

A PRELIMINARY GLOTTOCHRONOLOGY OF GUR LANGUAGES

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The linguistic family called Gur comprises a number of languages and local variants extending from Dahomey through Northern Togo, Ghana, Upper Volta, Ivory Coast. Their great territorial spread reflects a complicated history, only a small part of which is recorded or reflected in historic documents and traditions. It is hoped that some suggestions about the possible time depth and the movements of people involved in this history may be derived from the application of lexico-statistic glottochronology.

To make possible a reasonably adequate preliminary study of this, it was fortunately possible to enlist the effort of Bendor-Samuel and Wilson, who had already done considerable descriptive and some comparative study of Gur languages. Invaluable also was the prompt response to our appeal for diagnostic word lists by a number of investigators outside Ghana.¹

If there existed a well developed theory of Gur historical phonology and an advanced compilation of etymologies, the identification of cognates could be made with accuracy. Under the actual circumstances, it was necessary to feel our way, making the best possible use of the array of forms for the several languages corresponding to each item of the diagnostic list, making cross check with parallel Gur forms, and having an eye to presumably cognate forms in the West Atlantic languages, in Kwa and in Baaton, in so far as the data were accessible to us. Collections of data previously made by Bendor-Samuel and Wilson made this task easier, and we were also privileged to see Akan vocabularies of Dr. John Stewart and Guang ones of Mr. Colin Painter. It was possible, within limits, to consult published materials.

The procedure followed in the identification of cognates, based on the experience of Swadesh, is one designed to permit rapid work and to keep down errors, both those of excessive boldness and those of excessive caution. The forms for each item of meaning were listed in columns, as in the tabulation given at the end of this article. Two letter identification keys² were set opposite each form, based on a first guess at deep layer reconstruction of the common forms; these keys are essentially mnemonic and useful for the human user and easily adaptable to the requirements of computer operations. The tentative hypotheses implicit in the first keys were cross-checked with all pertinent examples both in the corpus and in available supplementary materials. With increasing knowledge, the keys were repeatedly revised until they appeared to be as good as could be made in the time available. The reconstruction of hypothetic common forms,³ including doublets and regular alternants, intended to clarify our cognate identifications were set down at the bottom of each column.

¹ The full list of contributors is given on page 35. The writers would take this opportunity of sincerely thanking all who so readily and promptly submitted the wordlists which made this study possible.

² This system of keys, although based on one used previously by Swadesh in other parts of the world, nevertheless appears to work reasonably well here also.

³ It should be stressed that the Common Gur forms are an attempt to give some possible approximate forms for Gur in the period when there were already dialect variations. The term 'Proto-Gur' is avoided since it would suggest a more specific form than we are prepared to put forward at present.

The cognate letters were translated into numbers for the purpose of computer processing, and the number key-punched on cards. These data cards were then fed into the electronic computer with a machine programme, kindly prepared according to our specifications by Professor Koster, University of Ghana Physics Department. The programme provided for counting like-keyed items and making calculations between every pair of languages. The information reported by the machine includes: (a) the total number of items available in both languages of the 100 in the diagnostic list, (b) the total number of items given the same key; (c) the percentage of cognates over pairs, (d) the time estimate implied by this percentage according to the equation:

$$\text{Min. tc} = 10 \log C\% \log 74\%^4$$

Min. tc is "Minimum time of divergence in centuries". C% is the percentage of cognates, and 74% is the percentage of shared items expected after 100 years according to the average in the control studies on which the formula is based.

These figures were then tabulated, as seen below. The order in which the languages are given is one representing their order of relation as calculated. In so far as possible, it leaves the closest relations along the diagonal of the table, maximum times in the outside column and row. There were of course points where compromises had to be made in the arrangement since the two dimensions available on the printed page are insufficient to meet all needs. Break points were then located in the tables, shown by vertical and horizontal lines.

The identification keys use only nine different consonants and one vowel, which are made equivalent to the nine digit numbers. Used two at a time one can thus differentiate up to 99 different combinations, that is from 01 up to 99, a number over twice more than can possibly be needed for any one item in the list in a set of forty languages. In fact, even in a far larger comparative problem, it is difficult or impossible to keep apart any very large number of sets. Vowel variations may be in functional alternation, like 'sing: sang', 'falling: felling' or 'man: men', or may vary in doublet forms, like 'clark' and 'clark'. Among the consonants, such phonemes as b and p may (a) have fallen together in the proto-language or in some of the derived languages; (b) be the allophones; (c) come out of morphologic alternants, whether in the form mentioned or in another that leads into it; or (d) represent variations frequently found in doublets, including general or inter-dialect ones. These are more than thumb rules in the application to Gur, since vocalic and consonantic interchanges are found in some of the languages, and the comparative evidence indicates that common Gur had a system of alternation similar to that in certain West Atlantic languages. Also, according to information supplied by Dr. John M. Stewart, certain consonant alternations appear in Akan languages between the simple and reduplicated forms.

There seems to be evidence for two kinds of consonant alternations in Gur. One type of interchange may involve on the Common Gur level, the interchange of weak and strong variants of consonants. So far we know of only one language for which we have a definite report of its existence today, namely Kabrè, for which Mr. Delord mentions *hf* and *w:b* alternations. We cite from his notes the following:

- a. "homme mûle": *abafo*, dérivé du nom *walo* "mari", du radical *wal* "prendre épouse" (alternance régulière *b/w*).

⁴ See D. H. Hyman, 'Lexicostatistics so far', *EXPLORING ANTHROPOLOGY* 1.2 (1950). Note that $\log 74\%$ is only a simple expression of a $\log 86\%$, used elsewhere.

- b. "bon": adjectif verbal sur radical *baʷ/waw* (alternance régulière), d'où *kibam* "bon" (personne), *ki.waw* "précieux" (objet) . . .
- c. "vent": *bel.im*, sur radical *bel/fel* (alternance régulière) d'où dérivent des termes comme *fit* "souffler", *henag* "bayer", etc.
- d. "loin": *bol.i*, par alternance régulière *w/b* est dérivé du radical *wol* "aller".
- e. "droite": noté seulement dans l'expression "main droite" *ni.wang/nai kibansi*, composée de *ni(s)* "doigts" + radical *waw/haw* "être bon, précieux".
- f. "maison": *ho.w* "groupe de cases . . ." est en alternance régulière *h/w* et *a/ə* avec *wə.w* plus spécialement réservé à "appartement", "champ/plantation": *hay.um/fay.ɔw* (alternance régulière *h/f*), dérivé de *hay* "cultiver", fréquentatif de *haz* "floonder".

Although Mr. Delord does not state general rules, it is evident from two of his examples that the plural has the strong form while the singular has the weak. Since this coincides in principle, though not in its details, with the Fulani pattern, we have some assurance that in some way it may hark back far into the past. And it is not unreasonable to guess that the earliest form of alternation was based on consonantal reduplication to express plurality, as *p:pp* and *b:bb*. However, this reduplication was not confined to singular versus plural. The doubled or strong consonant could evidently also be formed from consonant groups, just as we still have today in Mampruli *loku* 'river' from *log-* plus singular ending *-gu*, probably going back to **lok(o)-* plus **-ku*.

Despite the limited evidence for this alternation on a descriptive level, there are many sets of probable cognates in which some languages seem to derive from the reduplicated or strong and some from the unreduplicated or weak form. Also, in a number of cases, it would seem that strong and weak fell together, thus leaving us without specific evidence for the old alternations at those points.

It will have been noted in the Kabré examples cited above that there is present one instance of vocalic alternation. The complete material includes a few other examples. One can also cite several plurals made with vocalic alternation in Mòoré-Dagbani languages, as Mampruli base *naɔ-*, sg. *naa-fu*, pl. *nig-i* 'cow'; base *lag-*, sg. *la'a-fu*, pl. *lig-ri* 'coin'; *yoo-fu*, pl. *yur-i* or *wir-i* 'horse'; *waa-fu*, pl. *wig-i* 'snake'; *kpaan-gu*, *kpin-i* 'guinea fowl'.

On the whole it would appear that the processes of consonantal and vocalic alternants are so ancient both in Gur and related groups that they have had ample time in which to disappear as an operative procedure in many of the contemporary languages. It continues in its old role or in thinned-down versions of them in scattered languages. For the most part it is found reflected in digressions from the simplest phonological correspondences. And this may be even more true of a second type of consonant alternation still to be mentioned.

We turn now to apparently irregular correspondences which seem to hark back to doublets involving related but different contact positions, as **t* with **c* and of **d* with **j* and of both of these sets, that is voiceless and voiced, with each other. Thus we find, even in Bantu, forms for 'to bite' that evidently reconstruct to **dumu* and **sumu* or **ɛumu*. Gur apparently had both **ddum* and **jjum*. And there are a number of other cases showing similar doublet variation. In a few languages, as Binoba, *j* frequently corresponds to *d* of other languages. It might appear that *j* is a phonologic development from **d*, except that *d* also exists in Binoba. The way out may be to recognize that this language favoured the **j* variant in **dj* alternations.

To disentangle the complicated evidence for consonant alternation would be a major work, and must wait for the future. As far as the present paper is concerned, it is recognized that there is *prima facie* evidence for the alternations and it is therefore justified to take them into account in equating forms. We have wondered what would be the effect of not taking them into account in the glottochronology, but time did not permit carrying out different possible alternative counts. At any rate we give our data with indications by means of the two letter keys, of how each item was actually counted, so that the reader may form his own impression or actually carry out the counts he may wish.

Although much of the problem of identifying cognates depends on the recognition of the old alternations, accuracy requires that the theory of specific changes be worked out. A tentative theory of shifts is implicit in the reconstructions shown under common Gur (CG). Besides, the main developments for them - in initial position, in so far as we are able to discern them - are synthesized in a table of phonetic correspondences. The reconstructed phonemes are shown in the top line, the several languages below. For the Comsonso language we show the geminate alternations by colon, the inter-phonemic variation by diagonal, as p:pp/b:bb. For the derived language, because the old types have partly crossed and for the sake of simplicity, the different reflexes are separated only by diagonal. (See Table 3)

One point of phonology merits special mention. We have found no clear evidence for separating a proto *s from the ungeminated *c, belonging to the dental set; any original distinction may have been lost in very ancient times, possibly antedating common "Niger-Congo". We therefore reconstruct *c in all corresponding situations.

It should be remembered that the two-letter identification keys are not based on the reconstructed Gur alone, since they have been made also with an eye to West Atlantic, Kwa and Bantu. Limits of space prevent the presentation of evidence from these language groups.

Bearing in mind the most usual shapes of demonstrative and pronominal elements, and the negative, a single consonant is used for keying items 1 to 8. They are called minor elements. The letter ɹ is added to the consonant to complete the two-letter shape. For nouns and verbs, called major elements, two consonants are used. Where no specific data either in Gur or in other related groups, identify, the second consonant is given as ɹ. Where etymologically compound forms are suspected, a consideration of the comparative data determines where one or both elements need to be considered. Where two equivalent forms are listed, both may be keyed. However, we never take into account more than two elements for an item, since this would greatly complicate the mechanization of counting, while modifying the final percentages only occasionally and never in any really appreciable degree. The method of lexico-statistics is after all a rough instrument and there is little point to obtaining a slightly different calculation when it would make the procedure much more costly.

The actual letters used as keys are: 1. p for the labial occlusive set; 2. t for the dental; 3. k for the velar; 4. ɔ for the labiovelar; 5. s for an independent sibilant, but which is not actually used in the present problem; 6. m for labial nasal; 7. n for dental nasal; 8. ɲ for palatal semi-vowel; 9. w for labial semi-vowel; 0, ɛ as an addition to a one-consonant key, so as to make it mechanically like the two-letter keys farther on. oo marks lack of data, xx is used for known borrowed forms from entirely different languages, which could not properly be counted as cognate with each other or with other keys; a borrowing from a regional variant of the same closely related language, which can be

suspected of having merely changed the phonetics of the word in a minor way, is keyed as a potential cognate. When the keys go on the computer, numbers are used instead of letters. xx is keyed as 1 in the first language in which it occurs for a given item, 02 for the second, and so on, so that these items will not be counted as cognate with others. Up to two bilateral keys may be used for each entry; of course, in the majority of cases there is only one. For computer purposes we regard all items as having two keys, called A and B, the latter being 00 in the majority of cases.

In the machine programme the languages are taken up two at a time. For each pair, the machine goes through item by item, testing A of the first language with A of the second, A with B, B with A and B with B. If at least one of the four possible comparisons shows identity other than 00 with 00, one cognate is counted and one pair. If no agreement is found, a pair is counted but not a cognate. If data is lacking for an item in one or both of the languages, nothing is added to either pairs or cognates. As soon as the machine finishes a count of cognates and pairs, it calculates the percentage of cognates; that is $C\% = C/P$. It then converts $C\%$ to the corresponding centuries minimum time of divergence by the formula $\text{Min. ac} = 10 \log C\% / \log 74\%$, based on the fact that 74% is the square of the average percent of retention (86%) in the control cases on which the standard was based.

INTERPRETATION OF TABLES

Our study embraces a large number of the languages classed as Gur, but it does not cover them all. The addition of more languages to the analysis will modify the present results possibly in minor details, possibly also in some important ones. A refinement of the phonology and more knowledge of the etymological details will also bring changes. Of the forty-five languages of the study more or less complete diagnostic lists were available for 33. In many cases (indicated by an asterisk on the tables) the lists were some 25 items or more short. Because of these inadequacies, it is necessary to emphasize the provisional nature of the present results.

There is a test of consistency which can be applied very easily to lexicostatistic calculations in the mass, as summarized in tables. It is based on the principle that languages closely related to each other should show similar divergences with respect to other languages, especially if the latter are far removed from the pair concerned. The absolute limit in normal expectation is that the differential with respect to a third language should not exceed the divergence between the first two. If the actual calculations show it to be greater, this is probably due to some error or combination of errors in the calculation or to weaknesses inherent in the methods for gauging time with accuracy from comparative evidence. Now, in the table produced by our study, the bulk of the figures show good consistency by the test mentioned. Some are improbable. Thus, Mambar and Senuar are 9 centuries divergent from each other, yet the first gives 45 with reference to Tāmari against 36 for the second, with a differential equal to the divergence. Some other such instances are to be found in the table. Some can be partly attributed to the short lists, others are probably related to the weakness of the phonological theory in matters that involve the more distantly related portions of Gur.

The relationships revealed by the glottochronologic counts can be better grasped if a grouping of the languages is made. The first task was to find a sequence of the languages which would bring together those of relatively closer relationship in so far as this is possible; the table shows such an order. The next procedure was to seek divisions, and

this was accomplished by taking 11 centuries (73%) as the point of minor separation, and 21 centuries (53%) as that of major division. The result may be expressed in hierarchic form as follows:

1. Bargu
2. Gurma-Mööré group:
 - (a) Tāmari
 - (b) Gurma subgroup: Bassi, Konkemisa, Gansam, Binoba, Gurma
 - (c) Mööré-Dagbani subgroup: Pilapila, Naudem, Bull, Frafra, Gurenne, Talsi (? and Nalt), Dagbani, Mampruli, Kneal, Mööré, Dagara, Nura,⁵ Birifor, Dagaari (including Wali and Norse), Hanga, Safalaba
3. Crusi group:
 - (a) Mo, Vagula, Chokali, Tampoima
 - (b) Sisala
 - (c) Kæsem, Lysle
 - (d) Lamba, Kabè
 - (e) Kotokofi
4. Lobiri
5. Bwamu (= 'Red Bobo')
6. Kirma, Tyurama
7. Win
8. Senfo group:
 - (a) Mambar, Senar, Tenyer
 - (b) Pantera, Fantera
9. Sémé⁶
10. Dogon

The order of listing is only partially in ascending divergence, since it would take a three-dimensional diagram to represent multilateral relations.

Our study confirms the relationship of the languages called Gur as a set of interrelated groups and kɛc languages. It does not either confirm or belie the discreteness of this total complex within broader networks, such as 'Niger-Congo'. A separate study by Colin Painter, presented to the Fifth West African Languages Congress, compared seven characteristic Guing languages with three Gur languages, and with Twi-Fante, with Gɛ-Adangme and with Ewe. Its result tends to erase the division line between Gur and Kwa.

COMMENTS BY J. T. BENDOR-SAMUEL AND W. A. A. WILSON

It has been most valuable to have this opportunity to work with Professor Swadesh, and we have found his conclusions most enlightening, confirming as they do certain aspects of previous classifications, and giving a chance of evaluating somewhat subjective opinions and tentative groupings. We did, however, have certain reservations about the manner in which Swadesh applied his own method to the material that was used in this study.

We shall here discuss the results of this classification, treating each group in turn, and then comment on the method used.

⁵ Nura is commonly known as 'Lawa Lobɔ', after the NW Ghana town where it is spoken.

⁶ It is interesting that the Rev. A. Prost, who has studied Sémé, denies that it has any Gur characteristics, other than some slight lexical resemblances, perhaps due to borrowing. See his contribution à l'étude des langues voltaïques, *IAN, Dakar, 1962*.

CLASSIFICATION

GROUP 1. *Bargu*⁷ (= *Bariba*) has no clear affinity with even its closest Gur neighbours.
 GROUP 2. The clear emergence of a Gurma-Môre group confirms that there is no clear-cut division between the 'prefix-suffix' type languages of the Gurma subgroup and the 'suffix-only' languages of the Môre-Dagbani subgroup. This typological division is somewhat arbitrary, and has been increasingly questioned.

The figures show that Tamari stands somewhat alone in this group, the maximum percentage it has in common with any other member being 67 (estimated at 23 centuries of divergence). The division between the Gurma and the Môre-Dagbani subgroups is relatively minor, since the figures for Gurma: Pilapila differs by only 3% from that for Gurma: Basal.

Pilapila, Naudem and Buli at first sight would seem to constitute a subgroup of their own, were it not that two of these show percentages as high as 77 and 72 with Mampruli. As far as concerns Buli, the figures are particularly interesting in showing how wide of the mark were those classifications which grouped Buli with the Grasi languages (group 3 of the present classification). The geographical proximity of this language to Kasena, Sisala and Tampulma led to its divergences from other Môre-Dagbani languages being assumed to be Grasi features. Now it can be seen that in fact these divergences are in the direction of Pilapila and Naudem.

The distribution of these three languages is interesting. Buli is spoken some 120 miles WNW of Naudem and Pilapila, being separated from them by the following, listed approximately from west to east: Frafra, Gurme, Talai, Naht, Kasal, Mampruli, Binoba, Kookumba. Mampruli is the southern neighbour of Talai, Naht and Kasal.⁸

Grammatical comparison of the languages of this group shows that Buli, like Frafra, Gurme, Talai (and Naht) has retained the class system which operates in Naudem, Pilapila and the Gurma subgroup,⁹ but no longer in any other members of the Môre-Dagbani subgroup.

