

KORKU LOW TONE AND THE PROTO-KORKU-KHERWARIAN VOWEL SYSTEM

by

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PRELIMINARY NOTE

This paper was written in 1961 and slightly revised in the light of a check on the data with a Korku informant in 1963. Also in 1963 a brief note on Gutob was added, and the note on Gutob was amended in 1964. If the paper were to be rewritten now, the recent data on Korwa, and perhaps data now being made available on Ho and Birhor would be taken into consideration, and, more importantly, the descriptive and analytical phonological procedures used would be modified. The paper is presented essentially as written since the data presented and the problems they present, and my views on the sources of Korku low tone are largely what they were when the paper was written. It is hoped that a full presentation of North Munda phonology will be offered eventually, and there the conclusions – and the method – offered here will certainly be modified in some degree.

Certain corrections and additions should be made; they will be made here rather than at the appropriate places in the body of the paper.

(1) K. *arâp*. should correctly be *ara*?. (2) K. *siri* is not now considered to be cognate with S. *seleb*, and is considered to be a borrowing from (IA) *cheri* or something like it. (3) K. *surèi* is a loanword, and the forms in Santali are presumed to be loans also, but borrowed independently, probably from cognate but different sources. Fieldwork in Orissa has shown that a number of loanwords from Indo-Aryan that had no Hindi or Marathi cognates have Oriya (or Desia) cognates. Another observation on the affiliations of Korku is that Korku seems to share lexicon with Mundari (and its dialect Ho) that it – and they – do not share with Santali. (4) The low vowel in K. *bulù* was questioned on the grounds of a questionable interpretation on K. *giri*, and on grounds of the South Munda forms (the Sora evidence and Bhattacharya's Remo) not being what they looked as if they ought to be. Further work on Gutob-Remo (Gutob *bili*, Remo (Fernandez) *bili*, SM **bVlu*?) shows that there was no need to further 'explain' the Korku and PKK forms offered. (5) K. *giri* 'fishhook; to catch fish with hook and line' is probably not a regular cognate of S. *gari*; the latter could be a Dravidian borrowing (see DED 1254, Kannada *gāla*). This particular word – or perhaps more than one converging words – is particularly difficult to account for in Munda. It had better be omitted from consideration in setting up PKK correspondences. Thus, in Gutob there is a verb stem **gir*- 'fishnet' derived from the nominalized form with infix -Vn- *ginir*. The infixation process is old – it goes back to the pre-Proto-Munda period – and is no longer productive in Gutob and not found with any stems known to be borrowings in Gutob. (There are also two other homonymous verb stems in Gutob: *gir*- 'to rain' (from GR **gir*), and *gir*- 'to learn'). But the Gutob verb (also found in the Indo-Aryan Desia) is *gira*- which takes the borrowed Desia Oriya causative

-a, otherwise found only in recent Desia borrowings. The Remo form – another irregularity – is *jira*-. Conceivably an old *gir*- is found in Gutob along with a borrowed *gira*-, the latter itself perhaps a borrowing from Munda into Desia or an ancestor of Desia. (6) The aspiration in *bar-khiñ* can be explained in another way: as the result of ‘advancing’ an earlier aspirate lost in *CVVC*- > *CVC*- contraction. Thus, as *koòkoñ* ‘to call (redupl.)’ > *kokhòñ*, *baàrkiñ* > *barkhiñ*. Some suggestive supporting evidence for **baàr*- comes from South Munda where in Remo we find *ba²ar* (the -*V²*- seems to be an infix, in *bar* not part of a ‘full form’ for it). That South Munda -*V²*- is cognate with Korku -*ṽ*- is attested in a Proto-Munda verbal infix which has the reflexes -*V²*- in Sora, and -*ṽ*- in Korku. In Korku, an allomorph *baar*- occurs in *baar-ià²* (*bar-ià²*) ‘two (inanimate substantive)’, but one would like some motivation for a development from *baària²* to *baaria²*. There are possible – but questionable – parallels with such Korku forms as *haanè²* ‘there it/they (inan.) is/are!’ from *haàn-e²*. Perhaps a better explanation would derive the *baar*- from *bar*- with automatic lengthening, something that is attested in Korku, in particular before *r*. (7) The Korku form *etha²* ‘to untie’ occurs as a doublet form for *iti*. This supports our suggestion that Korku -*C²hi* cannot occur. (8) One additional possible cognate pair has turned up: Korku *adi* ‘to flow’, Santali *haḍi* ‘driftwood’ (Ho *haḍi* ‘to flow’). This set if accepted as cognate requires revision of our earlier proposed ‘regular correspondences’, the latter being based on the Korku forms *sadi* and *kathiñ*. I would tentatively reject the Santali form as cognate with Korku; apart from the phonological difficulties, the fact that there is no cognate verb in Santali suggests that the Santali (or both the Korku and the Santali) are borrowed. A possible source of borrowing in Kannada is worth mentioning, but the linguistic contacts presupposed for the borrowing – of PKK, presumably from Kannada, directly or indirectly – are in need of support, though not impossible (DED 3317, Kannada *paṛi*, *haṛi-ta*, and, more questionably, DED 3362, Kannada *hāḍi*). The forms must have been borrowed from Kannada (after the eleventh century since only in later Kannada did *p* > *h*); the Santali and Ho forms have initial *h*, and the Korku would probably have to be derived from a Korku dialect (such dialects are known) which lacks (and drops in borrowings) initial *h*, and further (probably) has *hVCV* > *VCV*. This looks like a kind of back formation of a rule noted in this paper *VCV(C)* > *hVCV(C)*. No other example of this sort of back formation is as yet attested.

