

KORKU SYLLABLES AND SYLLABLE STRESS

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The syllable¹ is the unit of stress in Korku. It is assumed that 'stress', though difficult to define, is a feature, or some complex of features, validly and reliably identifiable by any linguist working on Korku as significantly characterising the syllables of that language, and that any complete description of Korku phonology needs some notion very similar to that we refer to as "stress". A Korku syllable is heard as being either "stressed" or "unstressed",¹ and a syllable can be assigned a certain degree of "strength"² - there are four degrees represented in "normally stressed" phonological words (PWs) - as a function of its stress relative to the syllables and/or junctures immediately preceding and following it within the PW. A set of rules is offered which derives the strength of a syllable from its consonant and vowel composition³ and gives the expected stress markings of syllables of any

¹An implicit - if messy - definition of the syllable along the lines of Trim and O'Connor (J. O'Connor and J. Trim, 'Vowel, Consonant, and Syllable - a Phonological Definition', *Word*, 1953, 103-22) can be obtained from the data given in this section and the next. The phonological importance of the syllable can be seen throughout the following discussion.

²"Strength" - the term "rank" may be preferable in having no confusing connotations - is not a phonetic term; it is a derived construct characterising syllable types distinguished by their consonant-vowel-semivowel shapes. The actual stress of any syllable can be determined given the strength of the syllable type it belongs to, the strengths of the other syllable types tokens of which occur within the same PW, and the relative position of this PW's syllables. A set of rules which characterises every syllable of every Korku PW as either "stressed" or "unstressed" on the basis of this position and strength data is discussed at length in this chapter.

³In a very few cases, e.g. in the form /kei/, it is not clear whether a syllable - here the ultima - is stressed or not. Where this happens, the decision is made on the basis of considerations of simplicity and utility elsewhere.

given strength in a PW as a function of these strengths and the positions of the syllables with reference to each other and the PW-bounding junctures of the form. Where a word's stress does not fit the predictions of these rules, it is supernormally - or phonemically - stressed on one of its syllables. The phonemic stress is then included in the strength assignment machinery along with the C and V component information - which now recognises syllables of five degrees of strength - and the rules are applied again, and yield results which adequately describe the syllable patterns of all forms of the language previously wrongly characterised.

Syllables are "marked" by application of a set of four rules in a fixed order; and result of the application of the set is a "final marking" consisting of pluses and minuses, these indicating stressed and unstressed syllables respectively (e.g. <+--+>, <-+--+>, <+--+>). These symbols do not represent phonemes in any usual sense of that term.

The Korku Phonemes

Consonants (C): p, b, m, t, d, n, c, j, k, g, N, q, l, r, R, s.

Semivowels (W): y, w.

Vowels (V): i, e, (i), a, o, u.

Accompaniments (A)¹ are /~/ (nasalisation),² /_/ (voiceless aspiration-low tone), /_/ (voiced aspiration-low tone).³

"A" have no effect on stress weights and will not be mentioned further in this connection.⁴

The symbol X⁵ will be used for "syllable" where no further specification as to syllable type is wanted; S indicates a CVC syllable, s a VC syllable; S a closed syllable: either S or s. Z indicates a CV syllable, z a V syllable; Z an open syllable: either Z or z. Phonemic stress is indicated by /'/ over the syllable vowel.⁶ X1, X2, ... indicate the

¹/~/ accompanies both W and V; /_/ and /_/ V only. The consonant symbol N represents the velar nasal; the palatal nasal is here written ñ; q represents glottal stop; and R a retroflex flap. b, d and j are preglottalised before consonants in close juncture, and pause. d and t are postalveolar ('retroflex') consonants.

²'A' are written above and below V and W, e.g. /mūdaej/, /iptiyaten/.

³Phonemic stress /'/ and the junctures /+,#,=/ can be considered to constitute a fifth subclass of phonemes.

⁴Note, however, that /ñ/, but not /y/ occurs as C^{wf}.

⁵To be consistent, X should have been used to represent "any syllable", x for any onset-less syllable (s or z), and X for any onset-possessing syllable (S and Z). I use X instead of X since it is typographically simple and is the only one of these three class indicators at all frequently used.

⁶But see also the discussion of ambisyllabic consonants.

first, second, etc., syllables of PW; x^n the PW-final syllable, x^{n-1} , its penultimate syllable, etc., $x^i x^j$ indicates any two adjacent syllables. The first consonant (onset) of a syllable is symbolised by $x^i(C1)$, the second (coda), $x^i(C2)$; $x^i(V)$ indicates the vowel (nucleus); each syllable has one and only one vowel. The bar / is used to indicate that the thing indicated is both the symbols the bar separates, thus the symbol C can be defined as $x^i(C2)/x^j(C1)$, i.e. it is ambisyllabic. A PW syllabic formula is indicated by the use of these symbols enclosed in angular brackets < > with hyphens written between syllables, e.g. <Z-Z-z-Z>, <Z-S-s>, <Z-z-s>, <Z-Z-z-s>. All the PWs indicated by this sort of syllabic formula are bounded by one or another of the three open junctures of Korku: "within-word juncture", /+/, e.g. in /ketej+ketejba/;² "word-juncture", /#/ , e.g. in /dija#anteq/,³ and "phonological phrase juncture", /=/ , e.g. in /=dija#bateq#heqen=/.⁴ Any phoneme sequence between open junctures is a PW; the stress pattern of any PW is determinable by means of the system to be described here. No further open juncture indications will be written in this section; all forms to be discussed are PWs unless they are clearly designated as something else; all forms between "/ -brackets" are PWs, if they contain no medial open junctures.

The syllabification of Korku PWs whose syllables are of the types listed above - we will discuss "ambisyllabic consonants", and other non-basic syllable types in later paragraphs - can be done in only one way, i.e. in a PW of any consonant-vowel composition, there is only one permissible analysis of the phoneme sequence into syllables.⁵

This syllabification can be obtained as follows: (1) count backward from the end of the PW until either a second vowel, or a non-PW-final consonant not immediately preceded by another consonant - whichever of the two comes first - is reached; indicate a syllable boundary at that point (i.e. before the second vowel, or before the second (immediately preceding) consonant); thus, /katkomku/⁶ is katkom-ku, /tipiej/⁷ is

¹I use C^1 and C^2 for onset and coda, i.e. C^2 does not mean the second consonant of a syllable - the syllable may have only a C^2 - but that it follows the syllable vowel.

²/ketej+ketejba/ 'clatters'.

³/dija#anteq/ 'his mother'.

⁴/=dija#bateq#heqen=/ 'his father came'.

⁵A non-basic syllable type is one which occurs only when accompanied by phonemic stress; "accompaniment" here, means is placed coincident with onset, nucleus, or coda of the syllable.

⁶/katkomku/ 'crabs' (plural).

⁷/tipiej/ 'tell him (or her)'.

tipi-ej, etc. (2) Continue to move toward the front of the word marking syllable boundaries between all sequences of two vowels and of two consonants; thus, ti-pi-ej, kat-kom-ku. Any sequence of phonemes bounded by hyphens or by a hyphen and an open juncture is a syllable.

Two kinds of ambisyllabicity¹ are distinguished here; they are represented by separate symbols and in part, discussed separately because one must be considered phonemic (this is indicated by a consonant with a (phonemic) stress mark over it (e.g. in /kimiñ^{en}/²) and referred to as $\overset{\cdot}{C}$; the other by no (necessary) stress mark, and referred to as cc. The two are in complementary distribution within the PW: X^{cc} always occurs as $X^1(C2)/X^2(C1)$, while $\overset{\cdot}{C}$ occurs as $X^i(C2)/X^j(C1)$ where $X^i \neq X^1$.

$\overset{\cdot}{C}$ and cc can be indicated in our syllabic formulae by special symbols,³ but this unnecessarily complicates the formulae and masks certain useful distributional information.

