatrix} d \\ d \\ d \end{bmatrix}$ i	$\begin{bmatrix} d \\ d \\ d \end{bmatrix}$ a	

17. 'ear'

33. 'fire'

39. 'sun'

* /t/	L: $\begin{bmatrix} t \\ t \\ t \end{bmatrix}$ ulo	$\begin{bmatrix} t \\ t \\ t \end{bmatrix}$ a	$\begin{bmatrix} t \\ t \\ t \end{bmatrix}$ ɛli	3
	N: $\begin{bmatrix} t \\ t \\ t \end{bmatrix}$ ulo	$\begin{bmatrix} t \\ t \\ t \end{bmatrix}$ a	$\begin{bmatrix} t \\ t \\ t \end{bmatrix}$ éle	
	H: $\begin{bmatrix} t \\ t \\ t \end{bmatrix}$ ulo	$\begin{bmatrix} t \\ t \\ t \end{bmatrix}$ a	$\begin{bmatrix} t \\ t \\ t \end{bmatrix}$ eri	

5. 'four'

61. 'new'

49. 'milk'

* /n/	L: $\begin{bmatrix} n \\ n \\ n \end{bmatrix}$ ani	$\begin{bmatrix} n \\ n \\ n \end{bmatrix}$ a	$\begin{bmatrix} n \\ n \\ n \end{bmatrix}$ ɔno	4
	N: $\begin{bmatrix} n \\ n \\ n \end{bmatrix}$ ani	$\begin{bmatrix} n \\ n \\ n \end{bmatrix}$ a	$\begin{bmatrix} n \\ n \\ n \end{bmatrix}$ ono	
	H: $\begin{bmatrix} n \\ n \\ n \end{bmatrix}$ ani	$\begin{bmatrix} n \\ n \\ n \end{bmatrix}$ a	$\begin{bmatrix} n \\ n \\ n \end{bmatrix}$ ---	

'Milk' may be a loan word in L and N.

4. 'three'

6. 'five'

15. 'nose'

* /s/	L: $\begin{bmatrix} s \\ s \\ s \end{bmatrix}$ ewa	$\begin{bmatrix} s \\ s \\ s \end{bmatrix}$ olo	e- $\begin{bmatrix} s \\ s \\ s \end{bmatrix}$ un	6
	N: $\begin{bmatrix} s \\ s \\ s \end{bmatrix}$ igba	$\begin{bmatrix} s \\ s \\ s \end{bmatrix}$ olo	nu- $\begin{bmatrix} s \\ s \\ s \end{bmatrix}$ un	
	H: $\begin{bmatrix} s \\ s \\ s \end{bmatrix}$ egba	$\begin{bmatrix} s \\ s \\ s \end{bmatrix}$ olo	$\begin{bmatrix} s \\ s \\ s \end{bmatrix}$ un	

Resonants. No examples.

PalatalsNo. of Corr.

	19. 'tooth'	60. 'good'	9. 'woman'										
* /ny/	L: e- <table><tr><td>ny</td></tr><tr><td>n</td></tr><tr><td>i</td></tr></table> in	ny	n	i	e- <table><tr><td>ny</td></tr><tr><td>ny</td></tr><tr><td>ny</td></tr></table> e	ny	ny	ny	<table><tr><td>ny</td></tr><tr><td>ni</td></tr><tr><td>ni</td></tr></table> a	ny	ni	ni	4
ny													
n													
i													
ny													
ny													
ny													
ny													
ni													
ni													
	N: <table><tr><td>n</td></tr><tr><td>i</td></tr></table>	n	i	<table><tr><td>e</td></tr><tr><td>é</td></tr><tr><td>en</td></tr></table>	e	é	en	<table><tr><td>en</td></tr><tr><td>en</td></tr><tr><td>en</td></tr></table>	en	en	en		
n													
i													
e													
é													
en													
en													
en													
en													
	H: <table><tr><td>n</td></tr><tr><td>i</td></tr></table>	n	i	<table><tr><td>en</td></tr><tr><td>en</td></tr><tr><td>en</td></tr></table>	en	en	en						
n													
i													
en													
en													
en													

I assume here that perhaps Tauxier, who gathered the N and H data, did not indicate palatalization before [i], or rather indicated it by the use of [i].

	30. 'bone'	53. 'fish'	67. 'come'										
* /y/	L: <table><tr><td>y</td></tr><tr><td>y</td></tr><tr><td>y</td></tr></table> eli	y	y	y	<table><tr><td>y</td></tr><tr><td>y</td></tr><tr><td>y</td></tr></table> ɛye	y	y	y	<table><tr><td>y</td></tr><tr><td>y</td></tr><tr><td>y</td></tr></table> a	y	y	y	5
y													
y													
y													
y													
y													
y													
y													
y													
y													
	N: <table><tr><td>é</td></tr><tr><td>é</td></tr><tr><td>é</td></tr></table>	é	é	é	<table><tr><td>é</td></tr><tr><td>é</td></tr><tr><td>é</td></tr></table> egué	é	é	é	<table><tr><td>a</td></tr><tr><td>a</td></tr><tr><td>a</td></tr></table>	a	a	a	
é													
é													
é													
é													
é													
é													
a													
a													
a													
	H: <table><tr><td>é</td></tr><tr><td>é</td></tr><tr><td>é</td></tr></table>	é	é	é	<table><tr><td>é</td></tr><tr><td>é</td></tr><tr><td>é</td></tr></table> egué	é	é	é	<table><tr><td>a</td></tr><tr><td>a</td></tr><tr><td>a</td></tr></table>	a	a	a	
é													
é													
é													
é													
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a													

There is no possible */j/ reconstruction for *Group B.

Velars

	27. 'belly'	32. 'sky'	36. 'salt'										
* /k/	L: e- <table><tr><td>k</td></tr><tr><td>k</td></tr><tr><td>k</td></tr></table> ɔ	k	k	k	<table><tr><td>k</td></tr><tr><td>k</td></tr><tr><td>k</td></tr></table> aŋka	k	k	k	<table><tr><td>k</td></tr><tr><td>k</td></tr><tr><td>k</td></tr></table> ɔyo	k	k	k	9
k													
k													
k													
k													
k													
k													
k													
k													
k													
	N: n' <table><tr><td>k</td></tr><tr><td>k</td></tr><tr><td>k</td></tr></table> on	k	k	k	<table><tr><td>k</td></tr><tr><td>k</td></tr><tr><td>k</td></tr></table> annga	k	k	k	<table><tr><td>uo</td></tr><tr><td>uo</td></tr><tr><td>uo</td></tr></table>	uo	uo	uo	
k													
k													
k													
k													
k													
k													
uo													
uo													
uo													
	H: <table><tr><td>k</td></tr><tr><td>k</td></tr><tr><td>k</td></tr></table> on	k	k	k	<table><tr><td>anga</td></tr><tr><td>anga</td></tr><tr><td>anga</td></tr></table>	anga	anga	anga	<table><tr><td>uo</td></tr><tr><td>uo</td></tr><tr><td>uo</td></tr></table>	uo	uo	uo	
k													
k													
k													
anga													
anga													
anga													
uo													
uo													
uo													
	8. 'man'	40. 'moon'	42. 'rain'										
	L: <table><tr><td>c</td></tr><tr><td>k</td></tr><tr><td>k</td></tr></table> ini	c	k	k	<table><tr><td>e</td></tr><tr><td>e</td></tr><tr><td>e</td></tr></table> e	e	e	e	<table><tr><td>i</td></tr><tr><td>i</td></tr><tr><td>i</td></tr></table> i	i	i	i	4
c													
k													
k													
e													
e													
e													
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i													
	N: <table><tr><td>k</td></tr><tr><td>k</td></tr><tr><td>k</td></tr></table> ini	k	k	k	<table><tr><td>ei</td></tr><tr><td>ei</td></tr><tr><td>ei</td></tr></table>	ei	ei	ei	<table><tr><td>i</td></tr><tr><td>i</td></tr><tr><td>i</td></tr></table>	i	i	i	
k													
k													
k													
ei													
ei													
ei													
i													
i													
i													
	H: <table><tr><td>k</td></tr><tr><td>k</td></tr><tr><td>k</td></tr></table> ini	k	k	k	<table><tr><td>ie</td></tr><tr><td>ie</td></tr><tr><td>ie</td></tr></table>	ie	ie	ie	<table><tr><td>i</td></tr><tr><td>i</td></tr><tr><td>i</td></tr></table>	i	i	i	
k													
k													
k													
ie													
ie													
ie													
i													
i													
i													

The latter is a case of palatalization of */k/ before high front vowels in Ligbi, much as has been seen in other languages of the Northern Mande family.

Lab. Vel.

	56. 'big'	58. 'black'						
?*/gb/	L: <table><tr><td>gb</td></tr><tr><td>b</td></tr><tr><td>b</td></tr></table> onkáse	gb	b	b	<table><tr><td>gb</td></tr><tr><td>b</td></tr><tr><td>b</td></tr></table> oyo	gb	b	b
gb								
b								
b								
gb								
b								
b								
	N: <table><tr><td>b</td></tr><tr><td>b</td></tr><tr><td>b</td></tr></table> on	b	b	b	<table><tr><td>ohu</td></tr><tr><td>ohu</td></tr><tr><td>ohu</td></tr></table>	ohu	ohu	ohu
b								
b								
b								
ohu								
ohu								
ohu								
	H: <table><tr><td>b</td></tr><tr><td>b</td></tr><tr><td>b</td></tr></table> on	b	b	b	<table><tr><td>ugu</td></tr><tr><td>ugu</td></tr><tr><td>ugu</td></tr></table>	ugu	ugu	ugu
b								
b								
b								
ugu								
ugu								
ugu								

Lab. Vel.No. of Corr.

	46. 'tree'	65. 'dry'	48. 'root'	
* /gb/	L: gb a	gb are	gb a-kun	3
N:	gw a	gu are	gu a-ku	
H:	b a	b are	b a-ku	

Here it appears that */gb/ has become [gw] in Numu and [b] in Hwela before [a]. The [gw]/[gu] distinction made by Tauxier is superfluous here.

	29. 'skin'	81. 'kill'	38. 'stone'	
* /kp/	L: e- kp olo-di	kp a	kp i	4
N:	u- p oro	p an-ré	p ɛ	
H:	p uru-di	p an-re	p ɛ	

Table 40 - Medial ConsonantsLabialsNo. of Corr.

	55. 'dog'?	64. 'cold'	
?*/m/	L: ---- -	ku m a(-re)	2
N:	dasu m a	ku m a	
H:	dasu m a	ku m a	

'Dog' is questionable because of the form [wulu] found in Ligbi which is cognate with *C-Mandekan. Either N and H borrowed dasuma or L borrowed [wulu]. The former appears more likely due to cognation. I list [dasuma] here for reference purposes.

* /b/, */w/ and */f/ are not reconstructable in medial position, as is true for *C-Mandekan.

Dentals

	16. 'eye'	20. 'tongue'	52. 'bird'?	
?*/d/	L: e-ɲar d i	nɛn d ɛ	kɔn d iri	2-3
N:	n'gari d é	nenn d è	kɔnn d éré	
H:	n'gara d i	nenn d i	kɔn d éré	

The /-dere/ ending in 'bird' may in fact be a Group B suffix which occurs also in Numu 'old' [koradere]. This is not known for certain. Whatever the status of /-dere/, it is testimony to a */d/, either in root medial position or in morpheme initial position.

Dentals

No. of Corr.

	5. 'four'	8. 'man'	28. 'navel'	
* /n/	L: na n i	ci n i	-- - -	7
	N: na n i	ki n i	uo n o	
	H: na n i	ki n i	uo n o	

The [uo] of Tauxier's probably represents [wo]. This word speaks of borrowing since it is not cognate with L and begins with an initial [w].

	55. 'dog'?	43. 'smoke'	
?*/s/	L: -- - ---	si s i	2
	N: da s uma	si s i	
	H: da s uma	si s i	

*/t/ cannot be reconstructed in *B in medial position in these sets of data.

Resonants

	3. 'two'	6. 'five'	17. 'ear'	
* /l/	L: fa l á	so l o	tu l o	8
	N: fa l a	so l o	tu l o	
	H: fa l a	so l o	tu l o	
	16. 'eye'	41. 'night'	62. 'old'	
* /r/	L: e-ŋa r di	ko r u	kpu r a	5
	N: n'ga r idi	ku r uba	ko r a-dere	
	H: n'ga r ada	ku r u	ku r a	

Tauxier's [n'g] may correspond to [ŋ], though this may also be a morpheme boundary.

Palatals. No examples.

VelarsNo. of Corr.

	14. 'hair'	53. 'fish'	36. 'salt'?	
*g/	L: e-wu-ti	ye	ko	3
	N: u-ti	ye	ku	
	H: u-ti	ye	ku	

*g/ is lost in 'salt' in N and H. That *g/ existed in this item is likely, due to *M.

Lab. Vel.

	4. 'three'	
*g/	L: se	1
	N: si	
	H: se	

Here */gb/ became [w] in L rather than in N before final [a]. See the */gb/ section of Table 39 for a similar change in N.

Table 41 - Final ConsonantsDentalsNo. of Corr.

	9. 'woman'	15. 'nose'	27. 'belly'	
*n/	L: nya	e-su	e-ko	8
	N: nie	nu-su	n'ko	
	H: nie	su	ko	

Final */n/ is usually lost in NM languages but is most often signaled by nasalization of the final vowel.

7.1.1. Discussion of Group B Consonant Irregularities

7.1.1.1. Labials. There is one irregularity in the initial bilabial plosive series.

'Neck': e-foli, u-poli, ura-kan shows an [f:p:-] matching. The choice of either */p/ or */f/ is arbitrary since this is not cognate with the remainder of NM. The H form is [ura-kan], the last morpheme

of which is cognate with NM. The [f/poli] forms in Ligbi and Numu must therefore have been borrowed into Group B.

*m/ shows one irregularity in initial position in four occurrences.

'Rope': julu, mono, mono is, of course, non-cognate between [mono] and [julu]. Again it is difficult to say which was borrowed into Group B languages. Since [julu] is cognate with *C-M languages, however, I reconstruct a tentative *julu for at least *B-C-Mandekan.

7.1.1.2. Dentals. */d/ has only one irregularity in six occurrences.

'Leaf': ja, dia, dia. It may be that [di] and [j] are phonetically the same segment in these data. I reconstruct a probable *dia, leaving the explanation of the [j] reflex in L to palatalization before [i].

*/s/ has only one problematic form.

'Meat': si, sye, sye. Since [sy] in Tauxier's transcription may correspond to [si], I reconstruct a tentative *sie.

7.1.1.3. Resonants. As is generally the case in NM, resonants in medial position show a good deal of variation between [l], [r] and [Ø]. There are thirteen regular resonant correspondences to five irregular ones, the latter being listed in the chart below.

(20)	<u>Ligbi</u>	<u>Numu</u>	<u>Hwela</u>	
68. 'sit'	yaya	yara	yara	[y:r:r]
29. 'skin'	e-kpo _{lo} -di	u-poro	puru-di	[l:r:r]
25. 'nail'	e-bolo- <u>nonin</u>	buru-dunnga _i	bulu	[l:r:l]
39. 'sun'	te _{li}	te _{le}	te _{ri}	[l:l:r]
98. 'path'	gbin-kiri	----	kili	[r:-:l]

'Sit' is non-cognate with the remainder of NM and is arbitrary between an */r/ and a */g/ reconstruction. Both should be listed.

'Nail' has the word for 'hand' in it, which reconstructs everywhere in NM as *bolo. The transcription in (20) is therefore suspect.

'Skin' looks as if one might reconstruct an */r/ except for [kpolo] in L. It is a unanimous */l/ in NM in general and will therefore be reconstructed as such for *B as well.

'Sun' is reconstructed as */l/ also on the strength of *C and *M.

'Path' is more difficult. */r/ is supported by Group A, */l/ by Group C and there is a mixture in Mandekan languages. An */l/ is tentatively reconstructed, since the tendency in NM has been a change from */l/ to [r] and not the reverse.

7.1.1.4. Palatals. 'Water': yi, hyi, hee is the only irregular palatal matching. It is difficult to determine whether these are cognate or not. L [yi] is cognate with *C-M and may therefore be used in the reconstruction of *NWM.

7.1.1.5. Velars. 'Old': kpura, kora, kora is the only irregular velar matching. It is cognate with *C-M, which reconstructs a */k/. I reconstruct */k/ here as well with a good deal of certainty.

7.1.1.6. Lab. Vel.. There are two irregularities in the labio-velar series.

'Foot': e-gbo, ---, po exhibits a [gb:-:p] matching. This is non-cognate with NM in general and will be tentatively reconstructed as */gb/.

'White': kpi, gbère, pè is difficult to reconstruct not only in B but throughout NM. A */gb/ is argued for in *M and the correspondence with the Numu form here leads to a tentative */gb/ for *B as well.

7.2. Proto-Group B Vowels

Table 42 - Medial Vowels

Front No. of Corr.

	8. 'man'	14. 'hair'	98. 'path'	
* /i/	L: c [i] ni	e-wu-t [i] yi	gbin-k [i] ri	7
	N: k [i] ni	u-t [i] gi	- - --	
	H: k [i] ni	u-t [i] gi	k [i] li	

	30. 'bone'	60. 'good'	83. 'hit'	
* /e/	L: y [e] li	e-ny [e] -	b [e] re	4
	N: y [e] le	e-ny [e] -	b [e] to	
	H: y [e] li	ny [e] n	b [e] ri-ke	

	39. 'sun'	53. 'fish'	63. 'hot'	
* /ɛ/	L: t [ɛ] li	y [ɛ] -	di [ɛ] rɛbe	5
	N: t [ɛ] le	y [ɛ] gué	d [ɛ] re	
	H: t [ɛ] ri	y [ɛ] gue	di [ɛ] ré	

The meanings of the accent marks ' , ` and ^ are unclear in Tauxier [1921]. He makes no mention of the phonetic qualities these are meant to represent. It is difficult to imagine that they are meant to represent the corresponding French equivalents, since he used all three symbols for marking [e, a, i and o].

Central

	32. 'sky'	65. 'dry'	68. 'sit'	
* /a/	L: k [a] nka	gb [a] rɛ	y [a] ya	9
	N: k [a] nnga	gu [a] re	y [a] ra	
	H: k [a] nga	b [a] re	y [a] ra	

Back

	15. 'nose'	17. 'ear'	64. 'cold'	
* /u/	L: e-s [u] n	t [u] lo	k [u] mare	4
	N: nu-s [u] n	t [u] lo	k [u] ma	
	H: s [u] n	t [u] lo	k [u] ma	

BackNo. of Corr.

6. 'five'	56. 'big'	93. 'long'	
* /o/ L: s [o] lo	gb [o] nkase	s [o] n-re	6
N: s [o] lo	b [o] n	- -	
H: s [o] lo		s [o] nya	
27. 'belly'	49. 'milk'	52. 'bird'	
* /o/ L: e-k [o] n	n [o] no	k [o] n	3
N: n'k [o] n	n [o] no	k [o] nndéré	
H: k [o] n	- -	k [o] ndéré	

Here it is difficult to know the phonetic value of [ø] as opposed to [o].

Table 43 - Final VowelsFrontNo. of Corr.

5. 'four'	8. 'man'	14. 'hair'	
* /i/ L: nan [i]	cin [i]	e-wu-tiy [i]	9
N: nan [i]	kin [i]	u-tig [i]	
H: nan [i]	kin [i]	u-tig [i]	
2. 'one'	11. 'father'	81. 'kill'?	
? * /e/ L: diy [e]	ug [e]	kpa [e]	3
N: dy [e]	n'gu [e]	pan-r [e]	
H: di [e]	n'gu [e]	pan-r [e]	
35. 'meat'	53. 'fish'	65. 'dry'	
* /ɛ/ L: si [ɛ]	yey [ɛ]	gbar [ɛ]	3
N: sy [ɛ]	yegu [ɛ]	guar [ɛ]	
H: sy [ɛ]	yegu [ɛ]	bar [ɛ]	

Central

3. 'two'	4. 'three'	18. 'mouth'	
* /a/ L: fàl [a]	sew [a]	e-d [a]	15
N: fal [a]	sigh [a]	d [a]	
H: fal [a]	segb [a]	d [a]	

	41. 'night'	44. 'sand'				
?*/u/	L: kor <table><tr><td>u</td></tr></table>	u	bur <table><tr><td>u</td></tr></table>	u	2	
u						
u						
	N: kur <table><tr><td>u</td></tr></table> ba	u	bur <table><tr><td>u</td></tr></table>	u		
u						
u						
	H: kur <table><tr><td>u</td></tr></table>	u	bur <table><tr><td>u</td></tr></table>	u		
u						
u						
	6. 'five'	17. 'ear'	22. 'hand'			
* /o/	L: sol <table><tr><td>o</td></tr></table>	o	tul <table><tr><td>o</td></tr></table>	o	e-bol <table><tr><td>o</td></tr></table>	o
o						
o						
o						
	N: sol <table><tr><td>o</td></tr></table>	o	tul <table><tr><td>o</td></tr></table>	o	m'bol <table><tr><td>o</td></tr></table>	o
o						
o						
o						
	H: sol <table><tr><td>o</td></tr></table>	o	tul <table><tr><td>o</td></tr></table>	o	bul <table><tr><td>o</td></tr></table>	o
o						
o						
o						
	36. 'salt'	49. 'milk'	99. 'in'?			
?*/ɔ/	L: koy <table><tr><td>ɔ</td></tr></table>	ɔ	non <table><tr><td>ɔ</td></tr></table>	ɔ	kɔn <table><tr><td>ɔ</td></tr></table>	ɔ
ɔ						
ɔ						
ɔ						
	N: ku <table><tr><td>o</td></tr></table>	o	non <table><tr><td>o</td></tr></table>	o	---	
o						
o						
	H: ku <table><tr><td>o</td></tr></table>	o	---	---		
o						

Although 'milk' and 'in' have cognates reconstructing with */ɔ/ in *Mandekan, these may be loan words in L and N.

7.2.1. Discussion of Group B Vowel Irregularities

7.2.1.1. Front. There are three irregularities in ten examples of medial */i/.

'Eye': e-nardi, n'garide, n'garadi. The reconstruction of this [ø:i:a] matching is arbitrary, since it is not cognate with other NM languages. I list both as possibilities.

'Moon': ce, keí, kie shows a [e:ei:ie] matching. Since an alternate form for L is [cije], I tentatively assume the correct reconstruction to be *kie.

'Drink': men, mi, me is reconstructed strongly as *min in *M as well as in *C and *A. I therefore do not hesitate to tentatively reconstruct an */i/ here as well, given the evidence from Numu. Some

dialects of Ligbi covered by A. and J. Persson (personal communication) show an [i] as well.

Of seventeen examples of */i/ in final position, nine are regular [i:i:i] correspondences and four involve an [i:e:i] correspondence, as shown in (21) below.

(21)	<u>Ligbi</u>	<u>Numu</u>	<u>Hwela</u>
16. 'eye'	e-nardi	n'garide	n'garadi
30. 'bone'	yéli	yélé	yeli
39. 'sun'	tɛli	télé	teri
51. 'egg'	togo-yéli	le	yéli

Of these only 'sun' is cognate with the remainder of NM. I have reconstructed *tile for *M, the first vowel being tentative and the final being sure. In B, medial */e/ is sure and final */i/ tentative. Five other dialects of L show [i] as well word finally. For *B at least, */i/ should be reconstructed tentatively as the final vowel.

The other three items in (21) I have likewise reconstructed with a tentative final */i/.

'Water': yi, hyi, hee, as mentioned previously, may not be cognate between the N and H forms on the one hand, and the L form on the other. Other dialects of L show [ji]. The L forms alone are cognate with *C-M and will be used in the reconstruction of *NWM.

'Child': de, de, di is reconstructed as *din for *M tentatively. The [e/i] alternation, as illustrated above, is widespread throughout NM, and especially so in this word. Here, too, I reconstruct a tentative */i/ on the strength of Group A and *M.

'Tongue': ---, dennde, nenndi may in fact be another instance of the [i:e:i] correspondence listed above. This item is cognate with NM

and will tentatively be reconstructed with final */i/.

'Hit': here, béto, béri-ke, which is non-cognate with NM, is an arbitrary */i/ reconstruction word finally as well.

*/e/ shows only one irregularity in seven occurrences medially.

'Three': sewa, sigba, segba will be reconstructed with a tentative */e/. The rest of NM attests */a/ so a choice of */i/ or */e/ here is arbitrary. In *B, it appears to have been a front vowel higher than */ε/.

There are no irregularities in final */e/ correspondences.

*/ε/ correspondences likewise shows only one irregularity in six occurrences in medial position.

'Blood': nysni, ---, gnini is the only irregularity in six cases. This word, however, is not cognate with NM forms and will be reconstructed tentatively with */ε/, leaving assimilation to explain the [i] reflex in H. The [gn] in H probably represents [ny].

7.2.1.2. Central. There is only one mismatch in ten examples of medial */a/.

'Woman': nya, nien, nien. The only two other possible cognate forms from Kuranko and Yalunka speak for a */a/ reconstruction. I assume [ie] in N and H to result from the influence of the palatal nasal.

There are no irregularities in fifteen examples of final */a/.

7.2.1.3. Back. In five examples of high back vowels in medial position only one is problematic, and this most likely due to non-cognition of Group B languages with each other.

In 'dog': wulu, dasuma, dasuma only the L form is cognate with NM in general. Since other dialects of L show [dasuma] as well, one might conclude that [wulu] was borrowed back into L dialects from other NM languages. On the other hand, L may be the only language in B to have retained a form cognate with the original stock. *dasuma should be reconstructed for *B, leaving open to question whether or not [wulu] may be used in support of a NM reconstruction for this item.

There is one problem in three occurrences of final */u/.

'Black': gboyo, bohu, bugu is non-cognate with NM. Here it must be left open to question what the final vowel was, though it appears to have been high and back. A tentative */u/ is reconstructed.

High mid back vowels in medial position show seven regular correspondences to five irregular ones. Three of the latter involve a change of */o/ to [u] in H, as illustrated below.

(22)	<u>Ligbi</u>	<u>Numu</u>	<u>Hwela</u>
22. 'hand'	e-bolo	m'bolo	bulu
29. 'skin'	e-kpolo-di	u-poro	purudi
58. 'black'	gboyo	bohu	bugu

All three are tentatively reconstructed as */o/ medially.

'Hand' reconstructs as *bolo for *C-M in support of */o/ for *B.

'Black', too, appears to reconstruct as */o/. It appears that H does not allow [o] following bilabial consonants in polysyllabic words. In every case in the data, even where the vowel should be clearly reconstructed as */o/, H manifests a [u] when the initial consonant is [b/p]. H may have had a rule: /o/ > [u]/[b/p]__CV.

The forth irregularity concerns 'grease': ---, tolu, tilé. M indi-

cates that this was a high back vowel rather than front, as does Group C. I reconstruct a tentative */o/. I offer no explanation for the front vowels in H.

'Old': kpura, kora, kura is cognate with *M *koto. An initial */k/, medial */r/ and final */a/ may be reconstructed for certain. It appears from *M that the vowel in medial position was not high. */o/ may therefore be tentatively reconstructed.

There are two irregularities in eight occurrences of final */o/.

'Nail': e-bolo-qonin, bulu dinngaĩ, bulu ŋgaĩ is from 'hand', which reconstructs as *bolo in *C-M and elsewhere. I assume the L form to be the tentatively reconstructable form here as well.

'Grease': ---, tolo, tilé was dealt with above and a tentative */o/ reconstruction was suggested for both vowels.

There is only one irregularity in the */o/ series, involving both a medial and final vowel.

'Salt': koyo, kuo, kuo is reconstructed *kogo in *M and is questionable in *C. Group A, it appears, is not cognate. It is very likely that the item began with */k/, had a medial velar */g/ and two back vowels. I will tentatively reconstruct those found in L, since most cognate forms attest similar vowels in this item.

7.3. Reconstructing Proto-Group B: Additional Evidence

In section 7.1. I noted that evidence for the reconstruction of *B from the 100 word list is especially sparse. Since Tauxier [1921] is the only available word list for B of longer than 100 words, extra words from the Swadesh 200 list were sought out. Twenty-four additional cognate sets were found. Although these items are not available for

L, they are available for H and N. I consider that whatever obtains for H and N probably holds true for L as well since they are more distantly related to each other than either is to L. Where H and N agree, therefore, it is relatively safe to conclude L would as well. The following segments receive further support from Tauxier's list.

- (23) *b, *m, *f in initial position *m in medial
 *d, *t, *s in initial position *l in medial *n in final
 *k in initial position *g in medial

*/k/ in initial position and */g/ in medial are positional allophones. Also, [l] and [r] are in somewhat random variation from */l/. There remain no initial */l/, */j/ or */w/, any medial */b/, */kp/ or palatals. There are very few initial */kp/ or */ny/.

The word lists are provided below.

Table 44 - Additional Word List Supporting *B Consonant Reconstructions

<u>Labials</u>	<u>Hwela</u>	<u>Numu</u>
*b/ 'goat'	ba	ba
'elephant'	ban	ban
*m/ 'why'	mu-huro	musohyarè
'where'	mi	mi
medial		
'walk'	tarama	tarama
*f/ 'flower'	bâ-firé	gua-é-filé
'throw'	filiri	é-fili
'light'	fiéma	fiéré
<u>Dentals</u>		
*d/ 'dance'	don	don

<u>Dentals</u>	<u>Hwela</u>	<u>Numu</u>
*t/ 'day' 'walk' 'toad'	tologo tarama toli	tologo tarama tori
*s/ 'heart' 'sing' 'yellow'	son sugu sei	nouson sugu a-sa
*n/ 'elephant' 'heart' 'dance'	ban son don	ban son don
<u>Resonants</u>		
*l/ 'flower' 'toad' 'leopard' 'day' 'throw' 'swear'	bâfire toli kôlo tologo filiri kéli	gua-e-file [r:l] tori [l:r] kolé [l:l] tologo [l:l] é-fili [l:l] é-kal/ri [l:l/r]
<u>Velars</u>		
*k/ 'leopard' 'swear' 'near'	kôlo kéli koro	kolé é-kal/ri --- (Dyula [koro])
medial		
*g/ 'day' 'sing'	tologo sugu	tologo sugu
<u>Lab. Vel.?</u>		
*gb/ 'flower'	bâ-fire	gua-e-file

For 'flower' as */gb/, see [gb:gu:b] before [a] in the regular */gb/ correspondence.

The seven vowel system actually reconstructs very well for *B. The problems are the usual ones in the mid series. The reader should be reminded that in the correspondences below, it is the L form which determines whether to reconstruct an */ɛ/ or */e/ for a given corres-

pondence, or to reconstruct an */ɔ/ or an */o/ for another, since the markings for H and N are unclear. Since there are no L forms available for these items I have simply listed correspondences in these series under */ɛ/ or */e/, or */ɔ/ or */o/ respectively.

Table 45 - Additional Word List Supporting *B Vowel Reconstructions

<u>Front</u>		<u>Hwela</u>	<u>Numu</u>
*/i/	'flower'	bâfiré	gua-e-filé
	'throw'	filiri	é-fili
	final		
	'swear'	kéli	é-kali
	'where'	mi	mi
	'toad'	toli	tori
*/e/	'leg'	pénégpéné	pénépéné
*/ɛ/	'white'	pè	egpèrè
	final		
	'flower'	bâfiré	gua-e-filé
<u>Central</u>			
*/a/	'flower'	bâfiré	gua-e-filé
	'elephant'	ban	ban
	'walk'	tarama	tarama
	final		
	'goat'	ba	ba
<u>Back</u>			
*/u/	'sing'	sugu	sugu
	'why'	mu-huro	mu-sohyare
*/o/	'leopard'	kôlo	kolé
*/ɔ/	'heart'	son	nuson
	'day'	tologo	tologo
	'dance'	don	don
	'toad'	toli	tori

7.3.1. Proto-Group B Vowel System. The reconstruction of the *B vowel sequence system is done on the basis of both the 100 word list and the Additional Word List. Words with highly tentative reconstructions were eliminated from consideration. In the table below, two numbers may be given, the first indicating sure reconstructions and the second questionable ones.

Table 46 - Vowel Sequences

<u>Like Vowels</u>		<u>'i' Combinations</u>	
i-i (5)	u-u (2)	---	---
e-e (2)	o-o (8)	i-e (3-5)	---
ε-ε (2)	o-o (4)	i-ε (0-2)	---
a-a (6)			i-a (2)
<u>TOTAL: 29</u>			
<u>Other Combinations</u>			
u-e (0-1), u-o (2), o-u (1-2), a-u (0-1),		e-i (1)	o-i (2)
u-a (1-2), e-a (1), o-a (0-1), a-ε (1),		ε-i (5)	o-i (1)
o-a (2)			a-i (1-2)
<u>TOTAL: 8-13</u>		<u>TOTAL: 15-20</u>	

Although there is still a higher frequency of like vowels in *B, there is a more significant number of 'Other Combinations' than in the other groups observed so far. Especially notable are the combinations of high front vowels such as [ε-i] and [i-e]. These appear to be more frequent than combinations of [a] plus [i], the only NM group thus far showing such a tendency.

Table 47 - Proto-Group B System

		<u>Initial</u>	
<u>Consonants</u>			<u>Vowels</u>
	<u>*t</u>	<u>*k</u> *kp	
	*b	*d *y	*gb
(*f?)	<u>*s</u>		
	<u>*m</u>	*n *ny	
		<u>Medial</u>	
<u>Consonants</u>			<u>Vowels</u>
	*d	<u>*g</u>	<u>*i</u> <u>*u</u>
(*s?)		(*gb?)	*e *o
(*m?)	*n		*ε (*o?)
	<u>*l</u>		<u>*a</u>
	*r		
		<u>Final</u>	
<u>Consonants</u>			<u>Vowels</u>
	<u>*n</u>		<u>*i</u> <u>*u</u>
			(*e?) *o
			*ε (*o?)
			<u>*a</u>

Key: : means additional evidence for the segment from the Additional Word List.

(?) : indicates a very questionable reconstruction or possible reconstruction.

Table 48 - Reconstructed Word List - Proto-Group B

1. 'name' : ?/togo (L)	26. 'breast' : *k(i)ε(n)
2. 'one' : *die	27. 'belly' : *kon
3. 'two' : *fala	28. 'navel' : *wono?
4. 'three' : *segba	29. 'skin' : *kpolo(-di)
5. 'four' : *nani	30. 'bone' : *yeli
6. 'five' : *solo	31. 'blood' : *nyeni
7. 'person' : ?/mogo (L)	32. 'sky' : *kanga
8. 'man' : *kini	33. 'fire' : *ta
9. 'woman' : *nya(n)	34. 'water' : *yi (L)
10. 'child' : *di	35. 'meat' : *sie
11. 'father' : *g(u)e	36. 'salt' : *kogo
12. 'mother' : *n(i)e	37. 'many' : ?
13. 'head' : ?	38. 'stone' : *kpi
14. 'hair' : *-u-tigi	39. 'sun' : *teli
15. 'nose' : *sun	40. 'moon' : *kie
16. 'eye' : *n'gari/adi	41. 'night' : *koru(ba)
17. 'ear' : *tulo	42. 'rain' : *ki
18. 'mouth' : *da	43. 'smoke' : *sisi
19. 'tooth' : *nyi	44. 'sand' : *buru
20. 'tongue' : *nendi	45. 'rope' : *mono?
21. 'neck' : *f/poli ?	46. 'tree' : *gba
22. 'hand' : *bolo	47. 'leaf' : *dia
23. 'foot' : *gbo	48. 'root' : *gba-kun
24. 'knee' : ?	49. 'milk' : *nono
25. 'nail' : *bolo-(di)ngonin	50. 'grease' : *tolo

51. 'egg' : * <u>yɛ</u> li	76. 'wash' : ?/ko (L)
52. 'bird' : *kond <u>ere</u>	77. 'see' : ?
53. 'fish' : *yɛge	78. 'give' : *k <u>or</u> /ma?
54. 'snake' : *kaa	79. 'eat' : *k <u>oma</u>
55. 'dog' : *dasuma?	80. 'drink' : * <u>min</u>
56. 'big' : *gbon(kase)	81. 'kill' : *kpa(n)
57. 'small' : ?	82. 'cut' : ?
58. 'black' : *gbogu	83. 'hit' : * <u>beri</u>
59. 'white' : * <u>gbɛ</u>	84. 'sew' : ?/kara (L)
60. 'good' : *nye(n)	85. 'I' : *na?
61. 'new' : *na	86. 'you' : *(e-)ma(in)?
62. 'old' : * <u>kora</u>	87. 'he' : *(e-) <u>ma</u> (in)?
63. 'hot' : *d(i)ɛɛ	88. 'we' : *a-mono(n)?
64. 'cold' : *kuma(re)	89. 'they' : * <u>no</u> -mono?
65. 'dry' : *gbare	90. 'who' : ?
66. 'straight' : ?	91. 'what' : ?
67. 'come' : *ya	92. 'not' : ?
68. 'sit' : *yara/*yaga?	93. 'long' : *son
69. 'lie' : ?/*sa (L)	94. 'short' : ?
70. 'sleep' : *nyim(b)a?	95. 'here' : ?/yɛni (L)
71. 'die' : *kpan?	96. 'few' : ?
72. 'fall' : ?/bare (L)	97. 'all' : ?/gbo (L)
73. 'stand' : ?/yon (L)	98. 'path' : * <u>kili</u> ?
74. 'say' : ?/kura (N)	99. 'in' : ?/kono (L)
75. 'here' : ?/mɛn (L)	100. 'if' : ?