As to other (non-Korku-Santali) data relevant to PKK reconstruction, Korwa does retain as *e* at least some nonmerged (with *i*) reflexes of Pinnow’s PKK **e*, and Ho has final -*r²* and -*l²* which may have something to do with PKK vocalism, as the analogous *²C_{contin}* sequences in South Munda do.

Kharia does have aspiration (in some dialects) in morphemes where Korku has ‘inherent low tone’. The examples are S. *seleb*, (there is no Korku cognate; **silib* would be expected), Kh. *selhob*, K. *khamāl*, Kh. *kenhel*, and K. *bulù*, Kh. *bhulu*. The correspondences are hardly neat, but considering the size of the sample (and the paucity of old Kharia forms with aspirates) are certainly significant, and ought to be followed up (preferably with larger Kharia and Korku lexicons) and accounted for more adequately.

As to the schema for accounting for the Santali-Korku ‘inherent low tone’ correspondences, I have elsewhere suggested (in ‘Gutob-Remo Vocalism and Glottalised Vowels in Proto Munda’) that Proto Munda had ‘glottalised vowels’, and that these historically account for the PKK forms discussed in this paper. This hypothesis doesn’t help in reconstructing a better PKK vowel system here, although certain suggestive points emerge. For instance, the differential treatment of (what we have tentatively reconstructed as) **kaso²* ‘pain’ (K. *kasug*, S. *haso*, SM **asu²*) and **bVlu²* ‘thigh’ (k. *bulù*, S. *bulu*, SM **bVlu²*) suggests that if we were right in the Gutob-Remo paper in hypothesizing – for certain vowels at least – a *²* > *g* development in North Munda, then *u²* became something other than ‘*V²*’ before the North Munda *²* > *g*

shift occurred (assuming that the shift was not selective precisely in distinguishing **o* from **u* in this context). The 'something other' was perhaps a 'glottalized vowel' as opposed to a *V**ʔ* sequence. If so, the earlier 'glottalised vowels' in contrast to the later *V**ʔ* (which > *V**g* in North Munda) were those that came down to PKK as described in this paper, and to Korku as 'inherently low'.

Summary. This paper introduces the data on Korku low tone and distinguishes three historical sources for it. A new interpretation of the Proto-Korku-Kherwarian (PKK) vowel system in the light of Korku tone is offered, the reconstruction of the PKK vowel system also making use of certain regularities of within-morpheme vowel 'harmony' (co-occurrence) found both in Korku and in Santali and presumed to be present in PKK as well.

Korku is the only Munda language for which tone has been recorded. Tone is not found in the fairly closely related Mundari and Santali languages, at any rate in the dialects of Santali and Mundari described in print.

There are two tones in Korku: high (unmarked) and low.¹ Phonemic tone is low tone, and high tone is considered to be no (low) tone, or the absence of tone. Low tone is positively correlated with aspiration in that every medial aspirate is followed by low tone, but – on the phonemic level – the reverse is not true; not every aspirable consonant followed by low tone is aspirated. We have such pairs as */kɔŋkɪŋba/* 'calls them (dual)' (from *kɔŋ-kɪŋ-bà*) and */kɔŋkɪŋba/* 'calls (intensive) me' (from *kɔŋ-k(h)i-ŋ-bà*). Thus two phonemes are needed to indicate tone-aspiration and at least two ways of phonemicising ton-aspiration are worth considering.² On the morphophonemic level only a single tone-aspiration morphophoneme is needed. It is this morphophoneme, low-tone aspiration or, by another analysis, this set of morphophonemic low-toned vowels that will be discussed here.³

¹ The two Korku dialects studied differed in their tone-related phonetics: Lahi (Hoshangabad) Korku has the high and low tone before glottal stop and elsewhere indicated by high and low pitch. Dharni (Amraoti) Korku has the high and low pitch except before glottal stop; high tone followed by glottal stop is phonetically a rising pitch with accompanying glottal constriction and a slight fall and more pronounced glottal closure at the end of the vowel. Low tone followed by glottal stop is actualized by falling pitch with glottal constriction of the vowel and a final rise in pitch and more pronounced glottal closure at the end of the vowel.

² Tone-aspiration is discussed at some length in my unpublished dissertation "Korku Phonology and Morphophonemics", University of Pennsylvania, 1960.

³ One set of vowel morphophonemes proposed in "Korku Phonology and Morphophonemics" (*op. cit.*) consists of three 'inherently low' vowels */I, A, U/*, and five inherently high' */i, e, a, o, u/*.

In Korku only a non-initial syllable can be low but (some) syllable-initial aspirates are found in syllables in all positions in the word. Additional complication arises in treating monosyllables with final glottal stop. These are the only low monosyllables in the language and are invariably low; they contrast with no high monosyllables with final glottal, and despite the 'overlapping' are here considered 'phonemically high.' A more interesting complication results from the conditions of the domain of low tone. A low tone in Korku extends to the end of the 'phonological phrase'⁴ in which it occurs, masking or neutralising tone contrast (but not aspiration contrast) in all the following phonemes in the phrase. Thus, e.g., the genitive morpheme *-à(ɓ)* is low. Genitives occur initially in noun phrases, and where they do every syllable following the *-à(ɓ)* is low in tone, e.g., in */#ìṇ-à(ɓ)#èi#siri-kù&|* 'my seven she-goats' the low tone of *ei* 'seven' and of *siri* 'she-goat' is masked by the automatic low tone falling on every syllable after the *à(ɓ)* and before the phrase-final juncture. A word must be elicited either phonological phrase-initially or in phrases in which it is preceded by high-toned words only for its inherent tone to be identifiable. The morphophonemics of tone-aspiration, then, is somewhat complicated and the validity of the forms presented here (and of the procedures responsible for them) is presupposed.