The representation here preferred for ambisyllabic syllables is this: S with stressed coda ($\overset{\cdot}{VC}$, CVC) are represented as they would be without the /'/: s, S; X with stressed onset ($\overset{\cdot}{CVC}$, $\overset{\cdot}{CV}$) are written as onsetless, i.e. as VC or <s>, and V or <z>. Thus, /leme^{de}jba/ would be <z-s-z-z>, /kimiñ^{aten}/⁴ <z-s-z-s>, etc. If a transcription representing $\overset{\cdot}{CV}$ and $\overset{\cdot}{CVC}$ as Z and S respectively were used, the resulting formula would be homonymous with those for PW, different in their consonant and vowel structure, e.g. /pulumkiba/⁵ and /leme^{de}ba/⁶ would be identical in terms

¹'Ambisyllabicity' is a phonetic term used to indicate that the ambisyllabic (consonant) is not heard as clearly belonging to only one of its neighbouring syllables (as either onset or coda), but as belonging less clearly to both: as coda of its 'predecessor', and as onset of its 'successor'. The occlusion of the ambisyllabic is usually but not necessarily longer than that of a non-ambisyllabic; the syllable-timed rhythm indicates ambisyllabicity when it does not indicate a C as belonging prosodically to one and only one syllable. (The syllable it would normally belong to is that whose nucleus is the vowel following the ambisyllabic.) Ambisyllabics contrast with both geminates and unambisyllabic single consonants. The "strong" ambisyllabics are prosodically ambisyllabic and have longer occlusions than "weak" ambisyllabics. The 'kinds of ambisyllabicity' mentioned above are distinguished not phonetically (although they could be distinguished phonetically, i.e. the cc are all voiceless stops, the $\overset{\cdot}{C}$ never are, etc.) but on the grounds of their phonemic status.

²/kimiñ^{en}/ 'to the daughter-in-law'.

³For instance, by the following symbols (the ambisyllabic syllable types that occur are $\overset{\cdot}{CV}$, $\overset{\cdot}{CVC}$, $\overset{\cdot}{VC}$, and CVC , ^{cc}VC and ^{cc}CVC): Z^b for $\overset{\cdot}{CV}$ and ^{cc}V ; S^b for $\overset{\cdot}{CVC}$ and ^{cc}VC ; s^a for $\overset{\cdot}{VC}$; S^a for CVC and ^{cc}CVC . /leme^{de}jba/ 'massage him', 'rubs (something into) him' would be represented as <z-s^a-s^b-z>. An X^a is always followed by an X^b and an X^b is necessarily preceded by an X^a . A less redundant, more useful transcription is given above.

⁴/kimiñ^{aten}/ 'from the daughter-in-law'.

⁵/pulumkiba/ 'bleaches it' (intensive).

⁶/leme^{de}ba/ 'rubs it (in)'.

of these syllabic formulae. Z and z have different strengths and thus have different implications within the stress system although the distribution of $\overset{\cdot}{C}V$ is sufficiently limited that no occurring forms test these implications where they differ. CC , with which there are a number of reasons for equating $\overset{\cdot}{C}$ in strength, does however occur in relation to Y (in //kokoyokiba//, for instance) where it is not stressed, and thus, by our rules, can be no stronger than Y; strength is a transitive relation so that if ^{CC}V is no stronger than Y, it must be weaker than Z.

Such formulae¹ (like all those composed entirely of basic syllables in Korku) are simply analysable into their component syllable types. In other words, one can indicate the phonemic stress of non-basic syllables as a resyllabification:² <Z-S-s-Z> (e.g. /koloŋiŷba/³ can only represent -CVCVC- as its second and third syllables since the ordinary -CVCVC- sequence does not permit the breakdown into -CVC-VC, and would have been syllabified as CV-CVC, i.e. as <-Z-S->.

Besides the stressed syllables we have talked of ($\overset{\cdot}{C}$ and CC), there remain the basic syllables that occur phonemically stressed: CVC, VC, CV, and A. These are indicated as $\overset{\cdot}{S}$, $\underset{\cdot}{s}$, $\underset{\cdot}{z}$, and $\overset{\cdot}{A}$ respectively; they are different from simple S, s, Z, and A and must be distinguished from them in these formulae since the strength differential cannot be indicated in any simpler way.

¹One can also use a formulation in which each syllable is represented by a strength level indicator, e.g. /titipiba/ 'to tell' as <1-4-4-3>, and /simkiŷeq/ 'hens (dual), accusative' as <2-1-2> where the numerals stand for the degrees of strength. The distribution of these strength degree indicators within the PW does not permit automatic analysis into syllable types since there are PWs where a strength degree indicator can be interpreted in more than one way, i.e. as more than one syllable type - and correspond to occurring forms. Thus, either CV or CVC could occur as an instance of <3-2-3-3>. Those syllables that are analysable only down to the strength level (but not further into syllable type; within the level) are: at 2° level - CVC, VC, and C $\overset{\cdot}{V}$. At 3° level - CV, #V, and A. (One can consider /#/ - here used to represent any open juncture - as a C and thus obviate the need to distinguish CV from #V, and CVC from #V.)

Note that C $\overset{\cdot}{V}$ (unlike C $\overset{\cdot}{V}$) is distinguishable from the other syllables on its strength level in these formulae: it is always surrounded by 2° syllables (e.g. in the example used above, /simkiŷeq/); the other 1° syllables require one 1° neighbour or one 4° neighbour, or open juncture as one neighbour. The CC examples have the /#/ neighbour; the -CVCVC (-) the 1° neighbour, and the -CVCV the 4° neighbour.

²We write, that is, S and s rather than the $\overset{\cdot}{S}$ and $\underset{\cdot}{s}$ needed to distinguish phonemically stressed basic syllables. A more crucial example than /kalohiŷba/ is one with strong syllables besides the phonemically stressed ones: /ninijenbi/ and /katkohenkaq/ 'in opening too' and 'to the crab-emph.'. These are CVCCVCVCVC and CVCCVCVCV respectively, these being uniquely transformable to the original C, V, C, CC sequences. The former, for instance, - <S-s-s-Z> - : working from the end of the word to the beginning, Z must be CV; s must be VC. This is preceded by another s, thus another VC giving, so far, -VCVCCV, such a sequence so syllabified is possible only if $X^{n-2}(C2)$ is $X^1(C2)/X^3(C1)$ which, since $X^1 \neq X^1$, must be $\overset{\cdot}{C}$. The sequence is, then, -VCVCCV. The first syllable, S, a closed syllable can only be followed by an open syllable symbol <s>, if it has an ambisyllabic coda: CC. Thus, the original C, V sequence must be CVCCVCVCV.

³/kalohiŷba/ 'chooses me'.

ẓ is found in peculiarly limited environments: as X2 before a non-final Z, i.e. in X-ẓ-Z-; the more interesting limitation is in the selection of X3(C1), which is usually C^{sf} (k, t are the only two C^{sf}, that are found here). This is noteworthy because Ċ never occurs as Ċ^{sf}, and ^{cc} which does, never occurs in this syllable position (the X2-X3 border). The suggestion, then, can be made that the "placement" of the stress /' / within the syllable is automatic, and is a function of the consonant selection of X3(C1) and/or X2(C2)/X3(C1). If this C is C^{sf} (i.e. /k,t/), then the form is -ẓ-Z-; if it is C^{wf}, then it is to be read -S-z- (i.e. CVĊV, not CṼCV). In which case we could say that the placement of phonemic stress was - or could be - on the syllable; that further assignment within the syllable was automatic and a function of consonant X3(C1) selection. The syllables resulting from that selection would, in any case, be of different strengths.¹

Placement of stress "within the syllable" is not, however, automatic since with the phonemes /l/ and /w/ there is contrast between, e.g. -CVlĊ- and -CVlw-, and one must in such forms phonemically^{2,3} contrast the

¹e.g. Z is of 3° strength, s of 2°.

²One might prefer in any case to distinguish the two since their (relevant) syllable strengths differ.

³One can write Ċ-containing sequences with two phonemic stresses, e.g. for what we have written elsewhere /lemədəba/ and /lemədəjba/, and /katkohen/ we can write /lemədəba/, /lemədəjba/, and /katkōmēn/; if we keep the earlier (normal) syllabification analysis rules and it seems simpler to do so - we have to make one change in the syllable strengths to derive the proper marking for /katkōmēn/ (i.e. for ẓ syllables preceded by CVC syllables where the latter are positionally stressed (i.e. stressed by rule 3)). If the old weights were kept, the form S-ẓ-s would be <+→, which in fact it is not. But, if ẓ were called primary (1°) in strength rather than 2°, the proper formula, <-++>, would result from the application of the rules. ẓ in the earlier (-Ċ-) transcription can be called 1° without changing any of the final markings; this can be done because CV occurs in very limited environments (always before weaker syllables than itself), and it never occurs in critical relation to 1° syllables, i.e. in a position where an indication of relative strength would be forced. Is there any advantage, then, to calling it secondary rather than primary (this in addition to the distinct advantages of the single stress working as the morphophonemics)? It seems that there is or can be under certain assumptions. The distribution of CV (i.e. ẓ) is peculiar in being limited to X2, and to pre-Z syllables (and, less usefully in this connection, to pre-low tones syllables). The morphophonemics of the ẓ-forms suggest that there are forms where the ẓ syllables might be expected to precede S syllables; but where this would be expected, Z is found instead, e.g. /mūdakeq/ - morphemically - {mūda}{ki}{eq} '(somebody) hit (past tense) it', but /mūdakenej/ - morphemically - {mūda}{ki}{eq}{ej} '(somebody) hit him'. One might expect ^z/mūdakeq/ if CV were of primary strength and primary syllables were characterised - as they seem to be - by stressed (allophonic) representations in all their occurrences. In the light of a simpler characterisation of the morphophonemic rules of Korcu, then, CV as of 2° stress - and the one - stress interpretation of Ċ forms - seems simpler.

