

THE SYLLABIC AND MORPHOLOGICAL STRUCTURE
OF CAMBODIAN WORDS

Karnchana NACASKUL

Chulalongkorn University, Bangkok

The syllabic and word structures of Cambodian are described in this article with a view to pointing out certain characteristic features of the language. The morphological processes which most Cambodian words have undergone in the past are then discussed in some detail. Morphological rules are derived through the comparative study of words possessing similar or related forms and meanings. From this point of view Cambodian morphology can be more or less regarded as historical process, and is of interest both for its own sake and to the extent that it gives evidence of a language which has changed its typological character from agglutinative to isolating.

1. *The Syllabic Structure of Cambodian Words.*

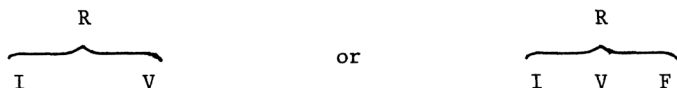
The characteristic word-forms of Cambodian are monosyllables and disyllables of certain definite patterns. There are also what may be called polysyllables, which can be analysed as combinations of two or more monosyllabic or disyllabic words. The basis of Cambodian word structure is hence the syllable, of which there are two types: the *major* syllable and the *minor* syllable. The criterion for the classification of syllable types is their occurrence in normal speech: *major* syllables can occur freely by themselves whereas *minor* syllables must be followed immediately by a major syllable in the same word.

a. *Major Syllables.* A major syllable is one which comprises:

- i. An initial consonant or consonant cluster (I);

- ii. A vowel nucleus, which can be a short vowel, a long vowel, or a diphthong (V);
- iii. One of two voice registers (R);¹ and
- iv. An optional consonant final (F).

Major syllables thus have the form of



(1) *Initial Consonants and Consonant Clusters.* Cambodian is fairly rich in consonantal initials and even richer in initial consonant clusters. The following symbols² represent the phonemes which occur:

Voiceless plosives:	p	t	c	k	?
Voiced implosives:	b	d			
Nasals:	m	n	ɲ	ŋ	
Roll:		r			
Lateral:		l			
Fricatives:		s			h
Semivowels:	v		y		

Initial consonant clusters are numerous, and occur in a wide range of combinations as follows:

Voiceless plosive + voiced implosive: pd, cd, kd; tb, cb, kb.

Voiceless plosive + voiceless plosive:³ t^hp, c^hp, k^hp; p^ht, k^ht; p^hc, k^hc; p^hk, t^hk, c^hk; p[?], t[?], c[?], k[?].

Voiceless plosive + nasal:³ t^hm, c^hm, k^hm; p^hn, c^hn, k^hn;

¹See E.J.A. Henderson, "The Main Features of Cambodian Pronunciation," in *BSOAS*, XIV (1952).1: 150-1.

²For a fuller description of these symbols see *ibid.*, 162-4.

³Except when the second member is the glottal plosive, aspiration is always present as a juncture feature. This is represented by a raised *h* between the members of the cluster.

$p^{h\tilde{n}}$, $k^{h\tilde{n}}$; $p^{h\eta}$, $t^{h\eta}$, $c^{h\eta}$, $k^{h\eta}$.

*Voicless plosive + semivowel:*³ t^{hv} , c^{hv} , k^{hv} ; p^{hy} , t^{hy} , k^{hy} .

Voicless plosive + roll: pr, tr, cr, kr.

*Voicless plosive + lateral:*³ p^{h_1} , t^{h_1} , c^{h_1} , k^{h_1} .

Voicless plosive + spirant: ps, ks; ph, th, ch, kh.

Nasal + implosive: md.

Nasal + voiceless plosive: mt, mc, mk.

Nasal + nasal: mn.

Nasal + semivowel: my.

Nasal + roll: mr.

Nasal + lateral: ml.

Nasal + fricative: ms, mh.

Fricative + voiceless plosive: sp, st, sk, s[?].

Fricative + voiced implosive: sb, sd.

Fricative + nasal: sm, sn, sñ, sŋ.

Fricative + semivowel: sv, sy.

Fricative + roll: sr.

Fricative + lateral: sl.