Key: : underscoring reflects tentative reconstruction.

? : indicates reconstruction from less than all the languages.

8. Reconstructing Proto-Group A

Group A of NM is composed of Susu and Yalunka, which relate to each other between 83%-91% by Long's [1971] counts. These languages relate to other NM languages at no better than 51% by my own counts. Group A may have been the first subgroup to break from the NM stock, although this chronology remains to some degree questionable. Group B, which certainly did not branch from NM before Group A, may nevertheless have branched from the tree at approximately the same point in time. A more thorough discussion of the relation of all the NM subgroups to each other is reserved for the introduction to section 9.

8.1. Proto-Group A Consonants

Table 49 - Initial Consonants

<u>Labials</u>				<u>No. of Corr.</u>
	83. 'hit'	11. 'father'	55. 'dog'	
*b/	S: b onbo	b aba	b are	5
Y:	b onbo	b aba	b are-na	
	7. 'person'	80. 'drink'	91. 'what'	
*m/	S: m ɪxɪ	m in	m un-se	4
Y:	m uxu	m in	m un-du	
	37. 'many'			
?*/w/	S: w uyaxi			1
Y:	w uyaxi			
	58. 'black'	60. 'good'	67. 'come'	
*f/	S: f ɔro	f an	f a	6
Y:	f ɔro	f an	f a	

Dentals

No. of Corr.

10. 'child'	18. 'mouth'	68. 'sit'	
*/d/ S: [d] i	[d] ε	[d] ɔxɔ	7
Y: [d] ii	[d] ε-na	[d] ɔxɔ	
17. 'ear'	33. 'fire'	42. 'rain'	
*/t/ S: [t] uli	[t] ε	[t] une	6
Y: [t] unla	[t] ε	[t] ulɛna	
5. 'four'	85. 'I'		
*/n/ S: [n] ani	[n] e		2
Y: [n] anin			
20. 'tongue'	42. 'rain'	52. 'bird'	
S: [n] en-nyi	tu [n] ε	xɔ [n] i	3
Y: [l] en-na	tu [l] εn	xɔ [l] i-na	

I have included the medial examples of this [n:l] correspondence to illustrate the correspondence as a whole. Y dissimilates [n] to [l] before a front vowel followed by [n], except where an initial nasal consonant protects a medial one from undergoing this change, as in 'four'. The historical rule appear to have been the following:

$$[n] > [l] / (C \ V) \begin{matrix} \text{---} & Vn(V) \\ [-n] & [+front] \end{matrix}$$

It is clear that the change was from */n/ to [l] and not vice versa because of the evidence from *B, *C and *M. Furthermore, all three lexical items reconstruct as */n/ in *SWM.

4. 'three'	6. 'five'	14. 'hair'	
*/s/ S: [s] axan	[s] uli	(xun-) [s] εxε	6
Y: [s] axan	[s] ulun	(xun-) [s] εxε	

The [xun-] in 'hair' above means 'head'. The item is a compound of 'head' and 'hair'.

Resonants. No examples.

No. of Corr.

Palatals

34. 'water'	53. 'fish'	
?*/y/ S: y e	y εxε	2
Y: y ige-na	y εxε-na	

19. 'tooth'	16. 'eye'	
?*/ny/ S: ny in-nyi	ny a	2
Y: ŋ in-na	y ε-na	

The [ŋ] reflex in Y is not understood.

Velars

32. 'sky'	99. 'in'	41. 'night'	
* /k/ S: k uye	k ui	k wε	8
Y: k uye-na	k ui	k ɔε-na	

8. 'man'	13. 'head'	30. 'bone'	
* /g/ S: x amε	x un-nyi	x ɔri	10
Y: x emε	x un-na	x ɔɔ-na	

This is the only group thus far for which a contrastive */k/ vs. */g/ can be reconstructed in initial position. Most of the items showing the [x:x] correspondence in A reconstruct as */g/ in *SWM and most showing the [k:k] correspondence reconstruct as */k/ in *SWM. This will be discussed in greater detail in section 9.

Lab. Vel.

56. 'big'	
?*/gb/ S: xun- gb o	1
Y: gb o	

This is the only example of a possible */gb/ correspondence in initial position in the word list.

Table 50 - Medial ConsonantsLabialsNo. of Corr.

	35. 'meat'	11. 'father'	83. 'hit'	
*b/	S: su b e	ba b a	bon b o	4
Y:	su b e-na	ba b a	bon b o	
	8. 'man'			
?*/m/	S: xa mɛ			1
Y:	xɛ mɛ			

Dentals

	96. 'few'	
?*/d/	S: don d onronti	1
Y:	n d e	

This does not appear to be a very good correspondence since this item is not reconstructable for *NM.

	5. 'four'	96. 'few'?	
?*/n/	S: na n i	do n donronti	2
Y:	na n in	n de	
	42. 'rain'	52. 'bird'	
S:	tu n e	xo n i	2
Y:	tu l en-na	xo l i-na	

See the Dental section of the Initial Consonant Table for discussion of the [n:l] correspondence.

Resonants

	6. 'five'	1. 'name'	51. 'egg'?	
*l/	S: su l i	xi l i	ka l e	4
Y:	su l un	xi l i	-- l -	

'Egg' is cognate with *C-M and is therefore used here.

ResonantsNo. of Corr.

	3. 'two'	55. 'dog'	57. 'small'	
*/x/	S: fi r in	ba r e	xu r u	5
Y:	fi r in	ba r e-na	xu r un	

Palatals

	32. 'sky'	
*/y/	S: ku y e	1
Y:	ku y e-na	

This appears to be an innovation in Group A since it is non-cognate with NM.

Velars

	7. 'person'	14. 'hair'	53. 'fish'	
*/g/	S: mɪ x í	xun-sɛ x ɛ	yɛ x ɛ	7
Y:	mu x u	xun-sɛ x ɛ	yɛ x ɛ-na	

This is reconstructed as */g/ rather than */x/ due to its correspondence with *SWM and *C-M */g/.

Lab. Vel. No examples.

Table 51 - Final Consonants

DentalsNo. of Corr.

	4. 'three'	2. 'one'	3. 'two'	
*/n/	S: saxa n	kere n	firi n	15
Y:	saxa n	kede n	firi n	

8.1.1. Discussion of Group A Consonant Irregularities. There are a number of *A consonants which it is difficult to reconstruct, including all palatals and labio-velars. This is largely due to the insufficiency of the Yalunka data. In order to account for this, I have included additional Susu word lists in chapter 9, the reconstruction of *NM, as they compare to Bambara. These data will patch up some of these holes

in the reconstruction at the *NM level.

8.1.1.1. Labials. There are no irregularities in the labial series in initial or medial positions.

8.1.1.2. Dentals. There is only one irregularity in the dental series in initial position.

'Nose': *noɛn*, *noɛ-na* appears to have an [ŋ] reflex in Y. This may be due to the transcription. In any case, all of NM attests */n/ and I therefore reconstruct **noɛn*.

There are no irregularities in final position.

8.1.1.3. Resonants. As has been noted several times in the reconstruction of *NM, it is difficult to reconstruct resonants in initial position. There is, however, one interesting point to be made for this series in initial position.

'Tongue': *nennyi*, *lɛn-na* shows an interesting [n:l] in initial position. In Table 49, under the Dental subsection, I attributed the [l] reflex in Y to a dissimilation before [n], as seems to happen in a couple of other forms. However, the Numu form is a cognate [dennde], perhaps testimony to the possibility that the initial consonant in 'tongue' was originally non-nasal. This becomes still more interesting when compared to other Niger Congo forms for this word, such as Swahili [limi]. If this form is in fact cognate between NM and Bantu, there is every justification for reconstructing a Proto-Niger Congo form with initial */l/, since agreement between Mande and any of the other Niger Congo branches constitutes *Niger Congo. If the Bantu and Mande forms are cognate, then [lɛn] in Y and [denndi] in Numu may well be retentions

of the original *Niger Congo stock.¹ I suggest giving both *nen and *len as possible reconstructions.

There are two irregularities in the medial */l/ series and one in the */r/ series which share a common [C:nC] correspondence, illustrated in the chart below.

(24)	<u>Susu</u>	<u>Yalunka</u>
43. 'smoke'	turi	tunla
17. 'ear'	tuli	tunla
64. 'cold'	xinbeli	xunbenla

It appears that Y has inserted a pre-lateral [n] (before [a]?) in the items above, perhaps anticipating the frequently occurring /-na/ suffix found in these data. Another possibility is metathesis once again. If Y 'ear' were originally *tuli-na or *tulu+na, in which the final vowel of the root syncopated to [tulɔna], then the word would have become a certain metathesis candidate since [ln] clusters are not permitted and [nl] clusters are quite common. I have reconstructed the S form in each case, proposing the following change in Y:

- (25) 'ear' *tuli-na > tulɔ-na > tunla
 'cold' *xunbeli-na > xinbelɔ-na > xinbenla

There are two other irregularities in medial position involving an r:d correspondence.

'One': keren, keden and 'skin': kiri, kidi both reconstruct as */l/ in *NM. The [d] could well be a problem of transcription rather than any qualitative difference and therefore these will tentatively be reconstructed as */r/ for *A.

8.1.1.4. Palatals. Other than the appearance of the [n] in 'tooth' discussed above, there is only one irregularity in the palatal series.

'Long': xun-gbo, xun-ya is probably non-cognate in S with the rest of NM. The /-ya/ part of Y is probably cognate with *C-M *jan.

8.1.1.5. Velars. There are no irregularities in eighteen examples of initial velars and only four of twelve medially.

'Short': dunke, dungi will be tentatively reconstructed with a */k/ medially.

'Cut': sɛgɛ, sɛxɛ and 'sew': dɛgɛ, dɛxɛ show irregular [g] in S medially. Whatever the case phonetically, this surely reconstructs as */g/ in *A.

'Moon': kike, kike is so irregular as to immediately suggest borrowing, first due to the [k:k] rather than [x:x] matching medially and secondly because the *SWM form reconstructs with */g/ initially, which normally corresponds to [x:x] initially in Group A, rather than to [k:k].

8.1.1.6. Lab. Vel.. There is only one labio-velar matching which is probably an innovation in A.

8.2. Proto-Group A Vowels

Table 52 - Medial Vowels

<u>Front</u>						<u>No. of Corr.</u>	
	1. 'name'		3. 'two'		19. 'tooth'		
*i/	S: x i li		f i rin		ny i n-nyi	12	
Y:	x i li		f i rin		ŋ i n-na		

FrontNo. of Corr.

2. 'one'	20. 'tongue'	64. 'cold'	
* /e/ S: k [e] ren	n [e] n-nyi	xinb [e] li	5
Y: k [e] den	l [e] n-na	kunb [e] nla	
15. 'nose'	53. 'fish'	82. 'cut'	
* /ε/ S: no [ε] n	y [ε] xε	s [ε] gε	9
Y: no [ε] -na	y [ε] xε-na	s [ε] xε	

Central

4. 'three'	11. 'father'	55. 'dog'	
* /a/ S: n [a] ni	b [a] ba	b [a] re	11
Y: n [a] nin	b [a] ba	b [a] re	

Back

6. 'five'	13. 'head'	17. 'ear'	
* /u/ S: s [u] li	x [ū] n-yi	t [u] li	13
Y: s [u] lun	x [u] n-na	t [u] nla	
79. 'eat'			
? * /o/ S: d [o] n			1
Y: d [o] n			
30. 'bone'	21. 'neck'	36. 'salt'	
* /ɔ/ S: x [ɔ] ri	k [ɔ] -nyi	f [ɔ] xε	7
Y: x [ɔ] ɔ-na	k [ɔ] ε-na	f [ɔ] xɔ-na	

Table 53 - Final VowelsFrontNo. of Corr.

1. 'name'	10. 'child'	29. 'skin'	
* /i/ S: xil [i]	d [i]	kir [i]	7
Y: xil [i]	d [ii]	fati-kid [i] -na	

FrontNo. of Corr.

35. 'meat'	40. 'moon'?	55. 'dog'	
* /e/ S: sub [e]	kik [e]	bar [e]	7
Y: sub [e] -na	kik [e]	bar [e] -na	
8. 'man'	14. 'hair'	53. 'fish'	
* /e/ S: xam [ε]	xun-sex [ε]	yex [ε]	9
Y: xem [ε]	xun-sex [ε]	yex [ε] -na	

Central

11. 'father'	12. 'mother'	67. 'come'	
* /a/ S: bab [a]	ng [a]	f [a]	8
Y: bab [a]	ŋ [a]	f [a]	

Back

?*/u/ No examples.

56. 'big'?	
?*/o/ S: xun- <u>gb</u> o	1
Y: <u>gb</u> o	

This is probably an innovated item in Group A.

58. 'black'	68. 'sit'	83. 'hit'	
* /o/ S: for [ɔ]	dox [ɔ]	bonb [ɔ]	3
Y: for [ɔ]	dox [ɔ]	bonb [ɔ]	

8.2.1. Discussion of Group A Vowel Irregularities. Before discussing irregularities, it is worth noting that the back series of vowels are very difficult to reconstruct in A in final position while the front vowels are easily reconstructed. This is due in large part to the type of vowel alternations current in S. Fortunately, there is a grammar of S available to help decipher these alternations. Houis [1963] notes

that nouns are definitized by the addition of a final vowel suffix /-i/ to the nominal root. When the root ends in a vowel, the following vowel alternations occur:

(26)	Radical Vowel	:	i	e	ɛ	a	ɔ	o	u	ĩ
	+Def. Suffix /-i/:		i	e	ɛ	ɛ	{	ɔɛ	oe	ui
							{	ɛ	e	i
										ĩyi

Note that it is only the back vowels and /a/ which undergo the alternation, hence the faulty correspondences in final position for back vowels and /a/ as in 'salt': foxɛ, foxo-na.

This alternation helps to explain some of the double vowel sequences such as in 'night': kwe, kɔɛ-na. It adds difficulty, however, in determining the real root final vowel in cases such as 'fire': tɛ, tɛ, which reconstructs in other groups as *ta. Is [tɛ] in A languages the result of vowel alternations such as /ta+i/ > [tɛ]? Or did */a/ change to [ɛ] in 'fire'? Since it is not known whether Y shares the vowel alternation rule or not, no conclusion can be drawn for certain.

I will refer to this rule at relevant points in the discussion of irregular matchings.

8.2.1.1. Front. There are only two irregularities in the */i/ series and both are in final position.

'Water': ye, yige-na and 'short': dunke, dungu both show an [e:i] correspondence. There is no particular reason to have expected the [e] reflex in S for 'water' since it clearly reconstructs as */i/ elsewhere. I tentatively reconstruct an */i/.

'Short', as has been demonstrated in the reconstruction of *M (section 3.1.1.2.) and *C-M (section 6.1.1.4.), has had an interesting

history. At the time of *C-M the form reconstructs as *kintu and subsequently changes to *cintu > *sintu > *suntu > *sutun in the development of the Mandekan languages. Here, however, the form appears to have been [dunke/dungi] with the velar medial and the dental initial. This will be discussed in more detail in chapter 9. I am uncertain of the final vowel in Group A and reconstruct a tentative */i/.

There are no irregularities in the */e/ series in medial or final position.

The */ε/ series shows two problems in ten occurrences.

'Foot': sen-nyi, san-na is reconstructed as *k_εn in *C-M. I reconstruct a tentative */ε/ here as well, positing assimilation as an explanation for the [a] reflex in Y.

'Tongue': nennyi, len-na shows an [e:ε] matching. This may either be due to transcription error or to assimilation in the S case. The rest of NM attests [ε] in this form and it will be tentatively reconstructed for *A as well, faute de mieux.

There is likewise only one irregularity in ten occurrences in final position.

'Here': be, be could be either */ε/ or */e/ if an inherited form in Group A. Since it is non-cognate with other NM languages, it may be assumed to have been innovated in *A, although Kpelle in SWM shows [bε]. The other alternative, of course, is that it was retained in *A and lost in the remainder of *NM. A tentative */ε/ is reconstructed.

8.2.1.2. Central. There is one irregularity in eleven examples of medial */a/.

'Man': xamε, xamε. I have decided on a tentative */a/ here because

of the dissimilar vowels in [xame]. Rather than posit a dissimilation of medial and final vowels in S, it is safer to hypothesize assimilation in Y once again, especially when the intervening consonant is a nasal as in this example. *C-M likewise attests an */a/ following initial */k/ in this item. It should be noted, on the other hand, that the final [ɛ] here could result from the [a] + [i] > [ɛ] alternation as well.

There is one aberrance in nine occurrences of final */a/.

'Eye': nya, ye-na would be easier to solve if it were known for certain whether Y shares Susu's vowel alternations in final position before the definite /-i/ suffix. Since an */a/ is strongly reconstructed for *C-M, I suspect that S has the etymologically accurate form. As for the Y [ɛ], recall that the S vowel alternation rule dictates that [a] + [i] > [ɛ], suggesting that [ye] in Y is in fact /ya+i/, if the rule holds for Y as well. It is not known whether or not relational nouns are cited with or without the suffix.

8.2.1.3. Back. There are two [i:u] matchings in fifteen occurrences of medial */u/.

'Five': suli, sulun reconstructs as a high back vowel in the other NM languages. If it were not for the fact that this is not a noun, the S final [i] looks just like what would be expected for the /u/ + /-i/ alternation. I tentatively reconstruct a */u/ here.

'Person': mixi, muxu reconstructs as back vowels in NM in general. Perhaps the S development was *muxu+i > *muxi > [mixi]. First, the vowel changed to [i], as per the alternation rule. Secondly, the first V assimilated to final [i] across [x]. This is tentative at best, but

nevertheless 'person' strongly reconstructs with */u/ here.

Both examples of final */u/ are irregular in these data.

'Person' was just discussed above.

'Smoke': turi, tuntu-na may be another case of vowel alternation before the definite suffix. I reconstruct a tentative */u/. This form is non-cognate with the rest of NM.

*/o/ is relatively scarce in Group A, but shows no irregularities in either medial or final position.

There are two problems in eight examples of medial */ε/.

'Nose': noɛn, nɔɛ-na. The Y form once again looks like what would be expected of the definite suffix following final [ɔ]: [ɔ] + [i] > [ɔɛ]. The S form looks doubtful as a root since [ɔ,ε] sequences are not permitted by the vowel harmony rule of the language, as discussed in greater detail in section 9. I conclude that either the S form is in fact [noɛn] or it is [nɔɛn]. In view of the Y data, I tentatively posit the second spelling. It may be that the actual morphological segmentation of this item is /n +i+n/, the final /-n/ perhaps being from the same suffix as Y /-na/. I reconstruct a tentative *nɔ+i+na for 'nose'.

'Night': kwe, kɔɛ-na. The [w] in S is probably equivalent to the in Y. Back vowels appear to be represented in S as [w] before non-back vowels as exemplified in the chart below.

(27)	<u>Susu</u>	<u>Yalunka</u>
41. 'night'	kwe	kɔɛ-na
21. 'neck'	kwan-ji	kɔɛ-na (Thomas' list)
14. 'long'	kwea	----
99. 'in'	kwi	kui

It appears that in both S and Y these back vowels alternate with

[w].

In final position there are two irregularities in five occurrences of */o/.

'Bone': xori, xoo-na shows an [i:ɔ] matching. The final [i] may be the definite suffix in S, except that [ɔ] + [i] should render [ɛ] rather than [i] according to the alternation rule. This item does reconstruct as *kolo in *C-M, indicating that the back vowel may be the correct reconstruction. I tentatively reconstruct *koro for *A.

'Salt': foxe, foxo-na is most probably non-cognate with *M *kogo, although the possibility remains due to the correlation of vowels and medial [g]. In any case, the final vowel here was probably [ɔ], the [ɛ] reflex in S being once again the result of the alternation rule.

Table 54 - Vowel Sequences

<u>Like Vowels</u>		<u>'i' Combinations</u>	
i-i (4)	u-u (4)	---	---
e-e (1)	o-o (0)	i-e (1)	---
ɛ-ɛ (5)	ɔ-ɔ (5)	---	---
	a-a (3)		i-a (1)
<u>TOTAL: 22</u>		---	u-i (1)
<u>Other Combinations</u>		e-i (1)	---
a-e (3), u-e (2), u-a (2)		---	---
			a-i (2)
<u>TOTAL: 7</u>		<u>TOTAL: 6</u>	

In the table above, sequences of vowels were not counted if the item under consideration were not attestable in both languages, or if the

reconstruction appeared to be highly tentative or, finally, if the sequence appeared to be between a root vowel and a suffix vowel.

A high preference for like vowels is attested in *A, followed by combinations with [a] (8), with [i] (7) and with [u] (5).

Table 55 - Proto-Group A System

		<u>Initial</u>			
<u>Consonants</u>				<u>Vowels</u>	
	*t		*k		
	*b	*d	*y?	*g	*gb
*f	*s				
	*m	*n	*ny?		
(*w?)					
		<u>Medial</u>			
<u>Consonants</u>				<u>Vowels</u>	
	*b	*y?	*g	*i	*u
	*m?	*n?		*e	*o?
		*l		*ε	*o
		*r			*a
		<u>Final</u>			
<u>Consonants</u>				<u>Vowels</u>	
	*n			*i	(*u?)
				*e	*o?
				*ε	*o
					*a

Table 56 - Reconstructed Word List - Proto-Group A

1. 'name' : *gili	26. 'breast' : ?/xin-ye (S)
2. 'one' : *ker <u>e</u> n	27. 'belly' : ?/ku+i (Y)
3. 'two' : *firin	28. 'navel' : ?
4. 'three' : *sagan	29. 'skin' : *k <u>i</u> ri
5. 'four' : *nani(n)	30. 'bone' : *go <u>ro</u>
6. 'five' : *sul <u>u</u> (n)	31. 'blood' : ?/wuli (S)
7. 'person' : *m <u>u</u> g <u>u</u>	32. 'sky' : *kuye
8. 'man' : *ga <u>m</u> e/*ga <u>m</u> a+ <u>i</u>	33. 'fire' : *ta+i/*t <u>e</u>
9. 'woman' : ?	34. 'water' : *y <u>i</u>
10. 'child' : *di	35. 'meat' : *sube
11. 'father' : *baba	36. 'salt' : *fo <u>g</u> o
12. 'mother' : *(n)ga	37. 'many' : *wuyagi
13. 'head' : *gun	38. 'stone' : ?
14. 'hair' : *gun-se <u>g</u> e	39. 'sun' : ?
15. 'nose' : *n <u>o</u> +i+ <u>na</u>	40. 'moon' : (*kike)
16. 'eye' : *n <u>y</u> a	41. 'night' : *ko+i
17. 'ear' : *tul <u>i</u> /*tul <u>u</u> +i	42. 'rain' : *tun <u>e</u> n
18. 'mouth' : *da+i/*d <u>e</u>	43. 'smoke' : *tulu+i/*tuli
19. 'tooth' : *n <u>y</u> in	44. 'sand' : ?
20. 'tongue' : *ngn/*l <u>e</u> n	45. 'rope' : ?
21. 'neck' : *ko(ε)n	46. 'tree' : ?/wuru+i
22. 'hand' : ?/be <u>l</u> ε <u>x</u> ε (S)	47. 'leaf' : ?/buraxε (S)
23. 'foot' : *s <u>e</u> n	48. 'root' : ?
24. 'knee' : ?/ximbi (S)	49. 'milk' : ?
25. 'nail' : ?/xale (S)	50. 'grease' : ?/ture (S)

51. 'egg'	: ?/kale (S)	76. 'wash'	: *-ga-
52. 'bird'	: *goni	77. 'see'	: *to
53. 'fish'	: *yege	78. 'give'	: ?
54. 'snake'	: ?	79. 'eat'	: *don
55. 'dog'	: *bare	80. 'drink'	: *min
56. 'big'	: *(xun-)gbo	81. 'kill'	: ?/faga (Y)
57. 'small'	: *guru(n)	82. 'cut'	: *sege
58. 'black'	: *foro	83. 'hit'	: *bonbo
59. 'white'	: ?	84. 'sew'	: *dege
60. 'good'	: *fan	85. 'I'	: *ne
61. 'new'	: ?	86. 'you'	: *i
62. 'old'	: ?	87. 'he'	: *a
63. 'hot'	: ?	88. 'we'	: ?
64. 'cold'	: *ginbeli	89. 'they'	: *e
65. 'dry'	: ?/xaraxi (S)	90. 'who'	: *nde
66. 'straight'	: ?/tinyin (S)	91. 'what'	: *mun-
67. 'come'	: *fa	92. 'not'	: ?
68. 'sit'	: *dogo	93. 'long'	: ?/()-ya (Y)
69. 'lie'	: ?/sa (S)	94. 'short'	: *dunki
70. 'sleep'	: *gi	95. 'here'	: *be
71. 'die'	: *faga	96. 'few'	: *(do)ndo(n)
72. 'fall'	: ?/bira (S)	97. 'all'	: ?/bi (S)
73. 'stand'	: ?/keli (S)	98. 'path'	: *kira(n)
74. 'say'	: ?	99. 'in'	: *ku+i
75. 'here'	: *-me-	100. 'if'	: *ga

Key: : underscoring reflects tentative reconstructions.
 ? : indicates reconstruction from only one language.

9. Reconstructing Proto-Northern Mande

At this point in the reconstruction *A, *B and *C-M may be stirred together to reconstruct *NM. Since there is so little percentage difference in the relation between Group A languages and C-M languages on the one hand and between Group B and C-M languages on the other, I propose that *A and *B split from *C-M at approximately the same time. These three subgroups should therefore be grouped together in the reconstruction of *NM rather than being stirred in one at a time.

The problem of NM language classification is treated extensively in Welmers [1958/71] and Long [1971]. Although several different attempts at a classification of the Mande languages have been advanced since Koelle, Welmers' article sufficiently summarizes the most important of them. It is not the intention of this work to repeat them here. I present Welmers' grouping of the NM subgroup below.

(28) The Northern Subgroup - Welmers (1958/71)

Susu-Yalunka

Soninke

Hwela-Numu, Ligbi

Vai, Kono

Khasonke

Malinke-Bambara-Dyula

Long [1971] revised this classification as follows.

(29) The Northern Subgroup - Long (1971)

Soninke

Bozo

Susu-Yalunka

Kuranko
Mandekan (Mandinka, Xassonke, etc.)

Vai, Kono

Ligbi (Hwela-Numu?)

Samogo-Gouan

Sembla

Since the writing of Long's paper, however, counts by Welmers and myself indicate that Soninke, Bozo, Samogo-Gouan and Sembla are most probably not members of the NM subgroup. The classification of NM can therefore be revised as follows.

(30)

The Northern Subgroup - Bimson

Group A: Susu-Yalunka

Group B: Hwela, Numu, Ligbi

Group C: Vai, Kono

Mandekan: Kuranko, Mandinka, etc.

The table below compares the average cognate percentages between some of the key NM languages. The left column contains Long's counts; the right column contains my own. Although Long's work is extensive, it is only fair to point out that he himself refers to his counts as only a 'statistical pretesting'. Presumably this is due in part to the limited number of forms available in the 100 word list and in part to the fact that it is difficult to determine cognation in some items until regular sound correspondences have been established between languages through intensive comparative work. This work having now been accomplished, I am in a better position to make accurate counts.

The left most column in the table below illustrates which language groups are being compared. First, M is compared to languages from C, B and A, then Group C is compared to B and A and finally A is compared to B.

The first column of cognate percentages gives the mean cognation between the languages being compared, according to Long's calculations. The percentage immediately to the right of each set, such as the 58% to the right of the M-C comparisons, is the average of all the comparisons made between the groups. This latter figure gives a good idea of the relation of each of the groups to the others. The second column of percentage figures gives the same data as the first, only according to my latest figures rather than Long's.

Table 57 - Average Group Cognate Percentages

<u>Groups</u>	<u>Languages</u>	<u>Long's Counts</u>	<u>Bimson's Counts</u>
M-C	Maninka-Vai	58%	72%
	Mauka-Vai	60%	73%
	Bambara-Vai	57%	75%
M-B	Bambara-Ligbi	46%	53%
	Maninka-Hwela	31%	43%
	Wassulunka-Numu	(35%)	56%
M-A	Maninka-Susu	32%	54%
	Mauka-Susu	31%	47%
C-B	Vai-Ligbi	46%	56%
	Vai-Hwela	47%	50%
C-A	Vai-Susu	47%	54%
	Kono-Susu	35%	48%
B-A	Ligbi-Susu	46%	39%
	Numu-Susu	36%	37%
	Ligbi-Yalunka	47%	41%

There are several striking differences between Long's and my counts. First, my counts show M and C to be much closer to each other than does Long's counts. Secondly, Long's counts make C appear to be much closer to A and B than M is, by an average of about 10%. My counts show M and C to be equidistant from A and B, somewhere in the 50% range. If there is any discrepancy, M and C are one or two percentage points closer to B than to A. However, inaccuracy in human judgements could account for at least that much error. The final point of interest is the relation of A to B, which is 39% by my calculations. At first blush it appears that A and B are more distantly related to each other than either is to C or M. My hypothesis concerning this matter is that A and B have been separated from each other for a longer period of time than either has been separated from C-M. That is, *A, *B and *C-M at one time formed a dialect chain in which *C-M separated *A in the west from *B in the east. When *A and *B split apart from *C-M they had already been separated from each other for some time.

There is one further consideration which ought to be mentioned here. In his [1958] article, Welmers notes that cognation counts usually are about 10% higher in short lists than they are in longer ones. More accurate counts, therefore, may be made by adjusting the counts in Table 56 by 5%-10%.

9.1. Northern Mande Consonants. The following table is slightly different from the preceding consonant tables. The column to the right in this table lists the numbers of the other correspondences which illustrate the series in question rather than indicating how many other such correspondences exist in the data. The reader need only refer to the

Reconstructed Word List for an exhaustive listing of the forms used in this final reconstruction and search out the number listed in the right column for the precise example referred to.

Table 58 - Initial Consonants

Labials

Other Corr.

22. 'hand'	72. 'fall'	
*A: [] ---	[b] ira	
*B: [b] olo	[b] are	
*C-M: [b] olo	[b] e/ila	
7. 'person'	75. 'hear'	80. 'drink'
*/m/ *A: [m] ɔ́gú	[m] ɛ	[m] in #91
*B: [m] ɔ́gɔ	[m] ɛn (L)	[m] in
*C-M: [m] ɔ́gɔ	[m] ɛn	[m] in
3. 'two'	81. 'kill'	
*/f/ *A: [f] irin	[f] aga	
*B: [f] ala	- --- *kpa(n)	
*C-M: [f] ɛla	[f] aa	

Dentals

10. 'child'	18. 'mouth'	79. 'eat'
*/d/ *A: [d] i	[d] ɛ	[d] on
*B: [d] i	[d] a	- --
*C-M: [d] in	[d] a	[d] ɔ́no
17. 'ear'	33. 'fire'	50. 'grease'
*/t/ *A: [t] ulu+i	[t] a+i/tɛ	[t] ure (S) #1, 14, 39,
*B: [t] ulo	[t] a	[t] ɔ́lo 66.
*C-M: [t] ulo	[t] a	[t] ulu

DentalsOther Corr.

5. 'four'	20. 'tongue'	85. 'I'	
*A: [n] ani(n)	[n] ɛn/ɫɛn	[n] e	#49
*B: [n] ani	[n] ɛndi	[n] a?	
*C-M: [n] aani(n)	[n] ɛng	[n] (e)	
4. 'three'	6. 'five'	69. 'lie'	
*A: [s] agan	[s] ulu(n)	[s] a (S)	#35, 43
*B: [s] ɛgba	[s] olo	[s] a (L)	
*C-M: [s] akpa	[s] oolu	[s] a	

Resonants. No examples.Palatals

34. 'water'	45. 'rope'	93. 'long'	
*A: [y] i	[] ---	[y] a (Y)	#77?
*B: [j] i (L)	[j] ulu (L)	[] -	
*C-M: [j] i	[j] ulu	[j] an	

The phonetic value of */j/ was quite possibly something between [y] and [j].

16. 'eye'	19. 'tooth'	60. 'good'	
*A: [ny] a	[ny] in	[] --	#53?
*B: [] -	[ny] i	[ny] e(n)	
*C-M: [ny] a	[ny] in	[ny] i(n)	

Velars

2. 'one'?	27. 'belly'	98. 'path'	
*A: [k] ɛren	[k] u+i (Y)	[k] ira(n)	#21?, 41?, 51?
*B: [] ----	[k] on	[k] ili?	54?, 62?, 74?
*C-M: [k] ɛlen (*M)	[k] ono (*M)	[k] ila	84?, 99?, 8?
76. 'wash'	52. 'bird'	13. 'head'	
*A: [g] a	[g] oni	[g] un	#24?, 26?, 30?
*B: [k] o (L)	[k] onde-re	[] --	64?, 70?
*C-M: [k] o	[k] onde/o	[k] un	

VelarsOther Corr.

Clearly velars were the most frequently occurring consonants in initial position in *NM.

Lab. Vel.

	56. 'big'	59. 'white'	65. 'dry'				
* /gb/	*A: <table><tr><td>gb</td></tr></table> o	gb	<table><tr><td>--</td></tr></table> -	--	<table><tr><td>--</td></tr></table> ---	--	#56?
gb							
--							
--							
	*B: <table><tr><td>gb</td></tr></table> on (kase)	gb	<table><tr><td>gb</td></tr></table> ε	gb	<table><tr><td>gb</td></tr></table> are	gb	
gb							
gb							
gb							
	*C-M: <table><tr><td>--</td></tr></table> --	--	<table><tr><td>gb</td></tr></table> ε	gb	<table><tr><td>gb</td></tr></table> a(la)	gb	
--							
gb							
gb							

Table 59 - Medial ConsonantsLabialsOther Corr.