I have made no attempt to justify the use of "non-occurrence" as evidence; I think it valid as such, but the assumptions on which one should build a case for the validity of such evidence are too complex to be gone into here. I presuppose some such acceptable set of assumptions, and I suggest that it is usable as evidence in this connection, and, roughly, how.

stress placement, e.g. /sɪm|lēba/¹ and /tɪp|ile/².

^{cc} occurs only as X1(C2)/X2(C1). A contrast in stress pattern occurs between CV^{cc}VCV(-) forms and CVCVCV(-) forms when X2(C1) and/or X1(C2)/X2(C1) is C only where X1(C1) = X1(C2)/X2(C1), e.g. in such cases as (ke^{kk}erked) and (ko^{kk}oyokiba). Thus the forms /titipiba/³ and /tipikiba/⁴ - if ^{cc} be considered non-phonemic (and it can be) - would be, in syllabic formulae, <S-z-z-z> (from CV^{cc}VCVCV) and <Z-z-z-z> respectively; these would be identical in stress pattern <+--+> but other forms similarly contrasting in stress would not be. They can be considered non-phonemic if one makes use of the X1(C1) selection in defining the allophones of its X1(C2)/X2(C1) since wherever these are identical the latter has distinctive ^{cc} allophones, and wherever they are different it does not. For consonants other than C^{sf5} (=p, t, c, k, s) as X1(C1): whenever X2(C1) is C^{wf} it is ambisyllabic, i.e. is X1(C2)/X2(C1); where it is not (i.e. is C^{sf}), it is X2(C1) only, and not ambisyllabic, thus C^aVC^bVCV(-) has an ambisyllabic C^b (a) where C^b = C^{wf}, and (b) where C^b = C^{sf1} where C^a = C^{sf1}. Thus, in a phonemic transcription before one can assign a strength to an X it must be compared with respect to its onset with X2(C1). This sort of environment has been used in allophonic statement for vowel accompaniments here, but not otherwise for consonants.⁶

¹/sɪm|lēba/ 'sweetens it'.

²/tɪp|ile/ 'informs us (cislocative)'.

³/titipiba/ 'tells (customary)'.

⁴/tipikiba/ 'tells, will tell (intensive)'.

⁵The distributional classification of consonants into C^{sf}, C^{wf}, etc. is given below:

C^{wf} (consonants that occur in PW-final position) b,m,d,n,g,N,q,l,r,R

V^{wf} a,e,i,o,u W^{wf}y (but only when y¹, i.e. when accompanied by /~/)

C^{sf} (consonants that occur syllable-finally but NOT word-finally) p,t,c,k,(s)

V^{sf} (i) W^{sf} NONE

C^{wi} (consonants which occur word-initially) p,b,m,t,d,n,c,j,k,g,l,r,s

V^{wi} a,e,i,o,u W^{wi} NONE

C^{si} (consonants which occur syllable- but not word-initially) q,R

V^{wi} NONE W^{wi} w,y

⁶The morphological boundaries of the forms /titipiba/ and /tipikiba/ are: (ti/tipi/ba v. tipi/ki/ba) and if one wrote /titipiba/ for the former the position of stress would lend itself in the morphophonemics to convenient generalisation about //'; if stress be considered nonphonemic - which it will be - an additional statement is needed defining the ambisyllabics where C is C^{sf}, and C^a = C^b as "morphophonemically stressed", and then the generalisations about the morphophoneme //''' can be made as before.

"Short syllables" are of the same degree of strength as cV and iCV : quaternary. They are defined as those having "short vowels" as nuclei; a short vowel - V^x in the sequence $(-)^v^w - C^x V^x - C^y V^y (-)$ - is recognised where C^x is C^{sf} , C^b or $/m/$, C^y is C^r , n , or (rarely) m , where $C^x \neq C^y$, and where V^x is the same as either v^w or v^y or of the same vowel height as either. There are three vowel heights; the vowels at these heights are: low, $/a/$; mid, $/e, o/$; and high, $/i, u/$. Thus, $/d\underline{i}kuni/$ ¹, $/ruk\underline{u}ni/$ ² and $/c\underline{i}tere/$ ³ have short vowels as X2 nuclei; $/supari/$ ⁴, $/sikari/$ ⁵, and $/g\underline{o}taRi/$ ⁶ do not. The former are $\langle 3-4-3 \rangle$, the latter are $\langle 3-3-3 \rangle$. Some short syllables have been characterised already: as cV , e.g. $/g\underline{i}g\underline{i}Ri/$ ⁷, $\langle S-z-z \rangle$, or $\langle 1-4-3 \rangle$; the remainder will be represented by the symbol v , e.g. in $/bukala/$ ⁸: as $\langle z-v-z \rangle$, or $\langle 3-4-3 \rangle$.⁹

From the morphophonemics of Korku one can reconstruct what was very likely the situation in recent Korku but is not in present-day-Korku,

¹ $/d\underline{i}kuni/$ 'bedbug'.

² $/ruk\underline{u}ni/$ 'a species of fish'.

³ $/c\underline{i}tere/$ 'partridge'.

⁴ $/supari/$ 'areca nut'.

⁵ $/sikari/$ 'hunter'.

⁶ $/g\underline{o}taRi/$ 'antelope'.

⁷ $/g\underline{i}g\underline{i}Ri/$ 'to catch fish with hook and line'.

⁸ $/bukala/$ 'caterpillar'.

⁹The differential stress implications of $\langle 3-3-3 \rangle$ and $\langle 3-4-3 \rangle$ forms are difficult to distinguish, if, indeed, they are distinct in some common PW, i.e. in those of five syllables since a $\langle 3-3-3-3-3 \rangle \langle +--+ \rangle$ and a $\langle 3-4-3-3-3 \rangle \langle +--- \rangle$ where the 4 is a short syllable are quite similar. The similarity is to be expected by the nature of our definition of stress, and that of the phonetic character of short syllables since an unstressed syllable preceded by a short syllable automatically receives a modicum of stress as the successor of a short syllable. This "modicum" seems to be indistinguishable in degree from the degree of stress a syllable would receive as a stressed X3 in word-medial - - position. A six-syllable word with X2 short (e.g. *capinikuteten*) would force a stressed syllable into greater prominence (if S3 were stressed) since it necessarily is the case that where a syllable precedes two - rather than one - unstressed syllables it gets more stress. Thus, for a 6Z word a clear differentiation - of a stressed X3 which is not predicted by our rules from a stressed X4, which is - would be obtained. Unfortunately, these words are extremely rare and not appreciating their crucial nature when collecting the field data, I have not such forms in my lists (they may turn up in texts since all the texts have not yet been examined for such information). My guess as to the result - for whatever my Korku Sprachgef\u00fchl is worth - is indicated by the transcriptions above (which are consistent with the behaviour of short syllables elsewhere, K. morphophonemics, etc.), e.g. that they are stressed on X4 as the rules would predict. (If they were not, X3 would have to be phonemically stressed or, less probably, the rules would be modified.) In fast speech, some PW with non-short vowels have the non-short replaced by short, e.g. $/sikari/$ becomes $/sikiri/$.

where a further difference in syllable strength was wholly predictable from consonant selection. Here we deal with a three-way classification of consonants: the C^{sf} (as above) C^b (b,d,j,g), and C^r (r,R,l,m(?),n). The details given here are approximate; a fair amount of careful reconstruction would be needed to justify this scheme in full detail. The situation seems to have been that where a present $CVCVC^{sf}V-$ occurred, an earlier $CVCVC^{sf}V-$ with <Z-Z-Z-> stress was found; where present $CVCVC^bV-$ occurred, an earlier $CVCVC^bV-$, with <Z-S-z-> stress; where we now have $CVCVC^rV-$, an earlier $CVCC^rV-$ was found. (X2(V) was short, but nonphonemic.) The grounds for these assumptions are given in the section on "short vowels", and in that on the clitic-like suffixes: -dan, -dun, +da- (the permissive auxiliary verb), -do, -ja, -ba, -bi, and -gon .