(2) *Vowels.* In Cambodian there are short vowels, long vowels, short diphthongs, and long diphthongs. Short vowels and short diphthongs never occur in open syllables. The vowels and diphthongs fall into two classes according as they are bound up with the two voice registers, which will be dealt with later. Vowels and diphthongs pronounced on the second register are marked by the grave (`), the absence of the grave indicating nuclei pronounced on the first register.

(a) *Nuclei pronounced on the first register.*

Long vowels: eɪ, aɪ, oɪ, ɔɪ.

Short vowels: e, ɤ, a, o, ɔ.

Long diphthongs: iə, uə, uə; ae aɻ̄ ao.

(b) *Nuclei pronounced on the second register.*

Long vowels: ìɪ, ùɪ, ùɪ; èɪ, ỳɪ, òɪ; èɪ, òɪ.

Short vowels: ɨ̄, ʉ̄, ɨ̄.

Long diphthongs: ɨ̄ə, ʉ̄ə, ɨ̄ə.

Short diphthongs: ɨ̄ə, ʉ̄ə, ɨ̄ə.

(3) *The Registers.*⁴ Register in Cambodian is closely bound up with the vowel nucleus of the syllable, but is marked by the initial consonant symbol of the syllable. As a general rule, those consonant symbols which correspond to surds in the *devanāgarī* writing system signal nuclei of the first register while those corresponding to *devanāgarī* sonants signal nuclei of the second. In the case of syllables having two-place initial consonants, a reader of Cambodian has to know the rules of the "constant consonant", since the constant consonant, whether occurring in the first or in the second place of the cluster, marks the syllable's register. Constant consonants are those which represent voiceless plosive, voiced implosive, and fricative sounds. Those consonant symbols which represent nasals, liquids and semivowels are non-constant and can hence lose their original register.

Examples of constant consonants which occur in the first place of initial clusters and mark the first register are: *krās* [kras] 'thick', *prāp* [prap] 'to tell'.⁵

Examples of constant consonants which occur in the second place of initial clusters and mark the first register are: *lʔ* [lʔɔ:] 'beautiful', *msau* [msao] 'flour'.

Examples of constant consonants which occur in the

⁴To quote Henderson (op.cit., 151), "The Cambodian 'registers' differ from tones in that pitch is not the primary relevant feature. . . . The characteristics of the first register are a 'normal' or 'head' voice quality, usually accompanied by relatively high pitch. The characteristics of the second register are a deep rather breathy or 'sepulchral' voice . . . Pitch is usually lower than that of the first register in similar contexts."

⁵The transliteration and phonetic transcription are those used in my *A Study of Cognate Words in Thai and Cambodian*, an M.A. thesis submitted to the University of London in May 1962.

first place of initial clusters and mark the second register are: *bhlū* [p^hlū:] 'light', *jrīl* [crūl] 'brilliant'.

Examples of constant consonants which occur in the second place of initial clusters and mark the second register are: *sgr* [skò:] 'drum', *khdiḥ* [k^htih] 'coconut milk'.

(4) *Consonant Finals*. Consonant finals in Cambodian are not as numerous as consonant initials; whilst there is a wide range of initial clusters, moreover, consonant clusters do not occur in the final position. The permitted finals are the following:

<i>Stops:</i>	p	t	c	k
<i>Nasals:</i>	m	n	ñ	ŋ
<i>Lateral:</i>		l		
<i>Fricatives:</i>		s		h
<i>Semivowels:</i>	v		y	

b. *Minor Syllables*. The structure of minor syllables is very similar to that of major syllables. The only difference between the two lies in the variability of the initial, the vowel and the final; in minor syllables these are restricted to a very few realizations. Minor syllables which have no final are here called "minor syllables of type A", while those which do have a final are called "minor syllables of type B".

(1) *Minor Syllables of Type A*. Most of the initials permitted in major syllables are found as the initials of minor syllables of type A. Initial clusters occur only with /r/ in second place. The vowel is restricted to short /ə/ or to short /ɔ/. The register is signaled by the initial consonant symbol.

(2) *Minor Syllables of Type B*. The initial of a minor syllable of type B is always a single consonant phoneme. The following vowel is restricted to /ɔ/ for the first register, to /wə ~ ù/ for the second register; all three of these vowels are comparatively short. The final must be one of the four permitted nasals.