	24. 'knee'	35. 'meat'		
?*/b/	*A: xim <table><tr><td>b</td></tr></table> i (S)	b	su <table><tr><td>b</td></tr></table> e	b
b				
b				
	*B: kum <table><tr><td>b</td></tr></table> ele(n)	b	si <table><tr><td>-</td></tr></table> e	-
b				
-				
	*C-M: --- <table><tr><td>-</td></tr></table> --	-	-- <table><tr><td>-</td></tr></table> -	-
-				
-				

Dentals

	20. 'tongue'	52. 'bird'		
?*/d/	*A: nen <table><tr><td>-</td></tr></table> -	-	gon <table><tr><td>-</td></tr></table> i	-
-				
-				
	*B: nen <table><tr><td>d</td></tr></table> i	d	kon <table><tr><td>d</td></tr></table> ere	d
d				
d				
	*C-M: nen <table><tr><td>-</td></tr></table> ε	-	kon <table><tr><td>d</td></tr></table> e/o	d
-				
d				

	5. 'four'	20. 'tongue'	52. 'bird'			
* /n/	*A: na <table><tr><td>n</td></tr></table> i(n)	n	ne <table><tr><td>n</td></tr></table>	n	go <table><tr><td>n</td></tr></table> i #49?, 79?, 99?	n
n						
n						
n						
	*B: na <table><tr><td>n</td></tr></table> i	n	ne <table><tr><td>n</td></tr></table> di	n	ko <table><tr><td>n</td></tr></table> <u>dere</u>	n
n						
n						
n						
	*C-M: naa <table><tr><td>n</td></tr></table> i(n)	n	ne <table><tr><td>n</td></tr></table> <u>ε</u>	n	ko <table><tr><td>n</td></tr></table> <u>de/o</u>	n
n						
n						
n						

43. 'smoke'

?*/s/	*A:	--	-	-
	*B:	si	s	i
	*C-M:	si	s	i(-o)

ResonantsOther Corr.

6. 'five'	17. 'ear'	22. 'hand'?	
*A: su [l] u	tu [l] u+i	-- [l] -	#39?, 45?, 51?
*B: so [l] o	tu [l] o	bo [l] o	54?
*C-M: soo [l] u	tu [l] o?	bo [l] o	

Palatals. No examples.

Velars

7. 'person'	14. 'hair'	53. 'fish'	
*A: mu [g] u	gun-se [g] ε	ye [g] ε	#1?, 36, 81?,
*B: mo [g] ɔ (L)	u-ti [g] ε	ye [g] ε	82?
*C-M: mo [g] ɔ	kun-ti (g) i)	nye (g) ε	

Lab. Vel. No examples.

Table 60 - Final Consonants

DentalsOther Corr.

19. 'tooth'	80. 'drink'	13. 'head'	
*A: nyi [n]	mi [n]	gu [n]	#10?, 21?, 5?
*B: nyi -	mi [n]	-- -	23?, 26?, 56?
*C-M: nyi [n]	mi [n]	ku [n]	60?, 91?, 93?

9.1.1. Discussion of Northern Mande Consonant Irregularities

9.1.1.1. Labials. There is one irregularity in three examples of initial */b/.

'Father': *baba, ---, *fa are most probably non-cognate forms, and 'father', therefore, cannot be reconstructed for *NM.

In medial position */b/ shows no irregularities.

*m/ has one irregularity in five occurrences in initial position.

'We': ---, *a-mono(n)?, *mu?. It is difficult to be certain whether these items are cognate or not, though they appear to be. I

tentatively reconstruct the form with initial */m/.

All three matchings with medial */m/ are inconsistent.

'Knee': ximbi (S), ---, *kumbele(n) appears to be a case of a pre-consonantal nasal being assimilated to the following labial, although this cannot be determined for certain. I have shown previously, however, that the only instances of consonant clusters found in the NM languages can often be demonstrated to have been etymologically the final and initial consonants of two words being compounded together. Here I suspect 'knee' to have originally been derived from *kun 'head' plus *bele, or perhaps *bolo, and thus to have meant 'head of the foot'. I reconstruct a medial *-nd- cluster.

'Cold': *kinbeli, *kuma(re), *kima(n) is more difficult. Here there is no a priori reason to suspect a compound resulting in *A *kinbeli. I reconstruct a medial */m/ due to the agreement between *B and *C-M.

Finally, 'say': ---, kura (N), *kuma is probably non-cognate, though the */k/, */u/ and */a/ agreements look good.

One of three occurrences of initial */f/ is problematic.

'Die': *faga, (*pan?), *fa (*M) is cognate with 'kill': *faga, (*kpa), *faa. The *A and *C-M forms are sure cognates. The *B form appears to be more questionable. *SWM shows *paa, however, showing that *B may well be cognate. Either the *B items are retentions of the original stock or borrowed into *B from a SWM source. It is possible, but very doubtful, that *A and *C-M independently developed an [f] reflex of */p/. It is just as feasible, however, that *A borrowed the */f/ forms from *C-M, or vice versa, as *B borrowing the */p/ forms from *SWM. It is simply a matter of speculation at this point. I

tentatively reconstruct a */f/ for *NM, realizing that this will reconstruct with initial */p/ at the *NWM level.

9.1.1.2. Dentals. There are no initial */d/ irregularities and only one of two medially.

'Tongue': *nen, *nendi, *neng shows a post-nasal [d] in *B, much as in 'bird': *koni, *kondere, *konde/o. Unlike 'bird', however, 'tongue' shows no other evidence of medial /d/ in NM or SWM languages, even where the item remains bisyllabic. I therefore opt for a tentative */n/ medially.

Initial */t/ shows an interesting pair of correspondences in the following chart.

	<u>*A</u>	<u>*B</u>	<u>*C-M</u>
14. 'hair'	*k <u>u</u> n-s <u>e</u> g <u>e</u>	*u-tigi	*k <u>u</u> n-tigi
82. 'cut'	*s <u>e</u> g <u>e</u>	-----	*t <u>i</u> g

In no other examples is */t/ found before what could be reconstructed as a high front vowel. In fact, there are no examples in *A of */t/ before front vowels of any kind. I have already demonstrated that */k/ changed to [x] in Group A before */i/. The rule was perhaps more general than that. The realization of 'push' - a verb not on the 100 word list, but on the Swadesh 200 list - is [sɪgà] in Susu but [dɪgɪ] in Bambara. The historical change, then, may have been something on the order of the following in *A.

(32)	<div style="display: inline-block; vertical-align: middle; text-align: center;"> <u>C</u> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> -continuant -voice -labial place </div> </div> <div style="display: inline-block; vertical-align: middle; text-align: center; margin: 0 10px;"> ----> </div> <div style="display: inline-block; vertical-align: middle; text-align: center;"> <u>C</u> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> +continuant -voice -labial place </div> </div> <div style="display: inline-block; vertical-align: middle; text-align: left;"> /#____(CV) </div>
------	---

Medially */t/ shows only one irregular correspondence.

'Old': ----, *kora, *koto may in fact be non-cognate. If it is cognate, it most likely reconstructs with a tentative */t/ medially, since */t/ becomes [r] in many NM languages. There is no evidence supporting a */r/ reconstruction.

The major problem with */n/ is that it deletes so readily in final position. Only two of thirteen examples show */n/ final in all three reconstructed groups. In many other cases, of course, there are only two reconstructions which are cognate, bringing about a questionable reconstruction at the *NM level.

The only questionable matching other than these involves one case of medial */n/.

'Man': *game, *kini, *kai shows an [m:n:Ø] matching, if the forms are indeed cognate. I assume nasal consonant loss in *C-M but require further information before a decision can be made as to the phonetic quality of the nasal. *SWM provides the necessary data, showing *kena. I therefore tentatively reconstruct a medial */n/.

*/s/ occurs five times in initial position with no irregularities. In medial position there is little evidence aside from 'smoke': ----, *sisi, *sisi(-o) for */s/ and it must remain tentative.

9.1.1.3. Resonants. The resonant situation in *NM is as complex as it is elsewhere in the reconstruction. There are three apparent correspondences in this series noted in the chart on the following page. A major problem in the */r-l/ reconstruction is the lack of a phonemic analysis for these languages which would tell a great deal. Here is where reconstruction from a 100 word list can fail.

(33)	<u>*A</u>	<u>*B</u>	<u>*C-M</u>
	r	l	l
			2. 'one': *keren, ---, *kelen; 3. 'two': *firin, *fala, *fela; 30. 'bone': *koro, ---, *kolo; 50. 'grease': *ture, *tolo, *tulu; 98. 'path': *kira, *kili, *kila.
	r	r	l
			74l. 'night': *ko, *koruba, *sulo; 65. 'dry': ---, *gbare, *gba(la); 72. 'fall': *bira, bare (L), *bela.
	l	l	l
			6. 'five': *sulu, *solo, *soolu; 17. 'ear': *tulu, *tulo, *tulo?; 22. 'hand': ---, *bolo, *bolo; 39. 'sun': ---, *tsli, *tile; 45. 'rope': ---, julu (L), *julu; 51. 'egg': *kale, ---, *kili; 54. 'snake': ---, *kaa, *kala.

The problem with reconstructing an */r/ on the basis of the first set of correspondences above is the evidence from SWM, which does reconstruct */r/. There is no common consensus for an */r/ reconstruction for any of the items in the first set. Nevertheless, the systematic nature of the correspondence leads me to very tentatively reconstruct it for [r:l:l] and [r:r:l] until further phonemic analyses of these languages suggest differently. As suggested in a previous section, the [l:l:l] correspondence will be reconstructed as */l/.

9.1.1.4. Palatals. Initial */y/ and */ny/ are relatively easy to reconstruct at the *NM level. There is only one slight irregularity in the */ny/ matchings and none in */y/.

'Fish': *yege, *yege, *nye(ge) shows a [y:y:ny] matching. *A and *B may have lost the nasalization in this item since *SWM reconstructs with */ny/ as well. I suggest a *nyege reconstruction.

9.1.1.5. Velars. There is one very interesting metathesis problem in the velar series in initial position.

'Short': *dunki, ---, *kintu. In section 3.1.1.2. I speculated that *M *suntu underwent metathesis in some M languages to [sutun]. In section 6.1.1.4. I hypothesized that the proper *C-M reconstruction of 'short' might be *kintu, the initial */k/ supported by *C. The */i/ reconstruction of the first vowel was inferred from the */k/ to */s/ change from *C-M to *M. Forms undergoing this particular change were seen to be instances of */k/ followed by */i/. In *A there was another case of metathesis in *dunki. It appears the first CV sequence, */ki-/, metathesized with the final CV sequence, */-tu/, accompanied by a voicing of the latter consonant upon placement in initial position. Only */n/ remained in place. Not insignificantly, the final */i/ in *A once again supports the *M reconstruction of medial */i/, which was somewhat speculative. As further support for a *kintu reconstruction, Mende - from SWM - shows [kitu]. This, perhaps, is the single most interesting phonological history in the reconstruction.

9.1.1.6. Lab. Vel.. In initial position there are three irregular matchings in the */gb/ series.

'All': bi (S), gbo (L), *gbe/i may or may not be cognate between Susu and the other groups. SWM again shows a labio-velar in one language and [p] in another. I very tentatively reconstruct */gb/

'Stone': ---, *kpi, *kaba (*M) may not be cognate. Neither of these items are cognate with SWM, although *kpi may be cognate with Busa (EM) [gbe]. 'Stone', however, cannot be reconstructed at this level.

'Skin': ---, *kpolo(di), *gbolo. Since there is no other evidence for a */kp/ reconstruction aside from *B, I tentatively reconstruct

*/gb/.

9.2. Proto-Northern Mande Vowels. As in the consonantal section, rather than listing the number of times each correspondence occurs, I have provided a cross-reference column referring the reader to each example of a particular correspondence.

Table 61 - Medial Vowels

Front

					<u>Other Corr.</u>
	10. 'child'	19. 'tooth'	80. 'drink'		
* /i/	*A: d i	ny i n	m i n	#43?, 70?, 98	
	*B: d i	ny i n	m i n		
	*C-M: d i n	ny i n	m i n		
	2. 'one'				
?*/e/	*A: k e r e n				
	*B: - e - e -				
	*C-M: k e l e n (*M)				
	53. 'fish'	75. 'hear'	20. 'tongue'		
* /ε/	*A: y ε gε	m ε	n ε n / len		
	*B: y ε gε	m ε n (L)	n ε ndi		
	*C-M: ny ε (gε)	m ε n	n ε n		

Central

	5. 'four'	54. 'snake'	84. 'sew'	
* /a/	*A: n a ni(n)	- a --	- a --	#65?, 71?, 81?
	*B: n a ni	k a a	k a ra	87?, 93?
	*C-M: n aa ni(n)	k a la	k a	

Back

	13. 'head'	17. 'ear'	45. 'rope'	
* /u/	*A: g u n	t u lu+i	- u --	#15?, 91?
	*B: - u -	t u lo	y u lu (L)	
	*C-M: k u n	t u lo?	j u lu	

BackOther Corr.

22. 'hand'	29. 'skin'	56. 'big'
*A: - [-] --	-- [-] --	(kun-)gb [o]
*B: b [o] lo	kp [o] lo	gb [o] n(kase)
*C-M: b [o] lo	gb [o] lo	-- [-]

1. 'name'	36. 'salt'	49. 'milk'
*A: - [-] --	- [-] --	- [-] --
*B: t [o] go (L)	k [o] go	n [o] no
*C-M: t [o] go	k [o] go (*M)	n [o] no (*M)

Table 62 - Final VowelsFrontOther Corr.

5. 'four'	34. 'water'	43. 'smoke'
*A: nan [i] (n)	y [i]	--- [-]
*B: nan [i]	y [i] (L)	sis [i]
*C-M: naan [i] (n)	j [i]	sis [i] (-o)
35. 'meat'		
*A: sub [e]		
*B: si [e]		
*C-M: su [e] (*C)		

This latter may in fact be reconstructed as */ε/. It is difficult to say for certain.

53. 'fish'	59. 'shite'	82. 'cut'
*A: yeg [ε]	-- [-]	seg [ε]
*B: yeg [ε]	gb [ε]	--- [-]
*C-M: nye(g) [ε]	gb [ε]	ti [ε]

Central

4. 'three'	33. 'fire'	69. 'lie'
*A: sag [a] n	t [a] +i/tε	s [a] (S) #16?, 18?, 54?
*B: segb [a]	t [a]	s [a] (L) 71?, 72, 81
*C-M: sakp [a] (*C)	t [a]	s [a]

45. 'rope'
 ?*/u/ *A: --- $\begin{bmatrix} - \\ u \end{bmatrix}$
 *B: (jul $\begin{bmatrix} u \\ u \end{bmatrix}$) (L)
 *C-M: jul $\begin{bmatrix} u \\ u \end{bmatrix}$

22. 'hand' 29. 'skin'
 ?*/o/ *A: --- $\begin{bmatrix} - \\ o \end{bmatrix}$ --- $\begin{bmatrix} - \\ o \end{bmatrix}$
 *B: bol kpol (-di)
 *C-M: bol $\begin{bmatrix} o \\ o \end{bmatrix}$ gbol $\begin{bmatrix} o \\ o \end{bmatrix}$

1. 'name' 36. 'salt' 49. 'milk'
 */ɔ/ *A: --- $\begin{bmatrix} - \\ ɔ \end{bmatrix}$ --- $\begin{bmatrix} - \\ ɔ \end{bmatrix}$ --- $\begin{bmatrix} - \\ ɔ \end{bmatrix}$
 *B: tɔg kɔg non
 *C-M: tɔg $\begin{bmatrix} ɔ \\ ɔ \end{bmatrix}$ (L) kɔg $\begin{bmatrix} ɔ \\ ɔ \end{bmatrix}$ (*M) non $\begin{bmatrix} ɔ \\ ɔ \end{bmatrix}$ (*M)

9.2.1. Discussion of Northern Mande Vowel Irregularities

9.2.1.1. Front. There are eight irregularities in fifteen examples of medial */i/.

Three of the above involve vowel lowering in pre-nasal position.

'Breast': xin-ye (S), *k(i)ɛ(n), ---; 'good': ---, *nye(n), *nyi(n) and 'you': *i, *e-ma(in)?, *i all appear to be cases of vowel lowering in *B before nasal consonants. I tentatively reconstruct */i/ in these three.

Two of the above aberrances appear to be cases of metathesis.

'Sun': ---, *teli, *tile. It is difficult to say for certain here whether metathesis is involved since the first vowel in *C-M and the final one in *B are tentative. It is reasonable to assume the vowels were non-like front vowels in any case, although the order is unclear. I somewhat arbitrarily reconstruct *tile since [i,e] is the most widely supported sequence.

'Fall': bira (S), bare (L), *bi/ela. Ligbi appears to have metathesized its vowels here. I reconstruct a tentative *bila.

Two other irregularities show some similarity of patterning.

'Hair': *gun-sege, *u-tigi, *kun-ti(gi) and 'cut': *sege, ---, *tie show [ɛ:i:i] medially. For 'cut', SWM shows [tere] in Loma, [tee] in Kpelle and [tewe] in Mende. However, the unusual nature of non-like vowel sequences, especially with no intervening consonant (as in *C-M) leads me to a tentative *tigi reconstruction. The [i,ɛ] sequence is very strongly supported by *C-M. Also, the */t/ to */s/ change more likely occurred before */i/. I assume assimilation in the other languages to render [sege].

It is interesting to note in relation to the above that *SWM does not allow final */ɛ/ in non-like vowel sequences. This, perhaps, was not a constraint in *NM.

'Hair': is different in that all groups support a like vowel sequence in the front series. I propose an original */i/ for two reasons. First, [i,i] is much more widely attested. Secondly, as above, */t/ to */s/ is more likely before */i/ than before */ɛ/.

'Cold': *ginbe-li, *kuma(-re), *kima(-n) shows an i:u:i matching. I suspect */i/ to be reconstructable because of the */k/ to */s/ change in *M (see section 6.1.1.4. for discussion). One might suspect a natural */i/ to [u] change before */m/ except for the opposite change attested in 'knee': ximbi (S), ---, *kum-bele(n) in which Susu appears to have changed */u/ to [i] before */m/. Somewhat confused, I suggest a very tentative */i/ for 'cold'.

There are three irregularities in five occurrences of final */i/.

'Egg': *kalo+i/kale* (S), ---, **kili* shows either an [ɛ:i] or an [ɔ:i] matching. I am reasonably certain that the first vowel was */a/ in view of *SWM *galog. One would suspect the final [ɔ] of Susu to be good for the same reason, were it not for two points. First, I am not convinced that the final vowel is in fact [ɔ] in Susu. It could very well be [ɛ] or [ɔ] plus the definite /i-/ suffix discussed in section 8.2.1.. Secondly, although most of SWM shows [ɔ], at least Loma shows [i] in [kai]. I rather imagine the *NM and even the *NWM form should be reconstructed as **kali*(n). The *M */i/ for the first vowel resulted from assimilation to the final vowel. The occurrence of final [ɔ] in Kpelle and [u] in Mende is not understood.

'Bird': **goni*, **kondere*, **konde/o* shows either [i:e:e] or [i:e:ɔ]. I suspect the former. SWM confuses the issue still more, Kpelle having [ɣone] and Mende having [ɣoni]. I very tentatively, and quite arbitrarily, reconstruct **goni*, with final */i/.

'All': *bi* (S), *gbo* (L), **gbe/i* may not be cognate. In the event that they should prove to be, I tentatively propose */i/ on the strength of the agreement between Susu and *C-M.

Medial */e/ has two irregularities in three occurrences.

'Two': **firin*, **fala*, **fela* has an [i:a:ɛ] matching. The [a] reflex is attributable to assimilation across [l] in *B. The final [n] in *A suggests that perhaps a suffix of some sort was added to 'two', as occurs in other *A numerals such as 'three' **sagan*, 'four' **nanin* and 'five' **sulun*. This may have affected the final vowel in some manner. Assimilation to the final */i/ explains the first occurrence of */i/ in

*A. SWM unanimously confirms */e/ as the first vowel, as does Mano in SM. I quite confidently reconstruct *fera.

'Knee': ximbi (S), ---, *kumbele(n) is difficult to reconstruct for certain. Since the only occurrence of [i] is in Susu, I will reconstruct */e/, rendering *gun-bele(n).

There is only one problem in two occurrences of final */e/.

'I': *ne, *na?, *n(e) should probably be reconstructed tentatively with final */e/. Since I am not certain in each case whether the PN's elicited were subject PN's, independent PN's or the like - which often have different phonological representations in the Mande languages - I assume that this factor may account for the vowel discrepancy in *B. In any case, I tentatively reconstruct */e/, yielding *ne.

There are no irregularities in the */e/ series, medially or finally.

9.2.1.2. Central. There are three aberrances in ten examples of initial */a/.

'Egg': kalo+i (S), ----, *kili was discussed thoroughly in section 9.2.1.1., under final */i/. I tentatively concluded that the first vowel of 'egg' should be reconstructed as */a/.

'Three': *sagan, *seqba, *sakpa (*C)/*saba (*M) will be reconstructed with */a/ for both vowels, despite the */e/ reflex in *B. SWM and Sya conclusively support this conclusion.

There are three reasons to question cognation in 'man': *game, *kini, *kai. First, the [i,i] sequence in *B does not conform to the [a,i] sequence of vowels in *A and *C-M. This objection is easily overruled, however, since I propose that the first vowel in *NM was in fact */a/ as in the *A and *C-M items, and that it assimilated to the final */i/

in *B.

The second reason is that the [m:n:Ø] medial nasal matching is irregular. This is indeed a more serious problem. Looking to outside help, SWM attests *kena, with medial */n/. The SM language of Yaure likewise shows [kone], with medial [n]. I conclude that *B */n/ represents the reconstructable form.

Finally, the [g:k:k] correspondence presents a problem to cognation. If these forms are cognate, I would be forced to reconstruct an initial */g/. A priori there is no harm in this. Once the SWM evidence is taken into account, however, this reconstruction is hardly justifiable. */g/ in *NM corresponds to */g/ in *SWM, not to */k/ as found in the cognate form *kena. Piecing the evidence together, I propose that *A *game represents an innovation and that *B *kini and *C-M *kai represent cognate forms descended from a common *NM form *kani. It should be noted as well that the *SWM reconstruction, *kena, testifies to a mid and a high front vowel as suggested for *NM, only in reverse order. Once again, metathesis has rotated the vowels in one of these two proto-languages.

There are four irregularities in twelve examples of final */a/.

'Two': *firin, *fala, *fela might well have been reconstructed as *fere or *feri if all the evidence available were *SWM, which reconstructs as *fere. EM sources reveal a final [a], however, as do many of the SM languages. Other SM languages have [e] or [ɛ]. Sya also has [a] finally. I assume that all of the like vowel sequences, such as *A, *SWM, some of the SM languages, etc., are the result of assimilation and that the proper reconstruction is *fera for *NM on the strength

of evidence from *B and *C-M. *B *fala is the result of assimilation of the first vowel */e/ to the final */a/. *A *firin is the result of raising in the first vowel from */e/ to */i/ and assimilation of the final vowel to this raised */i/, and similarly for SWM and those SM languages in question.

'Mouth': *da+i/*dɛ, *da, *da clearly reconstructs as *da despite the questionable *A reconstruction. The [dɛ] forms in Susu and Valunka are likely due to reflexes of the vowel alternation rule discussed in section 8.2.1., in which /a/ + /-i/ becomes [ɛ].

'Dry': xaraxi (S), *gbarc, *gba(1a). The [xaraxi] form in Susu may not be cognate, although it is possible if for some reason */gb/ became [g] in this one item in A. In any event, the final vowel was certainly */a/, as also witnessed by Kpelle [kpala] from SWM. I tentatively reconstruct */a/.

'Path': *kira(n), *kili, *kila most probably terminated in */a/, the final */i/ in *B being the result of assimilation.

9.2.1.3. Back. There are five problems in ten occurrences of medial */u/.

Three of the above share a [u:o:u] correspondence.

'Grease': ture (S), *tolo, *tulu will tentatively be reconstructed with medial */u/ and final */o/. The Susu final [ɛ] is once again probably due to the vowel alternation rule cited in section 8.2.1. in which /o/ + /-i/ becomes [ɛ].

'We': ---, *a-mono(n)?, *mu? will very tentatively be reconstructed as *mu for *NM. As mentioned previously, much more grammatical information is needed before any determination can be made for PN's.

'They': ---, *no-mono?, *anu share the same [-:o:u] correspondence as above and will likewise be very tentatively reconstructed with */u/. The reader is alerted to the same caution as for 'we' in the preceding paragraph.

One of two instances of final */u/ is problematic.

'Five': *sulu(n), *solo, *soolu undoubtedly reconstructs as */u/ finally, the */o/ in *B attributable to assimilation.

There are four irregularities in seven examples of medial */o/.

'Five': *sulu(n), *solo, *soolu and 'belly': ku+i (Y), *kon, *kono share a similar [u:o:o] correspondence, both reconstructing as */o/. I believe the */u/ in *A 'five' to be the result of assimilation to final */u/. *SWM and *EM show *solu and I therefore strongly reconstruct *so(o)lu for *NM as well.

Similarly, most of SWM has [ko] for 'belly', suggesting medial */o/ in *NM as well. I tentatively reconstruct *kon(o).

'Bone': *goro, ----, *kolo may be reconstructed as either *goro or *goro, and I therefore list both as possibilities.

'Eat': *don, ---, *dono may be a case of vowel lowering from */o/ to */o/ in *C-M before a nasal consonant. I reconstruct a tentative *don(o).

In final position there are four irregularities in six instances of final */o/.

'Bone': has been discussed above.

'Ear': *tulu+i, tulo, *tulo? will be tentatively reconstructed as *tulo, the final */u/ in *A perhaps attributable to assimilation once again.

'Grease': ture (S), *tolo, *tulu was discussed in the */u/ section above and will be reconstructed with final */o/ and medial */u/.

'Eat': *don, ---, *dono shows a final */o/ in *C-M which does not occur elsewhere. In keeping with my procedure, I will list it in parentheses to indicate a possible but not well attested phonological item.

There are four problems in seven examples of medial */o/.

'Person': *mugu, mogo (L), *mogo and 'in': *ku+i, kon (L), *kono (*M) share [u:ɔ:ɔ] correspondences. I suppose the etymological vowel to have been */o/ in both cases, since most NM languages attest it in both items. Also, the vowels in both words appear to have been like vowels. I therefore reconstruct *mogo and *kono. SWM languages share [ɔ] in 'person'.

'Neck': *ko(ɛ)n, ---, *kan has an [ɔ:-:a] matching. SWM also shows [ɔ] here. I reconstruct *kon. The */a/ in *C-M is not understood.

'Bird': *goni, *konde-re, *konde/o is cognate with Kpelle [ɲone]. It is also true that many M languages share [ɔ] as well, as in Bambara [kono]. The confusion here is cleared up somewhat with help from *A, *B and SWM. I tentatively suggest *gondi.

The two irregularities involving */o/ finally include 'bird' and 'in', which have been previously discussed above.

9.3. Reconstructing Proto-Northern Mande: Additional Evidence. The lists below cannot be absolutely conclusive because not all of the languages of NM are represented. However, I consider agreement between any of the more distantly related language groups - i.e. between C-M and either A or B, or between A and B - reasonably suggestive of the

fact that the form dates back to *NM. Agreement between languages from three or four groups is considered very strong indeed. Additional word lists are provided by Welmers for Kono and Vai from unpublished materials, by Tauxier[1921] for Hwela and Numu and by Houis [1963] and Welmers for Susu. The following receive further support from these lists.

- (34) *b, *m, *f, *gb initially *m medially
 *d, *n, *t, *s initially *n, *s, *l medially *n finally
 *j, *ny initially
 *g, *k initially *g medially

Table 63 - Additional Word List Supporting *NM Consonant Reconstructions

<u>Labials</u>		<u>Bambara (M)</u>	<u>Kono/Vai (C)</u>	<u>Hwela/Numu (B)</u>	<u>Susu (A)</u>
*/b/	'goat'	bǎ`	bǎ` (K)	*ba	
	'sea'	bà			bà
	'cross'	bálǎ			bábalǎ
	'encircle'	bili	bì'ì (circumcision-V)		bìlǐ
*/m/	'where'	min		*mi	min-dén
	'ripen'	mò			mó
	[medial]				
	'morning'	sogoma			sauma
	'walk'	taama		tarama	
*/f/	'throw'	fìli	fì'í (V)	*fili	
	'begin'	fólo			fólo
	'penis'	fóro	fó'ó (scrotum-V)		fóxé
	'sponge'	fù			fú.ti

<u>Labials</u>	<u>Bambara (M)</u>	<u>Kono/Vai (C)</u>	<u>Hwela/Numu (B)</u>	<u>Susu (A)</u>
'swell'	fúnú			fúntu
'say'	fó	fó (V)		fala

Dentals

* /d/	'dance'	don		*don	
	'stop'	dò			dã
	'create'	dá			dà
	'hunter'	dòsó			dòsó
	'few'	dòdì			dòdòròti
* /t/	'go'	taa	*taa		
	'walk'	taama	taayé (V)	*tarama	
	'toad'		tòtí (V)	*toli	
	'straight'	tièn			tènken
* /n/	'come'	nà	*na		
	'dirty'	nogo	nóó (V)		noxo
	[medial]				
	'farm'	sene	*sene		
	'swell'	funun			funu
* /s/	'farm'	sene	*sene		
	'sheep'	sàgà	sàà (K)		
	'buy/sell'	sàn	sàn (K)		sàn
	'morning'	sògómà	sàumà (K)		
	'pay/sell'	sàrá			sàrá
	'horse'	só	*sóò		sõe

<u>Dentals</u>	<u>Bambara (M)</u>	<u>Kono/Vai (C)</u>	<u>Hwela/Numu (B)</u>	<u>Susu (A)</u>
'age/life'	sĩ`			sĩ
'obtain'	sòró			sòtó
'ready/ ripe'	sé			sé
'character'	sò			sǒ
'bend down'	sólo _{lo}			sósolǒ
[medial]				
'disperse'	jěsě			yěsě
'hunter'	dǒsǒ			dǒsǒ

Resonants

	medial			
*/l/	'leopard'	*kó _{li}	*kole	
	'throw'	fì _{li}	fì _í (V)	*fili
	'bend down'	sólo _{lo}		sósolǒ
	'swear'	kà _{lí}		kà _{lí}
	'call'	kí _{li}	ké _é (V)	xí _{li}
	'bellow/ voice'	kù _é	kú _é	xù _{lù} má
	'tail/ bottom'	kú	kù _ú (V)	xú _{li}
	'red'	bilen		gbili
	'encircle'	bili	bì _í (circumcision-V)	bì _í
	'begin'	fó _{lo}		fó _{lo}

Palatals

*/y/	'betray/ plot'	jǎ _{fá}		yǎ _{fá}
	'disperse'	jěsě		yěsě

<u>Palatals</u>	<u>Bambara (M)</u>	<u>Kono/Vai (C)</u>	<u>Hwela/Numu (B)</u>	<u>Susu (A)</u>
-----------------	--------------------	---------------------	-----------------------	-----------------

*/ny/ 'content'	nyákari			nyáxali
-----------------	---------	--	--	---------

Velars

*/g/ 'bite'	kĩ	kín (V)		xĩ
'call'	kíli	ké'é (V)		xíli
'voice'	kúmà	kú'è (V)		xú
'teach'	kàlàn	ká'a (V)		xàrà
'tail'	kú	kù'ú (V)		xúli
'tie'	sìrí	kì'í (V)		xìrí

Note that 'tie' is another example of */k/ becoming */s/ in the change from *C-M to *M.

[medial]

'dirty'	nogo	nóó (V)		nóxo
'content'	nyákari			nyáxali

*/k/ 'leopard'		*koli	*kole	
'corn'	kàbá			kábé
'know'	kódòn			kólóí
'swear'	kàlí			kàlí

Lab. Vel.

*/gb/ 'big'	bèlèbéle			gbiligbili
'red'	bílèn			gbíli

The vowel system reconstructs very well for *NM, as seen below.

The following segments receive further support from these data.

(35)	<u>*i</u> , *e, *ε medially	<u>*i</u> , *e, *ε finally
	* <u>u</u> , *o, *ɔ medially	*u, *o, *ɔ finally
	* <u>a</u> medially	* <u>a</u> finally

Underscoring highlights those vowels which are strongly supported by the combined lists. A couple of comments may be made here. First, it is apparent that */i/ dominated the front series in both positions. Secondly, back vowels were especially common in word medial position rather than word final position. */a/ was strong in all positions.

I believe it is significant that none of the vowels underscored in (35) above is a questionable reconstruction in the 100 word list either. That is, the 100 word list and the Additional Word List agree on which vowels most frequently occurred in medial and final positions both. Corroboration of this type from two independent lists adds strength to my claims concerning the nature of the *NM vowel system.

Table 64 - Additional Word List Supporting *NM Vowel Reconstructions

<u>Front</u>	<u>Bambara (M)</u>	<u>Kono/Vai (C)</u>	<u>Hwela/Numu (B)</u>	<u>Susu (A)</u>
*/i/ 'encircle'	bili	bì'lí (V)		bìlí
'where'	min	*mi		min-dén
'throw'	fìli	fì'í	*fili	
'few'	dɔɔdi			dɔɔdorɔti
'toad'		tòtí	*toli	
'age/life'	sĩ			sĩ
'content'	nyákari			nyáxali
'bite'	kì	kíŋ (V)		xí
'tie'	sìrí	kì'í (V)		xìrí

<u>Front</u>	<u>Bambara (M)</u>	<u>Kongo/Vai (C)</u>	<u>Hwela/Numu (B)</u>	<u>Susu (A)</u>
'swear'	kàlí			kàlí
'red'	bíléñ			gbíli
*/e/ 'straight'	tlèn			tèŋkeŋ
'ready'	sé			sé
'disperse'	jèsè			yésé
*/ɛ/ 'farm'	sɛnɛ	*sɛnɛ		

Central

*/a/ 'go'	taa	*taa		
'walk'	táama	táyé (V)	*tarama	
'come'	na	*na		
'sheep'	sàgà	sǎà (K)		
'buy/sell'	sàn	sàn (K)		sàn
'pay/sell'	sàrá			sàrá
'swear'	kàlí			kàlí
'betray'	jǎfá			yǎfá
'content'	nyákari			nyáxalī
'teach'	kàlǎn	kà'á (V)		xàrá
'corn'	kàbá			kábé

Back

*/u/ 'sponge'	fù			fú.ti
'swell'	fúnù			fúntu
'tail'	kú	kù'ú (V)		xúli

<u>Back</u>	<u>Bambara (M)</u>	<u>Kono/Vai (C)</u>	<u>Hwela/Numu (B)</u>	<u>Susu (A)</u>
'voice'	kúmà	kú'è (V)		xú
* /o/ 'hunter'	dòsò			dòsò
'toad'		tòtí	*toli	
'horse'	sò	*sòò		sòe
'bend down'	sólolo			sòsolò
'leopard'		*kóli	*kole	
'know'	kódòn			kólóí
* /ɔ/ 'ripen'	mò			mǒ
'begin'	fólo			fólo
'penis'	fóro	fó'ó (V-scrotum)		fòxó+i
'obtain'	sòrò			sòtò
'character'	sò			sǒ
'dirty'	nogo	nóó		noxo

9.4. Proto-Northern Mande Vowel System. The reconstruction of the *NM vowel sequence system is done on the basis of the 100 word list alone, since reconstructions from the additional word list cannot be conclusive. Words with highly tentative reconstructions were eliminated from consideration.

Table 65 - Vowel Sequences

<u>Like Vowels</u>		<u>'i' Combinations</u>	
i-i (2)	u-u (1)	---	i-u (1)
e-e (2)	o-o (5)	i-e (1)	---
ε-ε (1)	ɔ-ɔ (6)	i-ε (1)	i-ɔ (1)
a-a (6)		i-a (3)	

TOTAL: 23

Other Combinations

e-a (1), a-u (1), o-u (1)

u-o (2), u-e (1)

TOTAL: 6

--- o-i (1)

a-i (3)

TOTAL: 11

The situation appears to be the same in *NM as throughout the reconstructed subgroups: heavy preference towards like vowel sequences and combinations with [i], [a], and [u]. The only slight exception to this generalization may be Group B, which shows a somewhat greater propensity for 'Other Combinations' than the other NM subgroups. I conclude that Group B has innovated this tendency rather than inheriting it.

Table 66 - Proto-Northern Mande System

Initial

Consonants

Vowels

	<u>*t</u>		<u>*k</u>	
<u>*b</u>		<u>*d</u>	*y	<u>*g</u> *gb
<u>*f</u>		<u>*s</u>		
*m		*n	*ny	

Medial

Consonants

Vowels

<u>*b?</u>	<u>*d</u>	<u>*g</u>	<u>*i</u>	<u>*u</u>
	<u>*s</u>		<u>*e?</u>	<u>*o</u>
<u>*m?</u>			<u>*e</u>	<u>*ɔ</u>
	<u>*l</u>	*r		<u>*a</u>

Final

Consonants

*n

Vowels

*i *u?