I give below a table of syllable strengths followed by a discussion of some of its limitations. Represented in our syllabic formulae by:

1°	$C\dot{V}C, \dot{C}VC, V\dot{C}, CVC, CV^C$	\dot{S}, s, s, S, S
2°	$CVC, C\dot{V}, VC$	S, \dot{Z}, x
3°	$CV, \#V$ (post-open juncture V), a	Z, Z, A
4°	$WV, {}^{cc}V, \dot{C}V, C^V$	Y, z, z, v
5°	$V(\neq a)$	z

Rules (unamended version):

I. Mark x^n .

II. (a) Mark every primary syllable; (b) mark every 2° bordered by at least one syllable weaker than itself. (Consider x^n to be no weaker than x^{n-1} . Consider (preceding) open juncture to be weaker than X1.) (c) Mark every weak (3°, 4°) syllable preceding a syllable weaker than itself.

(PRELIMINARY NOTE:) Sequences of consecutive unmarked syllables - referred to hereafter as unmarked syllable stretches (USS) - are either initial or medial. A minimal initial USS consists of one syllable. A minimal homogeneous medial USS consists of two syllables (homogeneous here means "of the same degree of strength"). A minimal heterogeneous medial USS consists of three syllables.

III. Each supra-minimal USS must be reduced to minimal stretches by marking one or more of its syllables. Mark the first syllable of an initial supra-minimal USS and every odd-numbered syllable following it until no supra-minimal USS remains; mark the second syllable of a homogeneous medial supra-minimal USS and every odd-numbered syllable following it until no non-minimal USS remains; reduce all supra-minimal

heterogeneous USS to homogeneous-equivalent (HE) USS in the following manner: count as one syllable-equivalent every syllable followed by a syllable of like strength, and every syllable preceded by a counted syllable. Thus, -Y-Y-Z- counts as three (HE) syllables, -z-Y-Z- as no HE syllables. Treat the HE syllable as homogeneous syllables. Thus, if a supra-minimal number - say, three - occurs, the second is stressed.

Amendments:

I. Mark every X^n unless that X^n be a lengthening or a diphthongisation, in which case mark X^{n-1} .

IV. Stress the initial syllable of any PW whose final syllable is not lengthening or diphthongisation (i.e. whose final syllable is stressed) which has only one stress.

Examples:¹ (1.) /kokosomoroden/; by I <-----+>; by IIa <+----++>; by III <+--+-->.

Final markings can be indicated by a period after the syllabic formula, e.g. <+--+-->. (2.) /kokoyoba/; by I <---+>; by II <---+>. (3.) /mudakekukiba/; by I <-----+>; by II <+----+>; by III <+--+-->. (4.) /gada/; by I <--+>; by IV <+--+>. The syllable types and syllable formulae for these are: (1) CV^{CC}VVCVCVCVCVC, S-z-Z-Z-S-s, 1-4-3-3-1-1; (2) CV^{CC}VYVCV, S-z-Y-Z, 1-4-4-3; (3) CVCV^CCVCVCVCV, Z-z-Z-Z-Z-Z, 3-2-3-3-3-3; (4) CVCV, Z-Z, 3-3.

There are two related problems concerning this system (strength assignments plus rules): "wrong results" yielded by the system for PW containing (-)CV-V(-) which can be and should be corrected within the system, i.e. by amending it; and cases of "diphthongisation" in (-)CV-VC(-) sequences for which no simple revisions within the system as presented above are possible.²

¹/kokosomorod/ 'a species of tuber'; /kokosomoroden/ 'in the k.'; /kokoyoba/ 'shaves (someone)', 'cuts (someone's) hair'; /mudakekukiba/ 'must have beaten them'; /gada/ 'river'.

²In this exposition the system is now offered as a useful heuristic tool, i.e. as something accounting satisfactorily (and necessarily) for most K. forms; for the remainder it is suggested that although the system is, of course, subject to revision of the data required by it, in a number of cases the data themselves are reinterpretable, and that such reinterpretations - suggested by the inconsistency of the earlier interpretation with the tentative stress-weighting system - are better than the original interpretations were.

I am not suggesting that there is any particular significance in the order in which I arrived at various results, i.e. if it had been different, the later causes for revision would have been built into the system earlier, etc. I do make use of problems found, and revisions made (in the actual order I found them and made them) because such a presentation suggests the use and authority such a system was shown to have, and that that may be of some interest along with the final set of rules which could, of course, have been presented immediately, i.e. without "earlier versions, inadequacies, later version, etc."

By diphthongisation, I refer to the "fusion" of two adjacent vowels - these, by definition, belonging to separate syllables - which cannot be simply accounted for by our formulae; such forms as /mūdaejba/¹, /koleiȳba/², and /tupuejba/³ would in our formulae (all) be represented as <+--+>, and sound something like <-++> where the two medial syllables act as a single syllable of the type CVC. The degree of fusion varies with the homo- or heterotonicity of the vowels (the vowels are more fused if homotonic), the speed of speech (the greater the speed, the greater the fusion), the strength of the preceding (X1 in the above examples) syllable (the stronger it is, the greater the fusion), and with the particular vⁱ and v^j involved. Neither transcription - <+--+>, <-++> - nor any other using this sort of plus and minus combination describes the forms heard, and we have arbitrarily preferred as an "ideal type" representation - and one useful elsewhere in the grammar - the former, which leaves our rules as they are, and adds more "allophonic"⁴ data of the sort we have just given as additional information to be applied in going from the formulae to the sounds of the language.⁵

The second group of diphthongal forms to be discussed is clearly stressed, and its stress can be adequately represented by the system used here, but the representations generated by our (unamended) rules are wrong. These forms are PW which have final vⁱv^j (but not all PW with final vⁱv^j are in this group) and medial and final -a-a(-).⁶ Where, in a -CVⁱv^j(-) sequence vⁱ = v^j vⁱ is stressed and v^j is not regardless of PW position. Thus, /sasaapo/⁷, /golaa/⁸, /doo/⁹,

¹/mūdaejba/ 'hits him'.

²/koleiȳba/ 'peers at me.'

³/tupuejba/ 'drenches him'.

⁴The use of the term "allophonic" might be justified by stating that these are characteristic of the phoneme /'/; they are also characteristic of stressed syllables other than those containing /'/ . The "allophones" of "unstressed" CV preceding VC characterise no other unstressed syllables but these, and are more like strength syllables allophones in their phonetic properties.

⁵Another example of fusion not well representable by some combination of pluses and minuses is found in -C^sf_v-C(r,R)V#, and -C^sf_v-C(r,R)VC- forms where the two syllables are often given a single chest pulse, the first of the two being quite short but phonetically more stressed than unstressed syllables characteristically are, e.g. /citere/ 'partridge', /jujukirij/ 'to sweep'.

⁶Medial -vⁱv^j- has been adequately accounted for by Rule II.

⁷/sasaapo/ 'to purify'.

⁸/golaa/ 'gather! (translocative)'

⁹/doo/ 'to put'.

/jee/¹, /tii/² should be <+--+>, <-+-->, <+-->, and <+--> respectively. Where in -CV¹V^j(-) sequences V¹ = V^j, X^j can be defined as a "lengthening" of X¹. Note that length is not phonemic, and that the tone of the lengthening (X^j) here is independent of that of X¹. If one has a phoneme "length" in the phoneme inventory, the phoneme /i/ (which in one earlier analysis, was shown to contrast with /e/ only before a medial /e/, e.g. in such pairs as /kolieba/³ and /haveeli/⁴) can be written as /e/ in this position and the two forms given could be phonemicised /koleeba/ and /have:li/. There is a better interpretation of /kolieba/ available (see the section on WV), and length as a phoneme is unnecessary.

Where in final -CV¹-V^j sequences, V¹ ≠ V^j the following stress patterns occur (I put in parentheses those sequences satisfactorily accounted for previously: (a) as lengthenings, and (b) those with final /a/ not as lengthening which are stressed as per the rules; I write the stressed vowel with a capital letter):

<i>Dissyllables</i>							<i>Polysyllables</i>						
	/a/	/e/	/i/	/i/	/o/	/u/		/a/	/e/	/i/	/i/	/o/	/u/
a/	(Aa)	Ae	*	aI	Ao	aU	a/	(Aa)	Ae	*	{ Ai aI	Ao	*
e/	(eA)	(Ee)	*	Ei	Eo	*	e/	(eA)	eE	*	EI	*	*
i/	*	*	*	*	*	*	i/	*	*	*	*	*	*
i/	(iA)	(iE)	*	(Ii)	*	iU	i/	(iA)	iE	*	*	*	*
o/	*	{ oE Oe	*	Oi	(Oo)	Ou	o/	(oA)	Oe	*	Oi	*	Ou
u/	(uA)	uE	*	uI	*	(Uu)	u/	(uA)	uE	*	Ui	*	*

One would like to define a relationship, "diphthongisation", between pairs of syllables analogous to that of lengthening, and for certain of the V¹ V^j pairs one finds similarly simple describable relationships between the V¹s and V^js; thus, V¹ is stressed (and V^j is not) where V¹ is /a/, and V^j is a vowel of mid height: Ao, Ae. A mid vowel is stressed when followed by its high vowel (i.e. a front mid followed by a front high; a back mid followed by a back high): Ei, Ou. Vowels retain their Xⁿ stress, i.e. are not diphthongisations - where V¹ is /a/ and

¹/jee/ 'who'.