2. *Word Structure.*

In terms of their structure Cambodian words can be defined as monosyllabic, disyllabic and polysyllabic.

a. *Monosyllabic Words.* Monosyllabic words have the same structure as major syllables. As such they fall into three types:

- | | | |
|---------------------------|-----|-----------------------------------|
| i. CVV ^{R1/2} | and | CCVV ^{R1/2} ⁶ |
| ii. CVC ^{R1/2} | and | CCVC ^{R1/2} |
| iii. CVVC ^{R1/2} | and | CCVVC ^{R1/2} |

It will be seen from the above patterns that short nuclei cannot occur in open syllables. The following are examples of monosyllabic words:

CVV ^{R1}	t̄ēr [de:]	'to sew'
CVV ^{R2}	gē [kè:]	'he, they'
CCVV ^{R1}	cpār [cba:]	'flower garden'
CCVV ^{R2}	mlū [mlù:]	'betel leaf'
CVC ^{R1}	cās̄ [cas]	'old'
CVC ^{R2}	git [kùt]	'to think'
CCVC ^{R1}	pram̄ [pram]	'five'
CCVC ^{R2}	jhloh̄ [c ^h l ^w əh]	'to quarrel'
CVVC ^{R1}	to'm [davm]	'tree; origin'
CVVC ^{R2}	rk [rò:k]	'to search'
CCVVC ^{R1}	mtāy [mda:y]	'mother'
CCVVC ^{R2}	jrūk [crù:k]	'pig'

b. *Disyllabic Words.* Disyllabic words are of three types, here designated A, B and C:

(1) *Disyllables of Type A.* Type A disyllables comprise

⁶C = consonant, CC = consonant cluster; V = short vowel or short diphthong, VV = long vowel or long diphthong; R1 = first register, R2 = second register.

a type A minor syllable, weakly stressed, followed by a major syllable bearing stronger stress; the two successive syllables always have the same register. In most cases the register of type A disyllables is implied by the initial consonant symbol of the first syllable. Examples:

Cv ¹ CVV	ppr [bə ¹ bɔ:]	'soup'
Crv ¹ CVV	ḍrno' [trə ¹ ṇɔ:]	'lateral support'
Cv ¹ CCVV	gghr [kə ¹ khɔ:]	'disrespectful'
Cv ¹ CVC	rdēh [rə ¹ təh]	'car, cart'
Crv ¹ CVC	ḳrvṇ [krə ¹ vɔŋ]	'circular'
Cv ¹ CCVVC	gghlo'n [kə ¹ k ^h lɔ:n]	'brazen'
Crv ¹ CCVC	pṛjhlo' [prə ¹ c ^h lɔ'wəh]	'to squabble'

(2) *Disyllables of Type B.* Type B disyllables comprise a type B minor syllable followed by a major syllable. The constituent syllables may be of different registers. The minor syllable is pronounced with comparatively weak stress and consists of an initial consonant, a short vowel, and a final nasal consonant; the short vowel is restricted to short half-open back /ɔ/ for first register, to short close back /ù/ or to the short diphthong /wə/ for second register. The major syllable has the same structure as that described for monosyllables. Examples:

CvN ^{R1} , CVV ^{R1}	p̣ñho'r [bɔŋhav]	'to fly (tr.)'
CvN ^{R2} , CVV ^{R2}	ḍnlē [ṭwənlè:]	'river'
CvN ^{R1} , CCVV ^{R2}	p̣ñsdo' [bɔnstɔ:]	'to spoil, change'
CvN ^{R2} , CVC ^{R2}	j̣ŋviñ [c̣umvũñ]	'round'
CvN ^{R1} , CVVC ^{R1}	snṭēk [sɔndaek]	'beans'
CvN ^{R1} , CCVVC ^{R2}	ḳñjrōn [kɔñcrɔ:ŋ]	'fox'
CvN ^{R2} , CVVC ^{R2}	ḍŋlāp̣ [ṭumlbəp̣]	'tradition'