GROUP 3. The Grasi group, as it emerges here, includes the so-called Tem languages of Westernman and Bryan.¹⁰ The Tem subgroup is separated by about 120 miles from Tampilma, its closest Grasi neighbour; the intervening language is Dagbani.¹¹

The figures for the northwestern section of the Grasi group lead to the same hierarchical grouping as those given by Bender-Samuel in his article, but Swadesh's percentages are very much higher, sometimes by 50% and more, leading to as much as a halving of the estimated time depth. The figures are compared here, Swadesh's being given in the right-hand table; the figure for centuries of divergence is shown after the oblique stroke:

⁷ The *Bargu* wordlist was not available for the computer calculation.

⁸ Westernman and Bryan raise the question of the relationship between Mampruli, Kasal, Dagbani and Namsi. Comparison shows that while Mampruli and Dagbani (and Namsi according to the Dagbani's own judgment) should be regarded as a dialect cluster, Kasal shows sufficient important points of difference to be regarded as a separate language. The southern dialects of Kasal do seem to form a dialect continuum with Mampruli, but this may be due to contamination resulting from strong political influence on the part of the Mampruli.

⁹ Class concord also operates in many of the Grasi languages and in the Senoufo languages.

¹⁰ See also J. T. Bender-Samuel, 'The Grasi subgroup of the Gur languages', *JWAL*, 2: 1-47 (1965).

¹¹ The separation of Buli from Naudem, and of the Tem languages from Tampilma, strongly suggests that there has been a relatively recent and rapid expansion of the Mampruli and the Dagbani; historical records confirm that these two tribes have been politically dominant in the area for some time. Their expansion would have been at the expense of the many smaller tribes now found round their borders.

Mo	Mo
62/16 Vagala	78/8 Vagala
61/16 68/13 Chakali	76/9 79/8 Chakali
55/20 58/18 62/16 Tampulna	67/13 69/12 76/9 Tampulna
40/30 43/28 47/25 51/23 Sisala	63/13 62/16 66/14 66/14 Sisala
33/34 37/33 39/31 40/30 45/27 Kasem	50/23 51/21 57/19 55/20 66/14 Kasem

GROUPS 4 AND 10. It is clear that the Lobi-Dogon relationship, advocated for instance, by Westermann and Bryan, has little justification, since even Swadesh's figure, which we regard as optimistic, is only 38% between the two. It should be said that the Lobi-Dogon grouping is almost entirely negative, material on either language being lacking hitherto.

The percentages of similarity between Lobiri and other Gur languages shown here varies from 52 to 38, and for Dogon from 45 to 25. In neither case is the Lobiri-Dogon figure of 38% the highest. With Lobiri the highest figures are all in the Grusi group, all but two of which show 47% or more. For Dogon, the following percentages are higher than the corresponding figures with Lobiri: 43% with Fantera, 40% with Pantera (both Senufo group); 40% with Kasem and 39% with Lamba (both Grusi group).

GROUP 6. Kirma is listed (under the name of Mbouin) among the Senufo languages by Westermann and Bryan, but classified separately by the Revd A. Prost¹². There is some confusion regarding its identity, since there is another language, also called Mbouin, spoken in the vicinity, and classified as Lobi-Dogon by Westermann and Bryan.

GROUPS 7 AND 8A. All are named by Father Prost (op. cit.) as members of the Senufo group, but in view of the cleavage between Win and the others, it seems advisable to list it separately.

GROUP 8B. Pantera and Fantera are clearly related to the Senufo group. They are spoken in east central Ghana by people living in the Guang domain.

GROUP 9. Sémé, spoken near Bobo Dioulasso, is of unknown affiliation (see footnote 6). GROUP 10 (See above, under Group 4).

METHOD

We have some reservations over Swadesh's method of applying keys. While his system provides a useful method of labelling possible cognates, there were instances where we felt he was assessing 'cognacy' rather too liberally. In some cases the keys finally allocated were broader than those arrived at in consultation with us; where the difference seems particularly important, the keys we should have preferred are indicated in brackets, alongside the key used in the calculations.

The effect of a liberal assessment of 'cognacy' may be relatively unimportant in close-knit groups - indeed Bendor-Samuel's figure of 84% for Dagbani-Hanga exceeds Swadesh's by 3%¹³. It is in the broader groupings that the picture is changed, though the hierarchy may be preserved. The figures quoted above for the NW Grusi languages illustrate this, as does a comparison between Swadesh's Dagbani (Wali): Chakali figure of 45% (giving 26 centuries) and Bendor-Samuel's 17% (giving approximately 57 centuries). Here the percentage is nearly trebled and the time depth reduced by over half.

The result of Swadesh's calculations is seen in the fact that outside the larger groups, percentages between even languages at the extremes of the table fluctuate mainly between 50% and 30%, with a maximum of 56% and a minimum of 26%. Differences between

¹² See A. Prost, op. cit. (see footnote 6 above); also his 'Le verbe dans les langues voltaïques' in *ACTES DU SECOND COLLOQUE INTERNATIONAL DE LINGUISTIQUE AFRICAINE*, Dakar, 1963, p. 182; also G. Massignon, 'Rapport sur les langues voltaïques', *IBID.*, p. 230.

¹³ (Op. cit., n. 3, p. 47.)

the groups are consequently attenuated, and a group such as the Grusi group appears much more close-knit than Bendor-Samuel's figures would have suggested. If the standard of comparison that led to the first sets of Grusi figures and the Dagari:Chakali figures of 17% were applied, the Lobiri:Dogon figure would drop to 16%.

LIST OF CONTRIBUTORS

The word lists appended to this article were collected and/or contributed by the following (see footnote 1):

Bargu: Misses R. Eats and J. Soutar; Témari: A. Prost; Basal: Misses M. Abbott and M. Cox; Konkomba: Misses M. Steele and G. Wood; Gangan: A. Prost; Bimoba: Misses S. Hine and G. Jacobs; Gurma: Miss E. Backett; Pilapila: G. Beacham; Noudem: A. Prost; Bubi, Dagari: Wilson; Birifor: D. B. Woodford; Nura: Wilson; Dagani: L. Girault and A. Prost; Mũro: Wilson; Kozal: D. and N. Spratt; Mampruli: Swadesh and Wilson; Dagbani, Talni, Gurinne: Wilson; Fofra: Swadesh; Hanga, Safalaba: members of the Institute of Linguistics (West Africa); Mo, Vagala, Chakali, Tampelma, Sisala, Kasem: taken from JWAL. 2.1 (1965), pp. 50-55; Lyele: F. J. Nicolas (dictionary); Kabré: J. Delbord; Koonkoni: Misses M. Abbott and M. Cox; Bwamu: G. Manessy; Lobiri: Miss M. Vaillant; Kirma, Tyurama, Win, Mambur, Senar, Tenyer: A. Prost (also a Senari list from R. Mills); Pantera, Fantera: C. Painter; Sémè: A. Prost; Dogon: Mme G. Calame-Griaule.

NOTES ON THE WORD LISTS

In the Appendix word lists the languages appear in the same order as in the table of percentages. There is an open line between every group and/or subgroup.

For each item the entry is preceded by the two-letter key used in the calculations. Where two keys are given, for one item, these are written together without a break (e.g.: $\pi\eta\sigma\eta$). These two keys may either apply to each of two entries under one item, or they represent two components from which a word is reckoned to be derived.

The principle on which Swadesh operates is that long vowels or vowel clusters are generally assumed to arise from the loss of a consonant, usually a velar; words of pattern CVVCV are therefore often given two keys, being analysed as a compound.

Where a key is placed in brackets, this indicates that it was not used in the computer calculation. Either the entry was not available at the time, or Bendor-Samuel and Wilson would have prefixed it to the one used by Swadesh. In the latter case the key actually used is indicated before the bracket.

The lists for Hanga, Gangan, Dagari, and Bwamu were not available for the computer calculations. They were later keyed by Wilson, as far as possible in the same manner that the other languages had been keyed for the calculation, for the sake of consistency in the results.

NOTATION

The notation is that of the original lists, wherever possible, though some transliteration has been necessary to conform with the Gill type available.

The Pantera and Fantera lists have been transliterated from the IPA of the originals. In Father Prost's lists, his notation has been preserved for *ty*, *ky*, *dy*, *gy*, and no attempt has been made to make these conform to the *tj* and *dj* used in some of the lists.

Where noun forms are separated by an oblique stroke, these are singular and plural, respectively. For verbs, certain inflected forms are separated by an oblique stroke. Forms separated by commas are either synonyms or dialectal variants.

TABLE 3
A TENTATIVE PHONOLOGY OF GUR (initial consonants)

	CG	kkk	ggg	g	kekkw	gwggw	gw	m	w	p/ɸ
(r)	BG									
(2a)	TM	k			k	m		m		f/ɸ
(2b)	BS	k		g	kp	gb/gw	gm/nw	m		f/ɸ
	KN			g	kp/k	gw/gb	gm/gw	m		f/ɸ
	GG									
	BM	k		g	kp	gb	gm	m		f/ɸ
	GM	k			kp	w/gb	gm	m		f/ɸ
(2c)	PL	k/c			kp/k	w/gb	gm	m		f/ɸ
	ND	h/k	g		kp/k	w	m	m		v/ɸ
	BL	k	g		kp	w/gw		m		p
	FR	k/ky	g		k	w/g	gm	m	w	v/ɸ
	GN									
	TL	h/k/c	g	g	kp/k	w/gb	gm	m		v/ɸ
	DB	k/c	g/ɸ		kp/k	w/gb/g	gm	m	w	v/ɸ
	MP	k/c	g/ɸ		kp/k	w/gb/g	gm	m	w	v/ɸ
	KL									
	MR	h/k/ky	g		k	w/g	w/w	m	w	v/ɸ
	DG									
	NR									
	BR	k/c	g/ɸ		kp/k	w/g	gm/m	m		v/ɸ
	DR	k/c	g		kp/k	w/gb	gm	m	w	v/ɸ
	HG	k/c	g		kp/k	w/gb	gm	m		v/ɸ
SF	k/c	g/gy/ɸ		kp/k	w/g	m	m		v/ɸ	
(3a)	MO	h	g		kp/k	w		m		f/ɸ
	YG	h			kp	w	nw	m		h/f/ɸ
	CH	h/k			kp	w/gb		m		f/ɸ
	TP	h/k			kp	gb	w	m		h/f/ɸ
(3b)	SS	h/k	g		kp	w/gb	nw	m		h/f/ɸ
(3c)	KS	k			k	w/g	m/gm	m		f/ɸ
	LY	k			k	g	m	m		v/ɸ
(3d)	LM		y/g		k		m			
	KB	h/k/ky	y/g		kp/k	w	w	m		h/f
(3e)	KT	k			kp/k	w	m	m		f
(4)	LB	h/k			kp/k	w		m		h/f

TABLE 3 (contd)

A TENTATIVE PHONOLOGY OF GUR (initial consonants)

(5)	BW									
(6)	KR	h	g		kə/k	w/gw	nw	m	h'/p	
	TY	h/ky	g/gy		k	g	gm	m	h'/p	
(7)	WN	k			k	w/gb	nw	m	p	
(8a)	MM	x/k	g		x	w/gb	nw/gm	m	w	f/p
	SN	k	g		kp/k	w/gw	nw	m	w	f/p
	TN	k		gk	x/k	w		m	w	f/p
(8b)	PN	k		gg	k	w/gb		m	w	f/p
	FN	k		g	k	w/gb		m		f/p
(9)	SM	k			kp/k	g	gm	m		f
(10)	DN	k	g		k	g		m		f/p
	CG	b/bb	mb	t/tt	d/dd	s/cc	[ɟ]	nd	y/yy	ny
(11)	BG									
(12a)	TM	b/m		t	l	ty	ɣ	n	ɣ	n
(12b)	BS	w/b		t	d	s	y/ɟ	nd		ny
	KN	w/b	mb	t	d	c	y/ɟ	nɟ		ny
	GG									
	BM	b		t	d	s	y/ɟ		ɣ	ny
	GM	b		t	d	s	ɣ		ɣ	ny
(12c)	PL	v/b		t	d	s	z/ɟ		ɣ	ny
	ND	b		t	d	s	dɣ/ɟ		h'/ɣ	ny
	BL	w/b	b	t	d	s	z/ɟ		ɣ	ny
	FR	w/b		t	d	s	z		'ɣ	ny
	GN									
	TL	w/b		t	d	s	z		'ɣ	ny
	DB	w/b		t	d	s	z		ɣ	ny
	MP	w/b		t	d	s	z		ɣ	ny
	KL									
	MR	w/b		t	d	s	z		ɣ	ny
	DG									
	NR									
	BR	w/b		t	d	s	ɟ		'ɣ	ny
	DR	w/b		t	d	s	z		'ɣ	ny
	HG	w/b		t	d	s	z		ɣ	ny
	SF	w/b		t	d	s	z		'ɣ	ny

TABLE 3 (contd)

A TENTATIVE PHONOLOGY OF GUR (initial consonants)

	CG	brbb	mb	titt	d:dd	ccc	jijj	nd	y:yy	ny
(3a)	MO	v/b		h/t	d	s/c	dz/j	ny	'/sɛ	ny
	VG	v/b		h/t	d	s/c	z/j	ny		ny
	CH	w/v/b	m	h/t	d	s/ta/c	z	ny	'/y	ny
	TP	v/b		h/t	d	s/ts	z	ny	h/y	ny
(3b)	SS	v/b		h/t	d	s/c	y/dz	ny	ɣ	ny
(3c)	KS	v/b		t	l/d	c	y/j		ɣ	ny
	LY	w/b		t	d	s/ky	y/gy		ɣ	ny
(3d)	LM			t	d	s	y	ny	ɣ	n
	KB	v/b		t	d	s/c	ɣ	ny	ɣ	n
(3e)	KT	w/b		t	d	s	dz		ɣ	n
(4)	LB	b		t	d	s	ɣ		'/y	ny
(5)	BW									
(6)	KR	b		h/t	d	s	ɣ		ɣ	ny
	TY	v/b		h/t	d	s	ɣ		ɣ	ny
(7)	WN			t	d	s	ɣ	n		ny
(8a)	MM	w/b	mb	t/ty	d/dy	s/c		ny		ny
	SN	w/b	m	t	l	c	y/z	ny		ny
	TN	w	m	t	d	ky	ɣ	ny		ny
(8b)	PN	w/b	m	t	l	s	y/j	ny		ny
	FN	w/b	m	t	l	c	y/j			ny
(9)	SM	w/v/b	m	t	d	s	ɣ		ɣ	ny
(10)	DN	v/b		t	d	s	y/j	ny		

A PRELIMINARY GLOTTOCHRONOLOGY OF GUR LANGUAGES

 APPENDIX
 'SWADESH FIRST 100' DIAGNOSTIC WORD LISTS
 FOR FORTY-FIVE GUR GROUP LANGUAGES

			1. 'I'		2. 'Ibaw'		3. 'we'		4. 'this'	
(1)	Bargu	BG	me	na	KE	a	TE	sa	NE	yeni
(2a)	Tamari	TM	me	mi, n	FE	fa, a	TE	ti	OO	.
(2b)	Bosal	BS	me	man, m	TE	si, a	TE	timbi, ti	NE	nee
	Konkooba	KN	me	mé	TE	sé	TE	tumbi	NE	ne
	Gangben	GG	me	men, a	TE	sia, a	TE	tim, ti	OO	.
	Bimoba	BM	me	mé	FE	fi, a	TE	tim	NE	na
	Gurma	GM	me	m, n	KE	a	TE	ti	(NE)	nee
(2c)	Pilapila	PL	me	maa, ma	FE	bié, ba	TE	tini, ta	KE	a-, an-
	Nawóem	ND	me	man, ma	FE	ben, a	TE	ten, ti	OO	.
	Buli	BL	me	mi	FE	fi	TE	tama	NEWE	nyawa
	Frafra†	FR	me	man	KI(TE)	ham	TE	tumam	NE	ina
	Gurene	GN	me	man	KENE	'ega	TE	toma	NEWE	lawa
	Talni	TL	me	man	YE	nyen	TE	tam	NE	-ala
	Dagbani	DB	me	mani, n, ma	YE	nyini, a	TE	ta-noma, ti	NEKE	go
	Mampridi	MP	me	mani	YE	nyini	TE	tirma	NEKE	gua
	Kusil	KL	me	man, m	FE	fo	TE	tom, ti	NE(NE)	-ga
	Móóre	MR	me	maam, mam, m	FE	fon, fo, f	TE	tondo, do, d	KE	kotgo
	Dagora	DG	me	má, n	FE	fó, fo, b	FE	time, ti	OO	.
	Nura	NR	me	máá	FE	fúú, fu, b	TE	tume, ti	KE	ga
	Béridu	BR	me	maa, I	FE	fan, fu	TE	simi, si	NE	naa
	Dugaari	DR	me	maan, I, ma	KI(TE)	hoon, ho, bo	TE	tunoo, tu	KE	ga
	Hanga	HG	me	mani	NE(TE)	nyini	TE	turma	KE	ga
	Safalaba	SF	me	manj	KENE	ono	TE	ulunú	KE	ga, usi
(3a)	Mo	MO	me	me	FE	heg	YE	lyan	NE	onog
	Vagala	VG	me	mej	FE	heg	YE	ya	NE	onil
	Chakaá	CH	me	mej	FE	heg	YE	ya	KE	hag
	Tampulma	TP	me	moo	FE	hih	YE	ya	NE	noko
(3b)	Siesla	SS	me	muna	NE	naa	NE	lana	TE	dej
(3c)	Kasem	KS	KEM	awo	ME	mo	TE	di	NE(TE)	-nto
	Lylec	LY	KE	a	NE	n	NE	ne	OO	.
(3d)	Lamba	LM	me	ma, mo	NE	na, n	TE	da, da	OO	.
	Kabé	KB	me	ma	NE	nya	TE	da	NE	-na
(3e)	Kotokoli	KT	me	má, ma	NE	nyá, nya	(TE)	dá, da	(TE)	dondó, do
(4)	Lobiri	LO	me	maré, in-, mi	FE	feré, fi	TE	sore, si	KE	ke
(5)	Iwama	BW	ME	I	FE	ú, fo	YE	wa	NE	-naga
(6)	Kirma	KR	me	mó, mi	NE	nó, ni, n	KE	mic, i	OO	.
	Tyurama	TY	me	mó, mo, me	NE	yi, n	KE	hami, i	OO	.
(7)	Win	WN	me	mo, me	KE	awo, o	KE	api, a	ME	me/pi
(8a)	Mambar	MM	me	me	ME	me	WE	we	OO	.
	Senar*	SN	me	m, n	ME	me	WE	wu	(KENE)	(gee naa)
	Tenyar	TN	NE	nugo, n	ME	mugo, me	WE	wougo, wo	OO	.
(8b)	Fanterá	PN	ME	me	KE	go	WE	our	KE	ggama
	Fantera	FN	ME	me	KE	gwo	WE	wure	KE	ggá
(9)	Sémé	SM	NE	mone, n	KE	are, a	ME	mene, me	NE	ní
(10)	Dagnn	DN	ME	mu, mi	KE	a	KEME	eme	KE	ó
Common Gur	CG	ME	mi (i/a/u)		FE	pi (i/u/a)	YE	ti (t/c) (i/u/a)	NE	na (n/l) ka (k/kk/h)

*Any SN items and keys in brackets are from the Senari dialect.