One might expect that if tone contrasts are frequently masked, tone would not carry much of a functional load in Korku, and this is in fact the case. Monosyllabic words are necessarily high, and the very few pairs of polysyllabic words which contrast only in tone are almost always of different morpheme and form class membership, thus, */momon/* and */momòn/* *mo-mon* 'five each' a reduplicated distributive of *mon*, the combining form of *monoi* 'five', and *momo-èn* 'to the *momo* (a species of snake)'; */rukun/* and */rukùn/*, *rukun* 'to nod', and *ruku-èn* 'to the fly *ruku*'; */hūdar/* and */hūdàr/* *hūdar* 'to prepare food' and *hu(n)-(C)àr* '(in) that way,' from *hu-* 'that' and *-(C)àr* 'manner.'

Historical reconstruction in this paper will concern itself with Proto-Korku-Kherwarian (PKK); only one other daughter language of PKK, Santali, will be compared with Korku. Mundari, the only other language adequately represented by lexical and grammatical materials provides

⁴ The 'phonological phrase' is not defined here, and will not be further mentioned; it is identified by phonological criteria, and has a correlated syntactic structure, e.g., most Korku noun phrases are also phonological phrases. The phonological phrase terminal juncture is indicated by an ampersand. (See "Korku Phonology and Morphophonemics", *op. cit.*, for further details.)

almost nothing not to be found in the closely related and better described Santali.⁵ The data on the other Kherwarian languages are scanty. The *Versuch*⁶ of H.-J. Pinnow has been of great value in the preparation of this paper but since Pinnow's Korku data did not indicate tone – he was aware of tone only indirectly, through its correlate, aspiration – the resulting picture of Korku phonology could not permit him to see the problems in reconstruction Korku tone presents. Thus, his discussions of aspiration, of velar consonants and, more peripherally, of other phonological features correlated with low tone-aspiration, e.g., retroflexion, although indirectly relevant to this discussion, will not be taken up explicitly in detail here.⁷

Korku low tone derives from three sources: 'inherently low' vowels and/or lowering vowel accompaniments,⁸ automatic aspiration of voiceless consonants in certain positions, and tone in affixes or postposed morphemes of certain classes which may be assumed to be developments from an earlier junctural feature now lost.⁹ The last-mentioned source will not be treated below since we will deal only with root morphemes occurring word-initially – the only environment in which the vast majority of such morphemes ever occurs – and there is no evidence to suggest that the low-toned allomorphs of morphemes (elsewhere) identifiable in word-initial position supply data on the inherent 'lowness' of their vowels; where there is evidence relating to these morphemes, the reverse is the case: the vowel in the 'low' forms is a later development, e.g., /-dà-/ the permissive in /sen-dà-/ 'to permit to go' (sen 'to go') is presumably to be identified with *da* 'to do', and /-khîŋ/ the dual suffix in the substantive animate numeral form /barkhîŋ/ (*bari* 'two') is to be identified

⁵ The Santali data are taken from P. O. Bodding, *A Santal Dictionary*, 5 vols. (Oslo, 1929-1936), and *Materials for a Santali Grammar*, 2 parts (Benegaria, 1922, 1929).

⁶ Pinnow, H.-J., *Versuch einer historischen Lautlehre der Kharia-Sprache* (Wiesbaden, 1959).

⁷ I hope to discuss them elsewhere in a wider Munda context.

⁸ The term vowel accompaniment is used to refer to the two tone-aspiration phonemes, and to phonemic stress (see "Korku Phonology and Morphophonemics", *op. cit.*).

⁹ Eric Hamp has pointed out that the first two sources can be grouped together as aspiration automatic at the beginning of a morpheme: in one case of its first syllable where it follows a plus juncture, and in the other of its second syllable – when this begins with a voiceless stop – where that follows word juncture followed by vowel. Thus, */bar+kîŋ/ > /bar+khîŋ/ > /barkhîŋ/, and */am+aʔ/ > */am+haʔ/ > /amhaʔ/ (=amàʔ) with aspiration after plus juncture, and */#uku/ > /#ukhu/ with automatic aspiration after word-initial vowel followed by voiceless stop. Suffixes of the form -VC are usual in Korku, both noun suffixes of form -VC (the genitive -àʔ and the locative-dative -èn) being low in tone, as are two of the three tense/voice verbal suffixes (the past -èʔ, the present passive-potential -ùʔ, but not the past passive-potential -en).

with the dual animate suffix, elsewhere *kij̥*. The lowness of these can be accounted for by a rule stating that verbal suffixes and verb auxiliaries (e.g., *-dà-*),¹⁰ and numeral substantivising suffixes both animate and inanimate are low in tone. The generality of the statement, the variety of vowels found in such suffixes as compared with the limitations on low-toned vowels elsewhere, and the lack of any substantiation in related languages for considering these low vowels as inherently low leads us to treat these morphemes as 'high' until this is contraindicated by further data.¹¹

On automatic voiceless aspiration, two rules can be given:

(1) Every vowel following a non-initial /s/ is low. The contrast between reflexes of inherently high **u* and **o*¹² and inherently low **e* is neutralized after /s/: thus the low /u/ following the /s/ in /kasùp/ 'pain' and /usùp/ 'thin' does not indicate a reflex of **e*, which it would after any other consonant.

(2) Morphemes with medial voiceless stop (p, t, k) – symbolised by C^p – of VC^pV(C) shape are replaced by morphemes of VC^{ph}V(C) shape under certain conditions.