*e? *o?

*ε *ɔ

*a

Key ____: underscoring indicates very strong additional evidence for the reconstruction of the underscored segment from the additional word list. All segments but */r/ received at least some support from the additional list.

Table 67 - Reconstructed Word List - *A, *B, *C-M and *Northern Mande

Gloss	* <u>A</u>	* <u>B</u>	* <u>C-M</u>	* <u>NM</u>
1. 'name'	*gili	togo (I)	* <u>togo</u>	*togo?
2. 'one'	* <u>kere</u> n	*die	* <u>kelen</u> (*M)	*kere <u>n</u> ?
3. 'two'	*firin	*fala	* <u>fe</u> la	* <u>fe</u> ra
4. 'three'	*sagan	* <u>se</u> gba	* <u>sakpa</u> (*C)	* <u>sag</u> ba
5. 'four'	*nani(n)	*nani	*naani(n)	*nani(n)
6. 'five'	* <u>sulu</u> (n)	*solo	*soolu	* <u>so</u> (o)lu
7. 'person'	* <u>m</u> gu	*mogo (L)	*mogo	* <u>mogo</u>
8. 'man'	*game	*kini	* <u>kai</u>	* <u>kani</u> ?
9. 'woman'	----	* <u>nya</u> (n)	*muso	?
10. 'child'	*di	*di	* <u>din</u>	* <u>din</u>
11. 'father'	*baba	---	*fa	?
12. 'mother'	* <u>(n)</u> ga	* <u>n(i)</u> a	*ba	?
13. 'head'	*gun	---	*kun	*gun?
14. 'hair'	*gun-sage	*u-tigi	*kun-ti(gi)	*gun-tigi
15. 'nose'	*no+i+na	*sun	*nun/*sun	* <u>nun</u> /*sun?

<u>Gloss</u>	<u>*A</u>	<u>*B</u>	<u>*C-M</u>	<u>*NM</u>
16. 'eye'	* <u>nya</u>	---	* <u>nya</u>	* <u>nya</u> ?
17. 'ear'	* <u>tulu</u> +i	* <u>tulo</u>	* <u>tulo</u> ?	* <u>tulo</u>
18. 'mouth'	* <u>da</u> +i/* <u>dε</u>	* <u>da</u>	* <u>da</u>	* <u>da</u>
19. 'tooth'	* <u>nyin</u>	* <u>nyi</u>	* <u>nyin</u>	* <u>nyin</u>
20. 'tongue'	* <u>nen</u> /* <u>len</u> ?	* <u>nendi</u>	* <u>nεnε</u>	* <u>nen</u> (di)/* <u>len</u> ?
21. 'neck'	* <u>ko</u> (ε)n	---	* <u>kan</u>	* <u>kɔn</u> ?
22. 'hand'	bεlεxε (S)	* <u>bolo</u>	* <u>bolo</u>	* <u>bolo</u> ?
23. 'foot'	* <u>sεn</u>	* <u>gbo</u>	* <u>ken</u> /* <u>kin</u>	* <u>kin</u> ?
24. 'knee'	ximbi (S)	---	* <u>kumbele</u> (n)	* <u>gun</u> -be(le)?
25. 'nail'	xale (S)	* <u>(bolo)</u> (di)ngonin		?
26. 'breast'	xin-yε (S)	* <u>k(i)ε</u> (n)	---	* <u>gin</u> ?
27. 'belly'	ku+i (Y)	* <u>kon</u>	* <u>kono</u>	* <u>kɔn</u> (o)?
28. 'navel'	---	* <u>wono</u>	* <u>bata</u> (-kun)	?
29. 'skin'	* <u>kiri</u>	* <u>kpolo</u> (-di)	* <u>gbolo</u>	* <u>gbolo</u> ?
30. 'bone'	* <u>goro</u>	* <u>yeli</u>	* <u>kolo</u>	* <u>goro</u> ?
31. 'blood'	* <u>wuli</u>	* <u>nyeni</u>	* <u>joli</u>	?
32. 'sky'	* <u>kuye</u>	* <u>kanga</u>	* <u>banda</u> ? (*C)	?
33. 'fire'	* <u>ta</u> +i/* <u>tε</u>	* <u>ta</u>	* <u>ta</u>	* <u>ta</u>
34. 'water'	* <u>yi</u>	yi (L)	* <u>ji</u>	* <u>yi</u>
35. 'meat'	* <u>sube</u>	* <u>sie</u>	* <u>sue</u> (*C)	* <u>sube</u>
36. 'salt'	* <u>fogo</u>	* <u>kogo</u>	* <u>kogo</u> (*M)	* <u>kogo</u> ?
37. 'many'	* <u>wuyagi</u>	---	---	?
38. 'stone'	---	* <u>kpi</u>	* <u>kaba</u> (*M)	?
39. 'sun'	---	* <u>teli</u>	* <u>tile</u>	* <u>tile</u> ?
40. 'moon'	* <u>kike</u> (bor.)	* <u>kie</u>	* <u>kalo</u>	?

<u>Gloss</u>	<u>*A</u>	<u>*B</u>	<u>*C-M</u>	<u>*NM</u>
41. 'night'	*kɔ+i	*koruba	*sulo	?
42. 'rain'	*tunɛn	*ki	---	?
43. 'smoke'	*tutu+i	*sisi	*sisi(-o)	*sisi?
44. 'sand'	---	*buru	*kenye(n)	?
45. 'rope'	---	*mono?	*julu	*yulu??
46. 'tree'	wuru+i (S)	*gba	*yiri (*M)	?
47. 'leaf'	buraxe (S)	*dia	*fila (*M)	?
48. 'root'	---	*gba-kun	*sulu/*sili?	?
49. 'milk'	---	*nono	*nono (*M)	*nono?
50. 'grease'	turo+e	*tolo	*tulu	*turo
51. 'egg'	kale (S)	*yeli	*kili	*kali?
52. 'bird'	*goni	*konde-re	*konde/o	*gondi
53. 'fish'	*yege	*yege	*nye(ge)	*nyege
54. 'snake'	---	*kaa	*kala/*sa?	*kala?
55. 'dog'	*bare	*dasuma	*wulu	?
56. 'big'	*(kun-) gbo	*gbon(kase)	---	*gbo(n)?
57. 'small'	*guru(n)	---	*dogo(n)	?
58. 'black'	*foro	*gbogu	*fin	?
59. 'white'	---	*gbɛ	*gbɛ	*gb ?
60. 'good'	*fan	*nye(n)	*nyi(n)	*nyin?
61. 'new'	---	*na	*kuta (*M)	?
62. 'old'	---	*kora	*koto	?
63. 'hot'	---	*d(i)ere	*gbandi/o	?
64. 'cold'	*ginbe-li	*kuma-re	*kima(-n)	*gima
65. 'dry'	xaraxi (S)	*gbare	*gba(la)	*gbara?

<u>Gloss</u>	<u>*A</u>	<u>*B</u>	<u>*C-M</u>	<u>*NM</u>
66. 'straight'	tinyin (S)	----	*tɛlini (*M)	?
67. 'come'	*fa	*ya	*na	?
68. 'sit'	*dogo	*yara	*sigi	?
69. 'lie'	sa (S)	sa (L)	*sa	*sa
70. 'sleep'	*gi	*nyimba?	*kino(go)	*gi(nogo)
71. 'die'	*faga	*pan	*fa (*M)	*faga
72. 'fall'	bira (S)	bare (L)	*be/ila	*bira
73. 'stand'	keli (S)	yon (L)	*so?/*wuli?	?
74. 'say'	----	kure (N)	*kuma	?
75. 'hear'	*me	*men (L)	*men	*men
76. 'wash'	*ga	ko (L)	*ko	*go
77. 'see'	*to	----	*je?	*ye?
78. 'give'	----	*kor/ma	*bele	?
79. 'eat'	*don	*koma	*dono	*don(o)?
80. 'drink'	*min	*min	*min	*min
81. 'kill'	faga (Y)	kpa (N)	*faa	*faga?
82. 'cut'	*sege	----	*tiɛ	*tige
83. 'hit'	*bonbo	*beri	*gbasi	?
84. 'sew'	*dege	kara (L)	*ka(la)	*ka(ɾa)?
85. 'I'	*ne	*na?	*n(e)	*ne
86. 'you'	*i	*e-ma(in)?	*i	*i
87. 'he'	*a	*e-ma(in)?	*a	*a?
88. 'we'	----	*a-mono(n)	*mu	*mu?
89. 'they'	*e	*no-mono?	*anu	*anu?
90. 'who'	*nde	----	*nye?/*jon?	?

	<u>*A</u>	<u>*B</u>	<u>*C-M</u>	<u>*NM</u>
91. 'what'	*mun	----	* <u>mun</u> (*M)	*mun?
92. 'not'	----	----	*ma	?
93. 'long'	-ya (Y)	*son-	*jan	*yan?
94. 'short'	* <u>dunki</u>	----	* <u>kintu</u>	* <u>kintu</u> ?
95. 'here'	*b <u>e</u>	yɛni (L)	*n <u>i</u> e	?
96. 'few'	*(do)ndo(n)	----	----	?
97. 'all'	bi (S)	gbo (L)	*gbɛ/i	* <u>gbi</u>
98. 'path'	*k <u>ira</u> (n)	*k <u>ili</u>	*kila	*k <u>ira</u>
99. 'in'	*ku+i	kono (L)	*kono (*M)	*k <u>ono</u> ?
100. 'if'	*ga	----	*ni?	?

Section III

Comparative Reconstruction of Proto-Southwestern Mande

1. Introduction

1.1. Classification

The Southwestern Mande group of languages (hereafter referred to as "SWM") is composed of five relatively closely related languages spoken in Liberia, Sierra Leone, and Guinea. They are Kpelle, Loma, Bandi, Mende, and Loko. (Loko is not used in this study due to lack of data; it is quite unlikely that Loko would provide crucial evidence for the reconstruction of *SWM in any case.)

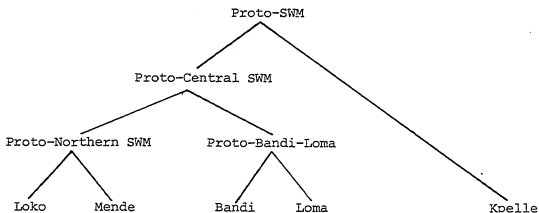
Welmers (1958) had data only for Kpelle, Loma, and Mende. On the basis of his "lexicostatistical pretesting," he could only conclude that these three languages diverged from a common ancestor at about the same time; apparent shared retentions between any two of the three were about 65-67%. Apparently shared phonological developments and grammatical evidence, however, led him to believe that Kpelle represented the first divergence from *SWM, and that Loma and Mende diverged from each other a little later (and are therefore slightly more closely related to each other).

Dwyer (1974) suggests that the five languages branched from the *SWM stock in the following order. First, Kpelle split off, leaving *Central SWM and Kpelle. Then *Central SWM split into *Northern-SWM and *Bandi-Loma. Finally, *Northern-SWM split into Loko and Mende, and *Bandi-Loma split into Bandi and Loma. Dwyer's classification is represented by the following tree diagram (36).

We suggest a somewhat different historical development, which identifies Bandi as a member of the *Northern SWM subgroup rather than a member of a subgroup with Loma as illustrated in (37).

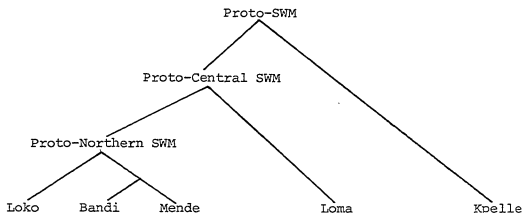
Dwyer's representation is as follows:

(36) The Southwestern Mande group (Dwyer)



Our tree representing a different branching is as follows:

(37) The Southwestern Mande group (Welmers and Bimson)



The lexicostatistical evidence by itself is hardly sufficient to demonstrate the earlier divergence of Kpelle from the *SWM stock, though there is some evidence that more complete and refined word lists would tend to confirm this hypothesis; in any case, there is no disagreement about the status of Kpelle in the SWM group. The major point of

disagreement has to do with the position of Bandi. Dwyer (1974) recognized what he saw as shared phonological developments between Bandi and Loma, and grouped them together on that basis. In so doing, we believe he ignored the possibility of areal rather than genetic influences - a possibility which he has brilliantly recognized (in personal communications) in connection with other problems in Mande. Lexicostatistically, the facts are that Loma rates only about 67% count of probable cognates with either Bandi or Mende, while Bandi and Mende show a count of about 80% (evidence reported by The Institute for Liberian Languages, Monrovia, 1974). Further, two or three native speakers of Bandi have reported to Welmers that they had little difficulty in understanding speakers of Mende at first exposure; speakers of Mende have reported considerable difficulty in understanding Bandi, but recognize a close similarity. Speakers of Bandi consider Loma, on the other hand, quite a different language, by no means mutually intelligible with their own. All of this evidence leads us to consider Bandi an extremely close relative of Mende, if not indeed a dialect of the same language, and by no means to be grouped with Loma.

1.2. Data

The word lists used for the reconstruction of *SWM differ considerably from those used for Bimson's *NM (1976). The latter were compiled by Long (1971), incorporating elicitations from David Dalby and earlier published sources. The former are primarily the responsibility of Welmers. He himself provided the data for Kpelle; the data for Loma have largely been confirmed by him, though they originate from the work of Sadler (1951) and personal communications from Miss Margaret Miller;

the data for Mende were largely extracted from published materials, but confirmed by tone markings re-transcribed by Dwyer (personal communication) from Spears (1967). The Bandi items were added by Dwyer and Moniba (personal communications to Welmers, 1971, without tone markings).

The word lists used for the reconstruction of *NM and *SWM also differ considerably in their scope. For *NM, Long used a Swadesh 100-word list. For *SWM, Welmers started with Kpelle (the language he knew best), and looked for cognates in the other SWM languages; out of 169 items, there are only three in which Kpelle does not agree with at least one of the other languages. Of Welmers' SWM items, sixty-two cognate forms can be brought to bear in the reconstruction of *Northern-Western Mande.

1.3. Division of Labor

First, Welmers is responsible for providing all of the SWM data (as outlined above). Second, he is responsible for working out the major regular consonant correspondences in initial position; the data cited below are simply copied from his unpublished notes. Some of his unpublished proposals (such as a tentative reconstruction of *ty, *dy, *sy), however, have been eliminated, primarily on the basis of Bimson's work on the reconstruction of *NM. We are left with some admittedly messy irregularities, but both authors agree that they are inevitable.

The reconstruction of vowels in all positions is largely Bimson's work, though Welmers was quite aware of the Loma Raising Rule discussed below, as well as the more obvious regular correspondences; Bimson is responsible for the technical formulations.

Welmers had contributed little by way of the reconstructions of medial (intervocalic) consonants, except to insist that the contrast between /l/ and /r/, found only in Southwestern dialects of Kpelle, be considered as significant evidence for the reconstructions of contrasting */l/ and */r/. The importance of this Southwestern Kpelle contrast is noted below.

The concluding section on tonal correspondences is entirely the work of Welmers. While of some interest for *SWM, it unfortunately cannot enter into reconstruction on a higher level, due to lack of data for *NM and the rest. The organization of data from Mandekan (e.g., Bambara), plus what can be extracted from Welmers' work on Vai (1976) and his unpublished notes on Kono, may provide most interesting material for a further development of this topic.

1.4. Other Studies

Welmers (1958) was only minimally concerned with specific reconstructions, though he mentioned a few reconstructions of initial consonants. His primary concern was to distinguish Southwestern from Northern Mande, in contradistinction from the traditional Mande-tan/Mande-fu dichotomy. As noted above, however, his later unpublished notes constitute a substantial contribution to the present study [somewhat under 50%, but a good start -- WEW].

There have been several studies of the well-known initial "consonant alternations" in SWM, most of which have some implications for the historical reconstruction of the *SWM initial consonants. These include Hintze (1948), Welmers (1950), Manessy (1964a:167, 1964b), Meeussen (1965), Bird (1971), Welmers (1971, pp. 132-36; 1973, pp. 128-132),

Hyman (1973), and Dwyer (1974). None of these, however, provides a systematic presentation of the *SWM phonological system as a whole. All of them deal (understandably enough) with the historical development of morpheme-initial consonant alternations in the SWM languages, rather than with a systematic reconstruction of the consonant and vowel systems in all positions. (Welmers, incidentally, still maintains that the "previous reference" morpheme involved in the SWM consonant alternations could not have been a nasal, as all others contend.)

Only Dwyer (1974), of all of the above, presumes to present a reconstruction even of the *SWM consonant system. His reconstruction is not justified by systematic sound correspondences in all positions. Dwyer does not discuss the medial consonants separately. It is our contention that the initial and medial consonants should be considered separate phonological systems. Many phonemes reconstructing for *SWM in initial position play no role whatever in the medial system. There is little symmetry in their makeup, and often little phonological resemblance. We believe that in some instances, such as Dwyer's reconstruction of */w/, there is no evidence for such a reconstruction in initial position, and rather conclusive evidence that the [Ø:w:w:w] correspondence which must have led Dwyer to such a conclusion for medial position is in fact reconstructible as phonological reflexes of */g/. We propose to present comparative evidence in the form of regular sound correspondences to justify all of the reconstructions proposed for *SWM, including the systems of consonants and vowels in all positions. As mentioned previously, a section on the reconstruction of tone will also be provided.

2. Reconstructing Southwestern Mande

2.1. Southwestern Mande Consonants. The following tables exemplify correspondences for the reconstruction of *SWM in initial, medial and final positions.

Table 68 - Initial Consonants

<u>Labials</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
*/b/ (b b mb mb)				
30. companion	barā	báá (pl)	mbàā	mbala
73. knife	boá	boá	mbówá	mboya
113. rice (cooked)	bá	báyá	mbàā	mba
117. say	bo	bo	(ndě)	(nde)
118. sheep	bála	báálà	mbálā	mbala
127. split	béla	bélí	mbéla	mbali
55. goat	boli	bílí	(nje)	(nje)
93. neck	(kɔŋ)	(kó)	mbóló	mbolo
*/p/ (p p p p)				
3. back	pólù	púlú	pôo-mà	pólù
29. come	pá	pá	pă	pa
34. crouch	pɛɛ	péé	pélě	pɛɛ
67. house	péré	pélé	pélé	pɛɛ
69. intestines	puru	(kpúdè)	pùlú	pulu
72. kill	paa	páá	păă	paa
103. path	pere	pélé	pélě	pɛɛ
132. ten	puu	púú-gò	pùú	puu

<u>Labials</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
137. throw	pílí	pílí	pìlɪ	pili
168. pour	pú	pú	pú	
*/m/ (m m m m)				
42. eat	mii, mee	míí	mě	mē
60. hear	meni	méní	mèní	mēli
25. chief	(káɬòŋ)	mása	màhǎ	masa
112. rice	moloŋ	móló	(mbǎǎ)	(mba)

*/f/ (f f f f)				
6. beg	feli	félí	fèlǐ	(pele)
36. day, sun	fólo	fólo	fólo	fólo
82. loosen	fúlóŋ	fúí	fúló	fulo
145. two	feere	fèlè-gò	fèlé	fele
164. give	fé	fé	fé	fe
107. pot	(leyi)	(díyí)	fèě	fe
154. year	(kóráŋ)	(kóná)	fòò	fowo

Dentals

*/d/ (l d nd nd)				
17. older sib	líǎ	díé	ndíá-mó	ndia
18. younger sib	léyè	déyé	ndéwè	ndeýe
26. child	lóŋ	dúú	ndó	ndó
49. five	lóólú	dóólùò	ndóólù	ndolu
54. go	li	dì	ndǐ	ndi
63. hide	lóó	dóówú	ndòwú	ndowu

<u>Dentals</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
76. leaf	láá	ḍáýá	ndáwá	ndaya
78. lie down, lay	láá	ḍáá	nda	nda
85. market	lóó	ḍówó	(njòpòwá)	ndowo
92. mouth	lá	ḍáá	nda	nda
109. raffia	líí	ḍíýí	(fěě)	(fě)
119. show	lé	ḍé	(ké)	(kě)
150. wine	loo	ḍóó	ndòó	ndo
8. between	loa	(yòòzú)	ndùá	ndua
32. count	lónó	ḍódò	(kpawá)	(kpaya)
66. hole	lóá	(zéýé)	ndówá	ndowa
107. pot	leyi	ḍíýí	(fěě)	(fě)

* /t/ (t t t t)

20. call	tólí	tílí	tólí	toli
27. climb, raise	té	té	té	te
35. cut	tée	tévé	tévé	teve
71. kidney	tolí	tóólú	tòlú	tolu
94. nest	taa	táyá	tàà (ʼ~ʼ?)	taa
101. palm nut, tree	tóú	túwú	tówú	
102. pass	tεε	tévé	tèwě	tove
143. town	taa	táá	tàá	ta
162. black	tεi	téí	tèlí	tεi, titi
41. drop	too	tóó	(kùlǎ)	(kula)
97. nine	(5+4)	tááwú	táwú, tálú	taavu

<u>Dentals</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
*/n/ (n n n n)				
12. boil	néŋ	né	né	ne
33. cow	niŋa	nìké	nìkǎ	nika
53. four	nááŋ	náá-gò	náánì	naani
95. new	nina	nííné	nìǎ	niina
104. person	núú	nú	númú	nu
142. tongue	néŋ	né	né	ne
161. sweet	neɛ	néé	něě	
169. there	naa	ná	nà	
*/s/ (s s h s)				
1. animal	sua	súó	hǔǎ	sua
22. catch	soŋ	sóú	hòú	sou
38. die	saa	sa	hǎǎ	sa
44. elephant	sélé	sée	hélé	sele
58. hang	sélèŋ	sélé	hélé	sele
68. inside	sù	sù	hú	su
88. medicine	sále	sále	hále	sale
106. plant (vb)	sí	síí	hi	si
111. reach, arrive	seri	sítí	hìtí	(folona)
120. sit, set	see	séí	hèí	sei
130. take, pick up	siye	síyí	hìyě	(ŋgeye sa)
28. cloth	seye	séyé	(kùlǎ)	(kola)

<u>Palatals</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
*/y/ (y z nj nj) before */i/				
149. water	yá	zìé	njàá	nje
55. goat	(bóli)	(bíli)	njé	njie
(y z ng ng) elsewhere				
37. descend	yéŋ	zíí	ngèé	nge
57. hand	yéé	zéé	ngéyà	ngeya

Note: With consonant alternation, Loma has /yii/ 'descend'.
The root without alternation may be /zii/ as given here,
but this is not definitely established.

*/ny/? (ny ŋ nj nj) before */i/				
122. sleep	nyii	ŋíí	njìí	njii
(ny y~ ny ỹ) elsewhere				
45. evil	nyómó	yówú	nyámú	ỹo

Velars

*/g/ (γ g ng ng) before non-rounded vowels				
14. break in two	γále	gále	ngále	ngáli
31. cook	γíli	gíli	ngíli	ngili
40. dog	γílà	gílè	ngílà	ngila
56. God	γálà	gálá	(ngèwóó)	ngala
64. hill	yéé (γié)	gízi	ngíyé	ngihe
83. louse	γau		ngàvĩ	ngahu
90. moon, month	γálon	gálo	ngálu	ngau
114. rope, vine	γeli	gálu	ngéyã	ngesa

<u>Velars</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
138. tie	ɣiri	gííí	ngííí	ngili
43. egg	ɣálóŋ	(kǎí)	ngáíú	ngalu
100. one	(tááŋ, tònò)	gííá	ngííá	ngila
153. yam	ɣáú	(zówóí)	ngàwú	(mbole)

(w g ng ng) before rounded vowels

4. lower back	wóbé	góvé	ngóvó	ngovo
15. shatter	wóló	góló	ngóló	ngolo
52. forest	wolǎ	gólǎ	ngólǎ	ngola
99. oil	wúló	gúló	ngúló	ngulo
125. black snake	wurŋ	gúlú	ngúlú	
144. tree	wúrú	gúlú	ngúlú	ngulu
147. voice	wóó	góó	ngó	ngo
148. wash	waa	gúó	ngúá	nguya

*/k/ (k k k k)

131. take out	kula	kúló	(kpùǎ)	kula
134. think, mind	kííí	kí	kííí	ki
139. time	kúú	kúú	kùwú	(ndalo yahŋ)
163. white	kole	kwélé	kòlě	kole
28. cloth	(siye)	(séyé)	kùlǎ	kola
41. drop	(too)	(tóó)	kùlǎ	kula
93. neck	kóŋ	kó	(mbóíó)	(mbolo)
154. year	kóráŋ	kóná	(fóó)	(fowo)
5. bee	kóíŋ	kóéí	kómí	kōi
7. belly	koo	kúú	kòó	koo

<u>Velars</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
13. box	kāla	kāla-ŋāla	kāŋa	kaŋa
21. canoe	kélén	kéé	(ndèndé)	kele
23. chaff	kala	kāla	kāa	kaa
24. cheek	kóma	kóma	kóma	kuŋ, kaŋa
39. do	ké	ké	kè	ke
47. feed	kó	kó	kó	ko
51. foot	kóó	kówó	kówó	kowo
65. hoe	káli	káli	káli	kali
70. iron	koli	kólú	kòlǐ	kɔu
74. know	kólón	kŋé	kóló	kolo
77. leopard	kólí	kóéí	kólí	koli
80. log	koo	kówó	kòwǔ	kowo
81. long, far	kóyà	kóózá	kúhà	kohā
84. man	kénà-mù		kénà	
87. measure	kóón	kóó	kóó	(su-wa)
89. monkey	kwa	kóla	kùalǎ	kola
98. odor	kūu	kū	kú	ku
121. skin, book	kolo	kóló	kòlǒ	kolo
123. small	kúrò	kóló	kúlù	kulo-kuéé
124. snake	kali	káalí	kàlǐ	kaali
129. stone	koni	kŋótí	kòtǔ	kotu

*/ŋ/ (ŋ ŋ ny ny) before */i/

16. breast	ŋéní	ŋíní	nyíní	nyini
110. rat	ŋíná	ŋíné	nyíná	nyina

<u>Velars</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
(ŋ w̃ ŋ ŋ) before rounded V or w				
9. bird	ŋoni	w̃ní	ŋónĩ	ŋwoni
10. bitter	ŋwáná	w̃álá	ŋónà	
128. steal	ŋúmá	w̃úmó	(húmá)	ŋuŷan
(ŋ ŋ ŋ ŋ) elsewhere				
11. blood	ŋama	ŋámá	ŋàmǎ	ŋawo
116. sand	ŋɛya	(yǎázé)	ŋànyǎ	ŋɛnya

Labio-Velars

*/kp/ (kp kp kp kp)

50. fix	kpetɛ	kpétɛ́	kpàtɛ́	kpatɛ
62. help	kpoŋ	kpó	kpó	kpo
86. mature (vb)	kpela	kpéá	kpèlǎ	
96. night	kpíní	kpídì	kpíndí	kpindi
115. salt	kpolo	kpóló	kpòlǒ	kpolo
152. worm	kpele	kpíí	kpòlí	kpele
165. bridge	kpáwó	kpááwó	kpáwú	kpawo
166. drink	kpele	kpóálé	kpòlí	kpole
167. farm	kpálàŋ	kpálá	kpàlǎ	kpala
32. count	(lónó)	(dódò)	kpàwǎ	kpaya

Table 69 - Medial Consonants

<u>Labials</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
*/m/ (m m m w/y)				
11. blood	ŋama	ŋama	ŋama	ŋawo

<u>Labials</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
24. cheek	kómá	kómá	koma	kaŋa
128. steal	ḡumá	wúmó	húmá	ḡuŋa

It is not understood why in Bandi */m/ becomes [w] in the first two examples and [y] in the last.

Dentals

*/t/ (n t t t) when preceded by a word initial N consonant

105. pestle	ḡenê	ḡété	ḡetê	ḡete
146. vein	nana	yáta	ndatã	ndata

(t t t t) elsewhere

50. fix	kpetɛ	kpété	kpètê	kpatɛ
---------	-------	-------	-------	-------

*/n/ (n n n n)

9. bird	ḡoni	wéni	ḡonĩ	ḡwoni
16. breast	ḡení	ḡíní	nyíní	nyini
84. man	kénà-mù		kénà	
95. new	nina	nííné	nìná	niina
110. rat	ḡíná	ḡìné	nyíná	nyina
133. thing	(seq)	ḡení	hànĩ	ḡani
141. tomorrow	tíná	ḡina	síná	liina

Resonants

*/l/ (l l l l)

6. beg	feli	félí	fèlĩ	(pele)
14. break (in two)	ḡálé	gálé	ḡgálé	ḡgali

<u>Resonants</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
15. break (shatter)	wóló	góló	ngóló	ngolo
20. call	tólí	tílí	tólí	toli
31. cook (vb)	γílí	gílé	ngílí	ngili
36. day, sun	fóló	fóló	fóló	folo, fo
40. dog	γílà	gílé	ngílà	ngila
49. five	lóólú	dóólùò	ndóólù	ndolu
65. hoe	kálì	kálí	kálì	kali

There are some thirteen similar examples of this correspondence which are not given here. There are many instances of deleted l in these languages which will be discussed in detail in section 2.1.1.3..

*/ɾ/ (r l l l)

67. house	péré	pélé	pélé	pɛɛ
69. intestines	puru	kpúdè	pùlǔ	pulu
103. path	pere	pélé	pèlě	pele
123. small	kúró	kóló	kúlù	kulo-kuɛɛ
125. snake	wurŋ	gúlú	ngúlù	(phrase)
138. tie	γiri	gílí	ngílí	ngili
144. tree	wúrú	gúlú	ngúlú	ngulu
145. two	feerɛ	fèlè-gò	fèlé	fele
151. witness	sérè	séélé	sélì	hele/i

Velars

*/g/ (Ø w w w) between rounded vowels

51. foot	kóó	kówó	kówó	kowo
63. hide	lóó	dóówú	ndówú	ndowu

<u>Velars</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
80. log	kɔɔ	kɔwɔ	kɔwɔ	kɔwɔ
85. market	lɔɔ	dɔwɔ	(njɔ-pɔwɔ)	ndɔwɔ
(ɣ ɣ w/y ɣ) elsewhere				
18. brother, sis. (younger)	léyé	déyé	ndéwè	ndeyé
28. cloth	séyé	séyé	(kùlǎ)	(kola)
76. leaf	láá	dáyá	ndáwá	ndaya
107. pot	leyi	díyí	(fɛɛ)	(fɛ)
113. rice (cooked)	bá	báyá	mbàá	mba
130. take, pick up	siye	síyí	híyě	ngeye sa

It may be that the [y] reflex in Mende 'take' [híyě] is due to a glide following deletion of medial [w]. */g/ also appears to be lost in Kpelle 'leaf' and in Kpelle, Mende and Bandi 'rice'.

Table 70 - Final Consonants

<u>Velars</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
*/ŋ/ (ŋ ʃ ʃ ʃ)				
5. bee	koiŋ	kóíí	kómí	kóí
21. canoe	kéléŋ	kée	(ndèndé)	kele
22. catch	soŋ	sóú	hòú	sou
26. child	lóŋ	duú	ndó	ndó
30. companion	ɓarɓŋ	bóó	mbàá	mbala
37. descend	yéŋ	yíí	ngée	ngé
43. egg	ɣálóŋ	kǎí	ngálú	ngalu
46. fast (n)	súŋ	zi	sú	su-hula
58. hang	séléŋ	sélé	hélé	sélé

There are thirteen other examples of this correspondence including #59, 62, 74, 82, 87, 90, 93, 112, 125, 135, 142, 158?, and 167.

2.1.1. Discussion of Other SWM Consonant Correspondences and Irregularities. There are a number of correspondences which are not listed in the tables above because they are suspect for one reason or another. We include them in this section with irregularities for that reason.

2.1.1.1. Labials. There are several irregularities in the labial series in medial position.

5. 'bee': kóíq, kōéí, kómí, kōi is irregular in that only Mende shows a medial [m]. It appears to have been deleted in the other forms. We tentatively suggest an etymological medial */m/ here due to the nasalized vowels in Loma and Bandi as well.

45. 'evil': nyómó, yówú, nyámú, ỹo shows [m:w:m:ʃ] before what tentatively reconstructs as */u/. Perhaps */m/ became [w] in Loma before */u/. We tentatively suggest an */m/ reconstruction.

4. 'lower back': wóbé, góvé, ngóvó, ngóvó has a [b:v:v:v] matching which we are unable to reconstruct since neither */b/ or */v/ is reconstructible medially in *SWM.

136. 'three': saaba, sáá-gò, sàwá, sawa has a similar problem with its [b:ø:w:w] matching. If */b/ can be reconstructed at all it would be from 'lower back' and 'three'. [b:v:v:v] would be the correspondence conditioned by a following front vowel and [b:ø:w:w] by a following non-front vowel. This must remain very speculative at this point, however.

One further matching in the medial labial series turns out to be illusory:

48. 'fire': ɣɔŋ, ɣábu, ɣgɔmbú, ɣgɔmbu shows a stem in Kpelle, but unquestionably a compound in the other languages. The second member of the compound appears to be a morpheme meaning 'underneath, inside'; the semantic motivation for such a compound is not clear, but the phonology is regular. The Kpelle cognate is /mu/, not /bu/ as might be expected. The stem for 'fire' can fairly confidently be reconstructed as */ɣɔŋ/.

2.1.1.2. Dentals. Medial */t/ has one irregularity.

129. 'stone': koni, kwótí, kòtũ, kotu shows the same [n:t:t:t] correspondence illustrated in the tables and shown to occur when the initial consonant is nasal in Kpelle. Here the change appears to have occurred even though the initial consonant is /k/. It may be that the regular */t/ correspond throughout SWM is [n:t:t:t] rather than [t:t:t:t] since we have only one example of the latter. This is difficult to say for certain with only these data at hand.

A particularly odd set of correspondences in the SWM languages shows a [z] in Loma where the other three languages suggest */d/, as illustrated in (38) below. This correspondence was originally reconstructed as */dy/ in Welmers' unpublished notes.

(38) (1 z nd nd)	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
2. ashes	luu	zúwú	ndùvũ	nduwu
61. liver	líí	zíí	ndí	ndi
160. falsehood	léé	zéé	ndéé	nde
79. life, breath	léwò	zéwù	ndèvú	ndèhũ

Since none of these items have cognate forms in NM, we are unable

to judge for certain whether this is a case of aberrant behavior in Loma or a significant and distinct correspondence reconstructable as a separate proto-segment as suggested by Welmers. It may be significant, however, that the following */s/ correspondence likewise shares an apparent [z] reflex in Loma:

(39) (s z s s)	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
46. fast	sún	zì	sú	su
126. spider	sii	zíéwù	síí-lòò	(gulo)
155. tribe	síl	zii	síí	
140. today	sââ	zà	hââ	haawo
156. men	sinâ	zíná	hínà	

Consistent with his tentative */dy/ proposal, Welmers suggested a tentative */sy/ reconstruction for the [s:z:s:s] correspondence in his notes. The evidence is very good, however, that some of these items in fact evolved from words beginning with */s/. Both 'fast' [sún] and 'tribe' [síl] in Bambara (NM) are cognate with the forms above. Nowhere is there any indication that this correspondence should be reconstructed with other than */s/. Similarly, since the putative */dy/ correspondence above shares the irregular [z] reflex in Loma, we conclude that its occurrence is due to some conditioning factor which at present escapes our attention. We tentatively suggest reconstructing the forms in (38) with */d/ and those in (39) with */s/, keeping in mind the outside possibility of a */dy/ and */sy/ reconstruction for each respectively.

The third deviant set of correspondences in the */s/ series involves

an [s:s:s:s] correspondence. The regular correspondence reconstructed as */s/ involves a change from */s/ to [h] in Mende. Here the change failed to occur for some indeterminable reason. This correspondence was tentatively given a */ty/ reconstruction by Welmers in his notes.