(3) *Disyllables of Type C.* Type C disyllables comprise two successive syllables of any of the types previously described for monosyllables, with equal stress on each. Examples:

dāsā [t̪i̯sa:]	'slave'
bībroḥ [p̪i̯:pr̪b̪əh]	'because'
daujā [t̪v̪cl̪ə]	'to become'
kmēñprus [k̪ ^h me:ŋpros]	'boy'
sīāv̪bhau [si̯əv̪p̪h̪v̪]	'book'
dhvo'kār [t̪ ^h v̪:k̪a:]	'to work'

c. *Polysyllabic Words.* Native Cambodian polysyllables are all compound words, being combinations of monosyllables and disyllables of the structures already described. Examples:

rdēḥbhlo'n̪ [r̪ət̪əhp̪ ^h l̪v̪:ŋ]	'train'
sēckt̪is'āt [s̪e̪k̪d̪v̪s'̪a:t]	'cleanness'
kārddūāls̪gāī [ka:t̪ət̪u̯əls̪k̪b̪əl]	'acknowledgment'
rāj̪t̪ṅṅāk̪ [r̪i̯əcd̪əmn̪ak]	'court'
ʔnk̪d̪hyo'm̪h̪ūp [n̪ə̪k̪t̪ ^h v̪v̪:m̪ho:p]	'cook'
rūpt̪k̪kt̪ā [r̪u̯:pt̪əkk̪əta:]	'doll'
grūānt̪upt̪ēn̪ [kr̪u̯əŋt̪opt̪əŋ]	'dressing'
disk̪h̪ān̪ko't̪ [t̪i̯sk̪ha:ŋk̪av̪t]	'east'
ʔnks̪rs̪ēr [n̪ə̪ks̪ə:se:]	'writer'

3. *Morphological Structure.*

Cambodian has a well-defined morphology in the form of prefixes and infixes which are frequently associated with grammatical functions. Reduplication is also practised, but seems to be related more to semantic and stylistic functions than to grammatical ones. It must be noted, however, that affixation in Cambodian is now a dead process; prefixed and infix forms are all stabilized and fixed. Most native speakers are quite unaware of these morphological processes. In fact, prefixes and infixes in Cambodian can be recognized only by comparing similar forms having related meanings. For example, by comparing the form p̪n̪ko't̪ [b̪əŋk̪av̪t] 'to bear, beget' with ko't̪ [k̪av̪t] 'to be born' one can isolate a causative prefix p̪ñ- [b̪əŋ-]. By comparing this same ko't̪ [k̪av̪t] with k̪ŋno't̪ [k̪əmn̪av̪t] 'birth' and

with *khno't* [k^hnavt] 'waxing of the moon' one can identify the nominalized infixes -mn- [-omn-] and -hn- [-^hn-]. While there are many sets of words having such related meanings and forms, neither can one take any base-word and form derivatives at will nor is the paradigm of forms derived from the same base easily found.

a. *Prefixation.* The prefixes of Cambodian may be grouped into nonnasal and nasal types. Nonnasal prefixes consist either of a consonant with or without a vowel or of a cluster of consonants with a vowel. Nasal prefixes consist of a consonant followed by a vowel and a nasal final.

(1) *Nonnasal Prefixes.* The nonnasal prefixes are p- [p-], ph- [ph-], b- [p-], bh- [ph-], m- [mə-], pr- [prə-], tr- [trə-], jr- [crə-], kr- [krə-], and sr- [srə-]. Not all of these can be clearly associated with specific grammatical or semantic functions. Indeed, one can seldom tell from the prefixed form alone in what way its semantic and grammatical functions will differ from the base or whether they will differ at all.

(a) *Prefix [p-].* The four orthographic prefixes p-, ph-, b- and bh- fall together as a single prefix [p-]. The different written forms are in fact representations of the same prefix in four different contexts defined by the initial consonant symbol of the base-word. P- and ph- precede first-register consonants, while b- and bh- precede second-register consonants; the choice between p- and ph- and that between b- and bh- depends on the character of the same initial. P- and b- occur only before [r] while ph- and bh- occur before all of the other consonants. The aspiration incorporated in the latter two symbols may be regarded as reflecting the juncture between the prefix and the base initial. A noteworthy characteristic of prefix [p-] is that it is sometimes associated with change in the register of the base-word. It has the more or less specific

function, grammatical and semantic, of forming causative verbs from base verbs. Examples:

rāy [rìəy] 'scattered'	>	prāy [pra:y] 'to scatter'
riən [rìən] 'to learn'	>	prīən [priən] 'to teach'
nūt [nu:t] 'to bathe (<i>intr.</i>)'	>	phnūt [p ^h no:t] 'to bathe'
cāñ [cañ] 'defeated'	>	phcāñ [p ^h cañ] 'to defeat'
ṭēk [de:k] 'to go to bed'	>	phṭēk [p ^h de:k] 'to bed'
ruam [rùəm] 'to gather'	>	bruam [prùəm] 'to round up'
nās [nḁəs] 'to hatch (<i>intr.</i>)'	>	bhnās [p ^h nḁəs] 'to hatch'
jit [cùt] 'close'	>	bhjit [p ^h cùt] 'to join'