The conditions are not fully understood but seem largely to be those of particular vowel selection; such forms as /iti/ 'to untie' /atar/¹³ to remove' do not become */ithi/ and */athar/ although /ukhu/ 'to hide' and /iphil/ 'star' do derive from PKK **oko* and **ipil*. There are no examples of -C^{ph}i in Korku,¹⁴ nor are there examples of aC^paC though /akha/ 'to hang' and /aphai/ 'three' are found, and only one example, /akhe/ 'axe' of final -C^{ph}e.¹⁵

There are a sufficient number of examples with a variety of vowels to indicate that this rule is fairly general in its application, and the exceptions seem to be accountable for by special rules not undermining the

¹⁰ Of a certain class; this generalization does not apply to incorporated object suffixes or to mode suffixes.

¹¹ A case for an inherently low vowel can be made for *-khor* in Korku *mi-khor* and *ap(h)-khor* 'one' and 'three' (animate substantive). The form seems identifiable with K. /koro/ 'man, person', S. /hər/ and other forms in S. (/kharwar/, /kherwar/, see Pinnow, *op. cit.*, p. 153). **kər*/r then, would be reconstructed along with **kər*/r. This would require revision of the above statement. One might, alternatively, interpret *apkhor* as **aphkor* (from *aphai*, 'three' and attribute the aspiration in /*mikhor*/ and /*barkhij̥*/ to analogy.

¹² This statement anticipates and somewhat simplifies the conclusions of the discussion in the next section.

¹³ These are the only two exceptions to this rule.

¹⁴ Such forms as /*muthi*/ 'to punch', and /*gathi*/ 'to wrap up' are recent loans. There is no evidence of earlier forms in /-C^{ph}i/.

¹⁵ /*atar*/ could be a fairly recent borrowing from Hindi /*utar*/ 'to take down', in which case it would not be expected to become **athar*.

general arguments presented here. As in rule (1), the Korku forms here probably neutralize the inherent tone reflexes overtly indicated in Korku, so that in /ukhu/, the Korku form gives no information on the source of the final -ù, i.e., whether it derives from a low *e or a high *u or *o. It is possible that the Santali forms from which the PKK *ipil and forms like it are derived are themselves not decisive in vowel reconstruction, i.e., that a merger of -i and -e may have occurred in precisely the environments discussed here. This is – weakly¹⁶ – suggested by the K. existence of Korwa /epal/ as a cognate of S. /iphil/ and K. /iphil/.¹⁷

Three more morphophonemic rules of Korku which we will have occasion to make some use of later are:

(3) No morpheme contains more than one aspirate.¹⁸

(4) In a few forms to be listed (there is no more general way of describing them) (C)VCVC > (C)hVCVC.

The only examples for which the internal evidence of Korku is persuasive are bimorphemic forms, the first morpheme of which is well known in other environments, e.g., /hīdār/ (from *in-Cār*) 'in this way' (*in* is the demonstrative 'this'); /dhīdūr/ (from *di-naūr*, *di* 'that', *naūr* 'et cetera') 'those (inan)' and /hūjūʔ/ 'to play' from *uj* 'to jump' and the passive-potential suffix *ūʔ*. (The nasalization is automatic).

(5) Monosyllables with final stop¹⁹ take a low-toned reduplicative infix, i.e., *god* 'to pluck', and *kab* 'to bite' have the reduplicated infinitive forms /gogòd/ and /kakhàb/. Others take non-low CV infixes, e.g., *kul*, /kukul/ 'to send.'

¹⁶ 'Weakly' because so little is known of Korwa, and wider Munda relationships are of no help here.

¹⁷ The Korku data given here are, unless otherwise specified, from my own field notes on the Dharni and Lahi dialects. My data on the former are more extensive and reliable than the brief notes I have on the latter. Earlier data are given in Pinnow (*op. cit.*) who, for instance, gives /ipil/ as a Korku form. I do not question that /ipil/ occurs in some dialect or dialects of Korku, but there is no reason to assume that it represents the Pre-Korku form. The earliest data available on Korku, collected by Hislop from several sources and printed in 1866 (Hislop, S., *Papers Relating to the Aboriginal Tribes of the Central Provinces of India*, Nagpur, 1866), do show /iphil/ to be the word for 'star' in some of the Korku dialects as of the early nineteenth century.

¹⁸ Here, we take the definition of aspirate *not* to include voiced and voiceless aspirates but not low tone. The alternative treatment takes voiced aspiration and low tone as a single unit contrasting with voiceless aspiration.

¹⁹ There is only one (non-nasal) stop series occurring in final position in Korku: /b, d, j, ʔ/. These are weakly voiced, and weakly pre-glottalized; there is no phonemic contrast between glottalized and non-glottalized final consonants in Korku, as there now is in Santali. The Santali non-glottalized final stops are not reflexes of PKK final stops.

The major portion of this paper is concerned with presenting the data on non-automatically – i.e., inherently – low tone in those Korku forms for which we can reconstruct PKK forms, and suggesting the revisions in Pinnow's PKK vowel schema that are required by Korku correspondences previously missed.

Pinnow would seem to reconstruct a seven vowel system for PKK. Since he reserves judgement on the existence of PKK in his *Versuch* (but later accepts it on the evidence of verb morphology),²⁰ he cannot be expected to describe its vowel system explicitly, but the PM vowel system as he gives it in tabular form²¹ strongly suggests that the PKK vowel system he might envisage would have seven short vowels; length is distinguished only in the Southern Munda languages, and ə and ɪ are presumed to have been lost prior to the PKK period. He suggests that the vowel diagram (Fig. 1) representing the vowels of modern Santali developed from the earlier PM vowel system as shown in Figure 2. The Korku vowel system is shown in Figure 3.

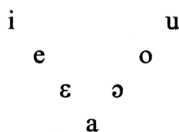


Fig. 1



Fig. 2

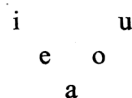


Fig. 3

The PM system and the inferred PKK vowel system, with Korku and Santali reflexes is given in Table 1. The PKK system is presumed to be that of the PM system as given in the table except that length, *ə, and *ɪ have been lost. A dotted line separates *ə and *ɪ from the PKK vowel phonemes proper.