²/tii/ 'hand'.

³/koleeba/ 'peers at it'.

⁴/haveeli/ 'mansion'.

v^j is high: aU, aI. (Note that aU occurs only in (two)¹ dissyllables, and that in polysyllables both Ai and aI occur² (but we have only one example of each). Oi occurs and all Oi forms (in dissyllables and polysyllables) have doublet forms with Oe (and vice versa). Thus, the two do not contrast and can be represented by a single phonemic form as a simple diphthongisation. iU and uI occur but the former only in monosyllabic forms, and the latter sequence is in the one³ polysyllabic form it occurs in Ui.

It does not seem desirable to distinguish $v^i v^j$ sequences in dissyllables from those in polysyllables; for the former we characterise the relationship of diphthongisation between a v^i and a v^j as one where v^j , though in x^n , is not stressed, and v^{n-1} is stressed. The v^j , the diphthongisation, is either a front vowel or a back vowel, and there is no example of contrast of a v^i being followed by two "front diphthongisations", i.e. if Ao occurs, Au will not. (Lengthenings do contrast with diphthongisations, e.g. /Cee/ v. /Cei/. A single semivowel symbol could be used for front diphthongisation, and one for back diphthongisation, e.g. the possible $v^i v^j$ combinations could be written /ay/, /ai/, /aw/, /au/, /ey/, /ew/, /ie/, /iw/, /oy/, /ow/, /ui/, /ue/. For none of these except for oE is the diphthongisation of the same vowel quality as a non-diphthongised sequence, and here although Oi occurs, we have doublet forms with Oe for all Oi forms so that we can represent both as /oy/, and oE as /Oe/. In the polysyllabic forms we find a diphthongal Ai that must be distinguished from Ae by phonemic stress /ap_iai/ (the form occurs in some dialects as /apei/, which would not require the /'/), and the sequence Ui which, if we do not want to make a distinction between polysyllabics and dissyllabics (since the dissyllabic final was uI), we would treat as we did /ap_iai/, i.e. as /tur_iui/, or by the use of the symbol /y/ (in both): /ap_yy/, /tur_yy/.⁴

We shall here not use the "diphthong transcription" of any of these $v^i v^j$ sequences, but define those sequences listed on the previous page where a particular v^j following a particular v^i is transcribable - and would be transcribed in our list as a diphthong - as diphthongisations.

¹/jau/ 'barley'; /tau/ 'behind'.

²/ap_iai/ 'three'; /sip_iai/ 'soldier'.

³/turui/ 'six'.

⁴Since /y/ occurs nowhere else in Korku as a coda - /ỹ/, however, does - and there is no advantage in interpreting (turUi) as /turuy/ rather than /tur_iui/, we have preferred the latter interpretation. We can call the /_iui/ and /_iai/ phonemic diphthongisations, as opposed to automatic. They are morphophonemically similar to the other diphthongisations in the morphology of numeral stems and that of the verb suffix (-ya-) after verb stems ending in final /ar/, /or/, and /ur/.

The two forms not yet mentioned are /ea/ (phonetically (ɨa), and /ee/ (phonetically (ɨe)) which, like /ue/ and /ie/ are stressed on the ultima and can be listed as such and transcribed phonemically as such. They will be alluded to in the section on WV. Thus, in short, we need to amend to Rule I to state that X^n is marked except where it constitutes a lengthening or a diphthongisation, in which case it is not marked and X^{n-1} is marked instead, and we add a Rule IV to account for initial stress in dissyllables where the ultima is not stressed.

A set of diphthongisations is characterised by an automatic stress on the V^j of a $(-)CV^i-V^j-CV(-)$ sequence; V^j is /a/ in all these cases. Presumably, at an earlier stage of the language, such $CV-a-CV(-)$, when initial, were automatically <-++>; this is no longer the case; we now have such contrasting forms as /kuabi/¹, /kuagej/², and /siɔli/³, phonemicised as indicated. The phonemicisation is consistent with that for \dot{C} since morphophonemic convenience requires the two to be treated alike. The shift of (systematically) "normal" stress from /kuagej/ - presumably, earlier /kuagej/ but pronounced the same way - to the present phonemically stressed form resulted from the same factors as the shift to \dot{C} from -c-: from the loss of a phonologically distinct clisis of the "clitic-like suffixes" mentioned in connection with \dot{C} . In all $-CV^iV^j-$ sequences where $Z^i \neq Xl$, and V^j is /a/, the stress is automatically on the /a/ if it is positionally stressable, i.e. there are no examples where the $CV(X^i)$ syllable would be positionally stressed with X^j , A, unstressed. One might expect a rule to be needed to shift the stress to the /a/ where $-X^i-a-$ occurs positionally stressed with the X^i syllable as "shortened" or "diphthongised", but there are no examples where the positional stress, if any, has not been already preempted by the A. Thus nonphonemic "weak gemination", i.e. cc , lengthening, and diphthongisation are terms here used as characterising the relationships of certain pairs adjacent syllables; if X^j is a lengthening or a diphthongisation of X^i , or if it is S by virtue of a coda that is a weak geminate then the stress of the pair of syllables follows from this relationship of the two and need not be otherwise indicated in the phonemic transcription though no interpretation of these features as phonemic can be made.

WV syllables: /ɨ/. /ɨ/ contrasts with /e/ only in $-CV^i-e-$ position,

¹/kuabi/ 'the well too'.

²/kuagej/ 'spank him'.

³/siɔli/ 'finish it (cislocative)'.

e.g. in the two forms /kolieba/¹ and /pepeeda/². Although the phoneme sequence Vye does not occur in this dialect of Korku, Vya and Vyu are common with /e/ as V, and the pre-y allophones of /e/ in these cases are much like what they are of /i/ before /e/. A phonemic interpretation of /kolieba/ as /koleyeba/ yields an expected stress pattern that corresponds to the forms as heard which is what is wanted here; the morphophonemics does not much suffer from the change. Writing /koleyeba/ here suggests writing /eye/ elsewhere where similar allophones of the /e/s are found, and doing so in the locative forms of nouns with final ei stem forms proves to make the statement of noun morphology slightly more regular, e.g. /konjeyen/ for what would have been written earlier as /konjeen/. We will, therefore, retain the transcription /koleyeba/ and drop the phoneme /i/ from our inventory. WV syllables and the choice of possible interpretations regarding their strengths will be discussed in some detail here, and an attempt will be made to make explicit in this case precisely what "considerations of morphophonemic simplicity" - mentioned in other cases as decisive but not explicitly justified - can be. The immediately relevant morphophonemic considerations are discussed; others, i.e. the characterisation of the morphophonemic rules involving /i/, and that of the morphophonemic rules in general will not be gone into here since I know of no advantage accruing to either of the interpretations given below to be gained by recourse to a detailed examination of these rules.

The strength of WV syllables can be interpreted in two ways: one interpretation (Int. I) calls yV syllables 4°, and wV 3°; the other (Int. II) calls them both 4°.³ Others were found to have no comparable

¹/kolieba/ 'peers at it/them (inan.)'.

²/pepeeda/ 'to produce'; this is a reduplicated form from the stem peeda - borrowed from the Hindustani /paidaa/. The i-e contrast in this position has probably come about very recently with the introduction of morpheme-internal /ee/ sequences in loanwords from the Hindi, /i/ occurring (and /e/ non-occurring) before morpheme boundary.

³There is also data questionably interpretable as evidence supporting a weaker interpretation of wV to be obtained from the phonology of loanwords from Hindi (where H. /wa/ is reflected as /o/ in Korku), and in the distribution of wV (and it resembles that of yV in this respect). Its distribution is such that apart from the examples of {ya} and {wa} forms referred to above, and in spite of the fact that yV and wV syllables are not infrequent they are not found in positionally stressable positions. The assumptions on which the validity of such evidence would need to be argued are complex and will not be presented or justified here. I think such data can usefully be put forward here but only as evidence of an earlier, weaker /wV/. The whole matter of what sort of a construct "strength" is pertinent to such arguments and the question of what is or might be meant by "an earlier, weaker wV".

advantages,¹ but one of these - interpreting both as tertiary - is represented in a set of sample forms below.

Under these two interpretations, the following statements would occur in the morphophonemics.