(40) (s s s s)	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
108. proverb	saŋ	(sáképé)	sálé	(funɛ)
151. witness	sérè	séélé	séli	(hele)
136. three	saaba	sáá-gò	sàwá	sawa
157. walk	sia	sie	siǎ	sia

'Proverb' is only questionably cognate in the data above and 'witness' may be a "spread" word in the Mande family. That is, it may be one of those items which has been borrowed repeatedly throughout the Mande languages rather than being originally from *Mande stock. 'Three' and 'walk' are simply irregular.

In the case of 'three,' it seems possible that [s] was retained in Mende and Bandi, rather than changing to [h], because of the exceedingly frequent use of the numeral in independent citation rather than in typical phonological contexts; in these cultures, one is forever counting measures of rice, pieces of fruit, coins, etc., using only the citation forms of numerals. Also, in *NM the reconstruction for 'three' is clearly */s/.

'Walk' is not cognate with NM items, but we tentatively suggest */s/ for *SWM here as well.

2.1.1.3. Resonants. The following chart illustrates the tendency of SWM languages to lose medial */l/. Kpelle nearly without exception

retains /l/, as do Mende and Bandi. Loma loses it quite often. In point of fact, however, although the data here does not suggest it, Mende optionally deletes medial /l/ as well.

(41) /l/ Deletion	Kpelle	Loma	Mende	Bandi
(24)	1	1	1	1
(13)	1	Ø	1	1
(3)	1	1	Ø	1
(2)	1	1	1	Ø
(1)	1	1	Ø	Ø
(1)	Ø	Ø	1	Ø

The numbers in the left column indicate the number of the particular correspondence to its right found in the data.

The reconstruction of */r/ poses a difficult problem. We would be more certain of it if the evidence for its reconstruction were from more than one dialect. In fact, the [r] reflex is only found in the Southwestern dialects of Kpelle. Other dialects show [l] like the remainder of SWM. It must remain a possibility that the /r/ in these Southwestern dialects is an independent development.

There is some strong evidence, however, favoring the */r/ reconstruction. In Kpelle there are normally no pairs of verbs distinguished only by tone. In the Southwestern dialects, this rule is invariable. In the Northeastern dialects, there is one such pair, /ɣíli/ 'cook' and /ɣili/ 'tie'. In the Southwestern dialects, these are respectively /ɣíli/ and /ɣiri/; this is a strong argument for the reconstruction of a separate */l/ and */r/, which merged in the Northeastern dialects and

created an abnormal minimal tonal pair in the verbal system.

It should also be pointed out by way of argumentation for */r/ that /r/ is presently a distinct phoneme of the Southwestern dialects and not merely a conditioned variant of /l/. Note the chart below:

(42) /r/ vs. /l/ in Kpelle

	<u>/r/</u>		<u>/l/</u>
69. intestines	puru		
103. path	pere	137. throw	pílí
123. small	kúró	65. hoe	káli
125. snake	wurúŋ	15. break	wóló
144. tree	wúru	witch	wúlú
138. tie	yiri	31. cook	yílí
145. two	feers	6. beg	feli
151. witness	séré	58. hang	sélèŋ
67. house	péré	34. crouch	pelé

Whatever the etymology of /r/ and /l/ in Southwestern Kpelle, it is clear that at present speakers of the language have phonemicized these segments.

2.1.1.4. Velars. There is one exception to the [Ø:w:w] correspondence between back vowels in the */g/ series.

66. 'hole': lóá, (zéyé), ndówá, ndowa appears not to be cognate in Loma. The three other forms match the above correspondence nicely were it not for the fact that this correspondence is generally conditioned by back vowels on both sides of */g/. Here the change occurs between

*o/ and */a/. It is important to note that [w] is not only a reflex of */g/, however. It is often inserted (perhaps only as a transcription device) between a back vowel and some other vowel in these languages when there is no intervening consonant. We conclude that rather than reconstructing */g/ where there is no evidence of such a segment, we will reconstruct *doá. This may also be the case for 101. 'palm nut' tóú, túwú, tówú, (tolu) which is [tǎù] in Kono (NM). We tentatively reconstruct *tóú until further evidence confirms or disconfirms it.

There are a number of other correspondences in the medial */g/ series which are perplexing.

35. 'cut': téé, tévé, téwé, teve and 102. 'pass': tɛɛ, tévé, tɛwě, tove share a [ø:v:w:v] matching which appears to be unexplainable, even though */g/ is supported for 'cut' by *NM *tíge. The only obtainable form from NM for 'pass' is Barbara [tɛmɛn]. We conclude for the present that this is a false correspondence, the available evidence suggesting */g/ for *SWM 'cut' and a very tentative */m/, faute de mieux, for *SWM 'pass'.

The second correspondence set, illustrated in (43) below, only appears to be irregular.

(43) (w/ø v v h)	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
79. life, breath	léwò	zévù	nděvú	ndshũ
83. louse	yau	----	ngávĩ	ngahũ

This may in fact be another */g/ alternation. The [ɣ:ɣ:w:ɣ] correspondence reconstructed as */g/ in Table 69 appears to only occur between vowels from the front series or between two instances of */a/.

The [ø:w:w:w] correspondence is the alternation of */g/ between back vowels. The [w/ø:v:v:h] correspondence, therefore, may be the alternation of */g/ between a non-back and a final back vowel. We may then reconstruct */g/ from the following alternations in the following environments:

(44) */g/ Alternations in the SWM Languages

- A. */g/ ---> [ø:w:w:w] / $\begin{array}{c} \text{V} \\ [+back] \end{array} \text{ — } \begin{array}{c} \text{V} \\ [+back] \end{array}$
- B. */g/ ---> [w/ø:v:v:h] / $\begin{array}{c} \text{V} \\ [-back] \\ [-high] \end{array} \text{ — } \begin{array}{c} \text{V} \\ [+back] \end{array}$
- C. */g/ ---> [ɣ:ɣ:w:ɣ] / Elsewhere

The final problem in the */g/ series in medial position involves a [w:w:w:w] matching in 165. 'bridge': kpáwó, kpááwó, kpáwú, kpawo. We might be led to a */g/ reconstruction here were it not for two considerations. First, */g/ generally becomes [w] only between two rounded vowels. Secondly, there is the tendency to insert [w] between non-back and back vowels, which was discussed earlier. (In this case, it is not, phonetically, a matter of optional transcription.) We tentatively conclude that the proto-form reconstructs as *kpáó rather than *kpágó.

33. 'cow': niɲa, nìké, nìkă, nika is very irregular in the [k] reflexes throughout the SWM languages in medial position. This alone suggests spread through borrowing rather than common inheritance. In addition, cattle keeping is not typical of the speakers of these languages. For the most part, a chief may own a few cows. Thus the spread of terminology referring to cattle may be relatively recent.

2.2. SWM Vowels. In the tables below we have presented only five examples of each occurring vowel correspondence. Following the examples is a list of the numbers of other such correspondences found in the data.

Table 71 - Medial Vowels

<u>Front</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
*/i/ (i i i i)				
17. brother, sis. (older)	líá	díé	ndíá-mó	ndia
31. cook (vb)	γílí	gílí	ngílí	ngili
40. dog	γílà	gílé	ngílà	ngila
95. new	nina	nííné	nìnǎ	niina
96. night	kpíní	kpídì	kpíndí	kpindi

Other examples: #64?, 101, 134, 138, 141, 156?, 157.

*/e/ (e e e e)				
18. brother, sis. (younger)	léyè	déyé	ndéwè	ndeye
35. cut	téé	tévé	téwé	teve
44. elephant	sélé	sée	héle	sele
57. hand	yéé	zéé	ngéyà	ngeya
103. path	pere	pélé	pèlě	pele

Other examples: #21?, 28?, 84?, 86?, 105, 120, 145, 151.

*/ɛ/ (ɛ ɛ ɛ ɛ)				
34. crouch	pɛɛ	péé	pélě	pɛɛ

<u>Front</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
58. hang	sélèŋ	sélé	hélé	sɛɛ
60. hear	mɛni	méní	mèní	méli
67. house	péré	pélé	pélé	pɛɛ
75. laugh	yéle	ŋéé	ŋgélé	ŋgɛɛ

Other examples: #12, 79, 142.

Central

*/a/ (a a a a)

11. blood	ŋama	ŋamá	ŋamă	ŋawɔ
13. box	kāla	kālā-ŋālā	kāŋá	kaŋa
14. break (in two)	yalé	gále	ŋgále	ŋgali
23. chaff	kala	kálá	kăă	kaa
43. egg	yalón	kái	ŋgálú	ŋgalu

Other examples: #10?, 25?, 53, 65, 76, 83, 88, 90, 94, 118, 124, 135, 136, 167.

Back

*/u/ (u u u u)

69. intestines	puru	(kpúdè)	pùlú	pulu
82. loosen	fúlóŋ	fúi	fúló	fulo
99. oil	wúló	gúló	ŋgúló	ŋgulo
128. steal	ŋúmá	wúmó	húmá	(ŋuŋan)
131. take out	kula	kúló	kpũă	kula

Other examples: #41?, 125?, 139?, 59.

*/o/ (o o o o)

4. lower back	wóbé	góvé	ŋgónó	ŋgónó
5. bee	koiŋ	kóéí	kómí	kói

<u>Back</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
73. knife	ḡóá	bóá	mbówá	mboya
36. day, sun	fóló	fóló	fóló	folo
52. forest	wolá	góíá	ngólá	ngola

Other examples: #22, 32?, 41?, 93?, 115.

*o/ (o o o o)

51. foot	kóó	kówó	kówó	kowo
80. log	koo	kówó	kòwó	kowo
85. market	lóó	dówó	(njòpòwá)	ndowo
121. skin, book	kolo	kóló	kòlò	kolo
129. stone	kono	kwotí	kòtũ	kotu

Other examples: #62, 74?, 112?, 87?, 93?.

Table 72 - Final Vowels

<u>Front</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
<u>*i/</u> (i i i i)				
9. bird	ḡoni	wéní	ḡonĩ	ḡwoni
16. breast	ḡéní	ḡíní	nyíní	nyini
20. call	tólí	tílí	tólí	toli
31. cook (vb)	ḡílí	ḡílí	ngílí	ngili
54. go	li	dí	ndĩ	ndi

Other examples: #53?, 60, 61, 65, 77, 96, 106, 111?, 122, 124, 134, 137, 138, 152, 162.

<u>Front</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
*/e/ (e e e e)				
18. brother, sis. (younger)	léyè	déyé	ndéwè	ndeye
35. cut	tée	tévé	téwé	teve
44. elephant	sélé	sée	héle	sele
88. medicine	sále	sále	hále	sale
91. mother	lee	dée	njě	nje

Other examples: #28?, 103, 105, 163, 164.

*/ɛ/ (ɛ ɛ ɛ ɛ)				
27. climb, raise	té	té	té	tɛ
34. crouch	pɛɛ	péé	pɛɛ	pɛɛ
39. do	ké	ké	kè	kɛ
50. fix	kpetɛ	kpété	kpàtɛ	kpɛɛ
67. house	péré	pélé	pélé	pɛɛ

Other examples: #75, 119, 160, 161?.

Central

*/a/ (a a a a)				
10. bitter	ɣwáná	wáálá	ɣónà	(taba)
13. box	kāla	kālá-ɣáálá	kaɲa	kana
19. buy	yá	gééá	ɣɣéyá	ɣgeya
23. chaff	kala	káálá	kàǎ	kaa
24. cheek	kómá	kómá	kómá	kaŋa

Other examples: #8?, 25?, 38, 28?, 29, 32?, 52, 58, 66?, 72, 73, 76, 78, 81, 84?, 86, 89, 92, 94, 100?, 113?, 118, 136, 140, 141, 143, 146, 156a, 169?.

<u>Back</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
*/u/ (u u u u)				
2. ashes	luu	zúwú	ndùvũ	nduwu
49. five	lóólú	dóólùò	ndóólù	ndolu
68. inside	sù	sù	hú	su
98. odor	kũu	kú	kú	ku
101. palm nut	tóú	túwú	tówú	(tolu)

Other examples: #22?, 48?, 97?, 104, 132, 133?, 139, 144, 168.

*/o/ (o o o o)

7. belly	koo	*kúú, kó	kòõ	koo
15. break	wóló	góló	ngóló	ngolo
36. day, sun	fóló	fóló	fóló	folo
115. salt	kpolo	kpóló	kpólõ	kpolo
147. voice	wóó	góó	ngó	ngo

Other examples: #32?.

*Cf. section 2.2.1.1. for an explanation of raising from */o/ to [u] in Loma.

*/ɔ/ (ɔ ɔ ɔ ɔ)

47. feed	kó	kó	kó	kɔ
51. foot	kóó	kówó	kówó	kɔwɔ
121. skin, book	kolo	kóló	kòlõ	kolo
150. wine	lɔɔ	dóó	ndòõ	ndo

2.2.1. Discussion of Other SWM Vowel Correspondences and Irregularities.

Before discussion the vowel irregularities in detail, there are several

regular vowel alternations which occur in these languages which, once clarified, will eliminate some of what might otherwise appear to be aberrances.

2.2.1.1. Loma Vowel Raising. There are a number of correspondences in SWM in which the Loma vowels are generally one level higher on the vowel chart than the corresponding vowels in Kpelle, Mende and Bandi. For example, where these latter three languages have [e], Loma has [i], where they have [o], Loma has [u] and so forth. We provide the complete set of data in (45) below.

(45) Data for Loma Vowel Raising

	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>	
152. worm	kpeli	kpíí	kpòlí?	kpeli] (e i e e)
37. descend	yén	yíí	ngéé	ngé	
64. hill	yéé	gízí	ngíyé	ngihe	
130. take	siye	síyí	híyě	ngere	
107. pot	leyi	díyí	----	----	
162. black	tɛi	téí	tɛlí	tɛi] (ɛ e ɛ ɛ)
17. brother/ sister	líá	díé	ndíá	ndia	
95. new	nina	nííné	nínǎ	nyiina] (a ɛ a a)
149. water	yá	zìé	njàá	njɛ?	
110. rat	qíná	qíné	nyíná	nyina	
33. cow	niŋa	nìké	nìkǎ	nika	
157. walk	sia	sié	siǎ	sia	

	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>	
133. thing	----	ŋɛní	hǎnĩ	ɲani	
1. animal	sua	súó	hùǎ	sua	[a o a a)
131. take out	kula	kúló	kpùǎ	kula	
148. wash	waa	gúó	ɲgúa	ɲguya	
3. back	pólù	púlú	póó-ma	polu	[o u o o)
7. belly	koo	kúú, kó	kóó	koo	
26. child	lóng	dúú	ndó	ndó	
99. oil	wúló	gúló	ɲgúló	ɲgulo	[o o o o)
49. five	lóólú	dóólùò	ndóólù	ndólu	
70. iron	koli	kólú	kǒlǔ	kǒu	
71. kidney	toli	tóólú	tǒlǔ	tolu	
77. leopard	kólí	kóéí	kólí	koli	

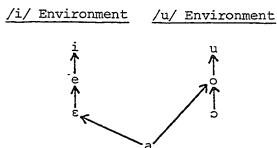
We note first of all that the Loma vowels in these data only raise in their own series. That is, front vowels raise to higher front vowels and back vowels to higher back vowels. They never raise from front to back or vice versa.

Secondly, /a/ appears to be exceptional in that it raises to front [ɛ] in some cases and to back [o] in others.

Working out the conditioning environments for these changes we conclude that front vowels are raised only in the environment of a high front vowel /i/ and back vowels only in the presence of a high back vowel /u/. Since /a/ cannot be raised to a higher central vowel, it is raised instead to a higher front or back vowel. In the environment of

/i/ it is raised one level to [ɛ]. In the environment of /u/ it is raised, quite unexpectedly, two levels to [o]. The overall pattern is illustrated below.

(46) Loma Vowel Raising Pattern



We will deal with the problem of /a/ raising to [o] in more detail below.

In order to write a rule for this vowel change, let us assign differing values to each vowel according to its height on the vowel chart, with /i/ and /u/ given a value of 4, /e/ and /o/ given a value of 3, /ɛ/ and /ɔ/ a value of 2 and /a/ a value of 1 as in (47) below.

(47)

<u>Front</u>	<u>Central</u>	<u>Back</u>	<u>Value</u>
i		u	= 4
e		o	= 3
ɛ		ɔ	= 2
	a		= 1

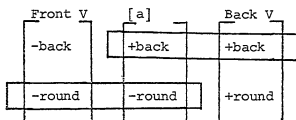
The Raising Rule will assign a given vowel V with a height value of H a value of $H + 1$ in the environment of a vowel with a height value of 4. It must also make sure that front vowels are only raised by a vowel with the features [4,front] and that back vowels are only raised by a

vowel with the features [4,back]. [a] presents a peculiar problem in that it is raised by both [4,front] and [4,back].

At this point it is necessary to demonstrate what it is that [a] has in common with the front vowels which allows it to be raised to [ɛ] in the environment of /i/ and, on the other hand, what it has in common with back vowels which allows it to be raised to [o] in the presence of /u/. In order to solve this problem we must define our vowels in terms of features which cross-classify, since [a] must share features with both front and back vowels.

The Chomsky and Halle feature matrix provides us with a reasonable solution to our problem. We may define front vowels as [-back, -round] and back vowels as [+back, +round]. [a] is defined as [+back, -round], sharing a [-round] feature with front vowels and a [+back] feature with back vowels as exemplified in (47) below.

(47)

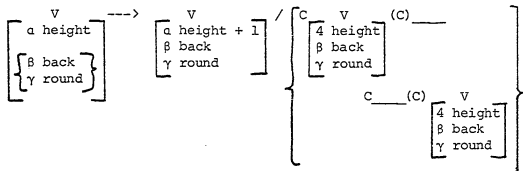


[a] may be raised to [ɛ] in the presence of [i] because it shares the feature [-round] with front vowels. Also, [a] may be raised to [o] in the presence of [u] because it shares the feature [+back] with back vowels. Front vowels cannot be raised to back vowels and vice versa because they share neither feature in common. We may state our rule as follows:

(48) Loma Vowel Raising Rule

A high vowel will raise a vowel in an adjacent syllable one level provided the latter agrees with the former in either 'roundness' or 'backness' or both. Furthermore, the vowel in question will be raised only in the series defined by the shared feature. E.g., since [i] and [a] are both [-round], [i] will raise [a] one level in the series defined by [-round], i.e. the front series.

Or, more formally:



The rule as written above still appears to be inadequate in regards to what actually occurs in the raising of [a] to [o]. Our rule indicates that [a] should only be raised one level whereas in this particular case it is in fact raised two levels. How is it that [a] is raised to [o] in the environment of [u] rather than to the expected [ɔ]?

The answer to this question is found in the Morpheme Structure Constraints obtaining in Loma. As far as we can determine from our data, Loma permits no [u,ɔ] or [ɔ,u] sequences in its words, although similar types of sequences do occur, for example, if [ū] is nasalized or [ɔɔ] is a long vowel, as in 'evil' [yówū] or 'between' [yòòzú]. (This latter may in fact be morphologically complex.) We can find no examples of sequences of short oral [u] and [ɔ]. We may hypothesize, then, that when Raising operates on [a] in the environment of [u] it creates unacceptable sequences of [u] and [ɔ]. In such cases, the rule must be

reapplied to create an acceptable [u,o] sequence:

[u,a] ---Raising---> *[u,o] ---Reapply Raising---> [u,o]

There is one interesting case of raising in this regard involving 'steal': númá, wúmó, húmá, nuŷan, in which [a] appears to have been raised to [o] rather than to [o]. It may be that, as mentioned above, the [o] may occur with nasalized [ũ]. Alternatively, it should be noted that /o/ typically does not occur nasalized or after nasal consonants in Loma, while /o/ does.

We conclude that the Loma Raising Rule is correct as stands and historically applied to all appropriate vowels uniformly. In one case ([a] ---> [o]/[u]) it creates an unacceptable V sequence and is forced to reapply until the resultant sequence is acceptable.

There are two apparent irregularities included in the data chart (45). 'Belly' and 'child,' in the (o u o o) section, do not appear to have had an etymological */u/ conditioning the vowel raising. It very well could be that these items do not properly belong to the Raising Rule. We include them because the correspondence looks good in any case.

2.2.1.2. Kpelle Vowel Fronting. In the data below, Kpelle shows an [i] reflex where Loma, Mende and Bandi show [u].

(49) Data for Kpelle Vowel Fronting

	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
70. iron	koli	kólú	kòlũ	kɔ̃u
71. kidney	tɔ̃f	tóólú	tòlũ	tɔ̃u

(i u u u)

	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>Bandi</u>
129. stone	koni	kwotí	kòtũ	kotu
BUT:				
*49. five	lóólú	dóólùò	ndóólù	ndolu (u u u u)

In general, final [u] becomes fronted to [i] following [Cɔl-] or [Con-]. 'Five' appears to be exceptional except that the conditioning environment includes a long [ɔɔ] vowel rather than a short one. We tentatively suggest that the rule may have been as follows:

(50) Kpelle Vowel Fronting

u ---> i/ [Cɔl/n]

There is one apparently odd member of this rule in 109. 'raffia': líí, dùzú, ndúvú, nduhu. In spite of the good [l:d:nd:nd] correspondence in initial position, this form is still very questionably cognate. Generally, high tone in Kpelle is matched by high tone in Loma and Mende as well. Here Loma's tones make the correspondence very questionable.

2.2.1.3. Loma Vowel Epenthesis

In many cases of medial */l/ being deleted in Loma it is replaced by an epenthesized vowel, either [i] or [e], in intervocalic position. That */l/ is not palatalized to [i] in these cases is clear from forms like 'bee,' which reconstructs as *komin in *SWM but which appears as [kɔéí] in Loma. We must assume in this latter case that first */m/ was deleted intervocalically leaving a VV sequence. [e] was then inserted between the two vowels. We may therefore conclude the same historical

analysis for cases in which */l/ is replaced by [i] as well.

Although C deletion is independent of V epenthesis, the two processes do affect each other since the deletion of intervocalic C provides the necessary V sequences for V epenthesis. That is, C deletion feeds V epenthesis historically. There are certain restrictions on V epenthesis which will be discussed below. Chart (51) indicates the environments in which the epenthetic V is and is not inserted.

(51) Data for Loma Vowel Epenthesis

A. Between Like Vowels.

<u>Gloss</u>	<u>*SWM Form</u>	<u>Pre-Loma V Sequence</u>	<u>Loma Form</u>
21. canoe	*keleŋ	e__e	kéé
34. crouch	*pelɛ	ɛ__ɛ	pɛɛ
44. elephant	*séle	e__e	sée
74. know	*kolɔŋ	ɔ__ɔ	kwé
75. laugh	*gélé	ɛ__ɛ	ŋɛɛ
152. worm	*kpeli	i__i	kpíí

B. Between Back and Central V's.

52. forest	*gola	o__a	goia
89. monkey	*kuala/*kola	o__a	kóíá

C. Between Central or Back and Back V's.

43. egg	*galɔŋ	a__o	káí
82. louse	*fúlóŋ	u__o	fúi

D. Between Back V and [i].

<u>Gloss</u>	<u>*SWM Form</u>	<u>Pre-Loma V Sequence</u>	<u>Loma Form</u>
77. leopard	*koli	o__i	kóéí
5. bee	*komin	o__i	kóéí

E. Between [-round] V and [i].

?135. thorn	*qaliŋ	a__i	ŋáí
162. black	*teli	e__i	tei

F. Between Front and Central V's.

86. mature (vb)	*kpela?	e__a	kpea
-----------------	---------	------	------

Subsection A above clearly shows that V epenthesis occurs only between sequences of non-like vowels. Where C deletion creates sequences of like vowels no such epenthesis occurs.

B and C illustrate the insertion of [i] between non-like vowels. In C, however, the final back vowel is absorbed by the epenthesis [i] in changes such as *galog > kǎǒo > kǎio > kǎíǒ.

D exemplifies the environment in which [e] is found rather than [i]. It appears that this may occur between sequences of [o] and [i]. We analyze this as a dissimilatory lowering of [i] to [e] before [i] and following a Back vowel. We may therefore state the insertion of [e] as a conditioned variant of [i] in a certain well-specified environment.

E demonstrates one of two things. Either we might assume that [i] is not inserted between [-round] vowels and [i], or that it is inserted and then absorbs the following [i]. The former solution is ad hoc, especially in view of the evidence from C, in which final [o] is absorbed by the epenthesis [i]. The latter solution is identical with

our analysis for D, which adds support to both. For E, therefore, we assume that [i] is inserted in these examples and that it absorbs or merges with the following [i].

F appears to be somewhat of a contradiction. We expect an epenthesized [i] here but find none. In actual fact, however, [kpea] and [kpeia] are very close phonetically and may amount to the same thing. (Sadler (1951) was extremely careful about distinctions of this sort, but this is certainly a prime candidate for a slip-up -- WEW.)

We conclude that historically Loma inserted [i] between sequences of non-like vowels created by the deletion of intervocalic consonants. Between [o] and [i], epenthesized [i] was lowered to [e]. In other environments, except preceding [a], epenthesized [i] absorbed the following consonant. Note that vowel lowering must have preceded absorption, rendering VeV sequences. The chronology is as follows:

- (52)
- | | | | |
|-----------------------------|---|-------|--------------|
| 1. Intervocalic C Deletion: | V <u>C</u> V | ----> | V <u>g</u> V |
| 2. Vowel Insertion: | V <u> </u> V
[a] <u> </u> [-a] | ----> | ViV |
| 3. Vowel Lowering : | V <u> </u> V
[-central] | ----> | VeV |
| 4. Final V Absorption: | [o] <u> </u> [i] | ----> | Vi <u> </u> |

2.2.1.4. Front Vowel Irregularities. It should be pointed out before discussing irregular correspondences that those pseudo-irregularities which have been accounted for in the previous section will not be dealt with in this section.

There are four irregularities in eighteen occurrences of medial */i/, three involving an [e:i:i:i] matching.

16. 'breast': ḡéní, ḡíní, nyíní, nyini; 111. 'reach, arrive': seri, sítí, hìtí, (folona) and 135. 'thorn': ḡalêḡ, ḡáí, ḡàlî, ḡgalî do not appear to have very much in common in terms of a conditioning environment for vowel lowering in Kpelle. We offer no explanation for the [e] reflex in Kpelle but reconstruct a tentative */i/ on the basis of agreement between the other three languages.

130. 'take, pick up': síve, síví, hìyě, (ḡḡeye sa) appears to have an irregular [i:i:i:e] matching. The Bandi form is non-cognate and we may therefore reconstruct medial */i/.

In final position there are only three aberrances in twenty-four examples of the */i/ correspondence.

151. 'witness': sérè, séélé, sélî, hele/i, as mentioned previously, is probably borrowed throughout these languages rather than having been inherited from *SWM.

120. 'sit, set': see, seí, hèí, sei is a case of final */i/ becoming assimilated to medial */e/ in Kpelle. We reconstruct final */i/.

6. 'beg': fèli, féíí, fèlî, (pele) is surely non-cognate in the Bandi form [pele]. The other three languages agree on a *feli reconstruction.

Medial */e/ shows four irregularities in seventeen examples.

127. 'split': bélá, béli, mbélá, mbali may be another case of metathesis in the Bandi form from a */e,a/ sequence to [a,i]. In any event, whenever Kpelle agrees with any of the other languages, *SWM can be tentatively reconstructed. We suggest a tentative *bélá. The Loma form remains unexplained.

152. 'worm': kpe_{li}, kpíí, kpòlí, kpe_{li} is especially aberrant in

the [o] reflex of Mende [kpòlǐ]. The [i] in Loma is simply due to assimilation. We can offer no explanation for the [o] reflex, but reconstruct a tentative */e/ on the basis of Kpelle and Bandi.

107. 'pot': leyi, díyí, (fěě), (fe) is a case of raising in Loma [díyí]. [fe] was probably borrowed into *Mende-Bandi, which, it should be recalled, are almost mutually intelligible dialects. We reconstruct a tentative *degi.

114. 'rope, vine': γeli, gálu, ngèyă, ngesa is very probably non-cognate in Loma especially and perhaps in Kpelle as well.

Final */e/ is aberrant in four of seventeen cases.

Two of these four irregularities show an */e/ to [i] change following */l/ in different languages. This is interesting in connection with the */l/ to [i] change discussed in section 2.1.1.3. and the */u/ to [i] change following */l/ discussed in section 2.2.1.2. under the heading Kpelle Vowel Fronting. We conclude that there is some tendency towards V to [i] changes in the environment of [l] in these languages.

14. 'break': ýalé, gálé, ngalé, ngali shows final [e:e:i] and 166. 'drink': kpele, koálé, kpòlǐ, kpole shows final [e:e:i:e] following */l/. We can reconstruct a tentative */e/ in both of these items because of the agreement between Kpelle and two out of three of the other languages in each case. As mentioned above, we conclude that the [i] reflexes in Bandi and Mende respectively reflect a general tendency to associate [l] with [i] in some way in these languages.

145. 'two': feerε, fèlè-gò, fèlé, fele is very irregular in Kpelle [feerε]. The Mande languages in general do not permit [ε,ε] sequences or [o,ɔ] sequences. It is probably the case that the *SWM form for

'two' had like vowels. Since three of the languages suggest */e,e/, this sequence will be tentatively suggested.

Perhaps relevant to this problem is the fact that Kpelle has irregularly long vowels in the counting form for 'one' (cognate with NM 'ten'), and in the numerals 'two' and 'three,' as well as possibly regularly long vowels in 'four' and 'five'. Personal experience points up the naturalness of this phenomenon. It takes a little while to dip out and count a measure of rice, and the cadence virtually requires long vowels: /tááŋ, `feers, `saaba, hááŋ, hòólú/. The lowering of the final vowel in 'two' may have resulted from the slow cadence in counting.

4. 'lower back': wóbé, góvé, ngóvó, ngovo is most adequately treated as a case of assimilation in *Mende-Bandi. We reconstruct a tentative *góbé.

*/ε/ has two irregularities in eleven occurrences medially.

116. 'sand': ɲɛya, yáázé, ɲànyă, ɲɛnya shows an odd [ε:āa:a:ε] matching. The tones correspond accurately, suggesting cognation. In Loma [yáázé], it appears we have another case of metathesis from the original */ε,a/ to [a,e]. The Mende [ɲànyă] seems to be another case of assimilation to final */a/. Kpelle and Bandi agree, however, suggesting */ε,a/ as the original vowel sequence.

102. 'pass': tɛɛ, tévé, tɛwě, tove shows like vowels in all but the Bandi form, which shows [ɔ,e]. Because of the agreement between Kpelle on the one hand and Loma and Mende on the other, we may conclude that the vowels were like non-high front vowels. The choice of *tɛme or *tɛme is apparently arbitrary. Bambara, however, shows [tɛmɛn], sug-

gesting an */ε,ε/ sequence.

There are only two irregularities in twelve examples of final */ε/.

The first involves 'pass,' which was just discussed above.

149. 'water': yá, zìé, njàá, njε presents a problem in the [a:ic:aa:ε] matching. First, recall that vowel raising in Loma from */a/ to occurs in the environment of [i]. We conclude that the underlying form of Loma [zìé] is in fact */zìá/. If it were phonemically */zìε/, the phonetic realization would instead be [zìé] (see section 2.2.1.1. for clarification). The Kpelle form [yá] and Mende [njàá] testify to an original */a/ in the *SWM form. Also, the vowel length in Mende attests to a double vowel sequence etymologically. Piecing the evidence together, we may reconstruct an original */ia/ sequence. Loma raised */a/ to [ε] in the environment of [i]. Kpelle and Mende assimilated medial */i/ to final */a/, losing all trace of the high front vowel medially. It is also a possibility in this latter case that the palatal consonants absorbed the following */i/ in Kpelle and Mende, a common occurrence in languages of the world. That the high front vowel existed etymologically is clear from *NM *yi. Perhaps the Bandi [ε] reflex is a coalescence of [i + a].

2.2.1.5. Central Vowel Irregularities. There is only one exception to the regular */a/ correspondence in medial position.

50. 'fix': kpεtε, kpété, kpàtε, kpàtε has an irregular [ε:ε:a:a] matching medially. It is difficult to say for certain whether the form was originally *kpats (and Kpelle and Loma independently assimilated medial */a/ to final */ε/) or whether it was originally *kpεts (and *Mende-Bandi innovated an */a/ medially in place of */ε/). We list

both possibilities due to our uncertainty.

There are only three problems in forty-six occurrences of final */a/.

40. 'dog': ɣílà, gílé, ɣgílà, ɣgila appears to be another example of raising in Loma. This time, however, the reflex is [e] rather than the usual [ɛ]. It may be that here again the preceding [l] in Loma raised [ɛ] to [e]. We reconstruct a final */a/ in any event.

11. 'blood': ɣamá, ɣámá, ɣàmǎ, ɣawǎ has an irregular [ɔ] in Bandi. We cannot account for this by claiming that the preceding [w] brings about the raising of [a] to [ɔ] in view of forms such as Bandi 'hole' [ndowa], in which the same environment does not raise the [a]. We have no explanation here but suggest a tentative */a/ due to the general agreement between the other three languages.

127. 'split': béla, bélí, mbéla, mbali shows an [a:i:a:i] matching finally. Bandi [mbali] is probably a case of metathesis from */e,a/ to [a,e]. The raising of [e] to [i] then occurred once again in the environment of [l]. The only other irregularity is in Loma's final [i]. Here we assume first assimilation from *béla > [bélé] and secondly raising after [l] from [e] to [i], rendering [bélí]. Together with the other evidence, Kpelle and Mende likewise suggest the reconstruction of an */e,a/ sequence.

2.2.1.6. Back Vowel Irregularities. Four of twelve occurrences of medial */u/ are irregular.

123. 'small, a little': kúró, kóló, kúlù, kulo-kuɛ is very probably a case of assimilation in Loma kolo and Mende kulu in opposite directions, the former being an instance of anticipatory assimilation and the latter a case of perseveratory assimilation. We tentatively suggest

*kuro on the basis of the agreement between Kpelle and Bandi.

109. 'raffia': líí, dùzú, ndúvú, nduhu is a very questionable cognate in Kpelle despite the regular [l:d:nd:nd] correspondence, as discussed in section 2.2.1.2..

46. 'fast': súq, (zì), sú, su(hula) is also questionably cognate in Loma [zì], although there are other cases of the [s:z:s:s] correspondence. The tone, however, is quite irregular. In any event, Bambara (NM) shows [u] and we may therefore feel relatively secure in reconstructing */u/.

8. 'between': loa, (yòòzú), ndùă, ndua-hu is non-cognate in Loma. The [o:-:u:u] matching is unexplainable and a choice of */o/ or */u/ is therefore arbitrary. We list both *d_{oa} and *d_{ua} as possibilities.

There are only five problems in twenty-seven examples of final */u/.

63. 'hide': lóó, dóówú, ndòwú, ndowu. Kpelle [lóó] probably results from the loss of medial */g/ and assimilation of final */u/ to medial */o/. We tentatively reconstruct a final */u/.

79. 'life, breath': léwò, zévù, ndèvú, ndshū shows an [o] in Kpelle once again, in an [o:u:u:u] matching. Either */u/ or */o/ could have been the *SWM segment here, the *Loma-Mende-Bandi form changing after the split from Kpelle. We tentatively suggest */u/.

153. 'yam': yáú, (zówóí), ngàwú, (mbole) is non-cognate in Loma and Bandi. We may tentatively reconstruct *gagu on the basis of Kpelle and Mende, although the tonal correspondence between the two is irregular.

3. 'back': pólù, púlú, pò^h-ma, polu is another instance of Mende and Loma assimilation in opposite directions. Mende's assimilation, as previously, is perseveratory and Loma's anticipatory (Cf. 'small' above).

69. 'intestines': puru, (kpude), pùlù, pu is non-cognate in Loma. The other three languages lead to a *puru reconstruction.