TABLE I

PM	Santali	Korku
*u:, *u	u	u
*o:, *o	o	u, o
*ə:, *ə	ə, o	o
*a:, *a	a	a
*ɛ:, *ɛ	ɛ, e	e

²⁰ Pinnow, H.-J., "A Comparative Study of the Munda Verb" (in this volume). Pinnow does use the term Kharwari-Kurku occasionally in discussing the vowels of Proto-Munda, e.g., *op. cit.*, p. 137.

²¹ Pinnow, *op. cit.*, pp. 194-5.

PM	Santali	Korku
*e:, *e	e	i
*i:, *i	i	i
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*ə:, *ə	ɛ, a, ɔ	e, a, o
*ɪ	i, a, u,	i, a, u,

The following forms occur in Korku: (Only forms for which I can give Santali cognates are listed. Glosses for them will be found at the end of the paper):

A		E		I	
K.	S.	K.	S.	K.	S.
galAm	galan	(h)adEi	baɖae	sadI	saɖe
gapAn	gapa	cith ^e re	citri	katIɲ	haɖɪɲ
(from gapAɲ)		surEi	sula	(teIɲ	tehen
			(also soɖa)	(from teEɲ)	
tarA?	tara'k-			(?) rukI-ni	ruhi
	birə'k			jukI-ri(j)	jo'k-
khamAl	hamal				
U					
kath ^a la?	hatla'k	bulU	bulu	{betkII	bitkil
cakAn	sahan	{dumUr	dumur	{bitkII	
		{dübUr		cikh ^a ni	sikɾi'c
makA	māhā			bill	bele
(-din)				(?) siɾI	sele'p
O					
(?) kolA?	hola't	potOj	pəɖə'c	sirIɲ	sereɲ
kolA	hola	lokOr	rəhəɾ	{simII	sebel
(-din)				{sībII	
hōbA?	omba'k				

The number of Korku examples with low tone given here is not large, but for these there are no obvious general conditions from which one can derive the low tone. Thus, *bulU* contrasts with *bunum* and *bolo* (in Korku) and the tone restriction and vowel harmony rules permit no other u-U-o possibilities; similarly with *gitij*, *bill* and *gele*. The Santali forms suggest no simple way of interpreting all these forms in PKK as reflexes of the Pinnaw seven vowel system. For Korku /I/ there is a place: as a reflex of PKK *e; thus, S. *sereɲ*, K. *sirIɲ* and, therefore,

PKK **serep*.²² There are no slots for the *U* or the *A*, however, nor for the rarer *E* and *O*. One possible reconstruction might make use of a reconstructed low tone in PKK, this merging in Santali with various high toned vowels in complicated ways. It is simpler to reconstruct an additional vowel phoneme (or phonemes) whose reflexes like those of our *I* (= Pinnow's **e*) yield certain low-toned vowels in certain environments.²³

The reconstruction offered here makes use of two (presumably central and/or rounded) 'lowering' vowels Pinnow's **e* which I will represent hereinafter as **I*,²⁴ and a second vowel which I shall represent by a backwards *E*²⁵ or 'capital schwa' **ɤ*.

A representative of each different *V*₁-*V*₂ pair will be given along with the proposed *V*₁-*V*₂ reconstruction. The reasons for the reconstructions follow:

²² Such seeming exceptions as Korku *ghilij* 'to extend', Santali *jelen* 'long' (from PKK **nelep*(?)) are accounted for by the rule on tone-aspiration restrictions within a word, i.e., ChVCV₂C > ChVCV₃C where *V*₂ is a 'lowering vowel' and *V*₃ is a reflex of that vowel in environments where it cannot be low. But note K. *ilur* 'husband's younger brother', St. *herel* where one would probably reconstruct an **e* only in the first syllable.

²³ Reconstructions of *A*, *E*, *I*, *O*, and *U* as diphthongs or long vowels are unprofitable. A laryngeal interpretation (i.e., one laryngeal, **e* and one laryngeal, or two laryngeals) seems more workable, and is, perhaps, necessary for reconstructing Proto-Southern Munda with its glottalized consonants. For PKK, the two 'lowering' vowels proposed seem preferable to any laryngeal interpretation. (For the decidable questions lowering vowel interpretations can be made more easily with the two vowel interpretation; the additional power of a laryngeal hypothesis is unusable). – P.S. Since this paper was written, the writer has collected data on Gutob (Gadaba), a Southern Munda language spoken in the state of Orissa in India. These data include such morphemes as /*laʔŋ*/ 'tongue', /*paʔr*/ 'to dawn', and /*soʔl*/ 'oil'. The comparative analysis of Gutob has barely begun, but it looks as if it will be necessary to reconstruct Proto-Southern Munda morphemes of CVʔC shape to account for such Gutob reflexes as the above. Although, the interpretation of the Korku data suggested above can be largely stated in terms of a single central vowel and a laryngeal, or perhaps even of a single laryngeal phonemic unit, certain correspondences may be better handled by the second interpretation(s), e.g. the 'irregular' loss of final nasals in K. *gha*- 'to hit' attach to' (it has borrowed much of the semantic range of Hindi *lagnā*) and S. *ja*, *jam* 'to find, seek, get' (these forms are not referred to elsewhere in this paper) can be accounted for, perhaps, by simpler and more general rules of ʔC cluster reduction (something alike those in Gutob morphophonemics) than by setting up vowels and/or additional nasal consonants – however many are needed – to account for these correspondences in terms of the sorts of vowel and consonant environment in terms of which the correspondences are elsewhere accounted for. Our original interpretation is weak in areas not simplified by the Korku tone data, e.g. in generalisation to initial syllables of inferences drawn from the tone distinctions, these occurring only in non-initial syllables in Korku; perhaps an interpretation reconstructing morphemes of shape (-VʔC-) would make more sense of such forms as (*koOŋ*-) and supplant the peculiarly distributed (in initial syllables) *ɤ with something more elegant.