First, note that yV and wV do not otherwise occur in decisive (decisive with reference to stress assignment) positions so that our argument is concerned entirely with cases of the forms - verb forms - containing the verb mode suffixes $\{ya\}$ and $\{wa\}$.² The verb mode suffix representation $/-y\underline{u}/$ is interpreted morphemically as $\{ya\}\{\underline{uq}\}$; if it were not it would have to be added to $\{ya\}$ and $\{wa\}$, but would not much affect our argument.

Int. I = wV 3°; yV 4°

1) No mode suffix is phonemically stressed in present tense verb forms. One can replace "in present tense verb forms" with "in syllables not immediately preceding tense suffix-containing syllables" in this statement, and in the corresponding one in the WV -as-4° interpretation given below. The statement is not, in either case, purely phonological.

2) In past tense forms all verb stem final syllables are stressed, phonemically if necessary. Phonemic stress is necessary, i.e. the syllables in question are not stressed automatically, where such syllables are open and would not be positionally stressed, or stressed by Rule 2. All such cases are of dissyllabic verb stems with open second syllables (e.g. $/g\underline{a}ta-/$ 'to find, obtain'; $/tipi-/$ 'to tell') where X3 is of CV or wV shape; the occurring X3 are $/\underline{le}/$, $/\underline{te}/$, $/\underline{ke}/$, and $/\underline{ve}/$.

These are, morphophonemically, $\{\underline{li}\}\{\underline{eq}\}$, $\{\underline{ta}\}\{\underline{eq}\}$, $\{\underline{ki}\}\{\underline{eq}\}$ and $\{\underline{wa}\}\{\underline{eq}\}$ respectively. $\{ya\}\{\underline{eq}\}$, which is the only other mode suffix + $\{\underline{eq}\}$ combination found, occurs in this X3 position as $/\underline{e}/$, i.e. as V, and is therefore automatically stressed.

¹To apply, roughly, the distinction of MacCorquodale and Meehl (K. MacCorquodale and P. Meehl, 'Hypothetical Constructs and Intervening Variables', *Psychological Review* (55), 1948), the term "strength" is used generally and explicitly as an intervening variable, but implicitly and occasionally as a hypothetical construct; the implications of the latter usage extend but do not contradict those of the earlier, which are basic to our treatment of the data.

² $\{ya\}$ (and $\{ya\}\{\underline{uq}\}$), if we wish to consider it separately, is very common; $\{wa\}$ is quite rare: with most object suffixes it is obsolescent, with a few it is, I think, obsolete. It seems used comfortably only with third person singular objects. Drake (J. Drake, *A Grammar of the Kurku Language* (Calcutta, 1903)) omits the suffix entirely from verb forms of this sort, and there may be idiolects or dialects in the Dharni area - Drake probably is describing a Chikalda dialect (he doesn't say) - that wholly lack the morpheme in this position. For such dialects, if the rest of the data relevant is comparable with that for this dialect, there is no problem. The statement that WV syllables are 4° would seem to be simplest for such systems.

Int. II - wV, yV (i.e. WV) 4°

1) No mode suffix is stressed in present tense forms except {wa} in -CV-{wa}-CV- position where the V immediately preceding it is /a/, /e/, /i/. Where that vowel is /o/ or /u/, the morpheme {wa} has the allomorph {a}, which is automatically (positionally) stressed.

2) In past tense forms all final syllables of verb stems are stressed, phonemically, if necessary. Phonemic stress is necessary where syllables are open and would not be positionally stressed, or stressed by Rule 2. If wV is 4°, it, like V will not be stressed. If wV is 4°, it, like V, will not be stressed as an X3; in such a case X2, which is stronger than X3, will be automatically stressed by Rule 2.

Sample forms:

Int. I	golayaba	tipikenej	tipiwenej	gatawakuba	gataenej
Int. II	golayaba	tipikenej	tipiwenej	gatawakuba	gataenej
MP	{gola}{ya}{ba}		{tipi}{wa}{eq}{ej}		{gata}{ya}{eq}{ej}
		{tipi}{ki}{eq}{ej}		{gata}{wa}{ku}{ba}	
both as 3°	golayaba	tipikenej	tipiwenej	gatawakuba	gataenej

I think Int. I is preferable to Int. II because it does not give us a stressed wV, -wa-, where, on grounds of simplicity of mode suffix morpho-phonemic description, we do not want it and this at the cost of stressing X2(CV) preceding -we- where all the analogous pre-Ce- or Ce- (i.e. syllables preceding the mode suffix plus past tense-containing syllables) are also stressed, so that one statement can be made about this X2(CV) being stressed before -C (and w) V-. (The analogous suffixes are -ke-, -te-, -le-; the only other mode suffix plus past tense suffix found after verb stems is {ya}{eq}, which is phonemically represented by the V syllable /-e-/ which by the rules will not be stressed; its predecessor X2(CV) will be.) The similarity in syllable shape of the {ya}{eq} forms and the {wa}{eq} forms has been lost by the reduction of yV to V thus increasing overall similarity of wV to CV syllables. In Int. I, statement 1) is simpler, and 2) is similar, "where necessary" referring to a slightly different class of forms in the two cases. I think that so far as any other considerations hold, there is nothing to choose between the necessarily phonemically stressed class in Int. I and that in Int. II. Since Statement 1) is simpler in Int. I, I have considered that

advantage decisive.^{1,2}

MORPHOPHONEMICS

The most basic morphophonemic problems in Korku concern stress, tone, and vowel quality. These will be taken up here. We interpret tone - our earlier "tone-cum-aspiration" - and vowel quality as a single variable, "vowel quality redefined", and take up the limitations on vowel selection within morphemes in terms of sets of "harmonic" vowels and the rules of vowel harmony obtaining among these.

STRESS

Given the morpheme boundaries of a word with phonemic stress, some information on morpheme selection, and a set of morphophonemic rules, phonemic stress is wholly predictable.

¹Note that we are still considering wV as Wv, not as CV although we attribute a characteristic tertiary strength to it on the basis of the considerations argued above. The WV-CV distinction in describing the distribution of phonemes seems a useful one; therefore, we keep it.

²There is no *a priori* reason to favour treating yV and wV as functionally identical; the distributions of the two differ, after C for instance. Other pertinent data on the instability of yV forms in positionally stressable positions are: the preference for more stable - 5° or 3° - alternants in these positions, and the existence of such alternants. (Neither is the case for wV syllables.) Thus, /a/ for /ya/ - these are allomorphs of {ya}, /y/ for /yy/ - these are morphemically not identical - /y/ is the morpheme {y}, /yy/ is {ya}{y}; here the two forms in the affirmative indicative verbs are wholly interchangeable. In the negative (indicative and imperative) forms only {y} containing suffixes are usually passive in meaning, and the imperative forms are uncommon, particularly the positive imperative. Another development found in this (Dharni) dialect, but unknown in Lahi Korku is the replacement of /yy/ after vowels by /i/, in some idiolects the distribution is completely complementary and /i/ → /iq/ before open juncture -- contains the morphemes {ya} and {y}. Where both /yy/ and /i/ occur they can be said both to be free variants of the (same) suffix {ya}{y}. In the idiolects I am most familiar with /i/ replaced /yy/ after V in almost all cases but occasional /yy/ in free variation with /i/.

V and CV are in Korku morphophonemics more stable than V. The /i/ and /y/ alternants - and the /y/ cases are not allomorphic alternants - of /yy/ and the /a/ alternant of /ya/ when it is a lengthening are 5° in strength and therefore weaker than yV is; the /a/ alternant of /ya/ when it is not a lengthening, i.e. when it follows /e/, /i/, /o/, or /u/ is 3° and therefore stronger than the yV syllables are.

{ya} alternants rarely occur in positionally stressable position; they do so only before the uncommon probabilistic suffix {ki}. (This {ki} is not to be confused with a homonymous morpheme, the mode suffix which figures in some of the examples in this section.) Verb forms with {ya} take only two object suffixes (and are unlike all other verb stem plus mode suffix forms in this respect): -kiỹ, and -kej. These are both strong syllables and are stressed by Rule 2 when following weaker (e.g. CV or WV) syllables; thus, /ya/ is never positionally stressable when followed by an object suffix. {wa} was positionally stressable - and stressed - in just these environments, e.g. the form /gatawakuba/ has no parallel */gatayakuba/ although for all the other mode suffixes parallel forms (gatakekuba, etc.) exist. (These all mean '(someone) finds them' (plus some modal suffix-related meaning)').

1) Any stressed consonant /C/ is immediately followed by a morpheme boundary. Ex.: /karube/, /tarag*i*ŷba/; enclosing morphemes in { } parentheses, these forms are {karub}{e} and {tarag}{iŷ}{ba}. Given the morpheme boundaries, any morpheme-final intervocalic consonant not preceding X2(V) will be stressed. These will now be indicated only by the morphemic parentheses.