†The Frafra word list was not available for final checking.

		5. 'that'	6. 'who?'	7. 'what?'	8. 'not'				
(1)	BG	NE	yecoo	qe	wara	re	mba	xx	m, ku
(2a)	TM	oo	.	ye	wa yin, wɛ	re	ba	re	be
(2b)	BS	oo	.	qe	ɣna	re	ba	xx	kaɔ, -aɔ-
	KN	NE	numbɛna	qe	ɣna	re	ba	NE	naye
	GG	oo	.	oo	.	oo	.	oo	.
	EM	oo	.	qe	ɣna	re	ba	xx	k
	GM	(na)	-ai	wɛ(qɛ)mɛwɛ, ɣna	re	be	oo	.	.
(2c)	PL	xx	a-, an-	te	de-, den-	re	de, bela	re	wa
	ND	oo	.	oo	.	oo	.	oo	.
	BL	xx	la	oo(nɛ)	wana	re	bwa	oo	.
	FR	xx	ina	xx(nɛ)	ani	re	beni	re	daga
	GN	NE	lawɛ	xx(nɛ)	ani	re	beni	oo	.
	TL	NE	-la	xx(qɛ)	'ɔne	re	wa	oo	.
	DB	NE	ɣo	qe	ɣɛni	re	bo	oo	.
	MP	KE	kana	qe	ɣɛni	re	bua	re	pa
	KL	NE	-ga	NE	ano	re	bo	re(xɛ)	bo, ko
	MR	NE	koŋgo	xx(nɛ)	ana	re	boɔ	oo	.
	DG	oo	.	NE	ɔ	re	bo	re	be
	NR	KE	ga	NE	atɔŋ	re	bo	oo	.
	BR	NE	naa	qe(nɛ)	ala	re	bo	oo	.
	DR	KE	ga	na	nɛ-buo	re	buo	oo	.
HG	oo	.	xx(nɛ)	ɣani	re	wula	oo	.	
SF	NE	ona	xx(nɛ)	ana	re	wuna	oo	.	
(3a)	MO	NE	oɔ	qɛ	ame	re	bakwal	xx	kol
	VG	NE	oɛla	xx	ani	re	baɔ	we	wa
	CH	oo	.	xx	ag	re	baɔŋ	oo	.
	TP	TE	ti	xx	ati	re	baɔ	NE	mɛnɛ
(3b)	SS	TE	deŋ	qe	wuon nat	re	baɔ koŋ	re	bi
(3c)	KS	TE	-ato	qe	wɔ	re	ba	re	ba, wo, yi
	LY	oo	.	qɛ	mo bye	oo	.	re	ta
(3d)	LM	oo	.	xx	aaɔ/amba	re	wɔ	re	ba, ta
	KB	NE	n-	xx	ani	re	baɔ	re	ta
(3e)	KT	(nɛnɛ)	baɔɔ, danda	qe	awa	re	wɔ	oo	.
(4)	LO	NE	le	xx	ama	xx	ayɛ	xx	-ga', -a'
(5)	BW	TE	so	xx	-yei	xx	-yei, lewe	re	yi
(6)	KR	oo	.	re	haɔ/habɔ	re	biɔ	oo	.
	TY	oo	.	re	halu/habɔ	re	bi	re	si, sa
(7)	WN	oo	.	re	nye	xx	kway	oo	.
(8a)	MIM	oo	.	re	dɔ	re	nya'a	oo	.
	SN	(xx)	(geɛ ya)	(qe)	nicyo (wi)	re	nya	(xx)	(i)
	TN	oo	.	re	yugo	re	dini, kahi	oo	.
(8b)	FN	xx	ɣgawa	qe	ɣɣbi	re	ɣrɔŋɔ	re	krima
	FN	re	tʃiri	qɛ	ɣɣwɛ	re	ɣi	re	tʃiɣɔ
(9)	SM	oo	.	re	bo, bor	re	nyɔ	oo	.
(10)	DN	xx	ko, vogo	xx	aa	xx	ijge	(nɛ)	-lo, la, le
	CG	xx	ni (a/ɔ, i/a)	qe	gwa (a/i/u)	re	bu (bɔbb, u/i/a)	re	ba (bɔbb/p, a/i/u)

Negative items often too many to list here.

A PRELIMINARY GLOTTOCHRONOLOGY OF GUR LANGUAGES

	9. 'all'		10. 'many'		11. 'one'		12. 'two'		
(1)	BG	QN	kpuro	TP	dabiru	TK	tia	TK	yiru
(2a)	TM	OO	.	OO	.	(NE)	lemu	NK	len
(2b)	BS	KE	koka	TKPK	tikpil	TK	-bo	NK	-li
	KN	PK	bič	PK	pam	PK	m̄ba	NK	n̄lee
	GG	OO	.	OO	.	PK	ba	NK	l̄r
	BM	TK	saak	PK	pam	TK	-yen	NK	-lu
	GM	KN	kuli	(TK)	bontylanla	TKTK	yendo	NK	-lie
(2c)	PL	NM	nem	PT	wulam	TK	nyalg-	NK	-li
	ND	OO	.	OO	.	TK	-yen	NK	-re
	BL	MK	miena	TKTK	yegyega, zua	NKTK	-nyi	TK	-ye
	FR	TK	zə'ʒ	TK	tizo'ya	TK	ayina	TK	-yi
	GN	TK	zə'ʒ	TK	zo'zo	TK	yin-	TK	-yi
	TL	TK	zə'a	PT	bergo	KK	-kwə	TK	-yi
	DB	TK	zaa	PKTK	pam, zoo-i	TKTK	yin-, daam	TK	-yi
	MP	TK	zaa	PKTK	pam, zaa	TKTK	yin-, dam	TK	-yi
	KL	TK(RX)	zə'zsa', pa	PT	bedogo	TK	yooq, adako	TK	-yi
	MR	TKPK	zəgga, fa	PK	woga	TK	yzn-	TK	yi-
	DG	OO	.	OO	.	TK	been	TK	-yi
	NR	TK	zaa	TK	yega	TK	bu'yen	TK	-yi
	HR	TK	dʒaa	TKPK	yaya, waa	TK	bū'yen	TK	-yi, 'yi
	DR	TK	zaa	TK	yega, gaali	TK	yen-	TK	-yi, -yee
	HG	TK	za	TK	damta, zuu-	TK	yini	TK	ayi
SF	TK	za	KN	goni	QN	kp̄leri	TK	ayi	
(3a)	MO	PK	bua	PT	wara	QN	benɔɔ	NK	anc
	VG	MK	amaa	QN	okp̄lo	QN	kepkpag	NK	(a)nc
	CH	MK	amun	KN	kana	TK	digi	NK	alie
	TP	MK	amaga	KN	kankan	TK	dike	NK	alie
(3b)	SS	KN	kala	KN	kɔŋkɔŋ	KKPK	kobala	NK	balia
(3c)	KS	MK	maama	TK	d̄d̄d̄, zanzam	TK	kalo, didwa	NK	le
	LY	KN	gakō	OO	.	TK	-du	NK	-lye
(3d)	LM	OO	.	OO	.	KKTK	ku-dem	NK	-li
	KB	TK	t̄t̄t̄	TK	sakiye	KKTK	kadum	NK	-le
(3e)	KT	PT	boruɔ	PT	dabata	KKTK	kaade	(TK)	sete
(4)	LO	PK	fəo, biβi	TKPK	dʒa, beram	PK	besl	TK	-ʒo
(5)	BW	PK	βeβe	TK	dakta	TK	d̄d̄, -gent	TK	nyuu
(6)	KR	OO	.	OO	.	TK	d̄e	TK	h̄ay
	TY	OO	.	OO	.	TK	dena	TK	h̄si
(7)	WN	OO	.	OO	.	NK	nanjuz	NK	nini
(8a)	MM	TKTK	beβi	OO	.	NE	nini	TKNK	[uni
	SN	(MK)	(mye)	(TK)	(sa'a)	NK	negk̄e (nibi)	TK	[uni (si)
	TN	OO	.	OO	.	NK	n̄ni	TK	[in
(8b)	PN	KN	okoru	TK	ndoro	NK	n̄n̄o	TK	[en
	FN	KN	kekor	TK	tatara	NK	n̄o	TK	[un
(9)	SM	OO	.	OO	.	TK	d̄y	NK	n̄i
(10)	DN	PK	fəu	TK	d̄ʒoo	TK(TT)	turu	NK	ley
	CG	ME	maga	TK	caga (c/)	TK	ȳli-ni	NK	lie (l/n)
		PK	paa-mu (p/bb)	TK	ppaa-mu	TK	d̄ka	TK	ȳli
		TK	ca'a (c/)	PT	bbata	KK	k̄kaa (aa/uo)		
		KN	k̄kura	KN	k̄kana	QN	k̄pan		

	13. 'big'		14. 'long'		15. 'small'		16. 'woman'	
(1)	BG	PK baka	TN	dɛ̀	PK	pɛ̀bu	KT	kurɔ
(2a)	TM	oo	oo	.	oo	.	NRK	u-nit-pogu
(2b)	BS	QK -kpaan	PK	-fɔ	PT	-waa	NRK	u-nimpu
	KN	TKQK takpɛ̀	PK	fɔfɔ	PT	watir	PK	upil
	GG	oo	oo	.	oo	.	PK	o-pi
	BM	QK -gbene	PK	-fɔ	PT	-bi	PK	poo
	GM	(TK) yabi*	(PK)	fwagi	(PT)	wa	PK	pwa
(2c)	PL	TK tʃɛg-lam	PK	vɔg-lam	PT	fiti-m	PK	ɔg-a/-wa
	ND	oo	oo	.	oo	.	PK	plog-a
	BI.	QKTK kpion, zua-	PK	wog	PK	fik	PK	mpok
	FR	KN kati	PK	woku	PT	bila	PK	puaka
	GN	KN kɛte, kargi	PK	woko	PT	bil-e/bib-he	PK	ɔg-a
	TL	TK(KN)tatar, kɛd	PK	wɔkku/wa'a	PTK	be, fi, po'a	PK	bumpok
	DB	TKEN tata-li, kar-	PK	wog-a	PT	bal-a, por-a	PK	ɔg-a
	MP	TKEN tita-, kar-	PK	wo-a	PT	bil-, poor-	PK	po'-a
	KL	TK tita'	PK	wok/wahac	PT	-bji-bibis	PK	bopok
	MR	TKPN kɛsɔg-, bed-	PK	woko	PT	bil-, bwɔɔg-	PK	ɔga (pug-)
	DG	oo	oo	.	oo	.	PK	pow
	NR	QKPN kpɛ̀, bere	PK	wobo	KN	'liɛ	PK	ɔg
	BR	QKPN kpɛ̀, berɛ	PK	wogwor	PT	bi-e, pab	PK	ɔo
	DR	QK kɔɔ	PK	wɔg	PTK	bil-e, fiig	PK	ɔg-a
HG	KN kargu	PK	wolum	PTK	bil-a, fi	PK	ɔg-a	
SF	QKKN kpɛ̀ɔgɔ	PK	wako	PT	bul	PK	ɔg-o	
(3a)	MO	TN dʒan	TN	dʒanɛ	TK	dʒega	PK(KT)	ha
	VG	KN okanɔ	TN	odʒan	TK	odɔkɔ	PK(KT)	haɔ
	CH	TN zeg	TN	zɔgi	PT	wie	PK(KT)	haɔ
	TP	TN kɔzɛ	TN	kɔzɔɔi	KK	kui	PK(KT)	han
(3b)	SS	PT kobalɔ	TK	duomo	SK	moa	PK(KT)	haala
(3c)	KS	KNPN kamunu	TK	dɛ̀dɛ̀	PT	balaga	KT	kɛ̀nɛ̀
	LY	oo	oo	.	oo	.	KT	kɛ̀kɛ̀/kana
(3d)	LM	oo	oo	.	oo	.	TK(KT)	yal
	KB	TK ɛ̀-ɛ̀	TN	dɛ̀	QV	kpɛ̀, nyɛ̀	PK(KT)	halo
(3e)	KT	KNPN kubwɔnɛ̀	PK	kɛ̀beɛ̀	(PT)	bu	PK(KT)	alo
(4)	LO	KNPK kɛ̀fɛ̀	QK	gɛ̀lɛ̀	PT	bu/bi, 'lɔ	KT	kher
(5)	BW	PT -beɛ̀nɛ̀	TK	-toni/-tuɛ̀	QKTK	-gohɔ, zɛ̀	PK(KT)	hɛ̀
(6)	KR	oo	oo	.	oo	.	KT	kyɛ̀ɔgɔ/kyam-ba
	TY	oo	oo	.	oo	.	KT	gigyɛ̀
(7)	WN	oo	oo	.	oo	.	TK	sɛ̀/ɛ̀
(8a)	MM	oo	oo	.	oo	.	TK	tyɛ̀/tyɛ̀
	SN	(QK) (kpɔ'v)	(TN)	(tɔnɔ)	(TN)	(tyɛ̀ɛ̀)	TK	tyɔlɔ/tyɛ̀be
	TN	oo	oo	.	oo	.	TK	tyoo/tyɛ̀b
(8b)	PN	PT badaga	TK	titarɔgɔ	PT	fiyɛ̀	TN	tɔ
	FN	TKQK tʃɛgbwɔ	TN	kutun	TART	kuyɛ̀fyɛ̀	TN	tʃɛ̀
(9)	SMT	oo	oo	.	oo	.	SK	mel
(10)	DN	QK(KK)gaa, gaba	PK(PK)	pala	TK	dagu	TK(KT)	yaana
	CG	QK kpego(kpɔgɔb)	PK	bu'a(b/p)	PK	pil(p/b/bb)	KT	kɛ̀n
	TK	tɛ̀tɛ̀n	PK	bu'a(b/p)	PK	pil(p/b/bb)	PK	pogo (p/pp)
	TN	jina ([j]t)	TN	jana ([j]j)	TK	[[ka][j]d/t)	TK	cia

*GM postbase yalu (?)

A PRELIMINARY GLOTTOCHRONOLOGY OF GUR LANGUAGES

		17. 'man'		18. 'person'		19. 'fish'		20. 'bird'	
(1)	BG	YE	dum	TE	ɬɔn-u	TE	swɛl swɛl	KN	guro
(2a)	TM	NEKE	u-niti-l-o	NE	u-nit-l	YE	ta-yin-ta	NE	ta-na-ta
(2b)	BS	NE	u-nindza	NE	u-nil	TE	u-dʒɔm	NE	u-noo
	KN	TE	u-dʒa	NE	u-nax	TE	u-dʒɛ	NE	u-nyuɔ
	GG	TE	o-dye	NE	o-nel	TE	u-dyɛ	NE	u-nuɔ
	BM	TE	dʒɔ	NEKE	nub	TE	dʒaɔ	(NK)	ɔɔɔ
	GM	TE	dʒwa/dʒaba	NE	nilo	TE	dʒam-o	KN	nuan-o
(2c)	PL	TE	dʒo/dɔpa	NEKE	nel-a	TEKE	dʒompee-ga	NE	nyinyi-ga
	ND	TE	dawa/daba	NEKE	nid-a	EN	ol-ga	EN	men-ga
	BL	NEKE	nido-a	NEKE	nur-o	TE	dʒum	NE	nuem
	FR	PEKE	bera	NEKE	ner-a	TE	zim	NE	ni'ig-ga
	GN	PEKE	buraa	NEKE	ner-a	TE	ziɬ, ʒi-fə	NE	nina
	TI	PEKE	buraa	NEKE	nut/nudip	TE	ziŋ	NE	ni'ɪ
	DB	TEKE	do-o/dab-ba	NEKE	nir-a	TE	zɔɔ/zahm	NE	nooɔ-ga
	MP	TEKE	doowa	NEKE	nir-a	TE	ziŋa	NE	niga
	KL	PEKE	buraa	NEKE	nit/nidip	TE	ziŋ/ziɬ	NE	niŋ (niim-)
	MR	TEKE	dʒwa/dɔpa	NEKE	ned-a	TE	zi-fu	NE	liuli
	DG	TEKE	dəb	NEKE	nir	TE	zum	NE	li-e
	NR	TEKE	dəb	NEKE	nɪf	TE	zum	NE	nul-e
	BR	TEKE	daba	NEKE	nɪf-e	TE	dʒumne	NE	li-e
	DR	TEKE	dʒo	NE	nɪ-e	TE	zum-bo	NEKEN	nyugloo
	HG	TEKE	daba	NEKE	nura	EN	korɔ	NE	nigu
	SF	TEKE	daba	NEKE	nura	TE	zumso	NE	nu-bili
(3a)	MO	PE	ba	NE	nɛ	PE	peɔ	TEKE	dʒɔmbɛ
	VG	PE	baal	NE	nawa	TE	nyɔ	TEKE	zɔmbee
	CH	PE	baal	NEKN	nibolɔŋ	TE	nyinee	TEPE	zɛmbɛ
	TP	PE	baɪ	NE	nɛr	TE	nyani	TEPE	zumibi
(3b)	SS	PE	basla	NE	nɛhoobɛnɛ	TEPE	tʃɛɔliŋ	TEPE	dibɛ
(3c)	KS	PE	baada	NE	nɔɔnu	TE	yoni	TE	zuga
	LY	PE	baɪ	NE	loʔi	NE	momwɛ	EN	kum-i
(3d)	LM	PE	apal	YE	yir	YE	toe-do	TEPE	ɔsɛmɔ
	KB	PE	obalo	YE	tyo	GE	kpaɔpayga	TEPE	ɔum-ɔŋ
(3e)	KT	PE	abalo	YE	oro/era	YE	tiɛndɛ	TE	siɔŋka
(4)	LO	KN	kwon	TEPE	tibil	TE	thom/thom-a	NEKE	'lomin/'lomin-a
(5)	BW	PE	baa	NEKE	nii/nipua	TE	tye	NE	nyilɛ
(6)	KR	PE	bibi-ɔgo	NEKE	nele-ɔgo	YN	teteriŋo	PE	bigɔ yulɔgo
	TY	PE	bibit	TE	kyiro/kyoaba	YN	tetɔro	TEPE	tafiɔ
(7)	WN	TE	dɪ/dibi	NEKE	nevi	YE	nyen-to	EP	kapi-i
(8a)	MM	NE	nɔ	TEPE	ʒipyɛ	TE	fyɛ	TE	ʒɛɔ-ga
	SN	NE	ɔgoɔɔ (nɔ)	TE	ʒɛpi-a (ɔɔɔ)	PE	fyɛ	PT(TE)	sagyi (fedyne)
	TN	NE	ɔɔ	TE	ndye	PE	mfo	OO	.
(8b)	PN	PE	bɛ	TE	ndro	VE	nibro	TE	hanyun
	FN	PE	bɛ	TE	lar	PE	muro	TE	sanyo
(9)	SM	TE	gye	TE	dys	YE	nyɛ	NEKE	lumɔ
(10)	DN	NE	ans	NEKE	inde	TE	idu	TE	(a)ɔɔ
	CG	PE	bbaa-	NE	niga/nii (ii/aa)	TE	ju-ma	NE	nii, nu-ma
		TE	dua (dɪ i)			PE	piɛ	TEPE	ju-ma-bil