	K.		S.		PKK	
(1)	galAm	a – A	galan	a – a	*galEŋ	a – E (or E-E)
(2)	(h)adEi	a – Ei	baɖae	a – ae	*(h)adE(y)	a – E(y) (or E-E(y))
(3)	hōbAʔ	o – A	ombaʔk	o – a	*embwɛʔ	o – E
(4)	potOj	o – O	pəʔɔʔc	o – o	*pəʔɔj	o – E
(5)	surEi	u – Ei	sulə	u – a	*surE(y)	u – E (or U – E)
			(or soɖa)	(o – a)		
(6)	rukI-	u – I	ruhi	u – i	*rukE	u – E
(7)	bulU	u – U	bulu	u – u	*bulɪ	u – I
(8)	sadI	a – I	səɖe	a – e	*sadɪ	a – I
(9)	katIɲ	a – I	həʔɪɲ	a – i	*katɪɲ	a – I
(10)	bilI	i – I	bele	e – e	*bilɪ	i – I
(11)	girI	i – I	gari	a – i	*gɪɪ	I – I

The four common sets K. *i-I*, *u-U*, *a-A*, and *o-O* require two lowering vowels and I consider (1), (3), (7), and (10) to be adequately accounted for by the above interpretation. The rest are less certain; (11) is a guess made on the basis of one example.²⁶ (6) *rukI-* has to have a low (in height) final to account for the Santali /h/ from PKK **k*. *-kI* cannot occur word-finally in modern Korku and was rejected under the presumption that it was not found in earlier Korku either.²⁷ *surEi*²⁸ can be

²⁴ This is not to be confused with Pinnow's **i*.

²⁵ A third (central) vowel may be required or only the **E* may be necessary. The 3×3 system seems more common in the languages of the world and is represented in Hockett's sample by five languages; he found no 3×3×2 vowel systems of the type proposed here, i.e., (with more usual phonetic symbols):

i	i	u			i	u
					i	
e		o	or		e	o
					ə	
a	ə	o			a	o

(Charles F. Hockett, *A Manual of Phonology*, Baltimore, 1955, p. 87).

²⁶ See the cognates for *giri* in Bhattacharya's paper in this volume. If **giriI* be rejected, **bilɪ* for (10) becomes likelier. The **bilɪ* interpretation is questionable in that it depends on a dubious interpretation, that of **giriI*, and tentative interpretations of Southern Munda cognates of K. *bilI* and *bulU* (see Bhattacharya's paper in this volume). I maintain only that a 'two vowel interpretation' of K. low tone-aspiration is possible and reasonable, that a three vowel interpretation (e.g., with (7) *bulɪ*, (10) *bilə*, and (1) *galAm* having three different 'lowering vowels') is less motivated and that the reconstruction of a PKK **i/ʔ* is mistaken.

²⁷ It has been suggested that S. *ruhi* and K. *siriI* are related to Bengali *ruī* 'fish (sp)' and Braj *cheri*, *chiriā*, Oriya *cheḷi* 'she-goat', etc. If so, the presumption here is that they are loans from Munda, but both are questionable cases.

²⁸ *surEi* with both Santali *sulə* and *soɖa* is a questionably useful cognate.

interpreted as **u-*, the conditions responsible for the *-Ei* rather than the *-I* being uncertain in the absence of additional data. (2), *hadEi*,²⁹ can be assigned to **a-A* in the environment of a semivowel following the *A*, and not contrasting with the *a-A* examples in (1). (4), *potOj*, does not contrast with (3), *CoCa* (in Korku) only occurring with final open syllable, or with final glottal stop. Both *katɪŋ* and *sadɪ* might have been expected to have an /e/ in Santali, but the second occurs as *hatɪŋ*. Words of *CaCeC* shape do occur in Santali (e.g., *taren* 'shoulder') as do words with final *-en* (e.g., *sereŋ* 'song'), but the sequence *(-)aCeŋ* is not found so far as I know. If the two are in this sort of complementation, the Santali reflex of **e* is /i/ here, and both can be regarded as regular *a-I* reflexes.

Table 2 gives the PKK vowels as earlier described and the amended version proposed here. I have distinguished the surer sets (1), (3), (7), and (10) listing only these in one column, and all of the sets in the next column. The Santali entries in the chart have not been changed. The low vowels deriving from automatic aspiration are written within parentheses in the chart.

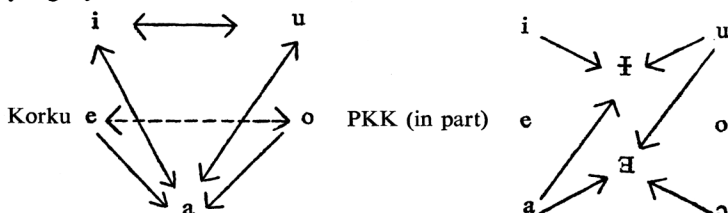
TABLE 2

PKK S.	K.		K. (with the 4 surer sets)		K. (with all the sets)
			(a) without <i>*ɛ</i>	(b) with <i>*ɛ</i>	
<i>*i</i>	i	i	<i>*i</i>	i (I)	i, (I)
<i>*e (=ɪ)</i>	e	i	<i>*ɪ</i>	i, I (I)	i, I, u, E (?)
<i>*ɛ</i>	ɛ, e	e	<i>*e</i>	e	e
<i>*a</i>	a	a	<i>*a</i>	a (A)	a (A)
<i>*o</i>	ə, o	o	<i>*o</i>	o, O	o
<i>*o</i>	o	u	<i>*o</i>	u (U)	u (U)
<i>*u</i>	u	u	<i>*u</i>	u, U (U)	u (U)
<i>*ə</i>	ɛ, a, ə	e, a, o	<i>*E</i>	a, A	a, A, O, I, E
<i>*i</i>	i, a, u	i, a, u			