(b) *Prefix* [mə-]. This prefix is said to have been borrowed from the Thai word ผล [mà:k] or มะ [má?] 'fruit'.⁷ It is found in a few words with the meaning 'fruit, food'. Examples:

jūr [cù:] 'sour'	>	mjūr [mècù:] 'sour fruit'
ct [cət] 'astringent'	>	mct [mécət] 'sour edibles'
hūp [ho:p] 'to eat'	>	mhūp [mèho:p] 'food(s)'

(c) *Prefix* [prə-]. This prefix appears to express no clear-cut grammatical roles. Its semantic functions may be isolable, but vary according to that of the base-word. Examples:

juṅ [cùm] 'to unite'	>	prjuṅ [prècùm] 'to cause to unite'
pēh [beh] 'to pick'	>	prpēh [prəbeh] 'to keep on picking'
khāṅ [kham] 'to bite'	>	prkhaṅ [prəkham] 'to bite one another'
mo'l [mḁ:l] 'to look'	>	prmo'l [prəmavl] 'to estimate'

⁷Cham Thongkhamwan, "The Principles of the Cambodian Language," in *The Thai Encyclopedia*, 215b.

vēñ [vè:ŋ] 'long'	>	prvēñ [prəvaen] 'length'
mūl [mù:l] 'round'	>	pr̄mūl [prəmo:l] 'to amass'

(d) *Prefixes* [trə-], [crə-], [krə-]. These are found in a few words. They express no definite grammatical function.

ṭus [dos] 'to rub'	>	tr̄ṭus [trədɔs] 'to keep on rubbing'
muj [mùc] 'to dive'	>	ṭmuj [crəmùc] 'to immerse'
vñ [vʷəŋ] 'circle'	>	kr̄vñ [krəvəŋ] 'circular'

(2) *Nasal Prefixes*. The nasal prefixes are realized phonetically as part of type B minor syllables, consisting of an initial consonant, a short vowel, and a nasal final. It is this nasal final that gives the name to prefixes of this type. All of these nasal finals except [m] vary in accordance with the initial of the base-word; the nasal [ŋ] is the only nasal final which occurs heterorganically before [v, r, h, ?]. These nasal prefixes may stand independent of the base and be pronounced on the first register while the base itself has second. It sometimes happens, nevertheless, that the register of the base is changed to conform with that of the prefix. If the variable nasal final is symbolized by N, the nasal prefixes can be generalized as bɔN-, kɔN-, sɔN-, cɔN-, pɔN-, rɔN-, and ?ɔN-.

(a) *Prefix* [bɔN-]. This, the most common of the nasal prefixes, mostly forms the causative of a base-verb. Examples:

ho'r [hav] 'to fly (<i>intr.</i>)'	>	pñho'r [bɔŋhav] 'to fly (<i>tr.</i>)'
khus [khos] 'wrong, in error'	>	pñkhus [bɔŋkhos] 'to cause a mistake'
gāp̄ [kðəp] 'pleased'	>	pñgāp̄-[bɔŋkðəp] 'to please'
cūl [co:l] 'to enter'	>	pñcūl [bɔñco:l] 'to cause to enter'
tūc [to:c] 'small'	>	pntūc [bɔnto:c] 'to diminish in power'

ṭuḥ [doh] 'to grow (<i>intr.</i>)'	>	pṅṭuḥ [bōndoh] 'to plant'
pāk [bak] 'broken'	>	pṅpāk [bōmbak] 'to break'

(b) *Prefix* [kɔN-]. This prefix seems to have no distinctive grammatical or semantic functions. The base-word and the prefixed form are in most cases found to be used in free variation. Examples:

chōt [chaot] 'foolish'	>	kñchōt [kōñchaot] 'foolish'
ṭāc [dac] 'to tear (<i>intr.</i>)'	>	kṅṭāc [kōndac] 'torn'
dhāt [thōət] 'fat'	>	kñdhāt [kōnthōət] 'fat'
bhr [phò:] 'false'	>	kṅbhr [kōmphò:] 'false'

