

Presyllables and reduplication in Jeh

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0. Introduction

1. Non-reduplicating Presyllables

2. Restrictions on Non-reduplicative Presyllables

3. Reduplicating Presyllables

0. Introduction.

The Jeh language of the Mon-Khmer family is spoken by approximately 9000 people in a narrow stretch of land next to the Laos border in northern Kontum province, Vietnam. This paper presents the southern Dak Wak dialect spoken in the Dak Sut area.¹

A common feature of the languages in this area is the occurrence of a presyllable before the main syllable of a word. The most common presyllables in Jeh are : *pa-*, *ta-*, *ka-*, *al-*, *ma-*, *ja-*, *si-*, and *?a-*. The general structure of the presyllable is described by Dwight Gradin in another paper.² The following paper is a detailed description of the occurrence of these and other less common presyllables.

1. Non-reduplicating Presyllables.

Non-reduplicating presyllables are more common in Jeh than reduplicating presyllables.

1.1 Before Bilabial Stops

Presyllables can occur before *b* and *p* and before the combinations *bl*, *br*, *pl*, and *pr*.

¹ The analysis here described is the result of one year of study on the Jeh language under the auspices of the Summer Institute of Linguistics. I am indebted to Dwight Gradin, whose 'Consonantal Tone in Jeh Phonemics' served as a guide to this paper. David D. Thomas has also given much needed advice in the analysis and write-up of this paper. Special thanks is here given to Sak and Yun of Dak Trap village and Nhor of Dak Rajeel village who have been the main informants for this paper.

² See section 6.1 of 'Consonantal Tone in Jeh Phonemics' by Dwight Gradin, in this same volume.

b has been found with the following presyllables :

ta-: *taba* 'branch' ; *tabeet* 'kinked'.

ka-: *kabaw* 'all of the time' ; *kabeh* 'edible wing of a bird' ;

al- :³ *albaat* 'tender' ; *albii* ?⁴ 'soft' ; *alboh* 'a room'.

si- : *siban* 'upper arm' ; *sibuw* 'the distance between the thumb and index finger when extended' ; *sibi* 'wild radish'.

The presyllable *si-* ~ ?*i-* and *m-* (before *b*) and *n-* (before *d*). *Siban* freely varies with ?*iban* and *mban*. *Sida* (see 1.2) freely varies with ?*ida* and *nda*. ?*i-* in the locative words ?*ihaw* 'there' and ?*imuw* 'here' does not fluctuate nor does *si-* in loan words such as *simang* 'bandage' and *simong* 'cement'.

bl has been found only with ta-.

ta- : *tablah* 'to fight' ; *tabloo* ? 'to translate' ; *tablung* 'to remember' ; *tablun̄g* 'to break down something'.

br has been found only with ta-.

ta- : *tabreew* 'commotion'.

p- has been found with the following presyllables :

ta- : *tapal* 'to fly' ; *tapal* 'to flutter in the breeze' ; *tapaay* ? 'damaged' ; *tapèh* 'seven' ; *tapeeng* 'shoulder'.

ka- : *kapiw* 'water buffalo' ; *kapuw* 'to rely on' ; *kapuung* 'cucumber' ; *kapù* ? 'a rice head'.

al- : *alpah* 'to pay' ; *alpiat* 'tongue'.

?a- : ?*apal* 'mortar' ; ?*apat* 'to go out' ?*apuy* 'a bundle'.

pl has been found only with the presyllable ta-.

ta- : *taplòh* 'to clear one's throat'.

pr has been found with the following presyllables :

ta- : *tapraang* 'to span'.

al- : *alproop* 'a small beetle'.

1.2 With Alveolar Stops

Presyllables have been found before *d* and *t* and with *dr* and *tr*.

d has been found with the following presyllables :

3 The presyllable al- is a flap lateral [l] with a slight [a] on-glide. This I am interpreting as phonemically /al-/. (For a different interpretation, see Gradin, op.cit.). All other vowel-initial words have a distinct [ʔ] onset so are interpreted as /ʔv-/.

4 Grave accent / ` / indicates 'deep' vowel. See Gradin, sec. 5.1. Other symbols also follow the same orthography as Gradin's paper.

pa- : *padam* 'five'; *padàng* 'to set on end'; *padàt* 'to bother'; *padày* 'to rest'; *padùk* 'stomach'.

ka- : *kadèt* 'to pin down'; *kadiat* 'to pinch'; *kadook* 'a thief'; *kadong* 'a crossbow rat trap'; *kaduh* 'skin'.

al- : *alda* 'broad'; *aldey* 'short sectioned bamboo'.