This reconstruction 'preserves' a V_1 - V_2 pattern that is characteristic of both Korku and Santali: 'harmonic' restriction on vowels³⁰ in the same

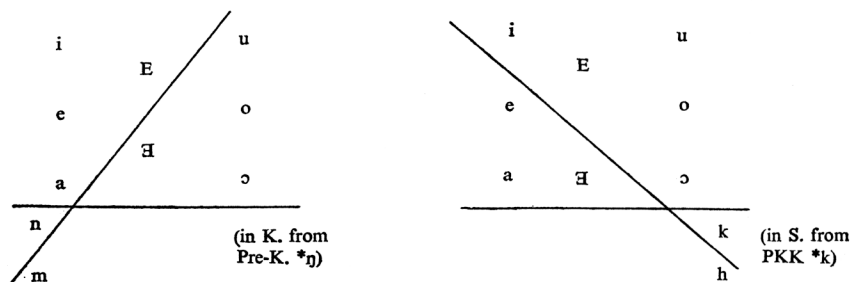
²⁹ The *E* is phonetically a slightly higher mid, central vowel in *hadEi*; in *apAi* the *A* is only very slightly lower.

³⁰



(front or back) column, but with vowels in either column occurring with central vowels, especially when the latter figure as V_2 . It also permits the hypothesis that /h/ in environments not discussed in this paper (e.g., in monosyllables: Korku *khad* 'big', *khuʔ* 'to cough') can probably always be interpreted as a derivative of 'vowel quality' in PKK, and that some of the restrictions on its expression are like those found in the Korku reduplication pattern, and accounted for by other Korku morphophonemic rules. We may be able to interpret K. *khad* (S. *had*) as PKK **kɛd*, and *khuʔ* (S. *khoʔk*) as **kɪʔ*. K. *khamAl* – like *hōbAʔ* – has an initial aspiration interpretable as resulting from its low V_2 . S. *burum* K. *bhurum* can, perhaps, be reconstructed as **bɪrum*, etc.³¹

Further, the Santali *k/h* split (from PKK **k*) can be clarified as can the Dharni Korku *m/n* split (from Pre-Korku **ŋ*) by a heuristically useful diagram of the hypothesized central vowels.



galAm is not **galAn* because **ɛN* > *Aŋ* > *Am* in Korku³² but **rabaN* does become *raban*, not **rabAn*.

A further advantage would be an explanation of the *n/ŋ* reflexes of **N* in PKK:³³ that the few forms in *oŋ* (in Korku, presumably the Santali data are no different, but they have not been examined in this connec-

These diagrams show V_1V_2 sequences that occur in K. morphemes of (C) V_1CV_2 (C) shape. The arrowheads point to occurrent V_2 s. Thus, in K., *iu*, *ui*, *ia*, *ea*, etc. but not *ae* are normal V_1V_2 sequences. All sequences where V_1 and V_2 are identical occur in K., those with the 'cardinal' vowels *i*, *a*, *u* being far more frequent than those with *e*, *o*. A similar situation may hold for PKK, its 'cardinal' vowels being *i*, *a*, *ɔ*, and *u*.

³¹ I am pushing this interpretation to its limit here and suggesting that a maximum number of S. and K. data might be accounted for thereby, but its utility in handling the data discussed earlier – the 'surer' sets of V_1V_2 sequences where V_2 is low – does not depend on its adequacy in accounting for such (presumably) marginal cognate pairs as K. *bhurum*, S. *burum*.

³² There are, however, *gapAn* and *miAn* to be explained. They are bimorphemic, i.e., *gap* () -*An* and *mi* -*An*, and perhaps this is what is involved. The S. form *gapa* suggests that the bimorphemic K. form is the result of analogy from *miAn*.

³³ Pinnow believes both **ŋ* and **ɳ* were found in PKK and in PM; I find only one **N*, but use two symbols here.

tion) are from *ɟN. The Korku forms are *lon* 'fish (sp.)', *kohon* (i.e. 'koOɲ) 'to call', and *koron* (in Lahi Korku *koreɲ*) 'wretch, poor fellow'. Santali has *həhə* 'to call', and *leɲ-jeɲ* 'slippery, slimy; to glide' (Bodding's first example uses the word to describe fish).³⁴ It is suggestive of a central vowel source that two of these forms have both *o* and *e* forms, an alternation otherwise not common in these languages.

The form *kohon* is peculiar in Korku in having *-h-* morpheme-internally, something one would like to assume did not occur in PKK. The one other example of a medial Korku *h* for an expected *k* (see Pinnow's discussion of **doko*) is *doho* (= *doO*) 'to put, place'.³⁵ A more questionable third example of *k. h* from PKK **k* is Korku *hob* 'ashes' where (outside PKK) the Sora form is *kuma:b-* there is an initial **k*. These forms can perhaps be interpreted as reflexes of **kɟ*; the earlier suggestion that the final *ɲ* of *koOɲ* is a palatal (and not *ɲ*) because it is preceded not by *ɔ* but by *ɟ* would support the interpretation.

In conclusion, the central vowel interpretation of the Korku low-toned vowels permits a simpler explanation of these than any other I know of. This explanation also permits interpretation of other features of PKK phonology previously not satisfactorily accounted for: the Pre-K **ɲ* > *m/n* split, the PKK **k* > *k/h* split in Santali, and the much more restricted PKK **k* > *k/h* split in Korku, and, lastly, reinforces an interpretation of the PKK (and, most likely, PM) nasal system as having consisted of three members rather than four.