		21. 'dog'	22. 'house'	23. 'tree'	24. 'wood'
(1)	BG FK	b55	xx gaani	TK dī-ru	FK bi-a
(2a)	TM ONC	ta-mo-ca	oo .	TK bu-dic	FK li-ce-bi
(2b)	BS FK	ki-ba-ko	QP u-kpokpob	TK bu-su	FK di-bi-l
	EN FK	u-bo	TK li-sukambal-l	TK bu-su-b	FK lu-bu-l
	GG TNGE	u-sigban	oo .	TK bu-su-b	FK m-bi-m
	BM FK	bo-k	FTPE biabik	TK ti-i	FKPT bom-buul
	GM FK	bu-ga	(KT) ogana	TK ti-bu	FK bi-bu-tibili
(2c)	PL FK	ba-ga	TK dyaata	FK da-go	FK bam
	ND EK	gwe-ga	oo .	TK ti-be	oo .
	BL FK	biak (ba-)	TGQP tjikpobi	TK ti-p	FK biri
	FR FK	baa	QP ban-kabika	TK ti-z	FK bum-buda
	GN FK	baa	QP kibii	FK tis	FK biel-ho
	TL FK	baa	QP kpibr	FK tee	FK bun-bill
	DB FK	baa (ba-)	TZRE dyahob-ga	FK tia (ti-)	FK bol-li
	MP FK	baa	KT kukolli	TK ti-a	FK beol-e
	KL FK	baa	QP kpib-a	TK tif	FKPT bon-bura, budup
	MR FK	baa-ga	QP 'ab-ga	TK tif-ga	FK -biel
	DG FK	baa	oo .	TK tie	FK -bir
	NR FK	baa	QP t'ibbir	TK too	FK bir
	BR FK	baa	QP t'ibbir	TK tuk	FK bi-r
	DR FK	ba	QP kpibii	TK da-o	FK bi-r
	HG FK	ba'a	QP kpibi	TK dia, diu	FK bun-burgu
SF FK	ba	QP kpcolt	TK dap	FK biri	
(3a)	MO MKTK	manyao	TKPT nufal	TK da	FK upi
	VG MKK	noahij	QP kpibi	TK da	FK bil
	CH FK	vaa	oo .	TK dza	FKTK kudolia
	TP FK	va-ha	FK hora	FK bogol	FK bi
(3b)	SS FK	vaha	FK horog	FK tia	FK biag
(3c)	KS EK	kukudo	FK yuano	TK tio	FK bu
	LY EK	kul-i	oo .	FK kyoo/kyeme	FK bi
(3d)	LM FK	ho/hase	oo .	FK tu/tin	FK wir
	KB FK	ha-g	QP e-bay-o	FK tu-w	FK bi-ye
(3e)	KT FK	fo	FKTK nyzi	TK teoo	(KT) kuduuku
(4)	LO FK	biin/bena	FKTK yudu	TK ther-u	FKTK bi-ri, de-ke
(5)	BW FK	bween	FKTK nyuudi	FK v[ɛ]-dae	FK baefe/bia
(6)	KR TNGE	dyor-, va-	oo .	TK tibi-gu	FK tibi-belle
	TY FK	va	oo .	TK tibi-kugu	FK tibi-blari
(7)	WN FK	pē	oo .	TK sesuo/sesar	FK pi
(8a)	MM FK	pū	oo .	TK ji-ge	TK tyl
	SN FK	pū	(TK) (zimo)	TK ti-ge	FK tim-pl-a
	TN FK	pūo/pem	oo .	FKTK katyi-gi	oo .
(8b)	PN FK	nyokon	FN ndrandsru	TK tiggil	FK t'seē
	FN FK	nyokwā	FKTK nyam	TK tiggil	FKPT tiggubul
(9)	SM FK	buo	oo .	TK timō	FK bt
(10)	DN FK(TK)	idu	TE seme	TE timu	FK(KK)ii/unu
	CG FK	bbaa- (bb/pppp)	QP kpipi FK jan (c/l)	TK tif (c/d/c) (ii/aa)	FK bbii-li (pp/bb/b)

GM also sangbanio

KT also azasawawa

DB da-gu 'wick'

FR, KL, HG - 'wring'

thing(s)
GM also bombu

A PRELIMINARY GLOTTOCHRONOLOGY OF GUR LANGUAGES

		25. 'leaf'		26. 'root'		27. 'bark'		28. 'skin'
(1)	BG	FK wuru	QT	gbin-a	KK	kondu/kokosu	QV	gan-a
(2a)	TM	FK ku-faa-gu	TK	ku-tyaa	FK	tu-woo-ti	OO	.
(2b)	BS	FK ki-faa-u	NK	n-nyaa	FK	ki-dip-ko	QV	n-gban
	KN	FK ku-faa-g	NK	nyaa	FK	ku-dopoo-g	NKKV	ku-nu-gbu
	GG	FK ku-faa-g	TK	li-si-gyi	FK	li-si-weg-i	OO	.
	BM	FK faak (fa-)	TK	djin	FK	da-po-k	QV	gboug
	GM	FK faa-gu	TK	djin-u	FK	ti-pwagidi	(QV)	gbaq-gu
(2c)	PL	FK va-go	NK	soq	FK	fogog	QV	gbanog
	ND	FK va-gu	NK	rug-u	KK	dagag-ro	OO	.
	BL	FK viokw (va-)	NK	ti-naq	FK	paik	NK	nyig
	FR	FK vō	NK	nya'a	FK	piogaro	NK	'igga
	GN	FK vōō	NK	ʃūg-ri	FK	pogo	QV	gwojo
	TL	FK vaakw	NK	ga ar	FK	pyakw	NKKV	nengbaq
	DB	FK va-gu	WN	wul-li	FK	po-gu	QV	gbaq (gban-)
	MP	FK voo	NK	ny'ari	FK	pie-ku	QV	gbagu
	KL	FK vaak	NK	nya'as	FK	da-pa-uk	QV	gban/gbana
	MR	FK vōō-go (vā-)	NK	nyaga-da	FK	poko	QV	gwān-go
	DG	FK vaa	NK	nyag-r	FK	da-pe-ag	OO	.
	NR	FK va-fō	NK	nyig-r	FK	pag	QV	gan
	BR	FK va-r (pl.)	NK	nyōt	FK	pa-r	QV	gan
	DR	FK vaa-bo	NK	nyag-ri	FK	peg-o	QV	gban-a
	HG	FK va	TK	bigatura	FK	piagu	NKKV	nujgbana
SF	FK va	NK	nyagars	FK	pako	QV	ganc	
(3a)	MO	FK papo	TK	delu	FK	tapt	TK	boton
	VG	FK paqwo	TK	dalonf	FK	dahcy	TK	hoq
	CH	FKKK paatjaga	NK(TK)	luti	FK	petil	TK	taq
	TP	FKKK kpatsak	NK(TK)	lur	FK	pero	TK	bara
(3b)	SS	FK papoog	NKKV	napolog	FK	harog	TK	yara
(3c)	KS	FK voo	KN	gogp	(TK)	tono	TK	tono
	LY	FK voo/vor	NK	na'ner	FK	burol/bweere	OO	.
(3d)	LM	FK ha-ro	TK	ti-lida (li-)	FK	wode (wor-)	OO	.
	KB	FK hay-w (ha-)	TK	lida (li-)	FK	bo-de	TK	ton-w
(3e)	KT (FK)	fau	NK(TK)	lile	FK	ton-ani	TK	tonū
(4)	LO	FK faa	TK	dir-ncō	KK	kho-rc	NK	lor
(5)	BW	FK vōōhō	NK	nani	OO	.	TK	sāhō
(6)	KR	FK fielu	KN	keigo/kāiba	TK(TN)	yila-gu	OO	.
	TY	FK papra-gu	KN	kāya	TK	dalla-go	OO	.
(7)	WN	FK pāmē (pl.)	TK	sam-a	QV	gbo/gbar	OO	.
(8a)	MM	FK weŋ/weye	NK	neŋ/niye	EE	ʃi-kogo	OO	.
	SN	FK we-ge	NK	ni-ne	EE	tiēnkorko	(TK)	(siliga)
	TN	FK hyōwō	OO	.	OO	.	OO	.
(8b)	PN	FK wure	TK	dudugg	FK	fufula	QV	kanwure
	FN	FK wer	TK	dudugg	NKKK	nanggor	QV	wedugg
(9)	SM	FK nōō/nōē	NKKK	nandir	FK	ble	OO	.
(10)	DN	NK lie	TK	duu	FK	kobu	QK	gudu
	CG	FK pau	NK	niki	FK	ppia (ppip/b)	QV	gbaani
			TK	duga		(a/o)		

		29. 'flesh'		30. 'blood'		31. 'bone'		32. 'oil' (grease)
(1)	BG	ME wasi	TK	yom	QE	kuku-ru	QE	gam
(2a)	TM	ME ku-mää	NE	ba-nyi	QE	li-köö	QE	ba-kua
(2b)	BS	ME ti-nza	TK	fati-ku	QE	di-kpab-i	QE	n-kpa-m
	KN	ME tu-nan	TK	n-tja-m	QE	li-kpab-i	QE	n-kp-i
	GG	ME ti-nza-t	TK	ni-sa-m	QE	li-kpab-i	QE	n-kpa-m
	EM	ME nan-t	TK	sö	QE	kpab-i	QE	kpa-m
	GM	ME nan-di, -gu	TK	soo-ma	QE	kpab-li	QE	kpa-ma
(2c)	PL	NE bulgam	TK	ze-m	QE	kw-wal	QE	kpa-m
	ND	NE nam-di	TK	gyi-m	QE	kou-re	QE	kpa-m
	BL	NE lam	TK	zi-m	QE	kwab-e	QE	kpa-m
	FR	NE nena	TK	zim	QE	kuab-di	QE	kam
	GN	NE neyw	TK	zi-m	QE	kab-re	QE	kpa-m
	TL	NE nag	TK	zee-m	QE	kwab-r	QE	kpa-m
	DB	NE nam-di	TK	zi-m	QE	kab-li	QE	kpa-m
	MP	NE nwg-gu	TK	zii-m	QE	kuob-re	QE	kpa-m
	KL	NE nuh	TK	zii-m	QE	kab-ut	QE	kpa-m
	MR	NE neoggo(nem-)	TK	zyi-m	QE	këb-re	QE	kpa-m
	DG	NE nen	TK	zi	QE	kab-r	QE	kä
	NR	NE nuh	TK	zi	QE	kab-r	QE	kä
	BR	NE nuh	TK	dji	QE	kou-r	QE	kä
	DR	NE nsh	TK	zi	QE	kou-ru/kab-a	QE	kpa-g
	HG	FOKK valaga, nimini	KK	kore	QE	kabre	OO	.
	SF	NE ninu	TK	zi	QE	kabre	QE	kaan
	(3a)	MO	KN olle	TKNK	tjal	KK	ho	KK
VG (KN)		ol	TKNK	tjal	KK	hog	KK	nä
CH		NE nampotil	TKNK	tjal	KK	hog	KK	nuz
TP		NE nampun	TKNK	tjal	KK	hek	OO	.
(3b)	SS	ME namia	TKNK	tjalaj	KROF	haggbulig	ME	nuog
(3c)	KS	NE noni	TKNK	djana	QE(KK)	kua	NE	nuga
	LY	NE nama	TKNK	gyal	QE(KK)	ku	NE	nu
(3d)	LM	NE nanto	TKNK	tyalont	ME	mo-r	ME	nim
	KB	NE nan-to	TKNK	tjal-un	ME	mo-ye	ME	nim, num
(3e)	KT	TK swoom	TK	azima	ME	moore	ME	nöm
(4)	LO	NE naut	TK	omin	QE	khubuu	ME	nin
(5)	BW	TE tae	OO	.	QE	hüüle	ME	nyilo
(6)	KR	KN köma	TK	tamnä	QE	kogwo-gu	NE	namna
	TY	KN köma	TK	toama	QE	kuke-gogu	NE	noamma
(7)	WN	KN ko	TK	cö	KROF	kogbeke/kogbal	NE	ner
(8a)	MM	KN kär	TK	ji	KT	kay-i-ge	TK	tam
	SN	KN kär	TK	sisyekt	KT	kay-i-ge	TK(KK)	sam (sara)
	TN	KN kär	TK	tuno	KT	kyil-ge	TK	sanö
(8b)	PN	KN kara	NE	nyeme	KT	kadile	NE	nyuma
	FN	KN kaara	NE	nyume	KT	kadzi	NE	nyana
(9)	SM	KN kyt	TK	cö	QE	kpar	NE	nyar
(10)	DN	NE nama	NU(KN)	ili	KT	kil	NE	nli
	CG	NE KN nuu-ma(u/a)	TE	ji-ma	QE	kwupa (u/a)	QE	kwas-ma
		KN kona			KK	kuga	NE	ni-ma
		(kk:k)				(these could		(i u)
		(o/a)			QQ	be combined as		
						kwugwa)		

A PRELIMINARY GLOTTOCHRONOLOGY OF GUR LANGUAGES

		33. 'egg'		34. 'horn'		35. 'tail'		36. 'feather'	
(1)	BG	KT	sii-ru	KP	kob-a	TK	si-ru	TN	sansu
(2a)	TM	KT	li-ye/(i-ye)	YK	li-yén/i-yè	KY	ku-ya/i-ye	TK	-diki-ti (pl.)
(2b)	BS	KT	dí-djón-dí	YK	n-yí	TK	dí-djón-dí	KP	ku-ku-ju
	KN	KT	li-djón-lí	YK	n-yí	TK	li-djón-lí	KP	ku-kukuu-g
	GG	KT	li-gjón-lí	YK	li-yín-lí	TK	li-djón-lí	OO	.
	BM	KT	djón	YK	yín	TK	djón-lí	KP	keb-uk
	GM	KT	djón-lí	YK	yín-gu, -lí	TK	djón-lí	KP	kob-dí (pl.)
(2c)	PL	KT	djón-dá	YK	yín-dá	TK	djón	KP	low-go
	ND	KT(QN)	kwale-re	YK	'lí-u	TK	kudyon-de	OO	.
	HL	QN(KT)	kpa-djég	YK	nyíle	TK	djón-kw	KP	kwok
	FR	KT	geli	YK	'lí	TK	zu-rí	KP	kuab-ru
	GN	KT	geli-lí	YK	'líle	TK	zou-re	KP	kob-go
	TL	KT	gyel	YK	'eel	TK	zou-r	KP	kwob-k
	DB	KT	geli-lí	YK	yil-lí	TK	zu-lí	KP	kob-gu
	MP	KT	gyal-lí	YK	yíle	TK	zou-rí	KP	kob-gu
	KL	KT	gdí	YK	'lí	TK	zou-c	KP	kob-uk
	MR	KT	gdí-le	YK	yil-lí	TK	zou-re	KP	kwób-go
	DG	KT	gyel	YK	yil	TK	zou-r	KP	kob-le
	NR	KT	djól	YK	'lí	TK	zou-r	KP	kob-lo
	BR	KT	djól	YK	'lí	TK	djón-r	KP	kou-r
	DR	KT	djólú	YK	'líú	TK	zou-rí	KP	koom-ba
	HG	KT	djólí	YKRP	yíli, kabili	TK	zurí	KP	kabara
	SP	KT	djólí	YK	celi	TK	zurí	KP	-koba (pl.)
(3a)	MO	KT	hal	YK	anyrike	TK	dín	PN	pon
	YG	KT	hal	YK	nyiga	TK	díg	PN	hag
	CH	KT	hal	YKTK	nyundaa	TK	zíg	PN	pag
	TP	KT	hal	YKTK	nyunda	MKTK	munzaha	PN	pon
(3b)	SS	KP	halanj	YK	nyíle	TK	doho	PN	ponanj
	KS	YN	tjútádú	YK	nyíja	NKPT	nabili	KP	tjakogo
	LY	KP	kyula/kyula	YK	nyú/nyima	NKPT	nobil	KP	kur
(3d)	LM	KT	yado (yal-)	YK	yilo	KYTK	kutasu	YN(PN)	kysihunte
	KB	KT	yado (yal-)	(YK)	yil-cw	TK	so-w	PN	han-cw
(3e)	KT	KT	yalc	(YK)	yika	TK	suu	PN	fóno
(4)	LO	PN	paar/pana	YK(KM)	'ons ('om-)	TK	foo	TK	juun
(5)	BW	PN	fúlle	TK	wúlle	TK	zúf	TK	-vzale
(6)	KR	TM	tyum&lc	YK	yar-ro	PT	pel-íju	TK	diro
	TY	TAM	kyomi-are	TK	yenni (yil-)	PT	plugu/plonyá	TK	diere
(7)	WN	QN	gbú	TK	nyan/nyiná	TK	deke/dal	TK	yi-gí
(8a)	MM	TN	tyere	YK	nye-ní	NK	nan/naya	TK	{i-gé
	SN	TK	tyé-ne	TK	nyene	TK	ná-go	TN	{i-gé
	TN	KT(TN)	kyine (kyil-)	TK	nye-n	TK	nar-ga	OO	.
(8b)	PN	KT(TN)	ngó-tyurówe	TK	anyamle	NK	na	TK	shnyl
	FN	KT(TN)	ngó-tjéle	TK	jtéje	NK	na	TK	stéje
(9)	SM	KT(TN)	kyé	PT	bi	TK	dar	TK	siye
(10)	DN	TN	talu	KY	kalc	TK	dub	KP	kukulu
	CG	KT	gá-lí (axa)	TK	yá-lí	TK	juu (j/d)	KP	kupa
							TK	diga (d/j)	