?i- : ?*ida* 'thumb to middle finger measurement'. (In some idiolects this presyllable fluctuates with *si-*, *sida*, or *n-*, *nda*.)

dr has been found with the following presyllable:

pa- : *padraan* 'strong'; *padreeng* 'fat'; *padruung* 'rich'.

ta- : *tadraw* 'six'; *tadroong* 'something'.

ka- : *kadraap* 'rat'; *kadrak* 'type of wood used in crossbow'; *kadràm* 'many'; *kadrèp* 'jiffy'; *kadriam* 'onion'; *kadroom* 'a fence'; *kadròot* 'honey bee'; *kadrùh* 'to jump down'.

ma- : *madra* 'trellis'.

?i- : ~ *si-* ~ *n-* : ?*idrah* 'to be' split in half'; ?*idruw* 'to mark'; ?*idrum* '29th lunar night'.

?a- : ?*adrah* 'to scare'; ?*adray* 'pestle'; ?*adrih* 'green'.

has been found with the following presyllable :

pa- : *patuw* 'to teach'; *patua?* 'to jest'; *patuh* 'to explode'.

ka- : *kataal* 'end'; *kataang* 'flat-sided'; *kataaw* 'sugar cane'; *katang* 'a section of bamboo'; *katap* 'egg'; *katayh* 'hip'; *katùl* 'to smother'.

?i- : ?*ital* 'a back basket strap'; ?*itong* 'a type of string'; ?*itùk* 'to boil'.

?a- : ?*atang* 'a stool'; ?*atùal* 'rafter wood'; ?*atùk* 'a tribal shirt'.

tr has been found with the following presyllables :

ta- : *tatrat?* '11th lunar night'.

ka- : *katraw* 'a type of bird'; *katrey* 'long green squash'.

1.3 With Alveo-palatal Stops

Presyllables can occur before *j* and *ch*.

j has been found with the following presyllables :

pa- : *pajòh* 'to brag'; *pajèeng* 'to make'.

ja- : *jajooy* 'the rising tone in Jeh'; *jaju* 'for the time being'; *jajua?* 'a spring pole trap for birds'.

ka- : *kajak* 'to sway'; *kajap* 'durable'; *kajeh* 'a fork'; *kajèe?* 'wet'; *kajip* 'a centipede'.

al- : *aljèel* 'a small type of bamboo'.

ch has been found with the following presyllables :

pa- : *pachoong* 'to test ability'.

ta- : *tachèn* 'nine'.

cha- : *chacheng* 'to keep in mind'.

ka- : *kachaap* 'fish scales'; *kachah* 'charcoal'; *kachàl* 'fish fins';
kachiat 'to die'; *kachiing* 'the dirt weight on a forge'; *kachuh* 'to spit'.

?a- : ?*acheh* 'to twist a rope'; ?*achool* 'bowl of a smoking pipe'.

1.4 With Velar Stops

Presyllables have been found with the following voiced and voiceless velar stops : *g*, *gl*, *k*, and *kl*.

g has been found with the following presyllables :

pa- : *pagaang* 'medicine'; *pagan* 'to span'; *pagung* 'to flex the fingers'.

ta- : *tagàyh* 'to break'; *taguat* 'to tie'.

al- : *algaap* 'soul'; *algày* 'skilled'; *algèem* 'deer'; *algeeng* 'stiff and sore'; *algèm* 'a type of shrub'.

si- ~ ?i- : *sigu* 'classifier for plant stalks or trees'; *sigù* 'to doze'.

gl has been found with the following presyllables :

pa- : *paglaang* 'cross, crucifix'.

ta- : *taglám* 'to bump together lightly'.

al- : *alglám* 'to collide with force'.

k has been found with the following presyllables :

pa- : *pakaal* 'a fence'; *pakip* 'to close the fingers together'.

ta- : *takat* 'medicine'; *takùy* 'horns of an animal'.

ka- : *kakaay* ? 'to scratch'; *kakùat* 'angry'.

si- ~ ?i- : ?*ikaap* 'a sign post'; ?*ika?* 'back basket';

?*ikiang* 'the principal rafters in a roof'; ?*ikook* 'tall wide-bladed grass'.

kl has been found only with *ta-*.

ta- *taklep* 'to fasten together'; *taklih* 'to fall'; *takloh* 'clean'.