The Korku system is best interpreted as an eight-vowel system, in many ways not unlike the PKK system reconstructed here. The next step in comparison would be a comparison of this with the Kharia vowel system – ideally, with Proto-Kharia-Juang, but the data available are mostly from Kharia – and a comparison of the resulting reconstruction, Proto-Northern Munda, with Proto-Southern Munda.

APPENDIX

	<i>Korku</i>		<i>Santali</i>
galAm	'to braid'	galan	'to braid'
gapAn	'tomorrow'	gapa	'tomorrow'
(from *gapAɲ)			

³⁴ Bodding, P. O., *A Santal Dictionary* (Oslo, 1935), Vol. 4, p. 109.

³⁵ A possible fourth is K. */hūdar/* 'to cook, prepare food', see Kuiper's paper in this volume.

tarA-ʔ	'to wait for, expect'	tara'k birə'k	'to trouble' (by making people go in vain)
khamAl	'heavy'	hamal	'heavy'
kath ^a lAʔ	'armpit'	hatla'k	'armpit'
cakAn	'firewood'	sahan	'firewood'
makA-(din)	'the day before yesterday'	māhā	'a day, day and night'
kolAʔ	'to remove'	hola't	'a razor'
kolA-(din)	'yesterday'	hola	'yesterday'
hōbAʔ	'to bend'	omba'k	'to bend'
hadEi	'to know'	baḍae	'to know'
cith ^{er} E	'partridge'	citri	'partridge'
surEi	'to spoil, to go bad'	sulə (soḍa)	'to slander' ('to find fault with')
bulU	'thigh, lap'	bulu	'thigh'
dumUr, dūbUr	'bee' (sp.)	dumur	'bee'
potOj	'to squeeze out, 'to wring (the neck)'	poṭə'c	'to dislocate'
lokOr	'dry'	rəhəʔ	'to dry'
sadI-	'to sound, to make a noise'	səḍe	'to sound, to make make a noise'
katIṇ	'to share, to divide up'	haṭiñ	'to share, to divide up'
teIṇ (<i>from teEṇ</i>)	'today'	teheṇ	'today'
rukh ⁴ nI	'fish' (sp.)	(?) ruhi	'fish (sp.)'
jukh ⁴ rIj	'to sweep'	jo'k	'to sweep'
(<i>also jukh⁴rI</i>)			
betkII, bitkII	'she-buffalo'	bitkil	'she-buffalo'
cikh ⁴ nI	'mosquito'	sikrī'c	'mosquito'
biII	'ripe'	bele	'ripe'
(?) sirI	'she-goat'	sele'p	'deer'
sirIṇ	'to sing'	sereṇ	'to sing'
simII, sībII	'sweet'	sebel	'sweet'
giṛI	'to fish; fishhook'	gaṛi	'to net fish'

Those forms not discussed in the body of the paper and requiring some

³⁶ The other K. reflex of (*-Aṇ-) are *an-* 'to dawn', -Aṇ in (-*mi-Aṇ-*) 'the day after tomorrow'; K. *gapAṇ* 'tomorrow' may have been formed on analogy with *miAṇ* since the S. is *gapa*. (See Pinnow's V349; to this add the Central Nicobarese *heṇ* 'time').

comment are *cith^{er}E*, *teIp*, *jukh^trI(j)*, *betkII*, and *cikh^tnI*. *teIp* is two morphemes, the second from **(AN)*.³⁶ It is difficult to interpret the forms with internal -CC- or -C^vC-. Perhaps -*ni* is a noun classifier (K. *rukhi-nI* 'fish (sp)', *micini* 'fish (sp)' *cikh^tnI* 'mosquito', *dhikuni*, *dhikuni* 'bedbug'); -*re*, -*ri*, -*rij*, -*ra*, -*rij*, etc. also seem to be nominal suffixes. Korku may have developed an automatic tone-aspiration in this sort of morphophonemic environment, but there are also in Korku such forms as *buk^ala* 'borer, caterpillar'; analyses like that of *jukh^trij* (into **jok-rIj*, i.e., CVC-C(r, l)^vC) do not work since the form found is *buk^ala*, not **bukh^ala* (from **buk^ala*).

It seems likely that *buk^ala* is a recent formation although the morpheme **buk* – or the like – may not be borrowed; the other morphemes taking the suffix -*la* all occur as free forms (which *buk-* does not), and all are loanwords. Also, most of the examples of -C(p, t, k)^vC(r, l)³⁷ – as opposed to those of -C(p, t, k)h^vC(p, t, k)h^vC(r, l) – are also recent loans: e.g., *sok^oraP* 'bread', *kik^ara* 'chisel', and there are examples in Korku verb morphology of the aspirates *th* and *kh*³⁸ alternating with *t* and *k* in environments similar to those in *jukh^trIj*, similar both in having a final preglottalised consonant (either palatal or glottal) and in having the same word stress, e.g. *kulkeEj* and *kulkeP* for the expected **kulkej* and **kulkeP*.³⁹

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³⁷ Where the previous consonant is not aspirated, as it is in e.g., *dhik^unu* 'bedbug'.

³⁸ These are transcribed in the examples not with /h/ but with a capital letter indicating low tone plus the indicated vowel quality.

³⁹ That the *kulkeEj* (3rd singular animate object) 'sent him' form was original and the rest in Dharni Korku – e.g. *kulkeKu* 'sent them' – were later analogies can be seen by comparing the Dharni forms with the more conservative Lahi forms. Lahi has the aspirate in the third singular form but not in the third plural.