(c) *Prefix* [sɔN-]. This prefix is comparatively rare. Its semantic and grammatical functions are not consistent. It imparts, moreover, a figurative meaning to the base. Examples:

kāt [kat] 'to cut'	>	sñkāt [sōṅkat] 'to judge a case'
kin [kvn] 'to grind'	>	sñkin [sōṅkvn] 'to keep on grinding'
so'm [savm] 'damp'	>	snsō'm [sōnsavm] 'dew'

(d) *Prefixes* [cɔN-], [ʔɔN-], [rɔN-]. These occur in a few words. They express no definite grammatical function, and seem to impart a figurative meaning to the base. Examples:

dī [tʷəl] 'to support'	>	cndī [cōntʷəl] 'pole'
kōñ [kaon] 'bent'	>	cṅkōñ [cōṅkaon] 'to bend down'
ṭōt [daot] 'to pierce'	>	ʔñṭōt [ʔōndaot] 'piercing iron for torture'
puk [bok] 'to pound'	>	ʔṅpuk [ʔōmbok] 'rice-flakes'
vāl [vōəl] 'to measure the volume of'	>	rñvāl [rōṅvōəl] 'measure of capacity'
vās [vōəs] 'to measure the length of'	>	rñvās [rōṅvōəs] 'measuring instrument'

b. *Infixation.* The infixes of Cambodian are divisible into two types: nonsyllabic consonantal infixes and syllabic infixes. Forms with the consonantal infixes have the structure of monosyllables with initial consonant clusters; forms with the syllabic infixes, on the other hand, always have the structure of type B disyllables.

(1) *Consonantal Infixes.* Consonantal infixes are found in monosyllables with initial consonant clusters. The base-word into which a consonantal infix can be inserted has a single consonant initial. The most common function of these infixes is to nominalize the base-word, which is usually a verb. The consonantal infixes are [-b-], [-m-], and [-n-]. Examples:

lĕn [lè:ŋ] 'to play'	>	lpĕn [ləbaeŋ] 'game'
rĭān [rì:ən] 'to learn'	>	rbĭān [rəbiən] 'method'
sūm [so:m] 'to beg'	>	smūm [smo:m] 'beggar'
jūān [cù:əñ] 'to trade'	>	jhmūān [c ^h mù:əñ] 'trader'
sit [svt] 'to comb'	>	snit [snvt] 'comb'
tĕr [de:] 'to sew'	>	thnĕr [t ^h ne:] 'seam'

(2) *Syllabic Infixes.* Inserted into a monosyllabic base-word, the syllabic infixes add another syllable to the latter. Thus forms containing the syllabic infixes always have the structure of disyllables. There are three syllabic infixes, which may be represented as -vn-, -vmn-, and [-rən-].

(a) *Infix -vn-.* This infix consists of a short vowel followed by a nasal. The vowel in question is [ɔ] for the first register, [ù ~ wə] for the second. Base-words into which this infix is inserted are chiefly monosyllabic verbs having an initial consonant cluster, the infix coming between the two members of the cluster. The nasal of the prefix thus closes the first syllable of the infixed form; the second syllable is initiated by the second member of the original cluster. As to the nasal consonant of the infix, [n] and [ñ] vary so as to be hom-

organic with the initial of the infixed form's second syllable; [m] is found to occur freely before all consonants, while [ŋ] occurs heterorganically before [r, v, h, ʔ] and homorganically before [k, ŋ]. Examples:

sṭāp̄ [sdap] 'to listen'	>	sṭāp̄ [sɔndap] 'teaching'
khē [khae] 'moon, month'	>	kñhē [kɔŋhae] 'season'
bhlū [pʰlù:] 'to light'	>	bnlū [pʷɛnlù:] 'light'
khçk [kʰçɔ:k] 'lame'	>	kñçk [kɔñçɔ:k] 'lameness'
khus [khos] 'wrong, guilty'	>	kŋhus [kɔmhos] 'fault, guilt'
dhlāk̄ [tʰlèək] 'to fall'	>	dŋlāk̄ [tùmèək] 'fall'
sḷ [slɔ:] 'to cook a curry'	>	sml [sɔmlɔ:] 'curry'
crūt [cro:t] 'to reap'	>	cŋrūt [cɔmro:t] 'harvest'