83. 'louse': yau, ---, ngàvĩ, ngahũ shows a [u:-i:ũ] matching. Although a */u/ is the likely reconstruction from Kpelle and Bandi, we can offer no explanation for the [i] reflex in Mende. The [v] environment does not condition the change, as may be seen in the Mende form of 'ashes' [nduvu].

There are seven irregularities in twenty-one examples of medial */o/.

81. 'long, far': kóyà, kóózá, kúhà, kohã shows a [o:oo:u:o] matching which we tentatively reconstruct as */o/. The [u] reflex in Mende is not understood.

63. 'hide': lóó, dóowú, ndòwù, ndòwù will be tentatively reconstructed as */o/ due to the concurrence between Kpelle and Loma, leaving lowering in *Mende-Bandi from */o/ to [ɔ] unexplained. It should also be noted that the tone is irregular between Kpelle and Mende and Bandi.

66. 'hole': lóá, (zéyé), ndówá, ndowa is non-cognate in the Loma item. Otherwise, medial */o/ reconstructs normally.

24. 'cheek': kómá, kómá, kómá, kaŋa is another case of assimilation in Bandi from */o/ to [a]. We reconstruct a tentative */o/ medially.

20. 'call': tólí, tílí, tólí, tolí is likewise an apparent assimilation of medial */o/ in Loma to final */i/ rendering [tíli]. We reconstruct *tóli.

82. 'loosen': fúlón, fũí, fúló, fulo is odd in the [o:i:o:o] matching. We include it in the medial series because of the final nasal in Kpelle. Recall that the */l/ in Loma is often replaced with [i], as in

this example. We reconstruct *fulɔŋ in *SWM.

90. 'moon, month': ɣáɓɔŋ, ɣáɓó, ɣáɓú, ɣgaɯ could be reconstructed as either *galɔŋ or *galuŋ. We opt for the former since Kpelle and Loma agree on */ɔ/. Why the */ɔ/ raised to */u/ in *Mende-Bandi is not understood.

There is only one irregularity in seven occurrences of final */ɔ/.

123. 'small, a little': kúrò, kóló, kúlù, kulo-kuɛɛ was discussed in the */u/ section above. The [u] in Mende is due to assimilation.

There are four aberrances in seventeen examples of medial */ɔ/.

48. 'fire': ɣɔŋ, náɓú, ɣòmbù, ɣɔmbu. The /-mbu/ in Loma and Mende is a suffix meaning 'inside, underneath' as mentioned previously. The [a] in Loma is irregular compared with the [ɔ] in the other three languages, but we can offer no explanation for it here. We suggest a tentative */ɔ/.

45. 'evil': nyómó, yómú, nyámú, ỹɔ again shows a substitution of [a] for */ɔ/ in Mende for unknown reasons.

9. 'bird': ɣɔni, wɛní, ɣòni, ɣwɔni shows an odd [ɔ:ɛ:ɔ:ɔ] matching. It is interesting to note in this regard that the phonetic realization of [Co-] before /li/ or /ni/ in Kpelle is [Cws-]. This may be a more general alternation throughout the SWM languages than previously realized. In any case, the [ɛ] is obviously the innovation and we may relatively certainly reconstruct */ɔ/ medially.

74. 'know': kólɔŋ, kwɛ, kóló, kɔɓɔ. Here once again we are faced with a [kwɛ-] reflex of a */ko-/ sequence in Loma. A tentative */ɔ/ is suggested.

There are three problems in eight examples of final */ɔ/.

85. 'market': lɔ́ɔ́, dɔ́wɔ́, (njɔ́pɔ́wá), ndɔ́wɔ́ is non-cognate in Mende. The */ɔ/ reconstructs easily in both positions otherwise.

80. 'log': kwɔ́, kɔ́wɔ́, kɔ́wɔ́, kwɔ́ has an odd [u] in Mende for which we offer no explanation. The other three languages suggest a strong */ɔ/ finally.

165. 'bridge': kpáwɔ́, kpááwɔ́, kpáwɔ́, kpawɔ́ shows the same [wu] sequence in Mende for */wɔ/ as in 'log' above. Since the Mende form for 'foot' is [kwɔ́] we cannot claim the [w] conditions a regular */ɔ/ to [u] change in Mende. This may in fact be a tendency rather than a rule. We reconstruct a tentative */ɔ/.

2.2.2. *SWM Vowel System. We will note in the table below that *SWM had very strong tendencies toward avoiding certain types of vowel sequences within words and promoting others. For example, in non-like vowel combinations, */ɛ/ appears to have not been permitted in the second syllable of CVCV words and */ɔ/ was very restricted in the same position. Other types of restrictions will be discussed following the presentation of the data. Our table gives the number of occurrences of each type of vowel sequence in the data. For the sake of completeness, we give each vowel as it occurs in first syllables and in final syllables with other vowels. Naturally, each sequence is listed twice, once for each vowel, with the exception of like vowels.

Table 73 - Vowel Sequences

Like Vowel Combinations (65)

i-i (8)	u-u (7)
e-e (9)	o-o (6)
ɛ-ɛ (7)	a-a (19)
	ɔ-ɔ (9)

'a' Combinations (43)

<u>First Syllable</u>		<u>Second Syllable</u>	
a-i (5)	a-u (3)	i-a (9)	u-a (7)
a-e (2)	a-o (2)	e-a (5)	o-a (6)
a-ε (1)	a-ɔ (1)	ε-a (1)	ɔ-a (2)
---		---	

'i' Combinations (27)

<u>First Syllable</u>		<u>Second Syllable</u>	
---	--- (0)	---	--- (0)
i-e (2)	--- (0)	e-i (3)	o-i (3)
---	--- (0)	ε-i (3)	ɔ-i (2)
i-a (9)		a-i (5)	

'u' Combinations (25)

<u>First Syllable</u>		<u>Second Syllable</u>	
---	---	---	---
---	u-o (2)	e-u (2)	o-u (3)
---	u-ɔ (1)	ε-u (1)	ɔ-u (6)
u-a (7)		a-u (3)	

'o' Combinations (18)

<u>First Syllable</u>		<u>Second Syllable</u>	
o-i (3)	o-u (3)	---	u-o (2)
o-e (2)	---	---	---
---	---	---	---
o-a (6)		a-o (2)	

'e' Combinations (15)

<u>First Syllable</u>		<u>Second Syllable</u>	
e-i (3)	--- (0)	i-e (2)	--- (0)
---	--- (0)	---	o-e (2)
--- (0)	--- (0)	--- (0)	o-e (1)
e-a (5)		a-e (2)	

'o' Combinations (13)

<u>First Syllable</u>		<u>Second Syllable</u>	
o-i (2)	o-u (6)	--- (0)	u-o (1)
--- (0)	--- (0)	--- (0)	--- (0)
o-e (1)	---	--- (0)	---
o-a (2)		a-o (1)	

'ε' Combinations (5)

<u>First Syllable</u>		<u>Second Syllable</u>
ε-i (3)	ε-u (1)	
--- (0)	--- (0)	NONE
---	--- (0)	
ε-a (1)		

It is clear from the data above that like vowel sequences were overwhelmingly preferred in *SWM. Combinations of non-like vowels with */a/ were the second most frequently occurring followed by combinations with */i/, */u/, */o/, */e/, */ɔ/ and */ε/ in that order.

Although all sequences of like vowels can and do occur, this is not true of non-like vowel sequences. Let us now turn our attention to non-like vowels in an attempt to uncover the generalizations which

obtain in the morpheme structure conditions on such sequences. In (54) below we present a diagram of all possible vowel combinations in *SWM according to our data. Highly tentative reconstructions were not used in the figuring. The vowels in the left column represent vowels occurring in the first syllable of a given vowel sequence. The vowels on the right which are not blocked in are those vowels which may occur in sequence with the vowel in the left column. Vowels in the right column which may not occur in sequence with the vowel on the left have a minus sign before them and are blocked in.

The facts in (54) lead us to postulate the following five constraints on vowel sequences in *SWM.

(53) Non-Like Vowel Sequence Constraints in *SWM

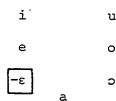
1. */ɛ/ cannot occur as the second V of any non-like V sequence.
2. */i/, */e/ ([-low] front V's) cannot occur before [+round] V's.
3. */u/ can only occur before [+back] V's.
4. High mid vowels cannot occur with low mid vowels.
5. Low mid vowels cannot occur before any other (non-like) mid V.

Understanding the constraints on such sequences may help in establishing what would otherwise be highly tentative reconstructions. For example, 50. 'fix' was tentatively reconstructed as either *kpatɛ or *kpɛtɛ. Since it is fairly conclusive that *SWM permitted no [a-ɛ] sequences, however, we may now suggest *kpɛtɛ with more assurance than before.

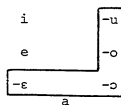
(54) If the First V is:

The Second V will/will not be:

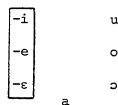
*/a/



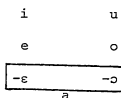
*/i/, */e/



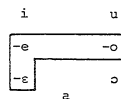
*/u/



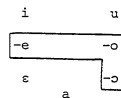
*/o/



*/ɔ/



*/ε/



2.3. *SWM Tones

Accurate tonal data are available only for Kpelle, Loma, and Mende. Unpublished notes on Bandi by Welmers suggest, however, that there is virtually no difference between Bandi and Mende in lexical tones.

Kpelle has three tone levels, and in disyllabic lexical items shows four inherited sequences, realized as high-high, mid-mid, high-low, and mid-fall (the last of which could, morphotonemically, be interpreted as mid-low). Of these, the first two sequences are far more common than the third and fourth. A fifth sequence, low-low, appears as a lexical tone only with obvious or apparent loan-words; it also appears as a replacement for any stem tone in certain grammatical constructions. High tone with monosyllables may be equated with disyllabic high-high; mid tone with monosyllables may be equated with mid-mid; there is no monosyllable with a high-low sequence in the data, and there is no monosyllabic parallel to mid-fall in the language.

Loma has two tones, high and low. Dwyer (1973) has outlined a remarkable tonal inversion in the history of Loma, along with later changes that have partially obscured it in some contexts. As a result of these unusual developments, Loma has only high tones in the vast majority of citation forms of lexical items; only thirteen Loma forms in our data contain a low tone, and these do not enter into any regular tonal correspondences. Low tones are common in context, however, as a result of morphotonemic alternations. We do not have the morphotonemic classes of Loma forms, which would be more relevant to comparative reconstruction, but which would not be expected to alter our results.

Mende also has two tones, high and low. In context, Mende also

shows a downstep in a terraced-level system, but this is not significant at the lexical level. Mende also has, however, a falling tone, which may be interpreted as a high-low sequence. In addition, Mende has a morphotoneme described as "polarizing" (symbolized by \sim in the data), which appears after low in disyllabic forms; this may be equated with high for our purposes. The lexical tone sequences in Mende are, then: high-high, low-high, high-low, and low-fall; the first two are far commoner than the third and fourth. We will compare such tonal sequences among the languages, rather than single tones in each possible position in a form.

Out of 139 correspondences in which at least two of the three languages appear to show cognation, there are 46 cases in which the tones high-high (or single high in monosyllables) appear in all three languages, and 8 more in which two of the three languages have high-high, while the third has a non-cognate form. This correspondence, obviously, must be reconstructed as *high-high. A few typical examples are:

	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>
14. break (in two)	ɣále	gále	ngále
67. house	péré	pélé	pélé
90. moon, month	ɣálóŋ	gáló	ngálu

There are fifty cases of a correspondence mid-mid : high-high : low-high, and 11 more in which such a correspondence is attested in two of the three languages, while the third has a non-cognate form. The chosen reconstruction for this correspondence is *low-high. A major reason for this choice, as opposed to *low-low, is the nature of allotonic and morphotonemic alternations in Kpelle. Kpelle mid-mid triggers an

alternation of low-low to high-low in a following word, and the final mid is higher (if not tonemically high) before mid in a following word in Southwestern dialects; in Northeastern dialects, final mid remains mid, but a following mid is slightly raised. Kpelle mid-mid, therefore, shows strong evidence, by internal reconstruction alone, of having originally ended with high. A few typical examples of this correspondence are:

	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>
6. beg	fɛli	fɛlí	fɛlĩ
34. crouch	pɛɛ	péé	pèlě
60. hear	meni	méní	mènĩ

Ten items show the correspondence high-low : high-high : high-low, and two more in this set are attested for two of the three languages. The reconstruction is *high-low. Typical examples are:

	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>
3. back	pólù	púlú	póô(-ma)
40. dog	ɣílà	gílé	ɣgílà
87. measure	kɔ̀ɔ̀ŋ	kɔ́ɔ́	kɔ̀ɔ̀

Six items show the correspondence mid-fall : high-high : low-fall. The reconstruction is *low-fall (i.e., *low - high-low). Typical examples are:

	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>
52. forest	wolâ	góíá	ɣgòlâ
71. kidney	tɔlf	tóólú	tòlũ
105. pestle	ɣenê	ɣété	ɣgètê

The foregoing demonstrates that two tone levels, high and low, can be reconstructed for *SWM, with the disyllabic sequences *H-H, *L-H, *H-L, and *L-F, the first two far commoner than the last two.

There remains a residue of some thirty-four tonal mismatches of various types, including the thirteen cases in which the Loma form contains a low tone. These mismatches show no particular pattern. In seven cases, a reconstruction is possible on the basis of regular correspondences between Kpelle and Mende, though Loma irregularly has L-H in two of these, H-L in two, and L-L (or L) in three. In nine cases, Kpelle and Loma H-H (or H) is not matched by the expected H-H in Mende; but Mende has L-H in four of these, H-L in three, and L-F in two. In three cases, M-M in Kpelle parallels H-H in Loma and Mende. A number of other matchings are attested by only one item each. Explanations of these mismatches cannot be proposed item by item. The following possibilities may explain some of them:

- 1) The data available to us may, in some cases, represent a morphonemic alternant rather than the underlying form.
- 2) There are probably a few cases of false cognation.
- 3) There may be some instances of unexpected tonal correspondences correlating with aberrant initial consonant correspondences.
- 4) In a few cases, there may have been errors in transcription, copying, or typing.

Even if all of these factors could be satisfactorily eliminated, there would almost surely be a small residue of unexplainable irregularities. In all probability, these would have to be attributed to spo-

radic irregular changes in one language or another, somewhat comparable to sporadic occurrences of phenomena such as metathesis in the segmental phonology.

Table 74 - Proto-Southwestern Mande Phonological System

<u>Initial</u>			
<u>Consonants</u>		<u>Vowels</u>	
*t	*k	*kp	
*b	*d	*y	*g
*f	*s		
*m	*n	*ny?	*ŋ

<u>Medial</u>			
<u>Consonants</u>		<u>Vowels</u>	
*t		*i	*u
*b?	*g	*e	*o
*m	*n	*ɛ	*ɔ
	*l		*a
	*r		

<u>Final</u>			
<u>Consonants</u>		<u>Vowels</u>	
		*i	*u
*ŋ		*e	*o
		*ɛ	*ɔ
			*a

Tones: *High, *Low

Tonal Sequences: *HH, *LH, *HL, *LFall

Table 75 - Reconstructed Word List - Proto-Southwestern Mande

1. 'animal' : *sùá	26. 'child' : *dón
2. 'ashes' : *dùgú	27. 'climb, raise' : *tɛ
3. 'back' : *pólù	28. 'cloth' : *sègɛ
4. 'lower back' : *góbɛ	29. 'come' : *pa (?)
5. 'bee' : *kómɪŋ?	30. 'companion' : *bàrà
6. 'beg' : *fɛlí?	31. 'cook' (vb) : *gílí
7. 'belly' : *kòó	32. 'count' : *do_o
8. 'between' : *dùá, *dòá?	33. 'cow' : ?
9. 'bird' : *ŋɔní	34. 'crouch' : *pɛlɛ
10. 'bitter' : *ŋona? (‘‘?)	35. 'cut' : *tɛgɛ
11. 'blood' : *ŋámá	36. 'day, sun' : *fóló
12. 'boil' : *nɛŋ	37. 'descend' : *yɛŋ
13. 'box' : *kàŋá	38. 'die' : *sàá
14. 'break' : *gálɛ	39. 'do' : *kɛ
(in two)	40. 'dog' : *gílà
15. 'break' : *góló	41. 'drop' : *tòó
(shatter)	42. 'eat' : *mìí
16. 'breast' : *ŋíní	43. 'egg' : *gálón
17. 'brother, sis': *díá	44. 'elephant' : *sɛlɛ
(older)	45. 'evil' : *nyómú
18. 'brother, sis': *dégɛ	46. 'fast' : *sún
(younger)	47. 'feed' : *kó
19. 'buy' : *gɛá	48. 'fire' : *ŋɔŋ-(mbú)
20. 'call' : *tólí	49. 'five' : *dóólú
21. 'canoe' : *kélɛŋ?	50. 'fix' : *kpɛtɛ
22. 'catch' : *sòún	
23. 'chaff' : *kálá	
24. 'cheek' : *kómá	
25. 'chief' : *masa?	

51. 'foot'	: *kó <u>g</u> ó	76. 'leaf'	: *dá <u>g</u> á
52. 'forest'	: *gò <u>l</u> â	77. 'leopard'	: *kò <u>l</u> í
53. 'four'	: *ná <u>á</u> nì	78. 'lay'	: *dá
54. 'go'	: *d <u>í</u>	79. 'life, breath'	: *d <u>é</u> gu
55. 'goat'	: *bò <u>l</u> í	80. 'log'	: *kò <u>g</u> ó
56. 'God'	: *gá <u>l</u> à	81. 'long, far'	: *kò <u>ó</u> à
57. 'hand'	: *yé <u>á</u>	82. 'loosen'	: *fú <u>l</u> ó <u>ŋ</u>
58. 'hang'	: *se <u>l</u> ε	83. 'louse'	: *gà <u>g</u> ú?
59. 'head'	: *ŋ <u>ú</u> ŋ	84. 'man'	: *k <u>é</u> nà?
60. 'hear'	: *m <u>è</u> ní	85. 'market'	: *dò <u>g</u> ó?
61. 'liver'	: *dí <u>í</u>	86. 'mature' (vb)	: *kpà <u>l</u> á?
62. 'help'	: *kpó <u>ŋ</u>	87. 'measure'	: *kò <u>ó</u> ŋ?
63. 'hide'	: *d <u>o</u> gu	88. 'medicine'	: *sá <u>l</u> é
64. 'hill'	: *g <u>í</u> é?	89. 'monkey'	: *kò <u>l</u> á, *kuà <u>l</u> á
65. 'hoe'	: *ká <u>l</u> ì	90. 'moon, month'	: *gá <u>l</u> ó <u>ŋ</u>
66. 'hole'	: *dó <u>á</u>	91. 'mother'	: *d <u>é</u> é
67. 'house'	: *p <u>é</u> r <u>é</u>	92. 'mouth'	: *dá
68. 'inside'	: *su	93. 'neck'	: *kò <u>ŋ</u> ?
69. 'intestines'	: *p <u>u</u> ru?	94. 'nest'	: *tà <u>g</u> á
70. 'iron'	: *kò <u>l</u> ú	95. 'new'	: *n <u>í</u> ná
71. 'kidney'	: *tò <u>l</u> ú	96. 'night'	: *kp <u>í</u> ndi
72. 'kill'	: *pà <u>á</u>	97. 'nine'	: *tá <u>á</u> <u>ú</u>
73. 'knife'	: *bó <u>g</u> á	98. 'odor'	: *ku
74. 'know'	: *k <u>ó</u> l <u>ó</u> ŋ	99. 'oil'	: *gú <u>l</u> ó
75. 'laugh'	: *g <u>é</u> l <u>é</u>	100. 'one'	: *g <u>í</u> l <u>á</u> ?

101. 'palm nut, tree' :	*t <u>óú</u>	126. 'spider' :	*s <u>ìí</u> ?
102. 'pass' :	*t <u>è_é</u>	127. 'split' :	*b <u>é</u> l <u>á</u>
103. 'path' :	*p <u>èr</u> é	128. 'steal' :	*n <u>ú</u> m <u>á</u>
104. 'person' :	*n <u>ú</u> m <u>ú</u>	129. 'stone' :	*k <u>ò</u> t <u>ú</u>
105. 'pestle' :	*n <u>è</u> t <u>è</u>	130. 'take, pick up' :	*s <u>ì</u> g <u>é</u>
106. 'plant' (vb) :	*s <u>i</u>	131. 'take out' :	*k <u>ù</u> l <u>á</u> ?
107. 'pot' :	*d <u>è</u> g <u>í</u> ?	132. 'ten' :	*p <u>ù</u> ú
108. 'proverb' :	*s <u>á</u>	133. 'thing' :	*_a <u>n</u> í
109. 'raffia' :	*d <u>u</u> _u?	134. 'think, mind' :	*k <u>í</u> l <u>í</u>
110. 'rat' :	*n <u>í</u> n <u>á</u>	135. 'thorn' :	*n <u>à</u> l <u>í</u> n
111. 'reach, arrive' :	*s <u>ì</u> t <u>í</u> ?	136. 'three' :	*s <u>à</u> a <u>b</u> á
112. 'rice' :	*m <u>ò</u> l <u>ó</u> n?	137. 'throw' :	*p <u>i</u> l <u>i</u>
113. 'rice' (cooked) :	*b <u>a</u> g <u>a</u> ?	138. 'tie' :	*g <u>í</u> r <u>í</u>
114. 'rope, vine' :	*g <u>à</u> l <u>ú</u> ?	139. 'time' (period) :	*k <u>u</u> _u
115. 'salt' :	*k <u>p</u> òl <u>ó</u>	140. 'today' :	*s <u>à</u> á
116. 'sand' :	*n <u>è</u> n <u>y</u> á?	141. 'tomorrow' :	*_í <u>n</u> á
117. 'say' :	*b <u>ó</u> ?	142. 'tongue' :	*n <u>é</u> n
118. 'sheep' :	*b <u>á</u> l <u>á</u>	143. 'town' :	*t <u>à</u> á
119. 'show' :	*d <u>é</u> ?	144. 'tree' :	*g <u>ú</u> r <u>ú</u>
120. 'sit, set' :	*s <u>è</u> í	145. 'two' :	*f <u>è</u> r <u>é</u>
121. 'skin, book' :	*k <u>ò</u> l <u>ó</u>	146. 'vein' :	*_a <u>t</u> á
122. 'sleep' :	*n <u>y</u> í <u>í</u>	147. 'voice' :	*g <u>ó</u>
123. 'small' :	*k <u>ú</u> r <u>ò</u>	148. 'wash' :	*g <u>u</u> a
124. 'snake' :	*k <u>à</u> l <u>í</u>	149. 'water' :	*y <u>ì</u> á
125. 'snake' (black) :	*g <u>ù</u> r <u>ù</u> n?	150. 'wine' :	*d <u>ò</u> ó

151. 'witness'	: * <u>s</u> é <u>r</u> ì	161. 'sweet'	: *nèé
152. 'worm'	: *kp <u>e</u> lí	162. 'black'	: *tèlí
153. 'yam'	: *gau?	163. 'white'	: *kò <u>l</u> é
154. 'year'	: *kó <u>a</u> ŋ?	164. 'give'	: *fé
155. 'tribe'	: * <u>s</u> ii?	165. 'bridge'	: *kpá <u>o</u>
156. 'men'	: * <u>s</u> ina?	166. 'drink'	: *kpò <u>l</u> é
157. 'walk'	: * <u>s</u> ìá	167. 'farm'	: *kpalaŋ
158. 'tail'	: *g <u>o</u>	168. 'pour'	: *pú?
159. 'again'	: *ŋono?	169. 'there'	: *na?
160. 'falsehood'	: * <u>d</u> éé		

Key: s : underscoring reflects tentative reconstruction of a segment.

? : indicates that the reconstruction is from less than all four languages.

 : underscoring with no segment reflects the existence of a segment historically but our inability to reconstruct it, even tentatively

Section IV

Comparative Reconstruction of Proto-Northern-Western Mande

1. Reconstructing Northern-Western Mande

In this chapter *NM and *SWM are stirred together to reconstruct *NWM. NM languages and SWM languages share an average of about 35% cognation. As will be discussed in more detail below, *NWM's homeland was probably located in Southeastern Mali and Southwestern Upper Volta. *SWM broke from this homeland (perhaps about 2,500 years ago) and migrated Southward into what are now Guinea and Liberia, where its daughter languages are still located today (as well as in Sierra Leone).

1.1. NWM Consonants. The following tables are given as evidence for the reconstruction of the *NWM consonantal system.

Table 76 - Initial Consonants

<u>Labials</u>	<u>*NM</u>	<u>*SWM</u>
*/b/ (*b *b)		
104. 'goat'	*ba?	*bòlí
*/p/ (*f *p)		
67. 'come'	*fa? (*A)	*pá
81. 'kill'	*faga?	*páá
110. 'throw'	*fili?	*pili
114. 'ten'	*fu? (*A)	*puú
*/m/ (*m *m)		
75. 'hear'	*men	*mèní
80. 'drink'	*min	--- (*SEM *min)

Labials*NM*SWM

*/ɸ/ (*f *ɸ)

3. 'two'

*fera*fèréDentals

*/ð/ (*d *ð)

18. 'mouth'

*da

*dá

47. 'leaf'

*dia? (*B)

*dágá

*/t/ (*t *t)

82. 'cut'

*tige*tégé

*/n/ (*n *n)

5. 'four'

*nani(n)

*náni

20. 'tongue'

*nɛn(di)/*lɛn

*néŋ

61. 'new'

*na? (*B)

*nìná

*/s/ (*s *s)

4. 'three'

*sabga*sàabá

68. 'sit'

*sigi? (*C-M)

*sèíPalatals

*/y/ (*y *y)

34. 'water'

*yi

*yìáVelars

*/g/ (*g *ŋ) before nasal consonants

26. 'breast'

*gìn?*ŋìní

<u>Velars</u>	<u>*NM</u>	<u>*SWM</u>
44. 'sand'	*kɛnyɛ (n) (*C-M)	*ɲɛ́nyá?
52. 'bird'	*gondi	*ɲɔ́ní
13. 'head'	*gun	*ɲúŋ?

(*g *g) elsewhere

40. 'moon'	*kalo? (*C-M)	*gáloŋ
51. 'egg'	*gali?	*gáloŋ
76. 'wash'	*go	*gùá
109. 'tail'	*gulu?	*gó?
111. 'tie'	*giri	*gírí
112. 'voice'	*gu(ri)?	*gó

*/k/ (*k *k)

8. 'man'	*kani?	*kénà?
54. 'snake'	*kala?	*kálí
105. 'know'	*kolon	*kólóŋ
106. 'leopard'	*koli?	*kólí

Labio-Velars

No examples.

Table 77 - Medial Consonants

<u>Labials</u>	<u>*NM</u>	<u>*SWM</u>
No examples.		

<u>Dentals</u>	<u>*NM</u>	<u>*SWM</u>
*/n/ (*n *n)		
5. 'four'	*nani(n)	*nááni
8. 'man'	*kani?	*kénà?
26. 'breast'	*gín?	*ṛíní
27. 'belly'	*kón(o)?	*kòó
61. 'new'?	*na? (*B)	*nìná
75. 'hear'	*mèn	*mèní

Resonants

*/l/ (*l *l)		
6. 'five'	*so(o)lu	*dóólù
40. 'moon'	*kalo (*C-M)	*gálóṛ
51. 'egg'	*gáli?	*gálóṛ
54. 'snake'	*kala?	*kálí
105. 'know'	*kolon	*kólóṛ
106. 'leopard'	*koli?	*kólí
110. 'throw'	*fili	*pili

(Ø *l) or (*l Ø)

104. 'goat'	*ba	*bòlí
109. 'tail'	*kulu	*gó?

*/r/ (*r *r) or (*r Ø)

3. 'two'	*f _{era}	*fèré
57. 'small'?	*gurun? (*A)	*kúró
46. 'tree'	*wuru (Susu)	*gúru

<u>Resonants</u>	<u>*NM</u>	<u>*SWM</u>
111. 'tie'	*giri	*gìrǐ
112. 'voice'	*gu(ri)?	*gó

Palatals

*/ny/ (*ny *ny)

44. 'sand'	*kenye(n)? (*C-M)	*ḡénya?
------------	-------------------	---------

Velars

*/g/ (*g *g) or (*g Ø)

68. 'sit'	*sigi? (*C-M)	*seí
81. 'kill'	*faga?	*páá
82. 'cut'	*tíge	*tége

Table 78 - Final Consonants

<u>Dentals</u>	<u>*NM</u>	<u>*SWM</u>
*/n/ (*n *ŋ) or (Ø *ŋ)		
10. 'child'	*dín	*dóŋ
13. 'head'	*gun	*ḡúŋ
20. 'tongue'	*nen/*len	*néŋ
21. 'neck'	*kón?	*kǒŋ?
40. 'moon'	*kalo? (*C-M)	*gálóŋ
51. 'egg'	*gáli?	*gálóŋ
105. 'know'	*kolón	*kólóŋ

1.1.1. Discussion of *NWM Consonant Irregularities. The discussion below will focus not only upon irregularities in each series, but also on whatever evidence is available for the reconstruction of each parti-

cular segment.

1.1.1.1. Labials. Of the labial series only */p/ is strongly reconstructable on the basis of the 114 word list alone, but */b/, */m/ and */f/ each gain additional support from the supplementary word lists in section 1.3.. Correspondences from the two lists total two for */b/, five for */m/, two for */f/ and four for */p/ in initial position. Word medially there is no strong evidence for the reconstruction of medial consonants.

There are only two possible irregularities in the labial series.

4. 'three': *sagba, *sàabá shows a [*gb:*b] matching in medial position, the only matching of its kind in the data. *SEM is non-cognate but Sya shows [sagba] as well. Although there are no other correspondences to support such a reconstruction, a tentative */gb/ is suggested since the change from */gb/ to [b] is a more natural one than from */b/ to [gb]. Also, although it cannot be demonstrated with regular sound correspondences in these data, a labio-velar is suggested for medial position by both *NM and *SWM.

78. 'give': *bele, *fé does not appear to be cognate and therefore no reconstruction is suggested here.

1.1.1.2. Dentals. The dentals */d/, */t/, */n/ and */s/ are all reconstructable for *NWM in initial position. A total of eight items from both lists are reconstructable with */d/, three with */t/, three with */n/ and two with */s/.

*/n/ is a sure reconstruction medially. Of the other three segments only */s/ shows a possible matching in the word for 'chief': *masa?,

mansa-ke (B).

There are a number of irregularities in the dental series.

One particularly odd correspondence shows an [*s:d] correlation in 6. 'five': *so(o)lu, *dóólù; 69. 'lie': *sa, *dá and 107. 'life': *si?, *degu. The latter match-up is probably non-cognate, although the forms for 'five' and 'lie' may well be cognate sets. There is evidence for SEM that 'five' is reconstructable with */s/. The reader is referred to section II, subsection 6.1.1.1. for a full discussion of this correspondence in the reconstruction of *C-M. For 'lie,' no such evidence exists, and both forms are therefore listed in the reconstructed word list as possibilities until further evidence eliminates one or the other.

71. 'die': *faga, *sàá; 103. 'go': *taa? (*C-M), *dĩ and 113. 'walk' *tarama?, *słá are very likely all non-cognate with [*f:s], [*t:d], and [*t:s] matchings respectively.

In medial position there is only one irregular item.

52. 'bird': *gondi, *ṅóní are sure cognates which should probably be reconstructed with a medial consonant cluster. There is no evidence for a prenasal stop in the NWM languages historically and this minor bit of evidence is not cause for such a consideration. A tentative *gondi is proposed, acknowledging */nd/ as a cluster rather than a unit phoneme of *NWM.

In final position the only reconstructable consonant is */n/, which may be reconstructed from the [*n:ŋ] correspondence. As it did for initial position, *SWM appears to have innovated */ŋ/ from */n/. Velar nasals are not generally reconstructable other than within the context of *SWM. It should be noted that Vai, in NM, has also recently inno-

a final velar nasal.

1.1.1.3. Resonants. At the *NWM level both */l/ and */r/ are reconstructable, but only in word medial (intervocalic) position. Here there are sixteen items reconstructable with medial */l/ and five with medial */r/ when comparing the two lists.

There is only one apparent irregularity in the resonant series in 2. 'one': *keren?, *gila?. These items, however, are most probably non-cognate, judging from the [*k:*g] matching as well as the [*r:*l] matching. If the items are indeed cognate, one or the other (or both) are the result of other than regular phonological changes.

1.1.1.4. Palatals. Palatals are difficult to reconstruct from these data for the *NWM level. Initially there is only one matching for */y/ in 'water' and medially only one for */ny/ in 'sand'.

There is one further bit of evidence for */y/, however. *C-M in NM shows *je for 'see'. *SEM has *ye. Although the *SWM form is not cognate, it may be concluded that it, and not *NM, was the innovator. 'See,' then, is reconstructable for *NWM as *ye, as it is for *Mande as a whole.

1.1.1.5. Velars. Both */g/ and */k/ are reconstructable in initial position.

*/g/ has fifteen correspondences in initial position and */k/ has seven in combined lists. The most interesting development in this series is of course the four examples of the change from */g/ to */q/ initially in *SWM before medial nasal consonants.

In medial position, only */g/ is reconstructable, showing seven

correspondences in the combined lists.

Other than 'one,' which was claimed to be non-cognate above, there is only one irregularity in the velar series in 57. 'small': *guru(n)? (*A), *kúró. Everything appears regular about this pair except the [*g:*k] matching. Perhaps this is a case in which *A changed */k/ to [x], merging it with reflexes of */g/ in this one item. A */k/ is very tentatively suggested.

1.1.1.6. Labio-Velars. Labio-velars are not reconstructable from regular sound correspondences in *NWM in these data.

23. 'foot': *gbo? (*B), *kógó; 29. 'skin': *gbolo?, *kòlól and 59. 'white': *gbɛ?, *kòlé may all be non-cognate with [*gb:*k] correspondences. 'White' is more certainly non-cognate than 'foot' or 'skin'. All of NM, with the exception of Group B, shows either [sɛn] or [kɛn] for 'foot'. SEM, however, is apparently cognate with the labio-velar form (as in B and SWM) or, perhaps, with both forms. Busa has [gba] and Bisa [gan] in EM, whereas [kpɛ-la] shows up in Gban of SM. Dã and We, from SM, show [gẽ], much like [kɛn], and others show [gan] or the like. It does seem unusual, however, that this apparently voiced labio-velar (or velar) shows up as voiceless in *SWM.

There is also some support for considering the forms for 'skin' as cognate. NM forms include [golo], [gbolo] and [kpolo]. The former, at least, is strikingly similar to *SWM *kòlól, especially considering the raising of */ɔ/ to */o/ in *NM in similar environments. Everything is accounted for but the voicelessness of */k/ in *SWM. This remains highly speculative. (It may or may not be significant that the Yoruba word for 'bark' (of a tree), a word semantically close to 'skin,' is [è̀̀kpo],

once again with a labio-velar, which, on the outside, might represent *Niger-Congo stock. Since the language groups are so distant, however, this remains purely a point of interest.)

These bits of information, though far from being conclusive, are at least suggestive of the possibility that *NWM */gb/ merged with */k/ in *SWM and that */gb/ is reconstructable from the data above. Although there is not enough data to determine for *A (NM), it has been shown that */kp/ is reconstructable for both *B and *SWM. This is strongly suggestive of the possibility that */kp/ also existed in *NWM, although it is lost in most of NM. Only *B in NM can reconstruct both */kp/ and */gb/ from the available data. The speculation here is that this represents the original state of affairs. *SWM merged */gb/ with */k/. The two original phonemes are retained in *B. Houis [1963] presents /gb/ as a phoneme of Susu but not /kp/. The /kp/ shown by Welmers [1976] to exist in Vai corresponds to /gb/ in Kono and has developed as a result of devoicing of */gb/ in *C rather than being gained through inheritance. The loss of */kp/ in *A and in *C-M, and its retention in *B is once again suggestive of the fact that *A and *B must have broken from the *NM stock at about the same time. *B retains both phonemes, the rest of *NM lost */kp/ and *SWM merged */gb/ with */k/. Thus the appearance of */kp/ in *SWM and */gb/ in *NM with no cognation between words with these segments. It might also be noted that whatever the situation with labio-velars in *NWM, they were very infrequently used relative to, for example, velars and dentals, and therefore were easily lost or merged with other phonemes.