2) Any final syllable of a verb stem not automatically stressed when preceding a syllable containing the past tense morpheme {eq} will be phonemically stressed. Ex.: /gatakenej/, /tipilele/. Given the recognition of the past tense suffix {eq}, what precedes it is definable as a verb stem and as such will have its final syllable stressed. Given the rules for determination of automatic stress and the morphophonemic rules¹ describing the allomorphic representation of the morphemes in past tense forms, the forms that are derived from the morpheme sequences {gata}{ki}{eq}{ej} and {tipi}{li}{eq}{le} have their verb stem final syllables as X2 where X3 is CV, and are therefore not stressed automatically. They must occur by this rule, with phonemic stress: as /gatakenej/, and /tipilele/.

3) CVC syllables of specified morphemic content when preceding the suffixes {keq}, {dan} and {ba} are phonemically stressed if not otherwise stressed. The suffixes are verb tense suffixes, but {keq}² has a homonymous nominal suffix, the accusative marker, which has the same stress-related properties. The syllables preceding {keq}, etc. are themselves morphologically delimited: only CVC syllables containing a person suffix³ carry the stress in this position. The only person suffix preceding the nominal accusative {keq} is the dual {kiŷ} which is identical with the third person dual person suffix.

Only two cases were noted where /'/ was either morpheme-medial or its morpheme content was questionable. These are /pipijito/⁴ and /suluruj/. /pipijito/ is the reduplicated form of /pijito/ and gives

¹The morpheme combination rule operating in these forms is the following (all mode suffixes have the shape CV): A mode suffix, {CVi} followed by {eq} yields a form /Ceq/ before /#/ , /Ce/ before {C-} and /Cen/ before {V-}. The tone of the resulting morpheme is /_ / if its C1 is not P, /_ / if it is. Thus, {ki}{eq}>/keq/, not */keq/.

²They could be considered not as homonyms, but as a single morpheme.

³The "person suffixes" or "animate object suffixes" that can occur in this position are {iŷ} 1st sg.; {ej} 3rd sg.; {liŷ} 1st du. exclusive; {lom} 1st du. inclusive; {piŷ} and dual; {kiŷ} 3rd dual; and {buŷ} 1st plural inclusive. The two with initial V, {iŷ} and {ej} combine with preceding mode suffixes to form CVC person suffix-containing syllables which take phonemic stress in the environments.

⁴/pipijito/, /pipijito/ 'to annoy'; /suluruj/ 'a species of lizard'; /dikili-/ 'to push'; /sapana-/ 'to dream'; /solor/ /silir/ 'to slip, slide'.

the last three syllables the stress pattern of the stem itself where the /j/ is automatically ambisyllabic in X1(C1)/X2(C1) position. Verb stems of three syllables are rare in Korku and /pijito/ and the other two examples noted, /dikili-/ and /sapana-/, are all loans from the Hindi. The other two have P as X2(C1) and X2 is a short syllable so that a stress shift analogous to that in /pipijito/ would be less likely. The other example, /suluruj/, seems to be {sulur} plus {uj}. Both {sulur} and {silir} meaning 'to slip, slide' are found in Korku, and a {sulur} with similar meaning is assumed. The suffix {uj} is unknown, but {rvj} is a very common noun ending. In almost all cases there is no morphemic identification of what precedes the {rvj} but a case for its morphemic status can be made. We assume a {sulur}{ruj} with -rr¹ becoming -ṛ- as the likeliest morphemic analysis of the form.

/kuali/ 'rabbit' is a single morpheme and - like the few other morphemes of /CV^(i,u)aCV/ shape in the language - is phonemically stressed on the second consonant; formerly, in such forms /a/ was treated as if it were V1, the C following it then being (automatically) stressed as X1(C2)/X2(C1).

The verb stem {sia} 'to finish' takes phonemic stress on the /a/ when it receives no automatic stress; it receives automatic stress only when preceding vowels.

¹-rr- is not found in Dharni Korku; this cluster does exist in Pachmarhi Korku.

AFTERWORD

The preceding paper consists of unaltered versions of sections of a dissertation on Korku submitted in 1960 (*Korku Phonology and Morphophonemics*, University of Pennsylvania, 1960); the dissertation was written up in final form in 1959 and 1960 after fieldwork and preliminary analysis in India in 1956-8. Typographical errors have been corrected.¹ The morphophonemic transcription (examples of which turn up in this paper) in the dissertation which reduces the two phonemes "voiced low tone/aspiration" (written v) and "voiceless low tone/aspiration" (written v̥) to one (written with a single underlining) has been rejected since the discussion of low tone/aspiration which introduce it are not included here in favour of the phonemic - two phoneme - transcription used elsewhere in this paper. Attempts to rewrite the paper were given up. The assumptions and formalisms and informalisms of its time and place have changed, and were I to write a paper using these data today, it would be different, e.g. there would be more phonetic detail about stress, less separation of "phonology" from morphophonemics, more systematic treatment of loan phonology, and a complete list of the forms providing the data for the section on diphthongs, etc. However, the earlier presentation and "its" data still seem worth publishing. The problems of describing the stress systems of other Munda languages (and other Indian languages) remain and the data and analyses for Korku offered seem useful, e.g. for Gutob (a South Munda language, also largely stress-timed, but lacking all the suffixal and enclitic morphology of Korku and the other North Munda languages), and even for Gta? (another South Munda language, but one which in its syllable structure looks very different). Some areal similarities (with

¹At least one error of fact should be corrected: the statement in footnote 2, on page 178, on {uq} and {ya}{uq} as being semantically indistinguishable is wrong.

Hindi¹ and Marathi) have been noted but will not be discussed here.

The writer's interests in the comparative linguistics of Munda also have benefited by an exposure to the problems of Korku stress, and such matters - to be touched on briefly below - as reduplication, automatic vowels, the loss of pre-tonic automatic (and some non-automatic) vowels in Gta?, the questions of fusional morphology and the possible archaic character - for Munda and for Austroasiatic - of the suffixes and enclitics in Korku (and North Munda) - all of these in Munda - can be discussed in the light of what we know about Korku stress.

Reduplication

The peculiar stress of reduplicative initial syllables² in Korku is seen in the example given /titipi/, i.e. (CV^{CC}VCV), from *tipi-* 'to show, inform' this as compared with /tipiki/ (a regular CVCVCV). Reduplication³ elsewhere in Munda has problems, i.e. is not a simple CV prefix (or infix) with the ordinary intra-morpheme stress pattern. In Gutob the automatic vowel selection is different for reduplicatives, e.g. *be-be?*, not the expected *bi-be?* (which Remo has), from *bed-* 'to give'. Remo has unexplained CVC, as well as "regular" CV reduplicatives. Gta? rapid speech reduces the CV reduplicative prefix (which can be elicited in slow, careful speech) to a preglottalised consonant prefix, e.g. 'bbi? (*bi?*- 'to give'), 'wwe (*we* - 'to go'), etc. The Gutob automatic V selection in reduplication, for instance, might be explained as purely morphological conditioning, but I think there is more than that reconstructible responsible for the peculiar automatic v selection in modern Gutob reduplicatives. One might very tentatively reconstruct a reduplicative (prefix) of the form *CV̄* or *CV* for Proto-Munda.

Automatic V, and Gta? pretonic syllable reduction

That the initial vowels of disyllabic morphemes in the Munda languages are frequently automatic, i.e. depend on the following tonic, morpheme-

¹See Aryendra Sharma, *Hindi Word-Accent*, *Indian Linguistics*, 30, 1969, pp. 115-18, and Ashok R. Kelkar, *The Phonology and Morphology of Marathi*, Cornell University unpublished Ph.D. dissertation, 1958.

²In the preceding paper reduplication was analysed (in a footnote) as, in effect, a prefix. It could also be treated as an infix (infixes are slightly more productive in Korku), i.e. the reduplicative -ti- (C₁V₁) infixed into *tipi*, after C₁, or - more plausibly - after V₁.