(b) *Infix -vmn-*. This infix consists of a short vowel followed by [-mn-]. The vowel in question is [ɔ] for the first register, [ù] for the second. Base-words into which this infix is inserted are monosyllables with single consonant initials. The infixed form is a disyllable of type B, in which the first syllable is closed by the [m] of the infix while the second syllable begins with the [n] of the infix. Both syllables are pronounced on the same register, which is that of the base-word. The grammatical function of this -vmn- is to turn verbal bases into nouns or adjectival verbs. Examples:

ṭo'r [dav] 'to walk'	>	ṭŋno'r [dɔmnɔv] 'walk'
ṭēk [de:k] 'to go to bed'	>	ṭŋṭēk [dɔmne:k] 'bed'
diñ [tùñ] 'to buy'	>	dŋniñ [tùmñùñ] 'goods'
jūn [cù:n] 'to give'	>	jŋnūn [cùmñù:n] 'gift'
çñ [cɔŋ] 'to wish'	>	cŋññ [cɔmnoŋ] 'wish'
cēh [ceh] 'to know'	>	cŋñēh [cɔmneh] 'knowledge'
gūr [kù:] 'to draw'	>	gŋnūr [kùmñù:] 'drawing'
jih [cìh] 'to ride'	>	jŋniḥ [cùmñìh] 'vehicle'
juŋ [cùm] 'to be together'	>	jŋnuŋ [cùmñùm] 'together, to discuss'

cāp̄ [cap] 'to grasp' > cṃṃāp̄ [cṃṃap] 'touched,
touching'

(c) *Infix* [-rən-]. This infix consists of [r] followed by a short unstressed [ə] or [ə̃], depending on the register, and a consonantal [n]. It is inserted between the simple initial and the vowel of a monosyllabic base. Its function is to nominalize the latter. Examples:

do' [tṽ:] 'to support laterally' > drno' [trənṽ:] 'means of lateral support'
 dṃ [tùm] 'to perch' > drṃṃ [trènùm] 'perch'
 jĭk [cì:k] 'to dig' > jrṃĭk [crènì:k] 'digging implement'
 dic [tìc] 'to sting' > drṃic [trènìc] 'sting(er)'

c. *Reduplication*. A fairly large number of Cambodian words is susceptible to reduplication. Reduplicated verbs are typically onomatopoeic, kinaesthetic and phonaesthetic. The register of reduplicated forms does not necessarily conform to the patterns linking initial consonant and following vowel in ordinary words. The functions of reduplication appear to be pluralization, repetition, specialization, and stylistic variation. Reduplication may be classified under four main heads: repetitive, chiming, partial, and compound.

(1) *Repetitive Reduplication*. Unlike other morphological processes, repetitive reduplication is still a living feature in Cambodian. Applicable to any noun or verb, it is perhaps most common with simple monosyllables. In addition to the simple repetition of monosyllables and disyllables, there is a third type of repetitive reduplication in which a monosyllabic or disyllabic form is repeated twice. Examples:

(a) *Repetition of Monosyllables*.

ñṽv 2 [ṃo:v ṃo:v] 'sounds of pleading and protest'
 dūt 2 [tù:t tù:t] 'noisy popping sounds'

sip 2 [sɪp sɪp] 'drizzling of rain'
 vēñ 2 [vè:ŋ vè:ŋ] 'long (and numerous), very long'
 srī 2 [srɪy srɪy] 'women in general'

(b) *Repetition of Disyllables.*

ryūt 2 [rəyù:t rəyù:t] 'slowly and with great effort'
 ?ntro't 2 [ʔontravt ʔontravt] 'stepping on tiptoe'
 rñvo'1 2 [rʷəŋvʷ:1 rʷəŋvʷ:1] 'not close together, not
 often'
 rþōy 2 [rəpaoy rəpaoy] 'floating'

(c) *Double Repetitions.*

mo'k 2 2 [mʷ:k mʷ:k mʷ:k] 'sluggish'
 tūc 2 2 [to:c to:c to:c] 'very small and numerous'
 bīmbo'm 2 2 [pì:mpv̄:m pì:mpv̄:m pì:mpv̄:m] 'groping and
 creeping about'

(2) *Chiming Reduplication.* These may be divided into two types. The first comprises otherwise identical monosyllables in which the vowel nuclei chime, that is to say sound in harmonious accord. The second comprises disyllables in which the same chiming feature is confined to the second syllable, the two successive disyllables being in other respects identical.