36. 'salt': *kogo?, *kpòló appears to be non-cognate.

4. 'three': *sagba, *saaba', however, does appear to be cognate. This item was discussed in subsection 1.1.1.1. and tentatively reconstructed with medial */gb/.

1.2. NWM Vowels. Although the evidence is not as extensive as is desirable, there is enough data to suggest that the *NWM system was the same as the *NM and *SWM systems, as would be expected since these latter two are the same. The data from the 114 word list follows.

Table 79 - Medial Vowels

<u>Front</u>	<u>*NM</u>	<u>*SWM</u>
*/i/ (*i *i)		
26. 'breast'	*gin?	*gíní
34. 'water'	*yi	*yíá
110. 'throw'	*fili?	*pili
111. 'tie'	*giri	*gírí
*/e/ (*e *e)		
3. 'two'	*f <u>era</u>	*f <u>èré</u>
78. 'give'?	*bele	*fé
*/ɛ/ (*ɛ *ɛ)		
20. 'tongue'	*nen(di)/*len	*néŋ
44. 'sand'	*kenye(n) (*C-M)	*n <u>ènyá</u> ?
75. 'hear'	*men	*mèní

<u>Central</u>	<u>*NM</u>	<u>*SWM</u>
* /a/ (*a *a)		
4. 'three'	*sagba	*sàabá
5. 'four'	*nani (n)	*náánì
40. 'moon'	*kalo? (*C-M)	*gálóŋ
51. 'egg'	*gali?	*gálóŋ
54. 'snake'	*kala?	*kàlí
81. 'kill'	*faga?	*pàá

Back

* /u/ (*u *u)		
13. 'head'	*gun?	*ŋǔŋ
46. 'tree'?	wuru (Susu)	*gúrú
57. 'small'?	*guru (n) (*A)	*kúrò
* /o/ (*o *o)		
27. 'belly'	*kón(o)?	*kòó
40. 'moon'	*kalo? (*C-M)	*gálóŋ
* /ɔ/ (*ɔ *ɔ)		
21. 'neck'	*kɔn?	*kǒŋ?
52. 'bird'	*gondi	*ŋòní

Table 80 - Final Vowels

<u>Front</u>	<u>*NM</u>	<u>*SWM</u>
* /i/ (*i *i)		
5. 'four'	*nani (n)	*náánì

<u>Front</u>	<u>*NM</u>	<u>*SWM</u>
52. 'bird'	*g <u>ondi</u>	*ḡoní
68. 'sit'	*sigi? (*C-M)	*seí
70. 'sleep'	*gi(nogo)	*nyíí
110. 'throw'	*fili?	*pili
111. 'tie'	*giri	*gírí

*e/, */ɛ/ No examples.

Central

*/a/ (*a *a)		
4. 'three'	*sag <u>ba</u>	*sàabá
18. 'mouth'	*da	*dá
47. 'leaf'?	*dia? (*B)	*dágá
67. 'come'	*fa? (*A)	*pá
81. 'kill'	*fag <u>a</u> ?	*pàá

Back

*/u/ (*u *u)		
6. 'five'	*s <u>o</u> (o)lu	*dóólù
46. 'tree'?	*wuru (Susu)	*gúrú
114. 'ten'	*fu?	*pùú

*/o/ (*o *o)		
27. 'belly'	*k <u>on</u> (o)?	*kòó

*ɔ/ No examples.

1.2.1. Discussion of *NWM Vowel Irregularities. The data in the following chart is at least suggestive of a back vowel raising tendency in *NM between a velar and a resonant consonant. It is difficult to say for certain whether this change represents raising in *NM or lowering in *SWM. The only evidence from outside NWM is from the word for 'tail' which, like *SWM, shows up as [wori] or [won] in some SM languages. The corresponding *NM form is *gulu, with */u/ rather than */o/. Consider the data below.

(55)	<u>*NM</u>	<u>*SWM</u>	
109. 'tail'	* <u>gulu</u>	*gó <u> </u>	} *o ----> *u
112. 'voice'	*guri	*gó	
'forest'	wula (Bambara)	*gòlâ	
115. 'know'	* <u>kolon</u>	*kólóŋ	} *o ----> *o
106. 'leopard'	*koli	*kólí	
29. 'skin'?	* <u>gbolo</u>	*kolo	

This change is much like Loma Raising, albeit conditioned by very different factors and limited to the back vowels, as far as can be determined from these data. It is interesting to note that in just those cases of like vowel sequences, the entire sequence undergoes raising rather than just the first vowel, as in 'tail,' 'know,' and, if cognate, 'skin'. This is further testimony to the importance of vowel sequences in the Mande languages, since change affects the entire sequence in these cases rather than isolated vowels.

1.2.1.1. Front Vowels. */i/, */e/ and */ɛ/ are reconstructable for

*NWM, though the evidence for */e/ and */ε/ is weaker than for */i/. There are five correspondences in the combined lists supporting */i/ in medial position and six in final. */e/ is not reconstructable from these data in final position and shows only two correspondences in medial position. */ε/ is reconstructable from four correspondences in medial position and two word finally, including the evidence from the Additional Word List. Here, as in *SWM, */ε/ only appears in final position if it is in a monosyllable or is preceded by another */ε/ in a like vowel sequence.

There are two irregularities in matchings involving */i/.

2. 'one': *keren?, *gila? is very likely non-cognate judging from the [*k:g], [*r:l] and dissimilar vowel matchings. If these are indeed cognate, one or both have undergone some irregular sound changes and the form cannot be reconstructed without further information.

68. 'sit': *sigi? (*C-M), *seí appears to be cognate. It is most likely that *NM assimilated */e/ to final */i/. A */e/ will be reconstructed for the medial vowel.

82. 'cut': *tigs, *téǵé is probably due to assimilation in *SWM of medial */i/ to a final mid vowel. Final */ε/ in *NM is suspicious because of the constraints in *SWM which disallows a final */ε/ in non-like vowel sequences. At the risk of circular argumentation, an */e/ should be reconstructed in *NWM when there is doubt of this kind. A vowel lowering from */e/ to */ε/ in *NM then accounts for the *NM form *tigs. Whether */ε/ occurred as the second vowel in a non-like vowel sequence in *NWM cannot be clearly ascertained from these data. It is clear, however, that its occurrence there must have been extremely in-

frequent if it occurred there at all.

*/e/ shows one irregularity in medial position and one in final, the latter of which was just discussed above for 'cut'.

68. 'sit': *sigi? (*C-M), *sèí appears to be cognate. It is most probable that *NM assimilated medial */e/ to final */i/. A tentative */e/ is suggested in reconstructing *segi.

*/ε/ shows no irregularities in these data.

1.2.1.2. Central Vowels. */a/ is reconstructable from ten correspondences in medial position and eight in final position. There are only two irregularities, both in final position.

44. 'sand': *kenye(n)? (*C-M), *ḡenyá? is very likely a case of assimilation in *NM from */a/ finally to */ε/. A tentative */a/ will be reconstructed.

3. 'two': *f_{era}, *f_{éré}. It is probable that the *NM form represents the reconstructable final vowel. Final */e/ in *SWM may be attributed to assimilation.

1.2.1.3. Back Vowels. */u/, */o/ and */ɔ/ are reconstructable for *NWM. There are three correspondences in the combined lists supporting */u/ in medial position and three for final position. */o/ shows three for medial and one for final. If the examples of raising are included, the totals for */o/ are increased to six medially and two finally. */ɔ/ is reconstructable from four correspondences medially and two finally. With the raising examples once again included, the totals are boosted to eight and three respectively.

*/u/ shows one irregularity in the data.

76. 'wash': *go, *gua is tentatively reconstructed with */u/ since the */o/ reconstruction in *NM is tentative. (Incidentally, Akan, a Kwa language, shows [guar] for 'wash'.)

*/o/ has two irregularities.

51. 'egg': gali?, *gálon is an odd case. The second vowel in the sequence is tentative in both *NM and *SWM. It is tentative in *NM because the western-most Mandekan languages show [o] or [ɔ], whereas the others show mostly [i] as do Groups C and B. A shows [ɛ]. *SWM is tentative because Loma shows [i], but the rest show [o]. The reconstruction, needless to say, is extremely confusing and a good case could be made for either */i/ or */o/. Both *galon and *galin will be tentatively listed in the reconstructed word list.

57. 'small': guru(n)? (*A), *kúro may not be cognate. If they are, my guess is that *kuro represents the parent form and that *A assimilated final */o/ to medial */u/.

*/ɔ/ shows a few irregularities worth considering.

23. 'foot': *gbo? (*B), *kógó and 29. 'skin': *gbolo, *kòló may or may not be cognate, as mentioned earlier. Both forms will be listed for 'foot,' but 'skin' will be reconstructed with two */ɔ/'s since it is in the environment for the */ɔ/ to */o/ change in *NM.

1.3. Reconstructing Proto-Northern-Western Mande: Additional Evidence.

The 114 items in the list yield only 33 to 39 cognates for *NWM. This is to be expected since NM and SWM languages share no better than 40% cognation. This leaves a rather substantial cognate deficit, however, when attempting to do comparative reconstruction from so limited a list. An additional word list of some 23 cognate items has therefore been

added, raising the total to between 56 and 62 cognates. Although more data is desirable, unfortunately this is all that is presently available. The following proto-segments receive further support from these lists:

- (56) *b, *m, *f initially
 *d, *t initially *l medially
 *g, *k initially *g, *k medially

The lists below illustrate the correspondences.

Table 81 - Additional Word List - *NWM Consonant Reconstructions

<u>Labials</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>*SWM</u>	<u>Bambara</u>
*/b/					
'sheep'	ʃáálá	báálà	mbáálá	*báálá	bàgà
*/m/					
'rice'	mɔlɔŋ	móló	(mba)	*mòlɔŋ?	màlò
'chief'	----	másà	màhá	*masa?	mànsà-ke
'where'	mí	----	míí	*mí?	mín
*/f/					
'full'	-fɛ́ɛ	----	-fé	*fɛ́?	fá
<u>Dentals</u>					
*/d/					
'younger sibling'	léyè	----	ndèwè	*dege?	dógó
'count'	lónó	dódò	----	*dono?	dán

<u>Dentals</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>*SWM</u>	<u>Bambara</u>
'pot'	leyi	ḍíyí	----	*ḍíḡí?	dàgà
'wine'	loo	ḍóó	ndòó	*ḍòó	dòlò
'hide'	lóó	ḍóówú	ndòwú	*ḍogu	dògòn
'earth'	----	----	ndòólò		dùgù-kóló?

*/t/

'pass'?	tɛɛ	tévé	tèwě	*tè é	tèmè
'fall'	too	tóó	----	*tòó?	tó (abandon)

Resonants (medial)

*/l/

'lip'	----	----	nda-gulu		dá-góló
'rice'?	mɔlɔŋ	móló	----	*mòlólɔ?	màlò (spread word?)
'grass'?	kala	----	kàá	*kálá?	kálá
'monkey'	kwala	kóíá	kuàlă	*kuàlă	sùlà
'forest'	wola	góíá	ngòlă	*gòlă	wùlà
'laugh'	yéíé	ḡéé	ngéíé	*géíé	yéíé
'sing'	wule	gui	ngule	*gule	dòn-gííí

Velars

*/g/

'break'	yálé	gálé	ngálé	*gálé	kárí
'lower back'	wóbé	----	ngóvó	*gó é?	kó
'sing'	wule	gui	ngule	*gule	dòn-gííí
'yam'	yáú	----	ngàwú	*gau?	kú
'lip'	----	----	nda-gulu		dá-góló

<u>Velars</u>	<u>Kpelle</u>	<u>Loma</u>	<u>Mende</u>	<u>*SWM</u>	<u>Bambara</u>
(medial)					
'younger sibling'	léyè	----	ndèwè	*dege?	dógó
'pot'	leyi	díyí		*degí?	dàgà
'hide'	lóó	dóowú	ndòwú	*dogu	dògòn
'market'	lóó	dówó	----	*dógó?	lógó
*/k/					
'grass'?	kala	----	kàá	*kala?	kálá
'do'	ke	ké	kè	*kε	ké
'monkey'	kwalá	kóíá	kuàlǎ	*kuálá	sùlà

There is some additional information which should be brought out here concerning the reconstruction of these segments. First, */m/ is further supported in a number of items in SM and EM. Although there is no cognate for *NM *min ('drink') in *SWM, *SEM shows *min or *mini. Furthermore, the *SWM form for 'eat' reconstructs as *mǎí, suggesting semantic slippage.

Also, Busa, in EM, shows [mani] for 'where,' suggesting an */m/ for this item as well.

Finally, the word for 'ripe' in Bambara is [mò] which is matched by [mà] in Busa, both with low tone.

*/t/ likewise gains some support from *SEM, which shares *to with *NM *togo for 'name,' though the form in *SWM is non-cognate. 'Ear' is *tuló in *NM and turns up as *turu or *toro in *SEM, the *SWM form once again being non-cognate. Sya also shows [turu].

All of the vowels, with the exception of */e/ and */u/, receive some added support from these supplementary lists.

Table 82 - Additional Word List - *NWM Vowel Reconstructions

<u>Front</u>	<u>*SWM</u>	<u>Bambara</u>
*/i/		
'where'	*mi?	mín
*/e/		
No examples.		
*/ɛ/		
'laugh'	*gélé	yélé
'do'	*kɛ	ké
<u>Central</u>		
*/a/		
'grass'	*kálá?	kálá
'break'	*gále	kárí
'chief'	*masa?	mànšà-kɛ
'sheep'	*bálá	bàgà
<u>Back</u>		
*/u/		
No examples.		
*/o/		
'hide'	*dogu	dògòn

<u>Back</u>	<u>*SWM</u>	<u>Bambara</u>
'fall'	*tòó?	tó (abandon)
*/ɔ/		
'wine'	*dòó'	dòlò
'market'	*dógó?	lógó

1.4. *NWM Vowel System. The reconstruction of the *NWM vowel sequence system is based on both the 114 word list and the Additional Word List.

Table 83 - Vowel Sequences

<u>Like Vowels</u>		<u>'i' Combinations</u>	
i-i (3)	u-u (1)	---	---
---	o-o (2)	i-e (1)	---
ε-ε (1)	ɔ-ɔ (4)	---	---
	a-a (5)		i-a (2)
<u>TOTAL: (16)</u>			
<u>Other Combinations</u>		---	---
e-a (1), ε-a (1), u-a (1)		e-i (1)	o-i (2)
a-o (1), u-o (2)		ε-i (1)	ɔ-i (2)
			a-i (2)
<u>TOTAL: (6)</u>		<u>TOTAL: (11)</u>	

*NWM, like the other reconstructions leading to it, shows a preference for like vowel sequences, followed by sequences with */i/, */a/, */o/, in that order. As in *SWM, */ε/ and */ɔ/ do not occur as the final V of a non-like vowel sequence.

1.5. Systems Reconstruction. It is no secret that the task of reconstructing a proto-system becomes increasingly difficult as the languages and language groups involved become historically more distant. This difficulty is magnified when there is a shortage of data, as is the case for Mande in general. There are, however, a number of techniques which can be brought into play in attempting to establish a proto-system (or proto-segments) even when evidence is sparse or, as in some cases, almost non-existent.

The first technique frequently used in reconstruction methodology is to 'look beyond' the languages and language groups one is working with to other more distantly related languages to see what light they may shed upon a particular problem. For example, *NM can reconstruct a form *min for 'drink' but *SWM reconstructs a non-cognate *kpòlé for the same meaning. An attempt to ascertain which represents the *NWM form without further evidence would prove futile. I showed in subsection 1.3., however, that *SEM shares the *NM form, isolating *SWM as the innovator. *min may therefore be reconstructed for *NWM.

The second technique involves what I shall call 'Systems Comparison,' for lack of a better term. Systems comparison involves the comparison of two phonological systems where there are insufficient numbers of sound correspondences in specific lexemes to establish the reconstruction of a proto-segment for certain. For example, I have already shown that *NM and *SWM are related through cognate counts and so forth. There is, however, an insufficient number of correspondences from which to reconstruct each proto-segment for certain. Here I believe I am on safe ground in assuming that a given segment may be

tentatively reconstructed for *NWM if it is reconstructable for both *NM and *SWM independently. Therefore, since *NM and *SWM each reconstruct the same seven vowel system, it may be inferred that *NWM also had the same seven vowel system, even with no evidence from sound correspondences.

This technique, I believe, can be used quite safely on two conditions. First, it is most effectively used when the two systems being compared are chronologically adjacent in the family tree. Error is more likely to result in systems comparison if, for instance, *NM is matched with *EM, since they do not issue from the same parent language, even though they share common grandparents. A higher probability of error is present in this case no matter what type of comparative method is used, since a reconstruction of *Mande on the basis of *EM and *NM alone leaves out crucial stages in the process which could be hiding unnoticed sound changes. The chances of this occurring in chronologically adjacent languages are decreased.

It should be noted in this regard that dissimilar systems parented by the same proto-language are already suggestive of sound change and require sound correspondences in order to sort out the environments for (and the exact direction of) the changes in question. For example, *SWM reconstructs both */p/ and */f/, whereas *NM reconstructs only */f/. Sound correspondences are necessary, under such conditions, in order to reconstruct the history of this dissimilarity between the systems. Where the systems are in accord, however, there is very little chance that sound change has created problematic correspondences.

A different case is that of the *NWM labio-velars. There is insuf-

ficient evidence to reconstruct a labio-velar on the basis of sound correspondences alone. However, since both proto-systems reconstruct a labio-velar consonant word initially, I assume that *NWM had one as well. This assumption is the most natural one possible, since any other requires that a labio-velar was innovated independently in both *NM and *SWM. One problem remains, however, since it appears that *SWM reconstructs a voiceless */kp/ while *NM reconstructs a voiced */gb/. What cannot be determined from this data is whether there were two original labio-velars or only one and, if there was only one, whether it was voiced or voiceless.

The most logical assumption is that there was at least one labio-velar in *NWM and perhaps two. A discussion of this latter possibility can be found in subsection 1.1.1.6..

The second condition on systems reconstruction is that the systems being compared be backed up by regular correspondences. That is, in order to reconstruct an */m/ for *NWM by the systems method, an */m/ must be reconstructable in both *NM and *SWM by regular sound correspondences. If a seven vowel system is to be reconstructed by systems comparison, then a seven vowel system must be reconstructable in both *NM and *SWM by regular correspondences. This condition might possibly be relaxed subsequent to further investigation, but for the present it functions to avoid recursive use of the method with no double checking against the comparative method.

Systems reconstruction comes into play only in the reconstruction of *NWM labio-velars and */ny/ initially and */e/ word finally. All three may be reconstructed by the systems method for *NWM since they

are reconstructable via regular correspondences in both *NM and *SWM.

There is one further technique that I have used at various junctures which needs further comment. This technique is one which I shall call 'Feature Reconstruction'. It involves the reconstruction of at least the shared phonological features (in cognate forms) when the complete feature matrix is uncertain. As an example consider the medial vowel in the word 'cut': *t_ig_e, *t_eg_e. Although it is not clear whether the medial V here was originally */i/ or */e/, it is clear that it was a [-low, +front] vowel. The only uncertainty is whether it was [+high] or [+high mid]. It was certainly not Central nor Back. Similarly, the final V of 'cut' was clearly a [-high, +front] vowel and, once again, neither Central nor Back. Needless to say, this technique is safely employed only when cognation is sure.

Table 84 - Proto-NWM System

<u>Initial</u>				
<u>Consonants</u>			<u>Vowels</u>	
*p	*t	*k	*kp?	
*b	*d	*g	*gb?	
*f	*s?	*y?		
*m	*n	*ny?		
<u>Medial</u>				
<u>Consonants</u>			<u>Vowels</u>	
		*g	*i	*u
	*n	*ny?	*e	*o
	*l		*ε	*ɔ
	*r			*a

Final

Consonants

*n

Vowels

*i *u

*e? *o

*ɛ *ɔ

*a

Key: ? is an unsure reconstruction.

Table 85 - Reconstructed Word List - *NM, *SWM, and *NWM

	<u>Gloss</u>	<u>*NM</u>	<u>*SWM</u>	<u>*NWM</u>
1.	'name'	*togo?	---	?
2.	'one'	*keren?	*gila?	?
3.	'two'	*f <u>er</u> a	*f <u>er</u> é	*f <u>er</u> a
4.	'three'	*sagba	*s <u>aa</u> bá	*sagba
5.	'four'	*nani (n)	*náánì	*nani
6.	'five'	*so(o)lu	*dóólù	*s <u>lu</u> /*soolu
7.	'person'	*m <u>og</u> o	*númú	?
8.	'man'	*k <u>ani</u> ?	*k <u>en</u> à?	*k <u>n</u>
9.	'woman'	*n(i)a (*B)	* <u>d</u> éé (mother)	?
10.	'child'	*d <u>in</u>	*don	*d <u>in</u> /* <u>d</u> on
11.	'father'	?	* <u>g</u> ama	?
12.	'mother'	?	* <u>d</u> éé	?
13.	'head'	*gun?	* <u>g</u> ũŋ	*gun
14.	'hair'	*gun-t <u>igi</u>	---	?
15.	'nose'	*n <u>un</u> /*sun	---	?

<u>Gloss</u>	<u>*NM</u>	<u>*SWM</u>	<u>*NWM</u>
16. 'eye'	*nya?	---	?
17. 'ear'	*tulo	---	*tulo?
18. 'mouth'	*da	*dá	*da
19. 'tooth'	*nyin	---	?
20. 'tongue'	*nen(di)/*len	*néŋ	*nen
21. 'neck'	*kon?	*kɔŋ?	*kon
22. 'hand'	*bolo?	*yéá	?
23. 'foot'	*gbo (*B)	*kɔ́gɔ́	(*kpogo)?
24. 'knee'	*gun-be(1e)?	*koma	?
25. 'nail'	---	---	?
26. 'breast'	*gin?	*ɣíní	*gin(i)
27. 'belly'	*kon(o)?	*kòó	*ko(n)o
28. 'navel'	---	---	?
29. 'skin'	*gbolo?	*kòlɔ́	(*kpòlɔ)?
30. 'bone'	*goro	---	?
31. 'blood'	---	*ɣàamá	?
32. 'sky'	---	---	?
33. 'fire'	*ta	*ɣ̀ɔ̀-(mbú)	?
34. 'water'	*yi	*yíá	*yi(a)
35. 'meat'	*sube	---	?
36. 'salt'	*kogo?	*kpòlɔ́	?
37. 'many'	?	---	?
38. 'stone'	?	*kòtú	?
39. 'sun'	*tile?	*fóló	?
40. 'moon'	*kalo? (*C-M)	*gálóŋ	*galon

<u>Gloss</u>	<u>*NM</u>	<u>*SWM</u>	<u>*NWM</u>
41. 'night'	?	*kpíndí	?
42. 'rain'	?	---	?
43. 'smoke'	*sisi?	---	?
44. 'sand'	*kenyε(n)?	*ɲènyá?	*gɛnyá(n)
45. 'rope'	*yulu	---	?
46. 'tree'	wuru (Susu)	*gúrú	(*guru)
47. 'leaf'	*dia (*B)	*dáǵá	(*díga)
48. 'root'	?	---	?
49. 'milk'	*nɔnɔ?	---	?
50. 'grease'	*turo	---	?
51. 'egg'	*gali?	*gálón	*galin/*galon
52. 'bird'	*gondi	*ɲóní	*gondi
53. 'fish'	*nyεge	---	?
54. 'snake'	*kala?	*kálí	*kali
55. 'dog'	?	*gílà	?
56. 'big'	*gbo(n)?	?	?
57. 'small'	*guru(n)? (*A)	*kúró	(*kuro)
58. 'black'	?	*tèlí	?
59. 'white'	*gbe?	*kòlé	?
60. 'good'	*nyin?	?	?
61. 'new'	*na (*B)	*níná	(*n(in)a)
62. 'old'	?	---	?
63. 'hot'	?	---	?
64. 'cold'	*gima	---	?
65. 'dry'	*gbara?	---	?

<u>Gloss</u>	<u>*NM</u>	<u>*SWM</u>	<u>*NWM</u>
66. 'straight'	?	---	?
67. 'come'	*fa? (*A)	*pá	*pa
68. 'sit'	*sigi? (*C-M)	*seí	* <u>segi</u>
69. 'lie'	*sa	*dá	*da/*sa?
70. 'sleep'	*gi (nogo)	*nyíí	?
71. 'die'	*faga	*sáá	?
72. 'fall'	* <u>bira</u>	---	?
73. 'stand'	?	---	?
74. 'say'	?	*bó	?
75. 'hear'	*men	*mèní	*men(i)
76. 'wash'	*go	*gua	* <u>gua</u>
77. 'see'	*je	---	*ye?
78. 'give'	*bele	*fé	?
79. 'eat'	* <u>d</u> on(o)?	*míí	?
80. 'drink'	*min	*kpòlé (innov.)	*min?
81. 'kill'	*faga?	*páá	*paga
82. 'cut'	* <u>tige</u>	*tége	* <u>tige</u>
83. 'hit'	?	---	?
84. 'sew'	*ka(ra)?	---	?
85. 'I'	* <u>ne</u>	---	?
86. 'you'	* <u>i</u>	---	?
87. 'he'	*a?	---	?
88. 'we'	* <u>mu</u> ?	---	?
89. 'they'	* <u>anu</u> ?	---	?
90. 'who'	?	---	?

	<u>Gloss</u>	<u>*NM</u>	<u>*SWM</u>	<u>*NWM</u>
91.	'what'	*mun?	---	?
92.	'not'	?	---	?
93.	'long'	*yan?	*kó'à	?
94.	'short'	* <u>kintu</u>	---	?
95.	'here'	?	---	?
96.	'few'	?	---	?
97.	'all'	* <u>gbi</u>	---	?
98.	'path'	*kira	*pèré	?
99.	'in'	*kono?	---	?
100.	'if'	?	---	?
101.	'buy'	sàn?	*geá	?
102.	'call'	*kali?	*tòlí	?
103.	'go'	*taa? (*C-M)	*dí	?
104.	'goat'	*ba	*bòlí	*bo(li)
105.	'know'	*kolon	*kólón	*kolon
106.	'loopard'	*koli?	*kólí	*koli
107.	'life'	*si?	*degu	?
108.	'sheep'	*saga (*C-M)	*bálá	?
109.	'tail'	*gulu?	*gó?	*go(lo)?
110.	'throw'	*fili?	*pili	*pili
111.	'tie'	*giri	*gìrí	*giri
112.	'voice'	*gu(ri)?	*gó	*go(ri)
113.	'walk'	*ta _x ama?	*sàá	?
114.	'ten'	*fu/*tan	*pùú	*pu(u)

2. A Migration History of the Mande Languages

When reconstructing the migration history of any group of languages it is important to bear in mind that no single method is infallible. As with the Comparative Method, every piece of evidence available should be added to the picture as a means of checking procedure and ensuring the clearest possible glimpse into the past. In the reconstruction of the Mande migrations, therefore, I will use three procedures developed for migration theory known as 'the Principle of the Historical Center of Gravity,' 'the Postulate of the Least Moves' and, 'the Postulate of the Center of Greatest Diversity'. Without going into great detail, I will simply state what each of these means. The former holds that the statistically most probable homeland of a proto-community is at the midpoint between its daughter communities. The 'Least Moves' postulate simply means that the most likely migration history is the one which requires the least moves. The 'Center of Greatest Diversity' hypothesis contends that the most probable area for the homeland of a proto-community lies in the location of the greatest linguistic diversity in the group. I will show how these three methods dovetail in reconstructing the history of the Mande migrations.

I will begin the reconstruction by first using the 'Center of Gravity' method to reconstruct the center of gravity of the different proto-groups, working backwards through time to increasingly greater time depth. Once I have arrived at a statistical location for the homeland of Proto-Mande I will recapitulate the history of these migrations, readjusting various conclusions in accordance with the 'Principle of Least Moves' and thereby arriving at a more realistic picture of these

historical movements.

Each of the maps 2-7 locates the historical center of gravity of various proto-subgroups, working from the present-day situation back to Proto-Mande. Two closely related languages or subgroups, X and Y, which are chronologically adjacent on the family tree, are viewed as the end points on a line. The mid point of that line is taken to be the historical center of gravity of Proto-X-Y, establishing its statistical homeland. The center of gravity calculated by this method is not meant to represent the actual geographical homeland of Proto-X-Y, but merely an approximation. In many cases, once the 'Least Moves' principle is applied the homeland of Proto-X-Y can be established to one side or the other of the mid point between X and Y. In some cases, historical documentation will also help to establish a homeland.

Map #1 presents the present-day locations of the Mande languages.

Map #2 locates the historical center of gravity for *Mandekan near Bamako in southern Mali and *Kono-Vai (*C) at the modern border between Sierra Leone and Liberia. The latter, though suggested by the method, is clearly not the actual geographical homeland of *C. Historical records and local traditions indicate that it was Vai that moved toward the coast and not Kono that moved away. The homeland of *C is therefore moved closer the actual present-day location of Kono.

*C-Mandekan (*C-M) is statistically located in the area of NE central Guinea by computing the mid point between *C in NE Sierra Leone and *Mandekan in the area around Bamako.

Map #3 locates *Southwestern Mande (*SWM) in the northern interior of Liberia.

Map #4 plots *Susu-Yalunka (*A) in the northern Fouta Jallon area of Guinea at the modern border between Guinea and Mali. This coincides with historical records, which locate the Susu in the Fouta Jallon area around 500 to 600 years ago.

*Ligbi-Hwela-Numu (*B) is located at the bend of the Black Volta near Bondoukou in the eastern Ivory Coast.

*Northern Mande is established by first finding the mid point between *C-M and *B and then between this latter point and the location of *A. The area indicated is North of Odienne (IC) and East of Kankan (Guinea) where the modern borders of Guinea, Mali and Ivory Coast meet.

*Northern-Western Mande is then located mid way between *NM and *SWM South of Kankan near Kerouane, Guinea.

Map #5 places *Sembla-Samogo-Gouan in the Bobo-Dioulasso area in western Upper Volta.

*Soninke-Bozo is plotted in the inner delta region of the upper Niger River between Jenne and Mopti in central Mali. It is, however, very questionable as to whether Soninke and Bozo ever formed a linguistic unit of their own. Nevertheless, their centers of gravity would be in approximately the same area.

The center of the triangle between *Sembla-S-G, *Soninke-Bozo and *NWM graphically locates the position of *Extended NWM between the upper Niger and Black Volta Rivers along the present Mali/Ivory Coast border just South of Sikasso.

Map #6 locates *Southern Mande in central Ivory Coast and *Eastern Mande in SE Upper Volta. The center of gravity of *Sya-SEM is computed by first finding the mid point between *SM and *EM at the NW corner of

Ghana. *Sya-SEM is then located by finding the mid point between *SEM in NW Ghana and Sya in Bobo-Dioulasso, placing it between Bobo-Dioulasso and Gaoua in SE Upper Volta.

Map #7, the final stage in the center of gravity procedure, locates *Mande around the Upper Volta/Mali border not far from Banfora, to the southwest of Bobo-Dioulasso.

This final result is an extremely pleasing one when compared with the results of the 'Center of Greatest Diversity' method. The homeland of *Mande by this latter method should be located within a 120 mile or so radius of Bobo-Dioulasso. Within this relatively confined area between Sikasso to the West, Banfora to the South and Mopti to the North are found NM languages, EM languages, Sya, Soninke, Bozo, Sembla and Samogo-Gouan -- without any question the most linguistically diversified area in the Mande group. This diversity within a relatively small area suggests a long history of Mande habitation. These two methods, then, dovetail nicely to describe the *Mande homeland. This type of agreement between the methods I believe to be significant evidence.

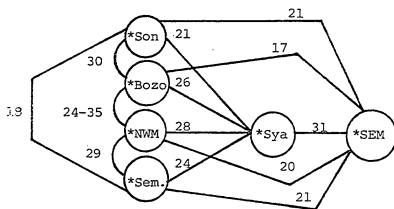
Let us now turn our attention to a recapitulation of Mande migrations from the past to the present, making the proper adjustments in accordance with the principle of least moves.

The methods employed so far have shown a proto-Mande community located between the Black Volta and upper Niger Rivers in the general vicinity of Bobo-Dioulasso more than 4000 years ago. The *Mande speakers first divided into two daughter communities, the *Extended NWM spreading to the West towards the Niger River and the *Sya-SEM spreading to the SE, more towards the Black Volta River approximately 4000

years ago. With the desiccation of the Saharan region, dated at approximately 4600 years ago, this move may have been motivated by a botanical change. Although purely speculative, the time correlation is remarkable.

By approximately 1200 B.C. (3200 years ago), *Extended NWM had spread into a system of dialects represented by *Soninke, *Bozo, *Sembala-S-G and *NWM, with *Sya-SEM still to the SE. Sya was undoubtedly the westernmost dialect of the *Sya-SEM chain, accounting for its present geographical location around Bobo-Dioulasso and its higher cognate percentages with adjacent Extended NWM languages.

(57)



By approximately 1000 B.C., *Sya and *SEM had diverged into separate daughter communities, with *Sya (to the West) remaining stationary and *SEM moving a bit further SE toward the Black Volta River. Not more than 300 years later, *SEM again split into *SM and *EM, the former continually spreading southward toward the forested regions of central eastern Ivory Coast, the latter spreading East toward eastern Upper Volta. The *SM community may have spread gradually southward along

the Black Volta, or may have taken a more direct route farther toward the center of Ivory Coast. Little can be said for certain.

At approximately the time *SEM had split apart, around 500-600 B.C., *NWM was also diverging into *NM and *SWM. By this time, *NWM had very possibly spread a considerable distance westward, perhaps as far as Kankan in central eastern Guinea, as suggested by the center of gravity calculations for *NWM. If this was indeed the case, then *SWM had little distance to travel to its homeland in northwestern Liberia, perhaps being the southernmost dialect of *NWM at the time.

There is other evidence that *NWM had spread at least this far West by 600 B.C.. I demonstrated earlier by the center of gravity calculations that the *A homeland was tentatively to be reconstructed in the Fouta Jallon area of western Guinea by about 200 B.C.. In fact, however, the *A homeland appears to have been even further West (and North). Davidson (1966) reports that the Susu did not arrive into this area until about 1300 A.D. and only subsequently moved to the coast. If it is the case that the Susu only arrived in Fouta Jallon around 1300 A.D., then the *A homeland may safely be reconstructed in western Mali between Kita and Bafoulabe. This was very likely the westernmost dialect of *NM which had split from its parent by the time of Christ. It is not hard to imagine, therefore, that *NM had spread to Guinea by 500-600 B.C..

*B had also split from *NM by the time of Christ, not long after the *A split. Whether *B migrated to the Bondoukou area or was an extension of the *NM spread (as was the case for *A) is not clear. In

either case, the *B community prior to the split was surely the southeastern most dialect of the *NM community, as determinable by its present location in central Ivory Coast and the lexicostatistical evidence. Lexicostatistically, *B shares approximately 50% cognation with *C-M, as does *A. *A and *B, however, share only 39% cognation. This suggests a *A/*C-M/*B dialect chain with *A to the West, *C-M in the center and *B to the SE.

During the past 1000 years, the *SWM community has spread out, the latter stages attested in oral tradition and written records from the coast (Christopher Ehret, personal communication).

The next major split saw *C break southward, leaving *Mandekan to the North, approximately 1000 years ago and establishing a homeland in eastern Sierra Leone. The Vai later moved on southward to the coast. Liberian oral tradition indicates that it was the Vai who later moved southward to the coast and not the Kono who moved northward (John Singler, personal communication).

More recently, within the last 600 to 700 years, came the massive expansion outward of the Mandekan community. This time depth correlates precisely with the heyday of the Mali Empire, which was at its strength between 1200 and 1400 A.D.. This suggests that it was the establishment of the Mali Empire which initiated and nurtured the outward expansion of the Mandekan dialects, a trend which has continued even in more recent times.