³Pinnow identifies two types of reduplication as probably going back to Proto-Munda. I would agree. The type discussed above - the iterative or customary reduplication - which is general in Munda reduplicated only the first syllable, or perhaps the first CV (see above). It may - as in modern South Munda - produce overt reduplicatives only with monosyllabic stems. The other reduplication is the expressive - onomatopoeic - reduplication, and repeats the whole stem with /+/ juncture between the repetitions, e.g. (in the paper above) *ketej+ketejba*. These paired forms (e.g. echo words, other conjoined words of the same class) with /+/ juncture are areally common.

final, syllables for their vowel qualities is well known.¹ This non-distinctive pretonic vowel is lost in Gta?, resulting in an unMunda but "Southeast Asian" syllabic patterns (e.g. such words as gta?, cognate with Gutob gutob 'ethnic name', plæg, Gutob pi:rig 'bird' etc.). If we did not know with some certainty what Gutob-Remo and Gutob-Remo-Gta? were like, we might suspect - looking at just Gta? and some Mon-Khmer languages - that Gta? was extremely archaic in some of its phonology. Knowing that it is not leads us to the more interesting problems of how Gta?² (rapidly) became phonologically "Southeast Asianised", i.e. acquired some or all of the following properties which it now possesses:³

- 1) Rare pretonic vowels (and few of these interpretable as "automatic") with resulting initial consonant clusters.
- 2) Reduction of CV reduplicative prefix to 'C-', thus GR *no-non, Gta? 'n-nwa (and with syllabic first person pronominal prefix {N} (homorganic syllabic nasal), n'nwa 'I chase' (*non- 'to chase').
- 3) Loss of most final obstruents, i.e. GRG l > Ø; m, n, ñ, ŋ > Ø or ŋ (no details given here on selection), b, d, j, g > ? or g.
- 4) Syllabic stress with higher pitch in a few non-stem morphemes, developed from vⁱ-vⁱ > v̄ⁱ. The most common exemplification of this is in the negative prefix á-. á-coŋ-ke (from a-a-coŋ-ke) 'he did not eat', contrasts with a-coŋ-ke 'he ate'.
- 5) The development of diphthongs from simple (tonic) vowels in greater (i.e. tonic ultima) stress environments. The original - monophthongal - vowels are preserved in (non-reduced) less stressed (non-tonic) syllable position.
- 6) Perhaps the enclitic nominal combining forms (CFs) and their grammar.

¹The vowel is usually a copy of the tonic vowel, or one of a smaller set of automatic vowels (e.g. i and u for Gutob, i, u and a for Remo) naturally selected. In Korku with a few exceptions (e.g. where C₁ is k, kol_a 'yesterday') v^{aut} copies the following-tonic-vowel. Korku loan phonology provides some interesting examples of automatic vowel selection. In Dharni Korku where a word from Hindi (the local variety) of (C)əCəC shape is borrowed, the tonic, ultimate V is o, but the pretonic is e, e.g. Hindi gerəm 'warm, hot', Dh.K. gerom [gerəm], Lahi Korku has garam. In such Kharia forms as selhob 'antelope' (where one reconstructs a laryngealised tonic vowel) presumably the V₁ e is also an automatic vowel reflecting an earlier similar (or identical) vowel to the tonic. One reconstructs, perhaps, SM *sv₁hoXb or *sv₁hEXb.

²One characteristic of Gta? - probably archaic, but not found in NM - is the unstressed initial syllabic nasal vowels, e.g. nta?, 'egg' (Gutob utob/itob). These are either lost or stressed with some vocalic adjustments (in certain environments) in cognates in NM. Similar things can be observed in IA, e.g. in Eastern Indo-Aryan: thus Hindi-Urdu əmir (with stress on the long i syllable), Bengali amir. The only three languages preserving what looks to be an old set of pronominal prefixes in the verbal system are the SM languages Gta?, Gorum and Juang.

³The rules accounting for Gta? vowel loss have been summarised by N. Zide (see N. Zide, 'A Note on the Historical Phonology of Gta?, Combining Form Derivation', *Indian Linguistics*, 33, 1972, pp. 184-90). Such things as ambisyllabic consonants work in a way reminiscent of Korku. Similar features seem relevant to an explanation of the more complex combining form (CF) derivation rules for Sora and Sora-Gorum (SG). (See A.R.K. Zide's paper in the proceedings of the Honolulu Austroasiatic conference for more on this.)

The stress system found in Korku as applicable to the numerous suffixes and enclitics, particular in the Korku verb lacks much fusional morphology - elaborate internal sandhi - and any distinctive (to particular functional sets of morphemes) stress machinery. What morphophonemic variation there is (see the dissertation on the developments from the verbal suffix {ya}) is fairly transparent, and seems quite recent. More fused and less transparent is the demonstrative stem derivational morphology, and that of the numerals. This fact would tend to support the notion that the Korku verb (and the North Munda verb more generally) suffix system is comparatively recent, and certainly is not to be thought of as Proto-Austroasiatic. Certain affixes with initial vowels, e.g. the (in Korku) intransitive imperative -e, the transitive past -e?, and perhaps the passive-potential -uq go back to PM. Similarly, few of the Korku nominal postpositions are old in Munda. Korku lacks the verbal pronominal prefixes, the causative prefix and infix (except, perhaps for a- in a-jom 'to feed, give-to-eat', a-nu 'to give-to-drink') and the nominal prefixes preserved in SM (except for V- in some pronouns and the numbers 'three' and 'four').

Something should be said about diphthongs and semivowels treated at some length with regard to their stress in the preceding paper. Most of them came in with loanwords, but the borrowing must have been complex and over a long period of time.

Presumably we do not reconstruct y or w, but some y come from earlier (non-borrowed) ñ. In some cases perhaps y (or post-vocalic i) comes from the laryngeal X (as presumably the i in Mundari hai 'fish' from NM *kaX; there are other examples of this in SM). There are a few examples of intramorphemic diphthongs, but most of them come via recent loans. The exceptions, e.g. siu- 'to cultivate, plough' probably reflect verbal suffixes, e.g. si()-uq-? The morphology of the numerals is complex, but among other developments (e.g. of X, say, in turui 'six') it looks as if a final suffix -i is found in some of them. It is clearly present in bar-i 'two'. The final -ia, and -ea in many names are probably from borrowed suffixes, and in fact - although I cannot begin to prove this - it looks as if almost all the diphthongs and

semivowels are simply derivable from full vowels occur in loan forms, forms whose complex history is largely obscure.¹

¹Something more (the dissertation, *Korku Phonology and Morphophonemics*, University of Pennsylvania, 1960, can be consulted for fuller information) on tone-aspiration and tone sandhi may be helpful here. Tone - and whether Korku "tone" is properly so labelled will be discussed elsewhere, i.e. low tone is associated with aspiration in Korku. A low-toned vowel that immediately follows (with no intervening morpheme boundary) an aspirable non-initial consonant (i.e. p, t, k; c can be added since s can be interpreted as aspirated c, but there are problems in doing this) is automatically aspirated, and the reverse holds, i.e. where any aspirated consonant (of the above set) preceding a non-initial-syllable vowel (with no intervening morpheme boundary between them), that vowel is necessarily low-toned. The two are perfectly correlated, i.e. where occurrence restrictions permit, one cannot occur without the other. These restrictions are: 1. (Overt) low tone occurs only in non-word-initial syllables immediately preceded by high-toned syllables. 2. Voiced aspirates occur (overtly) only word-initially, and thus necessarily in high-toned syllables, where word high tone is not overridden by a preceding low tone in the phonological phrase. 3. The restrictions on the occurrence of voiceless aspirates require within-word morphological information: a voiceless aspirate occurs in a morpheme only when there is no preceding aspirate in the morpheme. More than one (two I think is the limit) - overt - voiced aspirates can occur in a simple word (i.e. a phonological unit with no + or = junctures), necessarily in different morphemes, the second voiced aspirate (usually kh), usually (always?) initially in a monosyllabic verbal or nominal suffix, e.g. [ukhùkhènéj], {uku}{ki}{eg}{ej}, 'hide-intens.-past-3sg.an.obj.', 'hid him/her (intens.)'.

The dissociation of aspiration from low tone in environments where both can occur occurs only where there are reduced or contracted vowels separated from their preceding consonants (in the same syllables) by morpheme boundaries. Thus, /koÿkiÿba/ (i.e. [koÿkiÿbà] - from {koÿ-kiÿ-ba} 'call-3an.dual-predicator', i.e. 'calls them (dual)') contrasts with /koÿkiÿba/, i.e. [koÿkhiÿbà] - from {koÿ-ki-iÿ-ba} 'calls me (intensive)'. There are several sources of aspiration-low tone in Korku that seem independent of any "underlying low tone-aspiration", one being in certain (specified) associations with preglottalised consonants (and glottal stop), e.g. the {-ki-iÿ} above, presumably modelled on {-ki-ej} > -khèj (i.e. /-kej/), and, most generally and productively, in reduplication of CVC⁸⁻ (C⁸: b, d, j, q) verbstems, e.g. kab-, Rdup-kab > kakhàb (i.e. /kaka**b**/), 'to bite'. There is no reason to claim that the stem should be *k**ab**-, or that the V is "low-toned" (although this could be directly shown only with the stem in non-initial position (where it never occurs)), since all vowels in all CVC⁸⁻ verbstems (and these are very common) would then have to be considered low-toned, which - for several reasons - is ill-advised.

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