KB nsa-tow =
'cattle horn'
(lit. 'cattle bow')

(x)	BG	YY	37. 'hair'	TK	wi-ru	TP	swaa/soo	NK	nɔn-u
(2a)	TM	TK	ku-yur-ku	TK	li-yu	TP	li-to	NK	fa-nom-ba
(2b)	BS	QT	ki-yikpu-lu	TK	di-yi-l	TP	di-tafa-l	NK	di-nimbi-l
	KN	FO(QT)	ti-yikpe-r	TK	li-yi-l	TP	li-tafa-l	NK	lu-nimbi
	GG	TK	ku-yur-u	TK	li-yu-l	TP	li-tub-l	NK	bu-nun-b
	BM	TK	yur	TK	yu-l	TP	tub-l	NK	nimbin
	GM	TK	yu-ga	TK	yu-li	TP	tub-li	NK	anbu
(2c)	PL	TK	zi-go	TK	zogo	TP	top-ol	NE	samba/nenil
	ND	oo	.	TK	dyu-gu	TP	tub-re	NE	nombe/niai
	BL	TKKP	zūk	TK	zūk	TP	turi	NK	num
	FR	TKKP	zon-tu	TK	zuku	TP	tub-ri	NE	nini
	GN	TKKP	zwom-ko	TK	zuo	TP	tob-re	NE	ni-fo/nini
	TL	TKKP	zob-o	TK	zūk	TP	tob-r	NE	ni-hw/nini
	DB	TKKP	zab-ga	TK	zug-u	TP	tob-li	NE	nini/nina
	MP	TKKP	zob-gu	TK	zug-u	TP	tob-ri	NK	nomb-re
	KL	TKKP	zob-uk	TK	zugum/zut	TP	tob-uc	NE	nc-f
	MR	TKKP	zob-go	TK	zug-u	TP	tob-re	NK	ni-fu
	DG	TKKP	zu-kob-r	TK	zu	TP	toor/tobl	NE	mimi-r
	NR	TKKP	zu-kob-lo	TK	zū	TP	tob-r	NK	nimmir
	BR	KP	koor	TK	djuu	TP	toor	NK	nimir
	DR	KP	koom-bo	TK	zū	TP	too-ri/tob-o	NK	nin-biri
	HG	TKKP	zu-kobe	TK	zu	TP	tuberi	NE	nimbiri
	SF	KP	kobure	TK	zu	TP	tobri	NK	nigi
	(3a)	MO	PN	pon	TK	nyog	TK	dyegini	TKPE
VG		PN	hoj	TK	nyu	TK	dugana	TKPE	siwi
CH		PN	poq	TK	nyuu	TK	dugna	TK	si
TP		TK	nyokha	TK	nuha	TK	dagna	TK	st
(3b)	SS	PN	panog	TK	nyug	TK	dugaloj	TK	siuj
(3c)	KS	KP	kogo	TK	yuu	TP	zwc	TK	yi
	LV	TK	ywa/ywer	TK	yo/ywon	TP	zyɔ/zyɔ	TK	yir
(3d)	LM	TK	nyɔ/nyisa	TK	nyu/nyin	TP	don-da	TK	nyis-r
	KB	TK	nyo-yo	TK	nyo-w	NKQT	ni-gkpaŋ	TK	o-su-ye
(3e)	KT	TK	nwɔzɔl	KKTK	kodzo	NKQK	niggbamɔ	TK	ɔzɔ
(4)	LO	TK	juu	TK	yoo	NE	nū	TK	yiri/yina
(5)	BW	TKPK	nyuzvani	TK	nyu-hū	NK	nyigās-hū	TK	yū-le
(6)	KR	KP	yukwasenni	TK	yu-gu	TP	tu-gu	TKPT	yife-lie
	TY	KP	yukwasere	TK	yu-gu	TP	twogo/tonya	TK	yi-siri
(7)	WN	TK	nyō-yir	TK	nyō	NK	ni-gi	NKTK	nyi
(8a)	MM	TK	nyō-gire	TK	nyug/nyuyi	NK	nyuwe-g	NKTK	nyil
	SN	TK	inyōr	TK	yu-gu	NK	nupa-ga (liige)	NE	nyini (nyaplie)
	TN	TK	yinyoru	TK	dya/nyuy	TK	dyl-gi	TK	yede
(8b)	PN	TK	ndzuro	TK	ndra	TK	ndiye	NE	nyul
	FN	TK	n-yuru	TN	nnara	TK	nduge	NK	nyugbiye
(9)	SM	PN	flanyi	QT	grnel	TK(TK)	tasyē	NK	nya
(10)	DN	KP	kekulu	QT	kuu	TK(TQ)	suguru	EN	giru
	CG	TKKP	juu-kupaa	TK	juu	TP	ttupa (tt/c)	NK	ni-li
	PN	ppana	(ppcp)			TK	diko	TK	li(za) di

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		41. 'nose'		42. 'mouth'		43. 'tooth'		44. 'tongue'	
(1)	BG	PT	wɔ-ra	NK	no/nosu	YN	don-du	YT	yar-a
(2a)	TM	PT	li-wan	NK	li-nu	SOCTN	li-nin	NM	fanonimfa
(2b)	BS	MCTK	di-maonfa-l	NK	ki-nyo-ko	YN	di-nyin-di	NM	di-limbi-l
	KN	MCTK	li-mufa-l	NK	bu-mwo-b	YN	li-nyl-l	NM	li-lambu-l
	GG	ME	la-nye-l	NK	bu-nyo-b	YN	li-nyin-l	NM	li-lan-l
	BM	ME	ma-l	ME	ma-b	YN	nyan	NM(TK)	lam, dʒɛln
	GM	ME	ma-li	ME	nyoa-bu	YN	nyin-li	NM	lam-bu
(2c)	PL	MK	me-l	NK	no-l	YN	nyin-da	TKNM	dʒaleŋ-ga
	ND	MK	meere	NK	noore	YN	nyin-di	TKNM	gɔm-ga
	BL	YK	nyure	NK	no-e	YN	nyis	TKNM	giggelug
	FR	YK	nyo-ri	NK	no-ri	YN	nyen-a	TKNM	zeni
	GN	YK	nyɔɔ-re	NK	nɔɔ-re	YN	nyen	TKNM	zilm-re
	TL	YK	nyo-r	NK	noo-r	YN	nyin	TKNM	zilm-t
	DB	YK	nye-e	NE	no-li	TK	nyin-l	TKNM	zala-li/zalm-a
	MP	YK	nyoo-re	NK	noo-re	YN	nyin-ni	TKNM	zilni/zilna
	KL	YK	nyo-t	NK	no-t	YN	nyin	TKNM	zulum
	MR	YK	nyɔɔ-re	NK	nɔɔ-re	TK	nyen-de	TKNM	zelm-de
	DG	YK	nyo-bog-r	NK	nwo-r/nce	TK	nyim	TKNM	zel
	NR	YK	nyɔr	NK	noor	TK	nyun	TKNM	zel
	BR	YK	nyooa	NK	noor	YN	nyun	TKNM	zɛlumbur
	DR	YK	nyl-t	NK	noo-rl	YN	nyinil	TKNM	zɛn-li
	HG	YK	gɔɔ, nyari	NK	no-rl	YN	nyini	TKNM	zulunini
SF	YK	nyil	NK	no-rl	YN	nyine	TKNM	zulɛnɛ	
(3a)	MO	ME	mmɛ	NK	nya	TK	nyan	NMTE	gɔngɔɔŋ
	VG	MCTK	mazi	NK	nua	TK	nyɔɔ	TKNM	nuzɔɔl
	CH	ME	misi	NK	nua	TK	nyɔɔ	TKNM	nozɔɔŋ
	TP	ME	misa	NK	no	TK	nyan	TKNM	zolam
(3b)	SS	ME	miasaŋ	NE	nluŋ	YN	nyuluŋ	NMTE	nandelumug
(3c)	KS	ME	mum-wɛ	NK	ni	TK	yali	TKNM	diadolim
	LY	ME	myel	NK	nyl/nya	TK	yecl	MCTK	medyolo
(3d)	LM	ME	mɛ-r	NE	no	KK	tyida (tyil-)	TKNM	nasom-r
	KB	ME	mɔ-w	NE	no-g	KK	kede (kel-)	TKNM	n-solom-cye
(3e)	KT	NKPE	nũmboɔ	NK	nɔɔ	KK	kala	TKNM	ozolomɔ
(4)	LO	ME	meŋkaa-r	NE	noɔ	YN	nyen/nyema	TKNM	dɛlɛbi-ri
(5)	BW	ME	muugɛni	NK	nyil	YN	nyile	TK	dɔfo
(6)	KR	ME	mɔ-ile	NK	no-gu	YN	nyllagu/nylene	TKNM	dyumo-ile
	TY	ME	mɔa-re	NK	no-gu	YN	nylr-ogu	NM	namb-ene
(7)	WN	ME	mone	(MK)	vɛl	YN	nyin	NM	nampar
(8a)	MM	ME	munne	NK	nyu	KK	gã	TK	nyire
	SN	PK	funan	NK	nyu-gu	KK	gɛ, gã	TK	nyin/nyirke
	TN	ME	manɛ (mal-)	NK	nye	KK	nkan/nhagal	TK	nyinkan
(8b)	PN	ME	mana	NK	nyo	KK	ggala	TK	nɔɔli
	FN	ME	mana	NK	nyu	KK	gana	TK	nɔɔli
(9)	SM	ME	mar	KN	kɔ/kɛ	YN	nyen	TK	dɛ
(10)	DN	KN	kinu	NK(KN)	aŋa	TKYN	tonu, inu	TK	nile
	CG	YK	n-yuu	NK	noo-li	YN	n-yina-	TK	jil (jɛd)
		ME	mɛ-li		(oo/lo)	KK	kaa-li (kɛŋk)	NM	-lima

		45. 'claw'	46. 'foot'	47. 'knee'	48. 'hand'
(1) BG	NEQT	nɪkɔkɔ	NK ɔɔ/naasu	TK dɔɔ-ɛw	NE nomu
(2a) TM	oo	.	TK ɔɔ-lekye-ta	TK li-nuuni	NE ɛɛ-non-ta
(2b) BS	NK	ki-nanɔa-u	TKPT ki-taɔfaa-u	TK di-tabiɔɔiɔ	XN n-gal
KN	TK	ku-tanɔa-g	TKPT ku-taɔfaa-g	TK li-tayɔ-l	NE ku-notɔfɔ-g
GG	oo	.	TK li-taa-l	(TK) li-dɛn-l	NE o-muɔ
BM	TENK	tanyal-uk	TK taa-l	TK dun	NK nuu
GM	oo	.	TK taa-li	TK dun-li	NE nu
(2c) PL	NEQT	nyegkpɛɛl-ɔɔ	NEPT nɔpa/nanɔa	TK don-da	FK baka/bagɛ
ND	oo	.	NEPT nakpa-gga	TK din-di	TK nu/nɔhi
BL	NK	ninyɔɔ	NEPT nantuuk	TK dunu	NK nɛɛ
FR	NKTK	ny'ehɛn	NE nɔ-tɛɛ	TK duni	NK nu'u
GN	NKTK	nu'ɔɔ	NE nɔ'ɛ	TK duni	NK nɔ'ɔ
TL	NK	nu'ɛɛ	NEPT nɔb-r	TK dun	NK nuuk
DB	NK	nyinye-e	NEPT nɔpɔɔ (nɔpɔɔ-)	TK dɔn-l	NE nu-u
MP	NE	nuɔɔɔ	NEPT nɔb-rɛ	TK dɔn-ni	NK nuu
KL	NK	nu'ɛɛ-s (pl.)	(pl.) NEPT nɔ'ɛ/nɔba	TK dɔm	NK nu'uk
MR	NK	-nyeeɔa	NEPT nɔɔ-rɛ	TK dɔm-di	NK nɔg-u
DG	oo	.	QNTK gbe-na'bel	TK dɔn/dɛmɛ	NK nu
NR	NEPT	ga-fur	QN gbe-r	TK dun	NE nɔɔ
BR	NEPT	ga-fur	QN gbe-r	TK dun	NK nɔɔ
DR	QTK	gbe-biri	NE nɔ-	TK dɔɔkɔni	NK nu-u
HG	NK	nɔbɔ-nyɔ	NEPT nɔbɔɔ	TK du'ni	NK nuɔ
SF	TK	ɛba	NEPT nɔw-va	TK duni	NK nu-va
(3a) MO	TK	fɛkɔ	NEPT nɔni	NKTK satu	TK non
VG	TK	nonɔbɔfɛɔ	NE nɔɔ	NETK nahini	NE noni
CH	TK	nabi	NEPT nɔtɔɔ	NE nahu	NK nɛɔ
TP	NEPT	nɔnɔm, fɛnɛ	NK nɔɔɔɔ	NKQN nɔɔɔɔɔ	NK nɛɛ-
(3b) SS	TK	nɔnɔɔɔɔɔ	NE nɔɔ	(NK)TK nɔɔɔɔ	NKTK nɔɔɔɔ
(3c) KS	NEPT	nɔfɛmɔ	NEPT nɔɔɔɔ	(NK)TK nɔɔɔɔni	(TK)TK dɔɔ-
LY	oo	.	NK nɔ/nɛr	NKTK nɔɔɔ	TK gɔɔ
(3d) LM	oo	.	NKQN nɔɔɔɔ	TKQN dɔɔkpa-r	NK ni
KB	TKQT	ɛɛkpaɔɔ-w	NKQN nɔwɔ-ye, nɔ-	NEPT nɔmɔɔɔ	NK nɔ-gɔ/ni-ye
(3e) KT	TK	-ɛɛkɔɔɔɔ (pl.)	(pl.) NEPT nɔwɔɔ	(TK) dɔɔɔ	(TK) nɔɔɔ
(4) LO	(TK)	nyɔɔbi-khɔɔɔ	NK nɔɔ/nɛɔ	KN nɔ-khɛɔ	NK nyɔɔ/nyɔɔ, yɔ-
(5) BW	NK	kɔhɔ	TK zɛɔ	KN nɔɔɔnyuhɔ	NK nɛɔ
(6) KR	oo	.	PT bɔɔ-ɔɔɔ	TK dɔm-ɔɔɔ	NK nɔ-gɔ
TY	oo	.	PT viɔɔ (vɔ-)	KN guɔn-gɔ	NK nakɔr-ɔɔɔ
(7) WN	oo	.	QN gɔɔ'kɔ/gbɔɔ	TK gbɔɔɔɔ	QT gbɔɔ/gban
(8a) MM	oo	.	NK nyɔɔkɔɔ-gɔ	NKKN nyuk-ɔ	KT kɛ-g
SN	(KN)TK	(kɔɔɔɔɔ)	TK twe-gɔ (tɔɔɔɔ)	TCKN nyukɔ-gu	KT kɔbɔ-ɔɔ (kɔɔ)
TN	oo	.	TK dɔ	KN gɔɔɔɔ-gu	KT xɔ/kɔɔɔ
(8b) PN	(KN)TK	kɔɔɔɔ	TK dɔɔɔ	KNTK kɔɔ	KT kɔɔɔ
PN	(KN)TK	kɔɔɔɔɔ	TK dɔɔɔ	KNTK kɔɔ	NK nɔkɔ
(9) SM	oo	.	NK nɛɔ	KN kɔɔ	FK bɔ/bɛ
(10) DN	QNT	kɔbɔɔ	Qɛ kɔbɔ	TNKN yɔɔɔɔ	NE nɔnɔ
CG	FK	bɔɔɔ (bɔ/p)	NEPT nɔɔ-pɔɔ	TK dɔɔɔ-ni	NE nuku
	NK	nuku	QN gbɔɔ	KN kɔɔɔ (kɔɔk)	
			TK tɔɔ (tɔ/ɔɔ)		

(Some entries may be 'fingered')

DB nɔpɔɔ = 'foot, leg'
nɔpɔɔ-vɔɔ = 'foot' (only)

Frequently means
'hand, arm'
KB means 'hand, finger'