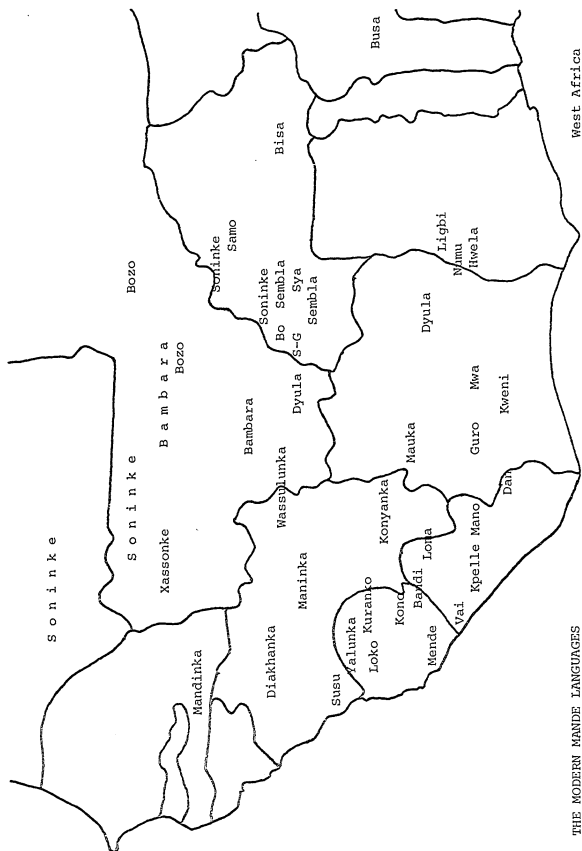
Much of the movement in the Mande family between 1500 B.C. and 500 A.D. appears to have been southward. Although the general desiccation of the Saharan region cannot be given as a sufficient reason for all of

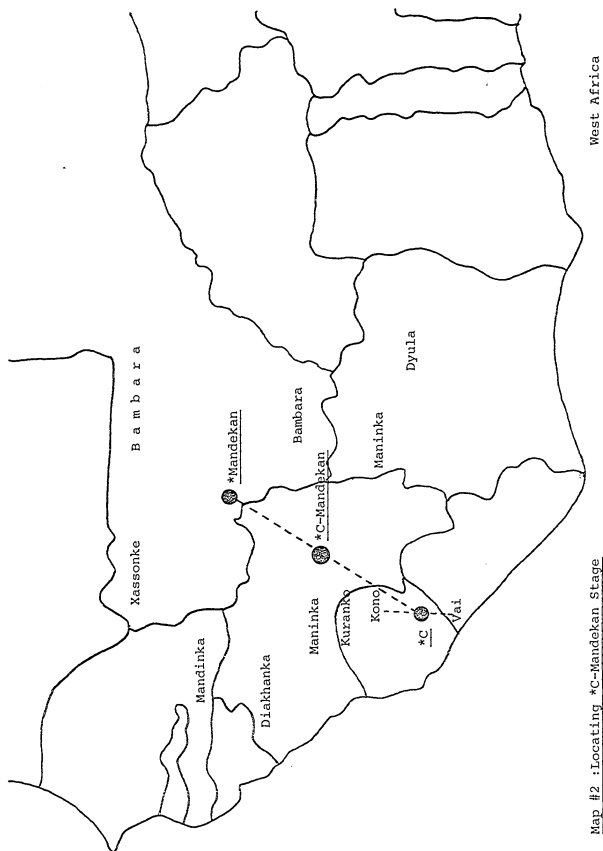
these movements, its general inhospitality may at least partially explain a general lack of movement northward. The major spreads southward may have been caused, among other things, by a attempt on the part of Mande groups to keep pace with receding rain forest as it gradually moved southward. Those remaining to the North were simply forced to adapt to a more arid climate.

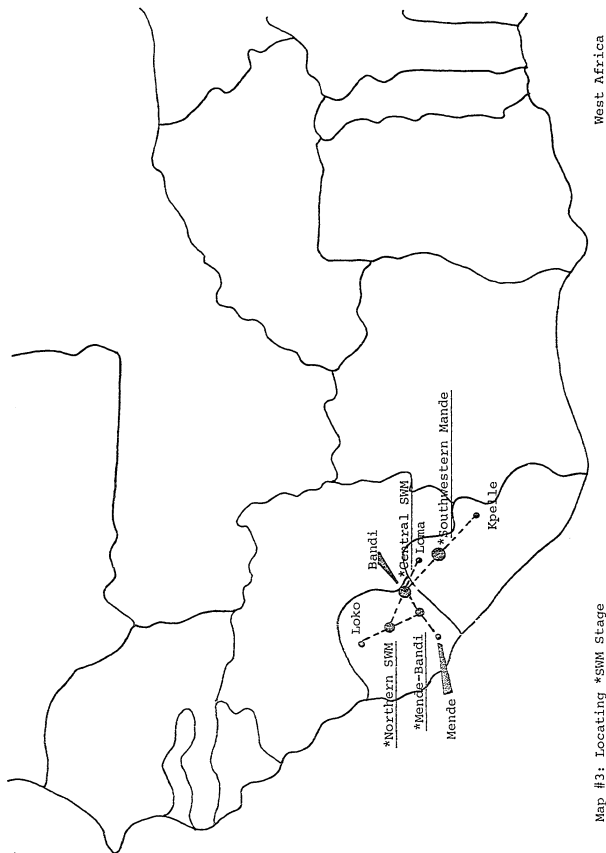
A final note. Perhaps the biggest question mark in the history of the Mande migrations is the history of *SEM, *SM showing up in South and central Ivory Coast and Liberia and *EM showing up in eastern Upper Volta, Dahomey and western Nigeria. It must always be kept in mind that both positive and negative migrations are possible explanations in such cases. That is, either *SEM extended over this entire region and was subsequently cut off by intrusions (negative migration) or these individual Mande groups migrated to their present locations more directly (positive migration). The 'intrusion' explanation has some plausibility. SM, for example, is cut off from NM and the posited *Mande homeland by a lateral sash of Malinke (Mandekan) speakers to the immediate NE and another sash of Senufo (Gur) speakers farther to the NE. The former is most certainly an intrusion into this area by Mandekan speakers within the past 700 years or so. The Senufo also appear to have come into the area within the past 600 years (Welmers, personal communication). It is possible, then, that these two intrusions may have wiped out what was formerly an extension of *SEM up to the Upper Volta border where it was contiguous with other Mande groups.

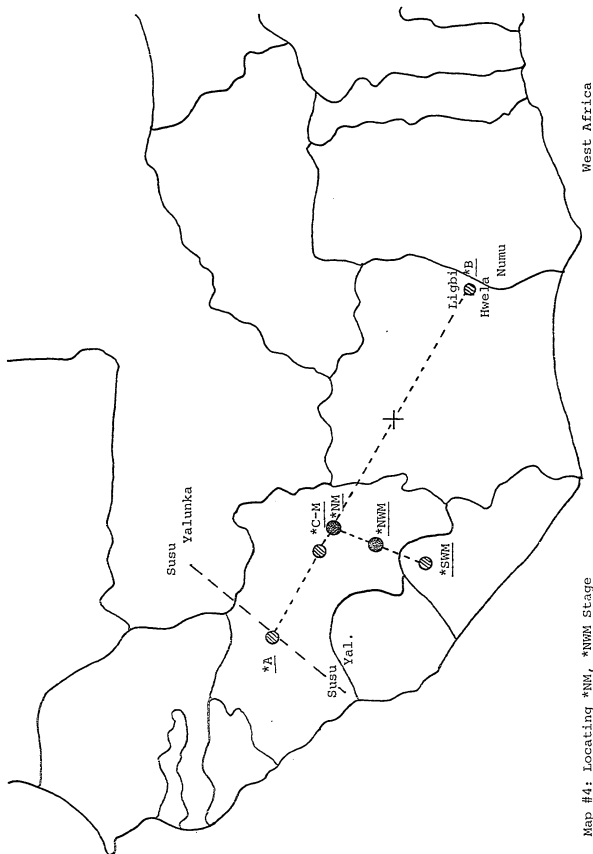
*EM, as well, is separated from other Mande groups by present-day Mossi (also Gur) speakers. This may also have been an intrusion into

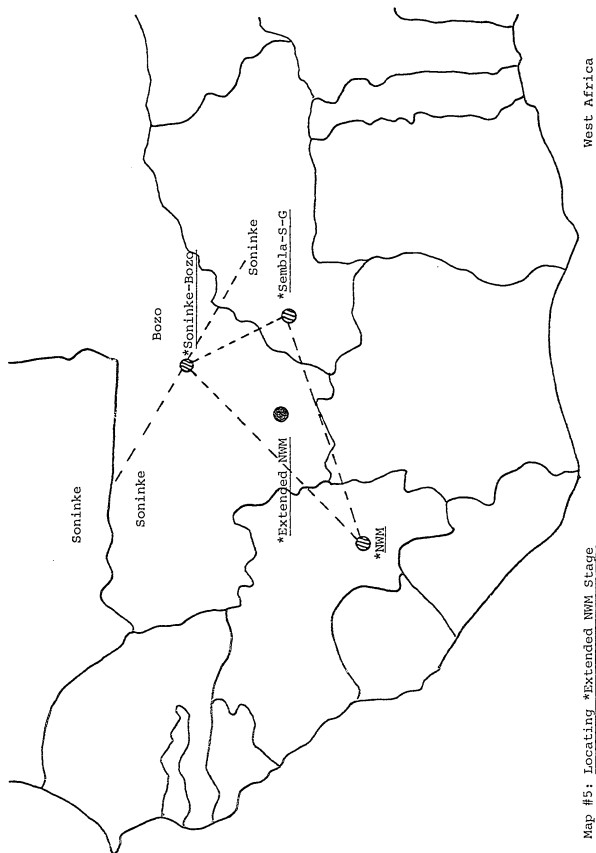
Mande country.

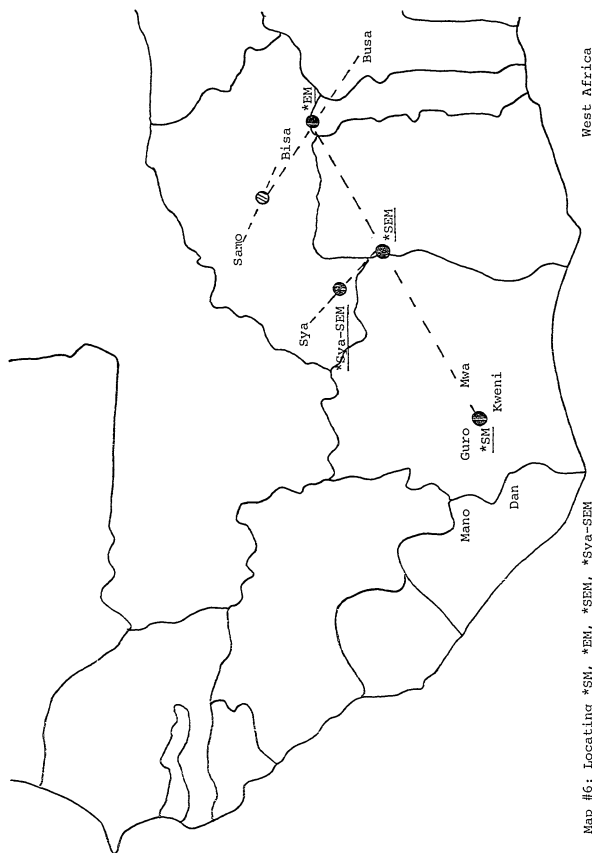


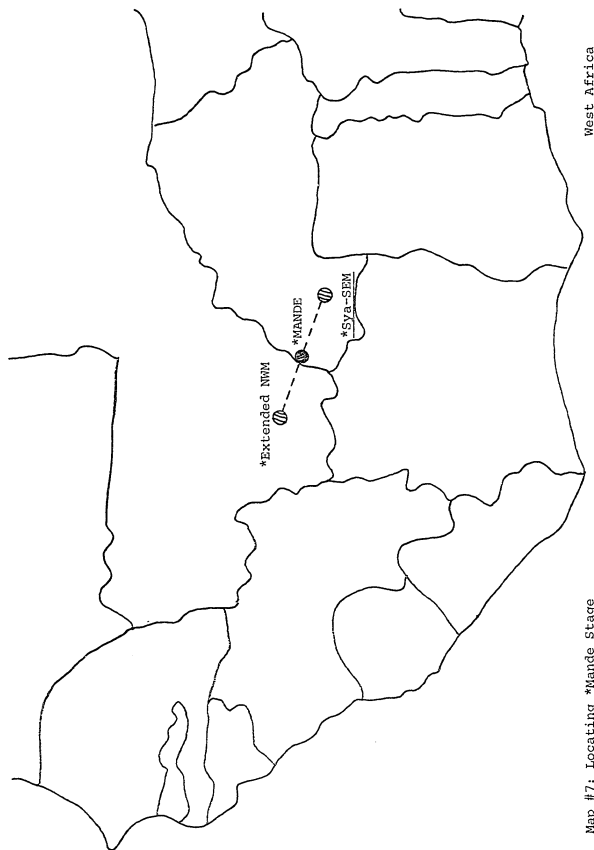




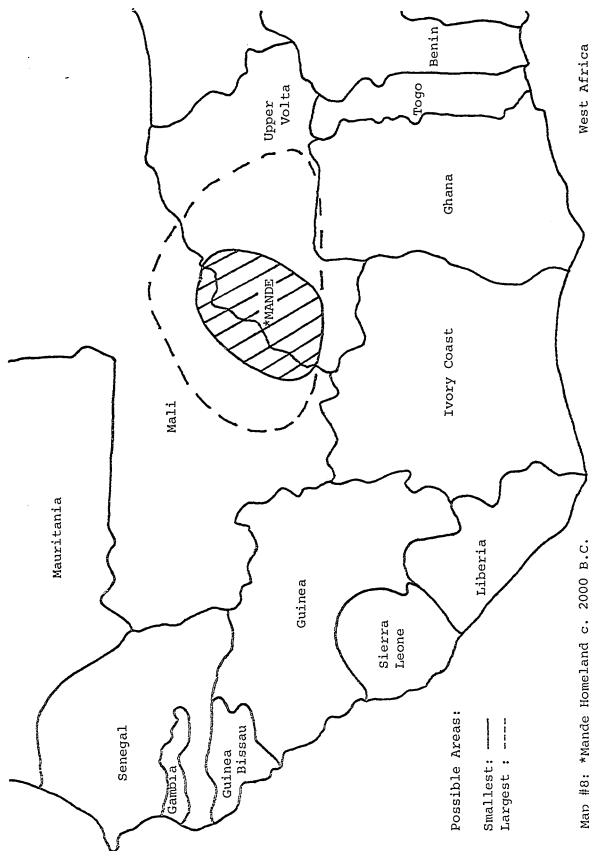


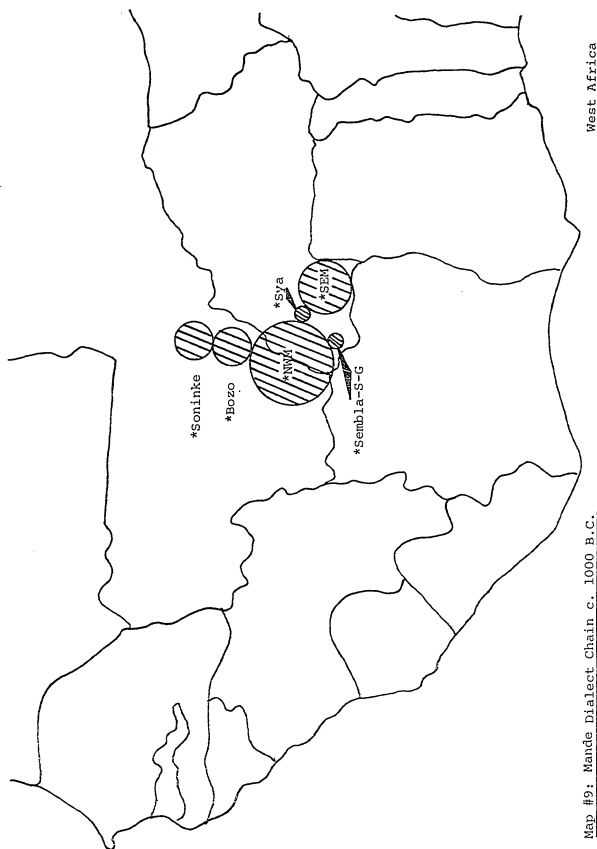


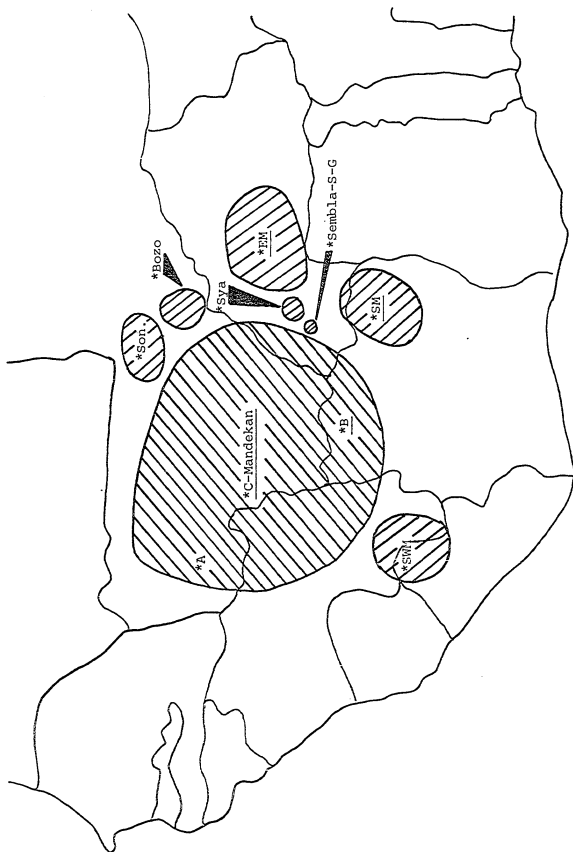




Map #7: Locating *Mande Stage

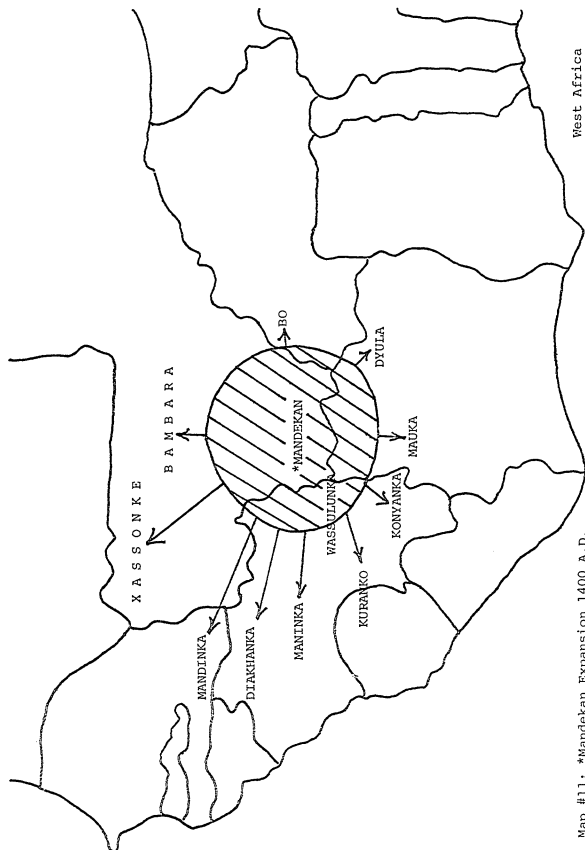






Map #10: *NM and Dialects c. 500 B.C.

West Africa



1 "Although the lexicostatistical evidence for the grouping of Kuranko with Mandekan rather than with Kono and Vai is not as free of exceptions as one might like, I find it entirely convincing. One must only recognize that there has been more than the usual interaction between Kuranko and Kono (or Kono-Vai before their divergence) in the core vocabulary. Whether this consists entirely of borrowing in one direction rather than the other is not immediately obvious, though perhaps the available data are adequate to clear up some details. Kono has clearly borrowed at least some of the lower numerals from Kuranko, in spite of the fact that the numeral forms were very similar in most cases to begin with. At some time after its separation from Vai (about 500 years ago), Kono completely lost its intervocalic /l/; Vai retained it regularly until at least 1850 (the time of Koelle's transcriptions, though he writes it as /r/), and it may still be heard as a free variant of zero from many speakers in many words. In Kono, however, the forms for 'one' in counting (not cognate with Vai), Long's transcription (but not mine) of 'two', and 'five' have intervocalic /l/. These forms must have been introduced from Kuranko after the regular loss of /l/."

"Otherwise, we have been assuming that Kuranko borrowed from Kono in the cases where it has forms agreeing with those in Kono (or Kono-Vai) rather than with those in Mandekan. There is at least one alternative possibility. It may be that Kuranko and Kono-Vai have retained the *NM form, while Mandekan, after the divergence of Kuranko, innovated a new form. The question in such cases is whether it is Mandekan on the one hand, or Kuranko along with Kono-Vai on the other hand, have cognates in NM groups B and/or A, or in SWM. In any case, the geographical contact between Kuranko and Kono (and Kono-Vai until about 1500 A.D.) cannot be ignored, and the substantially higher counts between Kuranko and Mandekan than between Kuranko and Kono or Vai remain as important evidence for the grouping of Kuranko with Mandekan."

"It is also true, however, that in many cases (in which forms in all the relevant languages are ultimately cognate anyway), Kuranko agrees with Kono and Vai in phonologic realizations, rather than with Mandekan. Superficially, this suggests that Kuranko, Kono, and Vai may have undergone some shared phonologic developments, and therefore are to be grouped together. That is not, however, a valid conclusion. I know of no instance in which Kuranko, Kono, and Vai have shared a phonologic change from *NM, while Mandekan either retained the *NM form or underwent a different change. (If there are such cases, I'm sure they are so very few as to be inconsequential.) The situation is rather that, in several cases, Kuranko and Kono and Vai have shared the retention of a *NM form or segment, while Mandekan (apart from Kuranko) has undergone a change. This is entirely consistent with the hypothesis that Kuranko is to be grouped with Mandekan as opposed to Kono and Vai. It has already been pretty well established that Kuranko diverged from the rest of Mandekan prior to the further split-up of Mandekan. We may hy-

pothesize, therefore, that at the time of the divergence of Kuranko from core Mandekan, the original *NM phonologic system was shared by all the languages with which we are concerned. Kuranko then diverged, i.e. became pretty well separated from Maninka, its nearest Mandekan neighbor. After that divergence, the phonologic changes common to core Mandekan began to take place, presumably beginning in one or another more or less central area, and spreading in all directions. These changes just did not get as far as Kuranko. Kono and Vai were, of course, independently retaining the original system; they had diverged a millenium or more earlier."

"Whether the failure of Kuranko to acquire the phonologic changes innovated in core Mandekan had anything to do with its geographical contact with Kono is not really an issue. The same development might well have taken place if Kuranko had been located anywhere else on the fringe of core Mandekan, even hundreds of miles from Kono and Vai. As I have suggested, however, it is possible that speakers of Kuranko had some exposure to the Mandekan developments, but resisted them because of their contact (and presumably acquaintance) with Kono. I have described this as a sort of inverse diffusion. Diffusion may take the form of the spread of phonological (or other) rules across language boundaries. In the case of Kuranko, what may have happened is that resistance to phonologic changes spread across the Kono-Kuranko boundary. This is only a possibility, however, and not anything crucial to the developments in question. "The bottom line" is that there is nothing (to my knowledge) that requires or even strongly supports a period of shared development between Kuranko and Kono-Vai."

"Evidence beyond the word lists with which we have been working is not too easy to work with. Crucially, we have no grammar of Kuranko; neither is there a good grammar of Maninka, but confirmatory evidence from Bambara is easily available. The major data available are translations of the New Testament in Maninka and Kuranko (the latter apparently rather free and perhaps not entirely reliable in spots), my Vai grammar, and my Kono field notes which fall a bit short of the data I gathered for Vai. Still, there is enough to provide a number of tidbits of evidence for the closer relationship of Kuranko to Mandekan than to Kono-Vai."

"Permit me first to make a rather impressionistic observation. In the course of looking up parallel phrases or sentences in the Maninka and Kuranko New Testaments, I have noted several instances of near identity and almost certain mutual intelligibility. (It is a virtual certainty that the translators into Kuranko, 1972, did not consult the Maninka translation, 1942.) In most of these cases, although I had the English (and, for that matter, the Greek) available, I could not fully analyze the Maninka or Kuranko expressions. Nor could I provide adequate parallel translations in Vai or Kono. Nevertheless, I uniformly felt that either Kono or Vai would be quite different; my clues derive from a general "feel" for Bambara and for Vai; it's hard to pin down

details. "

" Some confirmatory evidence comes from speakers of Kono with whom I worked in Eastern Sierra Leone in 1975. One of them was a young man with a good command of English; the other was a considerably older man with considerably less command of English. Both reported that, after some careful listening, they could understand at least snatches of news and religious broadcasts in Vai from Liberia, but they considered Kuranko quite a different language. Conversely, a native speaker of Vai from Liberia reported to me that, on a visit to Sierra Leone, he managed to communicate reasonably well with speakers of Kono. (I would conclude that Kono and Vai should still be considered distinct languages, but very closely related.) On the Mandekan side of the fence, a young American man, son of missionary parents in Guinea who considered Maninka his first language, went to Sierra Leone as a missionary in the 1950's, and reported to me that what he called "Kuranko" was not only the same language as his native Maninka, but the same dialect! I suspect that he had contacted primarily Maninka speakers living in the Kuranko area, but his testimony at least suggests that Kuranko and Maninka are on the borderline of mutual intelligibility. At the very least, these reports strongly reinforce the hypothesis that Kuranko is to be grouped with Mandekan rather than with Kono-Vai."

"Now we can get down to the nitty-gritty of available parallelisms in the relevant languages, apart from the lexical items in the Swadesh 100-word list. I found about fifteen expressions which I could compare from the Maninka and Kuranko New Testaments and my Vai and Kono notes. In no case is there clear evidence that Kuranko agrees with Kono or with Kono-Vai as opposed to Maninka. In some seven cases, Kuranko either agrees with Maninka, or differs from both Maninka and Kono-Vai. In short, there is considerable evidence that Kuranko is to be grouped with Mandekan, and no evidence at all that it is to be grouped with Kono and Vai. The important instances are as follows:

1. Kuranko shares with Mandekan (not only Maninka, but also Bambara and Manyá, to say the least), a "consecutive" construction marked by a morpheme /ká/ (Manyá /ká/ with characteristic tonal inversion). This is used for actions after the first in a sequence, without change of subject, and with no subject marker; it also has usages somewhat similar to "infinitives" in other languages. Kono and Vai have nothing of the sort. In Kono, consecutive actions in the past use sequences of normal past constructions, optionally joined by a conjunction /mbè/; in other than the past, the conjunction is obligatory, and a past (!) construction follows. In Vai, consecutive actions are marked by an incomplete construction, with a repeated pronoun.

2. Yes-no questions are marked in Maninka by a question particle, written ..., ba. Bambara uses a similar /... wá/. The Kuranko New Testament attests /... wá/. In Kono and Vai, yes-no questions are

marked by a special question intonation, similar in the two languages.

3. The expression "It is I" is written identically in Maninka and Kuranko: *nde le*. The initial nasal is the first person pronoun morpheme. The following /de/ may be an "emphatic" marker. /le/ can hardly be anything but an "identifier". The parallel expression in Kono is /nɛ́á mù/, and in Vai /ŋáá mù/. The latter two appear to be cognate in every detail. The initial nasal is the first person pronoun morpheme. The following syllable is a morphophonemic alternant of /wá/, an "emphatic" marker; in both languages, the corresponding third person form is /à wá/. The "identifier" morpheme in both Kono and Vai is /mù/. In two independent ways, therefore, Maninka and Kuranko agree with each other, and differ from both Kono and Vai, in this and comparable expressions.

4. In an affirmative future construction, Maninka and Kuranko appear to differ in the construction marker, /di/ in Maninka and /si/ in Kuranko. Both, however, differ drastically from Kono and Vai, which agree in having a construction marker after the subject, a front vowel with low tone, and in addition, significantly, a suffix on the verb which in both cases must be internally reconstructed as /-là/.

5. In an affirmative customary construction, Maninka uses a copula /be/, and Kuranko an apparently cognate copula /bi/, plus in both languages a verbal suffix /-la/. Kono and Vai agree in using a construction marker after the subject, a front vowel with low tone (cf. 4 above), plus low tone replacing the stem tone of any verb, and no suffix.

6. In a past transitive construction, Maninka uses a construction marker /ka/, but this is apparently unique in Mandekan; Bambara uses /yé/. Kuranko uses /ya/, probably at least partially cognate with the Bambara form. Kono and Vai agree in using a construction marker which must be internally reconstructed as /là/. (The sentence used for this evidence means 'They saw him.' The verb 'see' is admittedly /ye/ in Maninka, /yen/ in Kuranko, /yén/ in Kono, but /fé'é/ in Vai; the latter root means 'look at' in some other Mande languages. But it is the grammatical construction that is significant.)

7. In a negative customary construction, Maninka uses a construction marker /te/, and Kuranko an apparently cognate /ti/. I find the Kono construction a little difficult to analyze, but apparently there is a construction marker /í/. Vai has a construction marker /wé'è/. Although Kono and Vai may not agree with each other, it is clear that Maninka and Kuranko do, and that both disagree with Kono and Vai."

"In the remaining expressions checked, there is nothing conclusive in any direction. One item, for example, is the lexical "who?" The transcriptions show Maninka /dyɔ́/, Kuranko /yon/, Kono /nyón/, Vai /jɔ́/. Vai shows a typical loss of nasalization; the initial consonant variations (in the case of Kuranko and Kono quite possibly attributable to the transcribers rather than to the languages) prove nothing at all by way of language grouping."

"In at least one case, a conditional construction, Kono appears to agree with Maninka, but not with either Kuranko or Vai. Apparently Kono and Maninka have in this case retained the *NM construction, and Kuranko and Vai have independently innovated different constructions."

"In short, there is not one shred of evidence that Kuranko has shared any phonological or grammatical developments with Kono and Vai. On the other hand, there is considerable evidence that Kuranko (on the basis of the evidence we have, which I suspect may be loaded in the direction of similarity to Kono) unquestionably belongs in a group with what has been called Mandekan, and by no means is to be grouped with Kono and Vai." (Wm. E. Welmers, personal communication, 10/10/77)

2 In each of these cases forms from Welmer's lists for Kono or Vai were substituted for Long's forms.

3 "There is a good deal of evidence that the Kono numerals through 'ten' have been messed up by some borrowing from Mandekan. Here's a comparative list; the Kuranko and Maninka forms were extracted from the respective New Testament translations, and particularly for Kuranko we can hardly assume that there are no long vowels. I use the counting form for 'one' in Kono, and both the form Long gives and the form I got for 'two':

	<u>Maninka</u>	<u>Kuranko</u>	<u>Kono</u>	<u>Vai</u>
one	kelē	kelen	ńcélén	dòndó
two	fila	fila	filan/féan	fè'á
three	saba	sawa	sàwán	sàkpá
four	naani	nani	náání	naání
five	lolu	loli	duúú	sóó'ú
six	woro	woro	wóóló	sòŋ dònđó
seven	woronwila	woronfila	wónfèà	sòŋ fè'á
eight	segī	segin	sèì	sòŋ sàkpá
nine	konondo	kononto	kòncòntò	sòŋ naání
ten	tā	tan	tān	tāŋ"

"For 'one,' K seems to have borrowed the counting form from either Ku or M (before the K change of [k] to [c] before front vowels; I have no theory about the initial nasal, which is unique in the language). For 'two,' the form Long gives suggests a borrowing from either Ku or M; I have no theory about the final nasal in this and in 'three'. The form I got is presumably a retained closer cognate with the Vai form. Perhaps the difference is dialectal; or perhaps, in Long's dialect, the form given is used only for counting, and a form like mine as an attributive. The intervocalic [l] in Long's form is almost sure proof of borrowing, since there is no such thing in the language apart from this and two other numeral forms."

"For 'three,' K seems to have borrowed again, but this time apparently specifically from Ku rather than M. 'Four' yields no evidence, unless the final low tone in Vai once appeared in K also; there is no way to tell. 'Five' is again borrowed in K, as evidenced by the intervocalic [l] and also the initial [d] (natural enough from [l], since K does not have that sound initially; but Vai suggests that K should have a retained [s]). The final vowel suggests that the borrowing is from M rather than Ku, but I would not consider that a strong argument; the Ku final vowel may be recent."

"'Six' is also borrowed in K, from either Ku or M, as evidenced by the intervocalic [l] once more. 'Seven' may be a retained rather than borrowed form; the 'two' part is the K-V type. 'Eight' could be retained, or could be borrowed from either Ku or M. 'Nine' could be retained, but if borrowed it is from Ku rather than M, apparently. So, all in all, it looks as if such borrowing as took place was from Ku. 'Ten' is the same all around in any case."

"...the Vai forms for 'six' through 'nine' may be innovations. Their structure is like that of comparable phrases for 'six' through 'nine' in SWM. If we could show that the Vai forms are original, then clearly K borrowed practically all of the numerals 1-10." (Wm. E. Welmers, personal communication, 10/10/77.)

Section II, Subsection 7.

1 "In general, terms for body parts and blood relatives (of which 'father' is the only example I've noted (in these data K.D.B.)) seem to be cited with possessive pronouns in Ligbi and Numu, but not often in Hwela. These are, of course, "relational" nouns, which require an expressed possessor in many (probably most) Mande languages. The Ligbi informant apparently preferred "your..." (possibly, though not likely, "his..."). This is found in 'hand, mouth, nose, tooth, belly, skin, eye, hair, nail,' with prefixed -e; the pronoun is missing in 'ear, bone, tongue,' and 'father,' with an initial vowel, is strange."

"In Numu, the informant apparently preferred 'my...'. A prefixed homorganic nasal is found in 'hand, belly' and 'eye'. The same prefix

may have been missed in 'tooth' and tongue,' both of which begin with a nasal. The prefix is apparently absent in 'mouth, hair, nail'. 'Nose' (nu-) and 'skin' (apparently u-) are questionable. 'Ear, bone, tongue' are, as in Ligbi, cited without a prefix."

"In general, the Hwela informant could apparently dispense with the pronoun in most cases. He did, however, appear to say 'my eye,' 'my father'.

"Somewhat comparably, the Ligbi and Numu forms for 'good,' both e-nye, are almost certainly 'it is good'. This suggests that e- is third person rather than second person, as more or less assumed above. With relational nouns, "his..." seems more likely than "your..." -- unless the elicitor points to his own nose and asks, "What is this?", to which the informant would very possibly reply, "your nose!". (Wm. E. Welmers, personal communication).

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Addendum: Section II, Subsection:

1. Fifth line from the bottom of the page reading : "...Niger-Kordofanian family..." should read "Niger-Congo subfamily of the Niger-Kordofanian family...".

1.1. Seventh line from the top: "Kuranko" should be deleted from the group "(2) Group C:...".

2.1. Table 2, Dental section, */s/: the number in the column to the right should be "2" rather than "12".

2.2.1. This subsection is mislabeled as 2.1.1. and should be 2.2.1.. Also, add "Discussion of..." to the front of "M1 vowel irregularities".

2.2.1.2. the final [ɛ] in the forth to the last sentence on the page should be [e] instead.

2.3. Table 6, Medial Consonants: *s should have a ? next to it.

3.1.1.2. (1) Paragraph beginning with "Many...": should have [k] rather than the final [t] in the paragraph.

(2) Paragraph beginning with "Belly...": the *n should in fact be reconstructed as a */nd/ cluster tentatively.

3.2.1. Place "Discussion of" before "M2 vowel irregularities".