(a) *Monosyllables.*

kēñ kōñ [kaeŋ kaŋ] 'pretentious'
 yōn yān [yò:n yìən] 'hanging in festoons'
 bh̄lūk bh̄lik [pʰlù:k pʰlùk] 'overturned with a big crash'

(b) *Disyllables.*

kr'im kr'īām [krə'ɪm krə'īəm] 'shy and quiet'
 ttip ttup [tətɪp tətɒp] 'moving and shaking'
 kn̄trēk kn̄trāk [k̄n̄tre:k k̄n̄tra:k] 'hanging in tatters'
 kñp̄ik kñp̄uk [k̄mp̄v̄k k̄mp̄ok] 'small, unequal and numerous'

līnk līmik [lēmək lēmvk] 'tiny, minute'

rpēñ rpuñ [rəbeñ rəboñ] 'unreliable; changeable in speaking'

(3) *Partial Reduplication*. Four types of partial reduplication may be distinguished.

(a) In the first type the basis of reduplication, that is to say the point of departure, is a type A disyllable. This precedes or follows the reduplicated part, which rhymes with the stressed second syllable of the disyllable. Examples:

šs krls [sɔ:s krəlɔ:s] 'ugly; vulgar'

rpīāp rīāp [rɪlɛp rɪlɛp] 'in order'

crļōh pōh [crəlɔh bɔh] 'rude, vulgar'

(b) In the second type, which affects monosyllables and disyllables alike, differentiation is limited to final consonants. Examples:

yñ yl' [ywəŋ ywəl] 'to understand thoroughly'

prīm prī [prvm prvy] 'beautiful'

prñāp prñāl [prēñap prēñal] 'to be in a great hurry'

rbo't rbo'n [rɛpʋ:t rɛpʋ:ŋ] 'haughty'

pñco'c pñco' [boñcavc boñcav] 'to flatter immoderately'

sñrūāp sñrūām [sɔŋruɛp sɔŋruɛm] 'to collect a lot of small things together'

(c) In the third type, which again affects monosyllables and disyllables alike, the initial consonant, consonant cluster or syllable remains constant while variation occurs in the vowel nucleus and final consonant. Examples:

dāk dīn [tèək tūm] 'interlaced'

khsik khsūāl [kʰsɪk kʰsuəl] 'quiet sobbing'

drmiñ drmo'y [trèmūñ trèmʋ:y] 'gloomy'

mno' mmo'y [mɛmʋ: mɛmʋ:y] 'to talk in one's sleep'

pñ'ūāt pñ'r [bɔŋʋɛt bɔŋʋɔ:] 'to boast'

smrūāc smrāñ [sɔmruɛc sɔmra:ñ] 'to try to finish'

(d) In the fourth type the initial consonant of

monosyllabic base-words is reduplicated, a short [ə] or [ə̃] being inserted between the doubled consonants. Examples:

- kkāy [kəka:y] 'to scratch constantly'
 jjĭk [cə̀cì:k] 'to dig out'
 ṭṭo'm [dədəvm] 'at the very beginning'
 pphūn [pəpho:ŋ] 'repeatedly loud and echoing'

(4) *Compound Reduplication.* In compound reduplication monosyllabic or disyllabic words of similar form and meaning are joined together to produce disyllabic or polysyllabic compounds. The semantic and grammatical meaning of the reduplicative form may or may not diverge from that of the basis of the reduplication. Examples:

- phsaḥ [p^hsah] 'to heal' + phsā [p^hsa:] 'in anguish'
 > phsaḥ phsā [p^hsah p^hsa:] 'to make up (after a quarrel)'
 brīāt [prìət] 'in flashes' + brōn̄ [prò:ŋ] 'radiating light'
 > brīāt brōn̄ [prìət prò:ŋ] 'waving, flashing here and there'
 rhēk [rəhaek] 'torn' + rhōk [rəhaok] 'with holes'
 rhēk rhōk [rəhaek rəhaok] 'thoroughly tattered'.

It may be seen from the above that syllabic and word structures in Cambodian are closely related to morphological structures. Most disyllabic words are found to be derived one way or another from related monosyllabic bases. This suggests the significance of analysing disyllabic and polysyllabic words in Cambodian in order to identify their probably monosyllabic bases.