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		49. 'belly'	50. 'neck'		51. 'breast(s)'	52. 'heart'
(1)	BG NK	nuku-ru	WK wii-ru	PT	buɛ-ru	TM sɔn-du
(2a)	TM FK	ti-pao-di	FK ku-foda	MS	li-mia	QK li-kɔmalinu
(2b)	BS FK	di-poo-l	TN n-sil	PT	a-bii	FK di-pɔbɛ-l, di-gae-l
	KN FK	li-puu-l	TN n-sul	PT	i-bi	FK li-pɔbɛ-l
	GG FK	le-pwe-l	TN u-tule	PT	le-bi-l	FK ku-fuur
	BM FK	poo-l	TN talu	PT	bi-a	FK pal
	GM FK	poo-gu, tu-gu	TN tifi-u	PT	bin-li	FK pali
(2c)	PL FK	fo-ga	NK nyan-og	PT	bi-l/bɛɛ	TM sɔpɔ
	ND FK	pfu-ga	NK nyuru	PT	be'-ra	TM(VN) nyam-re
	BL FK	po-e	TK utok	PT	bisiri	(TK)FK zuk-yok
	FR FK	puri	KKKK nengu'-ri	PT	bi'h-ri	TM suhu
	GN FK	poo-re	KKKK kɔkɔre, nyugi-a	PT	bi'h-re	TM sɔ-ho
	TL FK	poor	KK kujkɔ-r	PT	bi'h-l	TM sɔsu
	DB FK	pu-li	NK nyaggo-li	PT	bi-h-li/bih-a	TM sub-u
	MP FK	poo-ri	KKKK kuko-re, nanggoore	PT	bi-h-ri/bis-a	TM suf-u
	KL FK	poo-t	NK nuygɔs-t	PT	bi's-a	TM susu-f
	MR FK	po-ga	KK koko-re, yubla	PT	bi-ri	TM sɔɔ-ri
	DG FK	pɔɔ	NK nyu	PT	bir	TM(TK) siki-r
	NR FK	puor	KKKK kɔkɔr, nyɔɔ	PT	bur	TM(TK) sut'ul
	BR FK	puor	KKKK kɔkɔr, nyfi	PT	bur	FK poko
	DR FK	poo	KK kɔkɔ-ri	PT	bur	TM(TK) sut'ri-ri
	HG FK	pu-a	KKKK nyaggori, kukori	PT	bisiri	TM(VN) taratsinyua
	SF FK	pu'	NK nyi	PT	bisu-ri	TM(VN) nyia
(3a)	MO TK	tiya	FK baya	YN	ɔ	FK bomule
	VG TK	hɔa	FK baya	YN	ɔa	TM toog
	CH FKTK	pat'igeɛ	FK bagana	YN	ɔa	QK gboo
	TP NK	lo	FK baɔna	YN	ɔl	FK bambi
(3b)	SS NK	luorog	FK baɔɔa	YN	yɔa	TM(FQ) t'jubalan, bugulog
(3c)	KS FK	puga	FK ba	YN	yil	FKTM bu'adakali
	LY FK	pu, wu	FK byɛ	YN	yil	TMFK sɛduguni
(3d)	LM NK	li-ru	FKTK wɔncim-r	YN	yida (yil-)	TM(TK) bo-r
	KB NK	lo-tu	NK li-w	YN	yida (yil-)	TM(TN) t'jalum-figa
(3e)	KT NK	loodi	FK baɔa	YN	yil	FK wunbre
(4)	LO FK	benc	FK foor (fo-)	YN	'ilɛ ('ilɛ-)	QK kpoor
(5)	BW FK	pioho	FK foile	YN	yile	FM(FQ) ɛugule
(6)	KR KT	kusa-gu	FK bu-gu	QK	nyolmɔ	TK duogo/donamma
	TY KT	kusa-gu	FK bo-gu	QK	ɔna-ri	TK dugu-bilari
(7)	WN KT	kekur-gɛ	TKQK yigbe	YN	nyan/nyinɛ	NK nɛ
(8a)	MM FK	yatyere	TTTT yafi-ge	TM(VN)	dyir-e	TM zɔtyl
	SN FKTK	fukyine	FKTK yati-g	YN	gyine (yirele)	TM zɔ
	TN FK	yekyine	FKTK yaty'i-gi	YN	nyini	VNFK nyenpɔcɛ
(8b)	PN NK	le	NE lo	YN	nyiani	NKTM lolongo
	FN NK	le	TKNK yɔb	NN(VN)	nyunum	NKTM lolongo
(9)	SM NK	nyɛ/nyɛ	KK kwɛ	KT	karwɔ	FK doɔt
(10)	DN FK	bɔrc	KK kokob	YN	iru	FKTM kine dono
	CG FK	ppuo	FK baga	PT	bicil	TM cumu
	NK	isu (uu/li)	KK kɔkɔko	YN	yil	

DB kuko-li = 'voice'

		53. 'liver'		54. 'drink'		55. 'eat'		56. 'bise'
(1)	BG	FK wo-ru	NK	so	TK	di	TM	dòm
(2a)	TM	(NK) ti-mo-ti	NK	aya	TK	li	FKTK	bote
(2b)	BS	FK di-poo-l	NK	nyo	TK	dɔ	TM	dɔu
	KN	FK li-pog-l	NK	nyum	TM(TK)	dɔum	TM	dɔum
	GG	FK li-pwa-l	NK	nyò	TK	dɔi	KK	karo
	BM	FK poo-l	NK	nyù	TK	dii	TM	dɔù
	GM	FK pwa-li	NK	nyu	TK	di	NK	nyi
(2c)	PL	FK piəŋŋ-ol	NK	nyu	TK	dɔi	TM	dəm
	ND	QP kəu-u-re	NK	nyi	TK	də	(TK)	dɔu
	BL	FK paŋi	NK	nyu	TK	də	TM	dòm
	FR	TM siŋgu	NK	nyu	TK	di	TM	dum
	GN	TM(TP) sɔs-re	NK	nyu	TK	di	TM	dum
	TL	TM(TP) sɔɔ-r	NK	nyu	TK	di	TM	dum
	DB	TM(TP) sab-li	NK	nyu	TK	di	TM	dəm
	MP	TM(TP) sɔb-ri	NK	nyu	TK	di	TM	dum
	KL	TM(TP) sɔs-t	NK	nyu	TK	di	TM	dòm
	MR	TM(TP) sɔs-re	NK	nyu(u)	TK	di	TM	dòm
	DG	TP sɔb-r	NK	nyu	TK	di	TM	dò
	NR	TM(TP) sɔb-r	NK	nyu	TK	di	TM	dò
	BR	TM(TP) sab	NK	nyu(u)	TK	dɛ	TM	dən
	DR	TM(TP) sɔɔ-ri (sɔb-)	NK	nyu(u)	TK	di	TM	dɔg
	HG	TM(TP) sobara	NK	nyu	TK	di	TM	duma
SF	TM(TP) sɔbari	NK	nyù	TK	di	TM	dɔg	
(3a)	MO	FK foga	NK	so	TK	di	TM	dome
	VG	FK hiɔ	NK	nyɔɔ	TK	di	TM	dòm
	CH	FK pɔl	NK	nyaa	TK	di	TM	doma
	TP	FK bege	NK	nyɔ	TK	di	TM	dəm
(3b)	SS	TM tʃoŋ	NK	nyoa	TK	di	TM	dɔŋ
(3c)	KS	TM tʃwɛ	NK	nyɔga	TK	di	TM	dɔnɛ
	LY	TM kyɛ	NK	nyò	TK	gyu	TM	dòm
(3d)	LM	NK nyam-r	NK	nye	TK	toku	TM	dò
	KB	FK ha-ye	NK	nyɔw	TK	ɔg	TM	dòm
(3e)	KT	FK bore	NK	nyò	TK	dɛ	NKTK	nyəsɛ
(4)	LO	FK haa-r	TK(NK)	yo (nyor)	KK	kho	TM	dɛ/ɔom
(5)	BW	TM sille	NK	nyu	TK	di	TM	tyùl
(6)	KR	FK holle	NK	nyò	WK(QK)	wo	TM	dɔg
	TY	FK higa	NK	nyò	WK(QK)	wu	TM	du
(7)	WN	NK nelɛ	QK	wo	TK(NK)	nyò	TM	nò
(8a)	MM	TK ndyere	QK	gba	TK	di	TM	nò
	SN	YS(NK) nyɛl (yɛɛɛ)	QK	gba	TK	di (li)	TM	nò
	TN	oo	QK	gɔ	TK	di	TM	nò
(8b)	PN	NK nelɛ	QK	gbɔ	TK	li	KK	ka
	FN	NK nelɛ	QK	gbwɔ	TK	li	KK	ka
(9)	SM	TK ndir	QK	gbɛ	TK	di	NK(TM)	nuò
(10)	DN	(KN) kintɛ na	NK	nò	(KY)TM	kaya, tɛme	KK(KN)	kere
	CG	TM cuma	NK	nyɛ	TK	dii (d/ɛ)	TM	duma (d/ɛ)
	FK	ppogga	QK	gwau				

TM(TP) first keyed
TK or TAP

LO nyor=imperative

DN = 'big heart'

WN (sic)

WN (sic)

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		57. 'see'		58. 'hear'		59. 'know'		60. 'sleep'	
(1)	BG	wɛ	wa	NK	nɔ	ɲɛɲɛ	ɣɛ, ɡɪa	TK	dooya
(2a)	TM	ɲɛ	laa	OK	keɛ	ɲɛ	ɲya	TK	dua
(2b)	BS	wɔɲɛ	wal, ka	OK	ɡbil	NK	ɲyi, bee	OK	geen
	KN	ɲɛ	lɛ	OK	ɡbur	ɲɛ	bɛ	OK	geem
	GG	NK	la	OO	-	ɲɛ	bɛ	OK	go
	BM	NK	la	OK	ɡbla	ɲɛ	ban	OK	ɡoon
	GM	ɲɛ	la, nus, dii	OK	ɡba	(ɲɛ)	ban	OK	guan
(2c)	PL	ɣɛɲɛ	ɣɛla	QM	wam	NK	maka	OK	ɡbona
	ND	ɲɛ	ɲyana	QM	'om	ɲɛɲɛ(ɲɛ)	mige, mi	OO	.
	BL	NK	ɲya	QM	wom	ɲɛɲɛ(ɲɛ)	miɡ	OK	ɡwa
	FR	NK	ɲya	QM	wum	ɲɛ	baɡe	OK	ɡis-i
	GR	NK	ɲye	QM	wom	ɲɛ	baɡ-e	OK	ɡá'r-ɛ, ɡib-i
	TL	NK	ɲe	QM	wom	(ɲɛ)ɲɛ	mi, bɛ	OK	ɡbɛb-
	DB	NK	ɲya	QM	wum	ɲɛɲɛ	mi, baɡ	OK	ɡbɛb-i
	MP	NK	ɲya	QM	wom	ɲɛɲɛ(ɲɛ)	mi	OK	ɡbɛ-i
	KL	NK	ɲye	QM	wom	ɲɛ	baɡ	OK	ɡbɛ
	MR	NK	ɲyɛ, ɲyi	QM	wum-e	(ɲɛ)ɲɛ	mi, baɡ-e	OK	ɡwɛ, ɡɔs-e
	DG	NK	ɲya	QM	wɔ	OO	.	OO	.
	NR	NK	ɲye	QM	wɔ	ɲɛ	baɡ	OK	ɡur-e
	BR	NK	ɲye	QM	wɔ	ɲɛ	bɔɔ	OK	ɡu
	DR	NK	ɲye	QM	wog	ɲɛ	baɡ	OK	ɡbil-i
	HG	NK	ɲya	QM	wum	ɲɛ	baɡ	OK	ɡbisi
	SF	NK	ɲya	QM	wug	OO	.	ɲɛ	dzaɡ
	(3a)	MO	NK	na	NK	no	ɲɛ	dʒumɛ	TK
VG		NK	na	NE	nɔɔ	ɲɛ	zom	TE	tʃɔ, do
CH		NK	na	NE	nɔɔ	ɲɛ	zuma	TE	deɔ
TP		NK	na	NE	no	ɲɛ	zɪm	TK	ɛɛdo
(3b)	SS	ɲɛ	na	NK	ni	ɲɛ	dzaɡ	TK	doɡ
(3c)	KS	ɲɛ	na	NE	niɡa	TK	ye	TK	do
	LY	NK	ɲyu	NE	ɲyo	NE	lwar	OO	.
(3d)	LM	NK	naa	OO	.	ɲɛ	semba	TK	de
	KB	NK	naa	NE	ɲɛw	ɲɛ	ɛɛm	TK	dow
(3e)	KT	NK	ná	NK	nɛ	TK	tele	TK	dom
(4)	LO	TK	ye	NE	ne	TE	dʒe	TK	daar
(5)	BW	ɲɛ	mi	NK	ɲyi	ɲɛ	zɔ	TE	da dɔma
(6)	KR	ɲɛ(ɲɛ)	da	NK	nɔ	ɲɛ	so	TE	dwoɔn
	TY	ɲɛ(ɲɛ)	diɛ	NK	nɔ	ɲɛ(ɲɛ)	fɛle	OO	.
(7)	WN	ɲɛ(wɛ)	wɛ	NK	nɔ	ɲɛ	pɛ	TK	da
(8a)	MM	ɲɛ	ɲya	NK	ɲɔɡ	ɲɛ	tyɛ	OK	ɡmuni
	SN	ɲɛ	ɲya	NK	dogo (lo'o)	ɲɛ	kyɛ	OK	ɲwɛ (ɲum)
	TN	ɲɛ	ɲya	OO	.	ɲɛ	kyɛ	NE	nɔ
(8b)	PN	ɲɛ	ɲya	NK	lo	ɲɛ	nɛntʃɛ	TK	ɛnɛ
	FN	ɲɛ(wɛ)	wɛl	NK	ɲuɡalo	ɲɛ	dʒɛ	TE	ɛɛn
(9)	SM	OO	.	NK	sa	ɲɛ	ʃɛ	TK	de
(10)	DN	ɲɛ	ie	OK	egɛ	KN	igi	TK(ɲɛ)	ye-ɛ
	CG	ɲɛ	ɲyɛ (n/i)	QM	ɡbuumu-a	ɲɛ	cima	OK	ɡbli-(ɛ)
				NK	ɲuu	ɲɛ	mi	TK	doɔ

			61. 'die'		62. 'kill'		63. 'swim'		64. 'fly'
(1)	BG	qx	gbi	qx	go	KK	kǎfiri	TK	yó
(2a)	TM	qx	ku	qx	kua	oo	.	oo	.
(2b)	BS	qx	kpu/kpil	qx	ku, kpo	PK	wǎkǎi anyum	NK	ɲaən
	KN	qx	kpo	qx	ku	PK	wo	TK	yux
	GG	qx	kpo	qx	kpo	PKTK	wo, dug	oo	.
	BM	qx	kpo	qx	kpiil	TK	duk	TK	yauk
	GM	qx	kpe, ku	qx	kpa	TK	dug-i	TK	yug-i
(2c)	PL	qx	ku	qx	ko	PK	bam	TK(TK)	deolina
	ND	qx	kpi, kpu	qx	ku	oo	.	oo	.
	BL	qx	kpi	oo	.	PK	piŋ	TK	yiti
	FR	qx	ki	qx	ku	TK	duk-e	TK	'ek-e
	GN	qx	ki	qx	ku	TKPK	dug-e, buŋ	TK	'ik-e
	TL	qx	kpiil	oo	.	TK	duk	TK	'ak
	DB	qx	kpi	qx	ku	TK	dug-i	TK	yug-i
	MP	qx	kpi	qx	ku	TK	dug-i	TK	yik-i
	KL	qx	kpi	qx	ku	TK	legu	TK	'ag
	MR	qx	ki	qx	ku	TK	dug-i	TK	yek-e
	DG	qx	kpi	qx	ko	TK	du	TK	yoo
	NR	qx	kpi	oo	.	TK	dug-	TK	'yag
	BR	qx	kpi	oo	.	TK	dui	TK	'ao
	DR	qx	kpi	qx	ku	PK	pug-i	TK	'og-L
	HG	qx	kpi	qx	ku	TK	li, lu	TK	zo
SF	qx	kpi	qx	koo	PK	puog	TK	igi	
(3a)	MO	TK(TK)	siwa	qx	po	PK	wa	KT	gan
	VG	TK(TK)	siu	qx	kpo	TK	soŋi	TK	zã
	CH	TK(TK)	siwa	qx	kpo	TK	tʃiʃi	TK	zã
	TP	TK(TK)	soo	qx	kpo	PK	poŋi	TK	zã
(3b)	SS	TK(TK)	so	qx	kpo	PK	puŋŋi	PK	fɔ
(3c)	KS	TK(TK)	teŋa	qx	go	PK	puŋi	TK	dʒaən
	LY	oo	.	qx	gu	TK(TK)	yo	TK	yo
(3d)	LM	TK(TK)	tobe	qx	ko	TK(TK)	yaaso	oo	.
	KB	TK(TK)	tub	qx	kow	TK	luŋ	oo	.
(3e)	KT	TK(TK)	sum	qx	ko	NK	nyã	KT	koro
(4)	LO	TK(QK)	khi	qx	ko	PK	phɛ/phɛnɛ	PK	'ubi
(5)	BW	qx	hi	qx	be/bo	PK	wã	TK	dã
(6)	ER	qx	ku	qx	kwo	TK	dye	TK	yul
	TY	qx	ku	qx	kwo	TK	so	TK	yu
(7)	WN	qx	ku	qx	kumã, ko	TK(TK)	yo	TK	yoŋo
(8a)	MM	qx	xu	qx	gbo	NK	nya	TK	yire
	SN	qx	ku	qx	kpo	NK	nyame	TK	yira
	TN	qx	xu	qx	gbu	NK	meɔ	TK	yiri
(8b)	PN	qx	ku	qx	gbo	PK	blu	TK	yul
	PN	qx	uku	qx	ugbo	PK	niabul	TK	ulyul
(9)	SM	qx	kue	qx	gu	PK	fwo	NK	lũ
(10)	DN	TK	yime	TK	dza	PK	ban-ic	KT	kil-ic
	CG	qx TK	kpiil (i/uu) cibe	qx	kpuu	TK	duku		

BS = 'be lost (in) water'
Many other entries are
regularly followed by
'water'

Other = 'fly, jump'

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		65. 'walk'		66. 'come'		67. 'lie down'		68. 'sit'	
(1)	BG	TK	si	NE	na	OK	kpuna	TK	sina
(2a)	TM	oo	.	KE	kwatili	oo	.	KY	kali
(2b)	BS	TK	tʃoom	TK	daan	TK	doon	KY	kai
	KN	TK	tʃuum	TK	dī	KN	doom	KY	kai
	GG	TK	som, tʃuō	PK	ba	TK	duš	KY	kale
	BM	TK	saan	PK	baal	TK	do	KY	kai
	GM	(TK)	tʃuoni	(TK)	tʃwa	TK	duani	KY	kali
(2c)	FL	KK	tʃonda	TK	dana	TK	dojda	KY	kata
	ND	oo	.	TKKK	daan, kena	oo	.	KY	kade
	BL	KK	tʃaj	KK	dʒam	TK	duak	KK(KY)	kali
	FR	KK	kina	PK	wana ... na	KK	ga'ni	TK	zi'n'ini
	GN	KK	tʃaj-e	PK	wa ... na	KK	gā'-r-e	TK	zi'-r-e
	TL	KK	kycj	KK	kycj ... na	TK	dyon	TK	zi'n
	DB	KK	tʃaj	KKTK	ka ... na, wa	TK	do-n-i	TK	zi-n-i
	MP	KK	tʃaj-e	KK	tʃa ... na	TK	dooni	TK	zini
	KL	KK	tʃn	KK	ti ... na	PK	ba'a	TK	zi'a
	MR	KK	kycj-e	PK	wa	KK	gā-nd-e	TK	zi-nd-i
	DG	KK	kys	PK	wa	KK	ga	TK	zi
	NR	KK	tʃen	PK	wa	KK	gā	TK	zi-n-e
	BR	KK	tʃen	PK	wa	KK	gā	TK	dʒz, dʒnax
	DR	KK	tʃig	PK	wa	KK	dʒʒj	TK	zʒj
	HG	KK	tʃaŋe	TK	ta	TK	ʒo	TK	zi
SP	KK	tʃimi	PK	wa	TK(KK)	dʒʒj	TK	zi-ni	
(3a)	MO	TK	vale	TK	ba	TK	tʃonale	TK	soharz
	VG	TK	vol	TK	ba	TK	tʃo	TK	so
	CH	PK	vafa	PK	waa	TK	tʃoo	TK	saga
	TP	TK	val	TK	wa	TK	to	KY	kani
(3b)	SS	PK	verj	KK	ko	PK	paŋ	TK	haŋ
(3c)	KS	PK	ve	PK	ba	PK	pani	TK	dʒani
	LY	TK	zyel	PK	ba	PK	pyō	TK	gyom
(3d)	LM	(PK)	wala	KK	kan	PK	henda	TK	tyo
	KB	TK	dom	KK	kom	PK	hen	TK	tʃaj
(3e)	KT	TK	bode	KK	kwoni	PK	funz	TK	tʃau
4)	LO	TK	'eer	TK	'ē	TK(KK)	'yel	TK	too, togī
5)	IW	PK	va	PK	ŋwci/ŋwala	oo	.	KK	gaeni
6)	KR	PK	wo	TK	dyo	KK	gala	TK	tyena
	TY	PK	wa	TK	dyo	KK	mara	TK(KY)	gyira
7)	WN	KK	ko	oo	.	TK	sē	KN	kō-tē
8a)	MM	oo	.	PK	pa	TK	seni	TK	tēē
	SN	(TK)	(ta'a)	PK	pa	TK	tera	TK	tī
	TN	oo	.	PK	pe	TK	sane	KN	nī
8b)	PN	TK	nyare	PK	pha	TK	sinz	TK	tunz
	FN	TK	wenyaare	TKPK	ycpē	TK	sinuz	TK	tunz
9)	SM	KK(KK)	kai	PK	be	oo	.	oo	.
10)	DN	TK	yas	PK	ve	TK	dī-ie	TK	dī-ie
	CG	KK	kkia	PK	pza (p:pp)	TK	dua (d/coc)	TK	ji, ti
		PK	paa (p/b)			PK	ppia		
					KK	gga'a	KY	kkata	

		69. 'stand'		70. 'give'		71. 'say'		72. 'run'	
(1)	BG	yk	yʒra	kk	kɛ	kk	gere	tk	sɔs
(2a)	TM	oo	.	tk	lua	nk	naga	tn(qn)	li-ye
(2b)	BS	tk	sil, yul	tk/(pk)	sii, pu/po	nk/(pk)	li, bil	qn	g-wiln
	KN	tk	sil	tk	sii	nk	li	qn	g-wul
	GG	oo	.	oo	.	mk	mat	(qn)	u-ye
	BM	tk	sat	tk	tue	vt/(yk)	yet	tn(qn)	yenu
	GM	(tk)	sioni	pk	pu	yk	ye	tn(qn)	yen-u
(2c)	PL	tk	zeta	tk	to	yn	wal	qn	gmin-da
	ND	oo	.	tk	toa, to	pn/pk	bir, bo'a	qn	muuku
	BL	tk	zani	tk	te	pn/(tk)	wene	knkn	kantuog
	FR	tk	zi'zii	pk	bo'i	yn	yeli	qnkn	wuntega
	GN	tk	ze'-li	pk	bo	yn	yel-i	qnkn	wunteega
	TL	tk	dyoo	tk	te/to	yn	yel-i	knkn	nentag
	DB	tk	zan-i/ze	tk	ti/to	yn	yel-i	qnkn	wuntag-a
	MP	tk	zaani	tk	ti	yn	yel-i	qnkn	wuntag-a
	KL	tk	ze'e	tk	ti	yn	yel	qn	wulij
	MR	tk	ysis-e	kk	ko, kisi	yn	yel-e	qn	wind-ga
	DG	oo	.	kk	kɔ	yn	yere	qnkn	mutɔ
	NR	yk	'ar	kk	ko	yn	yel	qnkn	mitag
	BR	yk	'ar	kk	ko	yn	yel	qnkn	mitɔ
	DR	yk	'ar-i	knkn	ku, tur	yn	yel-i	qn	gmusa
	HG	yk/yk	ysigi	nk	naati	yn	yel	qnkn	wulugu
SF	yk/yk	isigi	kk	ko	pn	bole	qn	minigã	
(3a)	MO	tk	tʃi	tk	te	qn	gɔ	qn	wi
	VG	tk	ʒi	tk	te	qn	gɔ	qn	wizi
	CH	tk	tʃiga	tk	ti	qn	gma	qn	weso
	TP	tk	tʃij	nk	nye	tm	sam	kk	gha
(3b)	SS	tk	tʃij	pk	pa	pn	bul	tn(qn)	yla
(3c)	KS	tk	zaji	pk	pa	pnqn	wɛ, gɔont	qn	wɛa
	LY	oo	.	pk	po	pnyn	wɛl, ywɛl	tn(qn)	yl
(3d)	LM	oo	.	oo	.	tk	huto, sira	qn	misɔ
	KB	tk	sij	kn/(pk)	haw	tk	tom, hey	qn	wɛ-si
(3e)	KT	tk	sij	pk	fa	(qn)	gmats	qn	wɛsi
(4)	LO	tk	jeel	pk	ha, 'aga	tk	ʒo	qn	wi-ri
(5)	BW	tk	hini	nk	na	pn	bio	qn	wii
(6)	KR	oo	.	kn/(kk)	hã	kk	kera	pn	ba-gu
	TY	oo	.	kn/(kk)	hã	pn	wala	pn	bã-gu
(7)	WN	oo	.	kn/(kk)	kã	yn	yo	qn	gbin
(8a)	MM	oo	.	kn/(kk)	kã	yn	dyo	tn	tyag
	SN	(yk)	(yore)	kn/(kk)	kã	yn	dyo	tn	tyagã
	TN	oo	.	kk	ke, ki	tn	ye	nk	li
(8b)	FN	tk/(pk)	yurl	nk	wugga	yn	yo	(qn)nk	yila
	FN	tk/(pk)	yurl	pk	wuggaz	knkn	kuyo	nk	ila
(9)	SM	oo	.	oo	.	pn/(pk)	vu	tn(qn)	ye
(10)	DN	yn	ij-le	pk	obo	knkn	gi, va, taga	kk	nzy
	CG	tk	ja'a	tk	tiia (tɛ/d)	yn	yali	qn	gwandi
				pk	pa'a (pɔp)			kk	taa (l/n)

May often mean
'stop' also.
DB yags-i → 'get up'
(cf. DR, HG, PN, etc.)

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(1)	BG	YN	73. 'moon'	QR	74. 'star'	NK	75. 'water'	QN	76. 'rain'
			wuru		kper-a		nim		gur-a
(2a)	TM	YN	ku-can-gu	QT	li-wit-ri	NK	ba-tya	OO	.
(2b)	BS	QN(QT)	u-gmal	QR	u-gmabidgal	NK	n-nyum	TK	u-taa
	KN	QN(QT)	u-gmal	QR	li-gmabu-l	NK	n-nyü	TK	u-tal
	GC	QN(QT)	u-gmar	QR	u-gmabi-l	NK	mi-nyu-m	OO	.
	BM	QN(QT)	gmaae-k	QR	gmaabi-l	NK	nim	TK	aa-k
	GM	KN(QT)	kilo, gmalö	QR	gmabi-ga	NK	nyi-ma	(TK)	taa-ga
(2c)	PL	TN	tfol-go	QT	gmü-ga	NK	nya-m	TK	tfaa-ga
	ND	KN	kid-ga	QR	med-ga	NK	nyal-m	OO	.
	BL	TK	tjik	TKQR	tfo-gmar-k	NK	nya-m	(QNTK)	wanzuk
	FR	QN(QT)	gmarika	QR	gmar-bils	QR	ku'u	TK	aa
	GN	QN(QT)	gmar-ga	QR	gmar-bil	QR	ko-m	TK	aa
	TL	QN(QT)	gmar-k	QR	gmar-bil	QR	kwo'-m	TK	aa
	DB	(QK)KV	go-li, tñir-li	QR	gmar-ga	QR	ko-m	TK	aa-a
	MP	(QK)QR	gwo-ri, gmar-ga	QR	sa-gmar-ga	QR	koo-m	TK	aa
	KL	QN(QT)	war-ok	QR	warabil	QR	koo'-om	TK	aa
	MR	TK	kyuu-gu	QR	'äd-ga, wäd-ga	QR	koo-m	TK	aa-ga
	DG	TK	kyu	QR	gma-bi-r	QR	kööwö, kwöö	OO	.
	NR	TK	tjuu	QR	gmar-bi-r	QR	köö	TK	aa
	BR	TK	tjuu	QR	gmar-bi-r	QR	köö	TK	aa
	DR	TK	tjuu	QR	gmar-bi-e	QR	koo-ŋ	TK	aa-a
	HG	(QTK)	gmarga, tñwu	QR	gmar-bia	QR	koom, koo	TK	aa
	SF	(TK)	kooa	QR	mar-ga (?ŋm)	QR	kööŋ	TK	aa
(3a)	MO	QR(QK)	karobie	QR	wowe	NK	ne	TK	buata
	VG	FK	bago	TKQR	tñitñiwüli	NK	ni	TK	doŋ
	CH	FK	baaga	TK	wüli	NK	ni	TK	duog
	TP	FN	pone	QR	wol	NK	ni	TK	dan
(3b)	SS	TK	tñnc	TKQR	tñntñjwalaj	NK	luaj	TK	duog
(3c)	KS	TN	tfaa	TN	tñatñoa	NE	na	TK	doa
	LY	TN	kyan-a	TN	kyamaso-a	NE	nää	OO	.
(3d)	LM	TK	hundo	TN	trö/trasa	NK	lim	OO	.
	KB	FKNK	fesa-g, eso-to	TN	tlyag-a	NK	lum	TK	te-w
(3e)	KT	(FKNK)	foñ	QR	welö	NK	lum	(NK)	loko
(4)	LO	FK	po-r	TN	'yepälambiri	NK	(n)yoan	TK	thaggba
(5)	BW	FK	pilhü	OO	.	NK	nyumu	FK	vioho
(6)	KR	TN(KN)	kyiigo/kyambis	QR	mwe-le	KK	humma	OO	.
	TY	TN	herga-gu	QR	gmare/gmiga	KK	huma	OO	.
(7)	WN	QN(QT)	gwe	QR	ñwonkapi	NK	ni	FK	pé
(8a)	MM	TK	ye-g	QR	woro	NK	lo'a	TK	zi'a
	SN	YT	iso-ni (yegi)	QR	woni(ñaröpile)	NK	dogo (lo'ö)	TN	zi'ga
	TN	NK	li-g	QR	urs-de	NK	logö	TK	tinega
(8b)	PN	NK	niekpo	QR	wolö	NK	nyugmo	NK	nyit
	FN	NK	nyaspoa	QR	wolö	NK	nuan	TK	sesaoncpä
(9)	SM	FK	fwö/fwé	TN	sé	NK	nö	NK	nö
(10)	DN	YKFK	iepile	TN	solo	[ü]	di	NK	ana
	CG	QR	gbata (gbongb)	QR	gbata (gbongb)	QR	kwuga-ma	TK	caa (ccc/d)
		TK	ocuu (uu/i)			NK	ligi-ma		

(QK better as
KK ko-ma?)

		77. 'stone'		78. 'sand'		79. 'earth'		80. 'cloud'	
(1)	BG	ON	kpe-ru	YN	yanim	TN	tem	QN	guru wiru
(2a)	TM	TN	li-tā-li	PT	ibili	YN	ka-ten-ke	OO	.
(2b)	BS	TKQN	di-taakpa-l	PK	di-bu-l	TN	ki-tig	TK(QN)	ki-tagbog
	KN	TKQN	li-takpa-l	TNPT	li-tambwa-l	TN	n-tš	TKQN	li-tapalaggba-l
	GG	TN	li-tan-l	TN	li-tangbi-l	TN	ka-tin	OO	.
	BM	TN	tan	TN(PT)	cambini	TN	tig	TK(QN)	sampagbouŋ
	GM	TN	tan-li	TN	tambina	TN	tin-ga	TKQN	tawali-gu
(2c)	PL	TN	tan-do	PT	blim	TN	taŋ-ga	TK(QN)	tʃawal-gu
	ND	TN	tan-de	KK	gi'im	TN	tan-te	OO	.
	BL	TN	tintay	TN(PT)	tambusug	TN	teŋ	TKQN	tʃa-ŋmari
	FR	KK	kukurɪ	TN(PT)	cambi'han	TN	dāharu	TKQN	sagbana
	GN	KK	kug-ra	TNPT	combih-gu	TN	tega	TKQN	sa-gbaŋ
	TL	KK	kug-r	TN	tantan	TN	teŋ	TKQN	sa-gbaŋ
	DB	KK	kug-li	TNPT	tambugsu, bih-gu	TN	taŋ-a, tan-di	TKQN	sa-gbaŋ
	MP	KK	kug-ri	PT	bih-gu	TN	tig-a	TKQN	sa-gbaŋu
	KL	KK	kug-ee	TN	tutan	TN	tan	TKQN	sa-gban
	MR	KK	kug-ri	PT	bis-ri	TN	teŋ-ga	TK	sa-wad-go
	DG	KK	ku-r	KN	'uru	TN	teŋ	TK	zāzug-r
	NR	KK	kosar	PTTN	bilre, tambuule	TN	teŋ, tanc	TK	zuzuru
	BR	KKKE	kubir	PT	bilre	TN	teŋ, tenc	TN	dondoruma
	DR	KK	kueri	PT	bilree	TN	tig-a	TKQN	sa-gban
HG	KK	kogri	TN	tanl	TN	tanl	TKQN	sa-gbana	
SF	KK	kubari	TNPT	tamisigi	TN	'iguri	OO	.	
(3a)	MO	PK	bui	TK	tee	TN	harɛ	TK	tafa
	VG	PK	bi	TN	hricɛa	TN	heri	TN	bama
	CH	PK	bi	TK	hegluŋ	TK	hegli	TK	taal
	TP	PKKN	bunkol	TN	hers	TN	tuzel	PN	bar
(3b)	SS	TKPK	taba	TK	hegde	TN	tunteuŋ	TNKN	duombenag
(3c)	KS	KKTK	kandwɛ	KKTN	kasolo	TK	tiga	QN	kun'kogo
	LY	NEKN	nakul-u	YT	nyoro	KK(TK)	kye	OO	.
(3d)	LM	PK	wɛ-r	KKNK	anyinka	TK	teta	OO	.
	KB	(PK)	bi-ye	KKNK	kanyuga	TK	te-w	TKQN	te-w, muh-cw
(3e)	KT	PK	boore	KKNK	kanyuga	TK	ade	QN	gmindɛ
(4)	LO	PK	bokaa-r	QN	ɔbal'kochin	TK	thil, dil	TN	ɔdol'ɔpaa-r
(5)	BW	KK	hue	OO	.	TK	ta	TN	d'ɔduule
(6)	KR	TNPK	tampɛ-le	TKMK	hiemagayɛ	TK	hiema	OO	.
	TY	TN	tentani	TN	hioma	TN	hioma	YN	yil-ugu
(7)	WN	TN	da'ka'dia	TKMK	semen	TK	sets'ka	YN	nyir-ge
(8a)	MM	KKPK	kafa-ga	KKTK	kayɛ	YN	nyig	YN	nya-ga
	SN	KKTN	kabuggbo'o	TNPK	daxya, braa	TN	dar	YN(TN)	nyɔ'-ga'(afa'a)
	TN	PK	inhen-a	PKNK	nfanɔ	TN	kentar-gɛ	OO	.
(8b)	PN	TN	danc	TKPT	tablo	TN	tra	YN	nnyeowɔ
	PN	QN	gbogyo	TN	ɔlondo	TN	trɛ	TK	lomokosowu
(9)	SM	KK	kakora	TN	hio	YN	nya	OO	.
(10)	DN	TK(TP)	tibu	TN	sosɔ	MN	mine	QN	kulomɔ
	CG	TN	tana	TN	tana (t/c)	TN	tana	TK	caa
		KK	kuɛru	PK	bbil	TK	tli		
			(?better kɔ kugbu)TK		taa				

DN first keyed TKPK SN Semari: (tamiliyo)
SN Semari: (kadenge)

A PRELIMINARY GLOTTOCHRONOLOGY OF GUR LANGUAGES

			R1. 'smoke'		R2. 'fire'		R3. 'ash'		R4. 'burn'
(1)	BG	YE	wtsu	TE	d55	TN	torom	NR	d55 mwa
(2a)	TM	YK	ku-yu-gu	TK	bu-wē	OO	.	OO	.
(2b)	BS	YK	i-gmiiŋyeem	GK	n-gmii	PKTN	n-fantam	TKPK	see, wɔ
	KN	YK	i-gmanyu	MX	m-mii	PKTN	m-faci	NK	nyoom
	GG	YK	i-mu-nyf	MX	u-mu	PKTN	mi-fanta-m	OO	.
	BM	YE	munyaot	MX	mau	TNPK	tampaa	TE	dʒoo
	GM	YE	munyi	PK	fantama	PKTN	fantam-piemma	(TK)	tʃuo
(3a)	PL	YK	bogo-nyii	PK	bogom	TNPK	tāfanam	TK	ɔ
	ND	OO	.	PK	bugmu	TNPK	toomw	OO	.
	BL	YK	nyuksa	PK	bofem	TNPK	tantuzam	TK	dʒu
	FR	TK	zum-hi	PK	bukm	TNPK	tampār'arū	NK	nyo
	GN	TKTK	nyō'he, zū'si	PK	bogin	TNPK	tāmpyōgim	NK	nyo
	TL	YK	gu's	PK	bogm	TNPK	tampya ruk	NK	gɔ'a
	DH	YK	nyo-hi	PK	bugm	TNPK	tāmpim	NETK	nyo, di
	MP	TK	nyo-si	PK	bugum	TNPK	tiam'pye'lim	NE	nyo
	KL	TKTK	zū'ūs, nyō'as	PK	bogom	TNPK	tāmpūgim	TK	di
	MR	TK	bug-zōō-sə	PK	bugm	TNPK	tāmpyōgim	NK	nyog-e
	DG	TK	zoor	PK	vō	TNPK	tāmpelo	OO	.
	NR	TK	zogr	PK	vōō	TNPK	tāmpolo	NK	nyig
	BR	TK	dʒoor	PK	vōō	TNPK	tāmpelū	PK	'ule
	DR	YE	nyo-ri	PK	boog	TNPK	tāmpilj	PK	'u
	HG	TK	wusi, nyusi	PK	bugum	TNPK	tāmpilum	PK	vul
SF	YK	nyosi	PK	bugun	TK	sə	PK	wani	
(3a)	MO	YK	kitʃog	NE	ni	TK	ɔ	PN	fū
	VG	YK	nyzli	NE	niŋ	TK	hʃri	PN	fū
	CH	NK(YK)	suasi	TK	dig	TKPK	tapula	TK	di
	TP	YK	nyosa	TE	dūn	TK	ɔ	TE	daka
(3b)	SS	NK(YK)	noasaj	NK	nyij	YK	toaraj	TK	di
(3c)	KS	YK	nyoa	MX	mini	TNPK	tantwaano	TK	zwc, dia
	LY	YK	nyer	MX	min	TN	tomo	OO	.
(3d)	LM	YK	nyi-sə	MX	min	TK	telom	OO	.
	KB	YK	nyo-si	MX	niŋ	TN	tai-oma	MX	mow
(3e)	KT	YK	nyozel	MX	niŋmin	TN	toloma	NKTK	nyazi, de
4)	LO	YK	'ijii-r	YK	dso	TK(KK)	ɔb-kho	PN	hū
5)	BW	YK	ylini	TN	dʃhū	TK	sini	YK	tyl
6)	KR	YK	nyasent	TN	dʃmu	TN	tyogu	OO	.
	TY	OO	.	TN	dʃma	TN(TK)	kyugu	OO	.
7)	WN	OT	gbtsigi	NK	nea	TN	sə	OO	.
(8a)	MM	QT	wurge	NK	na	TN	ʃyura	OO	.
	SN	QT	na'-wurke	NK	nage	TN	kyōr	(TK)	(sogi)
	TN	QT	na-wurgu	NE	na	TK	tyor	OO	.
(8b)	PN	QT	wors	KT	kabō	TN	ɔro	TK	ʃiu
	FN	YB(OT)	wurya	KT	kasō	TN	ɔrɔrə	TK	so
9)	SM	NK	ninia	NK	nie	OO	.	OO	.
(10)	DN	QR(KK)	kukumu	YK	yasū	NK	uno	TK	toɔc
	CG	YK	n-yui	PK	baku-ma	TN	tena (ɛ/ɔ/ʉ)	TK	daka (d/c)
		TK	jegu	TK	dig				

(nem di means 'eat, consume', cf. 35)

		85. 'path'		86. 'mountain'		87. 'rod'		88. 'green'	
(1)	BG	TK	swaa	KK	guu-ru	TK	swɔ̃	TK	boogu
(2a)	TM	TK	ku-tya	TN	li-tá-li	OO	.	OO	.
(2b)	B5	TK	n-san	TK	di-joo-l	MIN	-man	TP	-suu-s, -som
	KN	PK	li-fá	TK	li-djoo-l	MIN	numaman	PK	(= 'black')
	GG	TK	u-aé	TK	li-dyua-l	OO	.	OO	.
	BM	TK	sɔu-u	TK	djoo-l	MIN	-mɔ̃	OO	.
	GM	TK	ɔa-u	TK	djoo-li, lyva-li (acc)	MIN	mwan	OO	.
(2c)	PL	TK	son-og	KK	kug-ol	MIN	no-lam	TP	(= 'black')
	ND	TK	huru	TN	dure	OO	.	OO	.
	BL	TK	susikw	KNTX	kugkutug	MIN	monu	TP	(= 'black')
	FR	TK	suri	TK	zori	MIN	molga	PK(PN)	bé-ku'um
	GN	TK	so-re	TK	zoo-re	MIN	mó'-	TP	(= 'black')
	TL	TK	swo-r	TK	zwo-r	MENTE	mu'-, zi-	TP	(= 'black')
	DB	TK	so-li	TK	zo-li	MENTE	mo-, ze-	(TP)	(= 'black')
	MP	TK	soo-ri	TK	zoo-ri	MENTE	mo-, zii-	PK(PN)	bian-loom
	KL	TK	so-t	TK	zoo-t	TK	zè'-	QT	wo-, olokok
	MR	TK	so-re	TN	taŋ-ga	MENTK	mog-o, zóó-	OO	.
	DG	TK	sor/ɔa	TN	tá-g	OO	.	OO	.
	NR	TK	so	TN	taŋ	MENTK	moo, zii-	OO	.
	BR	TK	so	TN	taó	MENTK	moo, dju-	QT	wobno
DR	TK	so-ri	TN	taŋ-a	MENTK	mooŋ, zi-	TP	(= 'black')	
HG	TK	so-bile	TK	zo	TK	ze-	MT	momasoro	
SF	TK	sari	TN	taŋa	TK	zi-	TP	sagi-	
(3a)	MO	MX(OX)	mwanepi	TK	bai	TK	konsweŋ	PK(QT)	kolé
	VG	MX(OX)	gmacaz	KN	guggumi	MIN	amú	OO	.
	CH	TK	tuwile	PK	bi	TK	stama	PK	parjaga
	TP	NX	numban	PK	bi	TK	kasam	TP	swani
(3b)	SS	WN(OX)	wambij	PK	pidij	PK	kafama	TPQT	dzokolaj
(3c)	K8	TK	tjogo	TK	plu	MENTK	nasogo	QT	gogolo
	LY	TK	som-a	PK	pyr/pyar	OO	.	OO	.
(3d)	LM	NM	nyombo	PK	wo/wom	OO	.	OO	.
	KB	NM	nunsaw	PK	bo-w	TK	sew, stm	QT	(= 'black')
(3e)	KT	NM	numbau	PK	bo	TK	kuszmu	QT	(= 'black'), bou
(4)	LÓ	KT	hoc	KN	gigoon	TK	je	OO	.
(5)	BW	WN	wáhu	PK	bue	MIN	-muhú	KK	kolohaa
(6)	KR	OO	.	TN	taŋ-ogo	OO	.	OO	.
	TY	KT	hlun-gu	TN	taŋ-ogo	OO	.	OO	.
(7)	WN	WN(OX)	wékc/wél	TK	tekt/tal	OO	.	OO	.
(8a)	MM	KT	kon-o	YN	nyag	OO	.	OO	.
	SN	KT	konu/korku	YN	nyig/nyay	(NK)	(nyenaga)	(QT)	(= 'black')
	TN	KT	konu/korku	YN	nyimpun	OO	.	OO	.
(8b)	PN	TK	tji	TN	nyua	TT(MN)	nyie	MENTK	bozob
	FN	KT	kolé	TN	nyamL	TT(NK)	yaranye	WENK	wenaggt
(9)	SM	MX(YN)	nyal	KN	kal	OO	.	OO	.
(10)	DN	TK	odu	TN	dono	PN	banu	PK(KX)	waru (< Fr.)
	CG	TK	coo (ocoo)	YN	tana (t'e/dd)	MIN	mano		
		KT	kodo	TK	joo	TK	jil		

FR, MP = 'bean water'

In 2c mo-, etc. is verbal

BW = 'green tree snake'

ze-, etc. is nominal

A PRELIMINARY GLOTTOCHRONOLOGY OF GUR LANGUAGES

		89. 'yellow'		90. 'white'		91. 'black'		92. 'night'	
(1)	BG	TK	(='red')	OK	kpika	PN	wéka	TK	wékuru
(2a)	TM	oo	.	oo	.	oo	.	TK	ki-yen-ke
(2b)	BS	oo	.	PN	-pin	PN	-bon	NK	ki-nyee-u
	KN	MX	(='red')	PN	nipupin	PN	nibwombwón	NK	ku-nyaa-g
	GG	oo	.	oo	.	oo	.	NK	ku-nyog
	BM	oo	.	PN	-pèè	PN	-b5	NK	nyak
	GM	(TR)	duudi	(PN)	piesi	(PN)	bwani	NK	nyagu
(2c)	PL	MX	(='red')	PN	peel-am	TP	saw-lom	NK	nyug-go
	NID	oo	.	oo	.	oo	.	NK	nyim-gu
	BL	TK	du-zom	PN	pieel-	TP	sobi-	YK	ywok
	FR	TK	dozo	PN	piad-	TP	sab-	YK	yu'gga
	GN	TK	do-zom	PN	peel-	TP	sab-, sob-	YK	yu'g
	TL	TK	do-kw	PN	pyeel-	TP	sab-l-	YK	wo'ug
	DB	TK	do-zom	PN	peel-, pal-	TP	sab-l-	YK	yu'g
	MP	TK	do-zom	PN	peel-	TP	sab-, sob-	YK	yu'g
	KL	TK	dobelam	PN	peel-	TP	sabul-	YK	yu'ug
	MR	QT	kod-re	PN	peel-	TP	sab-, sob-	YK	yu'ggo
	DG	oo	.	PN	pla-	TP	sabla	TKTP	ti-sow
	NR	YK	do-z5	PN	pel-	TP	sob-, sob-	TKTP	ti-sog
	BR	YK	do-dyug	PN	pel-	TP	sob-, sab-	TKTP	ti-sog
	DR	TK	do-zug	PN	peel-	TP	sog-	TKTP	zi-sooru
	HG	TK	do-zum	PN	peel-	PN (TP)	bir-, sab-	YK	yi'gu
	SF	oo	.	PN	peel-	TP	sod-	YK	yi'gu
(2d)	MO	TKMX	solmeya	PN	kogpog	PN	kogbini	TP	dwana
	VG	oo	.	PN	ohonzo	PN	-bigu	TP	hamuga
	CH	TK	so'ao	PN	pamma	PN	bumma	TP	tabinoc
	TP	TK	sofamin	PN	zaplam	PN	kablim	TKTP	dosam
(2e)	SS	TKMX	sogomooq	PN	kapola	PN	kabone	TK	tutagag
(2f)	KS	TK	sono	PN	sapogo	IN	razono	TK	tuti
	LY	oo	.	PN	pwé	oo	.	TK	kikyé
(2g)	LM	oo	.	oo	.	oo	.	TP	ahu
	KB	(TK)	(='red')	PN	halom-	QTPN	kpest-, bi-	TP	aho, do
(2h)	KT	TK	(='red'), s5f	PN	kofulumu	QT	kakpado	NK	nu'oo
(3)	LO	TK	doon	PN	buloo	PN	biruu	TK	di'im
(4)	BW	TK	do'ido	PN	-poni	PN	-bili	TK	tahu'ú, tinahú
(5)	KR	oo	.	PN	pel-	oo	.	TP	isu'gu
	TY	oo	.	PN	poplo	oo	.	TP	isogo
(6)	WN	oo	.	PK	pi-gi	oo	.	NK	lókú
(7a)	MM	oo	.	PK	fi-go	oo	.	TK	tyige
	SN	(TKNK)	(='red'), s5f	(PN)	(fil-)	(QT)	(w33)	(YMPN)	pi'ge, (yebilige)
	TN	oo	.	oo	.	oo	.	YMPN	nyimpigi
(7b)	PN	NKMK	namlmi	PN	fuggi	QT	wowó	PN	ble
	FN	NK	nyana	PN	fuggi	QT	owo	PN	ble
(8)	SM	oo	.	oo	.	oo	.	TN	tú
(9)	DN	TK	boogu	PN	pifu	QT	grú, gam	YNTK	yaga, dige
	CG			PN	ppeeli(ppp)	PN (TR)	bóiri		sab-kwata

(Items in 2c keyed TK mean literally 'locust-bean powder', also BW)

	93. 'hot'		94. 'cold'		95. 'full'		96. 'new'	
(1)	BG	YN sam	YM	yzm	YP	yiba	YK	kpaá
(2a)	TM	tu(TN) tó	oo	.	oo	.	oo	.
(2b)	BS	tu(TN) tum	tu(TN)	sum	OK	gbi	PK	-pooe
	KN	tu(TN) -tó	tu(TN)	-soó	OK	-gbeem	PK	-pwoe
	GG	tu(TN) tó	oo	.	oo	.	oo	.
	BM	tu(TN) tó-	MK	mei-	OK	gbe-	PK	páá-
	GM	wi(TN) walgi, toggi	tu(TN)	swangi	(OK)	gbieni	(PK)	paani
(2c)	PL	tu(TN) talam	(PK)	bam	(TK)	sula	(PK)	foal-am
	ND	oo	oo	.	oo	.	oo	.
	BL	tu(TN) tul-	(WK)	goota	TK	suere	PK	paal-
	FR	tu(TN) tul-	WK	oro	PK	par-	PK	pal-
	GN	tu(TN) tuol-	WK	ma'ab-	PK	pir-	PK	haal-
	TL	TE do'ar-	ME	ma'a	PK	pa'al-	PK	paal-
	DB	(TN)PK tul-, bi-	WEMK	wa-ri, ma-	PK	pal-	PK	pal-
	MP	(TN)PK tuul-, bli-	WE	waare	PK	paal-	PK	pal-
	KL	tu(TN) tul-	WK	oo-t	PK	pe'e (vb.)	PK	-pal
	MR	tu(TN) tul-	WEMK	wo-do, masa	PK	pid-	PK	pal-
	DG	YN tulo	oo	.	oo	.	oo	.
	NR	tu(TN) tofo	WK	'agr	PK	paal-	PK	pazla
	HR	tu(TN) tuló	WK	'aar	PK	paal-	PK	pazlaa
	DR	tu(TN) tofoo	WK	warí	PK	paal-	PK	pazlaa
	HG	tu(TN) tul-	ME	mas-	PK	pal-	PK	pal-
	SF	WT wuar-	ME	mas-	NK	lee	KN	kai
(3a)	MO	WK(WT) kuwórobi	TK(TN)	sonk	TK	isu	PK	kofale
	VG	WK ówemo	TK(TN)	osónó	TK	osuo	PK	ofale
	CH	NK numa	TK(TN)	suone	TK	so	PK	filii
	'TP	KM kaham	TK(TN)	sonoon	TK	suli	PK	kofali
(3b)	SS	NK kolamag	PK	fálag	TK	suo	PK	kufliuj
(3c)	KS	NK lona	TK	zuda	TK	su	TK	ndongo
	LY	NK nelum	oo	.	oo	.	oo	.
(3d)	LM	oo	oo	.	oo	.	oo	.
	KB	TK soq-, saw-	PK(WK)	wato	TK	saw-	PK	fai-
(3e)	KT	(NK) lelema	NK	kancja	TK	buuzu	PK	ki-faalo
(4)	LO	PKON phoa, kporoo	YT	'li	PK	hii	PK	phaa
(5)	BW	TK -sue	WK	-wanu/-wis	TK	su (vb.)	PK	féle
(6)	KR	TK(TN) hulugo	oo	.	oo	.	oo	.
	TY	TK(TN) hulama	oo	.	oo	.	oo	.
(7)	WN	PK wíáná	oo	.	oo	.	oo	.
(8a)	MM	PK fugo	oo	.	oo	.	oo	.
	SN	(WT)PK (wari), fugo	(NK)	(nyige)	(NK)	(nyf)	(PK)	(N-)
	TN	WK(WT) arég	oo	.	oo	.	oo	.
(8b)	PN	WK(WT) weri	TK	ndji	TK(NK)	nyyl	PK	fógg
	FN	WK(WT) kiwer	TK	kundjugi	TK(NK)	kunyc	PK	fógg
(9)	SM	oo	oo	.	oo	.	oo	.
(10)	DN	NK numu	NK	kzalu	TK	dyoo	KN	kana
	CG	TK tuu	TK	caa	PK	ppa'a-li	PK	pa-li
		(TN) tuf-			TK	caa		

A PRELIMINARY GLOTTOCHRONOLOGY OF GUR LANGUAGES

(1)	BG	KK	97. 'good'	98. 'round'	99. 'dry'	100. 'name'
			goa	bwareku	gbaba	yisuru
(2a)	TM	OO	.	.	.	li-yiti-li
(2b)	BS	KN	-gan	(QN) -kugku	KT -ku	YT di-yin-di
	KN	KN	-gã	QN -kpukpu	KT -kuun	YT lu-yumba-l
	GG	OO	.	OO	OO	YT lo-yel
	BM	KN	gã-	KN(QN) -kugkã-	KT koon-	TN san
	GM	(KN)	gan-	(QN) kogkon-	(KT) kuo-	YT yeli
(2c)	PL	TM	djanda-m	KN(QN) koka-lam	QN kpalam	YT yel-el
	ND	OO	.	OO	OO	YT hid-re
	HL	(NK)	nalam	KN gũgil-	KT kwã	YT yea
	FR	NK	mahã	KN gilig-	KT ku'wa	YT yu'u-re
	GN	TN	sum	QN kil-	KT kuã	YT yu're
	TL	YMK	som-, mah-	QN kpil-	KT ku'o	YT(NT) wo'r
	DB	TMPT	sum-, vel-	KNQN kpel-, gel-i	KT kuã-i	YT yu-li
	MP	TMPT	sum-, veel-	KN giligi, kpal-	KT ku-l	YT yuu-ri
	KL	TM	-som	QN gbũ-	KT kuã-	YT yu'-ut
	MR	TN	som, aer-	KN gil-ga	KT kwi	YT yuu-re
	DG	TMPT	sõg, via	OO	KT kã	YT yur/ye
	NR	PT	ve l-	QN kulekulo	KT kog	YT yuo-r
	BR	TMPT	san, vel-	QN gbũ-	KT kã	YT yuo-r
	DR	TMPT	sug, vid-	PT(QN) bul-	KT ko	YT yuo-ri
	HG	PT	veil-	KN(QN) gulgul-	KT ku-	YT yuura
SF	PT	veil-	PT(QN) bul-	TK dji	YT yori	
(3a)	MO	KN	kerede	KN(QN) gugũli	FN hol	TN san
	YG	PT	oweto	PT obato	TN ohilo	TN sãg
	CH	PT	were	KN(QN) goye	TN hola	TN sãg
	TP	PT	weyri	KN(TN) karlum	TN kohole	TN san
(3b)	SS	TMPT	zãmã, weryã	KN(QN) gulogulo	FN hila	YT yurãg
(3c)	KS	TM	iana	KN(QN) kukulu	KT ka-	YT yudi
	LY	OO	.	OO	OO	YT yil
(3d)	LM	OO	.	OO	OO	YT yide (yil-)
	KB	PK	-baw, -waw	KN(QN) kol-, koc-	FN wul-	YT yude (yil-)
(3e)	KT	TM	kasu	(QN) kulukulu	FN buurã	YT yude
4)	LO	PK	bo-, bõ	PT bilẽẽ	KT khil-	YT 'i-ri
5)	BW	TK	-telte	OO	KT -heni	OO
6)	KR	OO	.	OO	OO	YT yere
	TY	OO	.	OO	OO	YT yi-ri
7)	WN	OO	.	OO	OO	YT nyin
8a)	MM	OO	.	OO	OO	MK mba-ga
	SN	(YN)	(nyã)	(YN) (cyliri)	(YN) (waha)	MK megr
	TN	OO	.	OO	OO	MK mi-ga
8b)	PN	YN	-nyã	PT ponggo	TK yua	MK me
	FN	YN	-nyã	KN(QN) kukulo	TN -we	MK me
9)	SM	OO	.	OO	OO	YT yi
10)	DN	TM(NT)	edu	TN denale	MS maa	TK boy
	CG	TM	cãmu	QN kpali (kp/gb) KN kuli (k/g)	KT kuu	YT yudi (u/i) MK mike

PT in sub-groups 2 and 3 first boys 4 etc