1.6 With Pereglossalized Consonants

Presyllables have been found before ?*b*, ?*d*, ?*l* ?*r*, ?*m*, and ?*n*.

?*b* has been found with the presyllable *ka-* in loan words.

ka- : *ka?bang* 'table' from Vietnamese *cái bàn* 'table'.

ka?bèn 'shovel' from Vietnamese *cái bèn* 'shovel'.

?d has been found with the presyllable *ka-* in loan words.

ka- : *ka?deeng* 'lamp' from Vietnamese *cái đèn* 'lamp'.

?l has been found with the following presyllables :

ta- : *ta?lèe?* 'easy'.

ka- : *ka?lay* 'quite a while ago'.

si- : *si?laang* 'a honey-making insect'; *si?leeng* 'a type of wood'.

?r has been found with the following presyllables :

pa- : *pa?reeng* 'to wander around looking for something'.

ka- : *ka?riap* 'to march in a large group'; *ka?ròp* 'to hop'.

?m has been found with the following presyllables :

ta- : *ta?mot* 'to splice'.

ka- : *ka?moon* 'to tell a legend'.

?n has been found with the following presyllables :

ka- : *ka?nooy* 'finger'; *ka?nuh* 'to do your best'; *ka?num* 'to urinate'.

m̩a- : *ma?nuat* 'half'.

si- ~ ?i- : *si?na* 'animal tracks'; *si?nàn* 'to sit down'; *si?neng* 'tooth'.

1.7 With Liquids and Nasals

Presyllables have been found with the liquids *l*, *ll*, and *r*, and with the nasals *m*, *mr*, *n*, *nr* and *ng*.

l has been found with the following presyllables :

pa- : *paleel* 'careless'; *pleh* 'to speak humbly'; *palek* 'to roll something along the ground'; *palih* 'to change money'.

ta- : *talaang* 'to crack an egg'; *talam* 'inside'; *tali?* 'name'; *taliw?* 'to sprain'; *talòoy* 'to swim'.

ma- : *malam* 'haphazardly'; *malat* 'to treat'; *malo?* '30th lunar night'.

mi- : *milong* 'nylon' (from Vietnamese *nì-long* 'nylon').

?a- : ?alah 'lazy'; ?alook 'in spite of'; ?ale? 'baby boy'.

sa- : *salaang* 'to set on its back'.

ji- : *jilat* 'a type of radish'.

ll has been found only with an ?a- presyllable.

?a- : ?allày 'instead'; ?alley 'okey'. In certain idiolects these are pronounced ?illày and ?illey respectively.

r has been found with the following presyllables :

ta- : *tarok* 'skies'; *tarüt* 'to flinch'.

ka- : *kari* 'by themselves'.

al- : *alruan* 'to hate'.

ma- : *maraaw* 'bachelor house'.

?a- : ?*arüm* 'pig weed'.

m has been found with the following presyllables :

pa- : *pamut* 'ankle'.

ta- : *tama* 'to flee'; *tamaal* 'two fingers' width'; *tamek* 'mosquito';
tamoong 'to see in general'.

ka- : *kamaayh* 'bashful'; *kamät* 'gall bladder'; *kamày* 'even though'

al- : *almel* 'stubborn'; *almü?* 'tangled'.

si- : *simang* 'bandage'; *simong* 'cement'.

?i- : ?*imuw* 'here'. (See 1.1 presyllable *si-*.)

mr has been found only with the presyllable *ka-*.

ka- : *kamrin* 'numb'.

n has been found with the following presyllables :

ta- : *tanaang* 'betel nut'; *taneen* 'good natured'; *taneh*
strap'; *tanoh* 'to converse'; *tanok* 'beach'; *tanuw* 'bull'; *tanu* 'lots'.

ka- : *kanal* 'to recognize'; *kanam* 'corpse'; *kanuul* 'not smart'.

al- : *alnaaw* 'straw'; *alnoot* 'a wood plane'.

ma- : *manaayh* 'same'; *manah* 'boy's love for a girl'; *maneng*
'crossbow'; *manih* 'a snap trap'.

?a- : ?*anoom* 'a type of back basket'.

nh has been found with the following presyllables :

ka- : *kanhaam* 'to rouse from sleep'.

al- : *alnhok* 'to jostle'; *alnhu* 'shade'.

ma- : *manha* 'to deceive'; *manhuk* 'to scare'.

ng has been found with the following presyllables :

ta- : *tangeh* 'to chop with the back of the knife blade'; *tangi* 'to
sing a tribal song'.

al- : *alnga* 'sesame seeds'; *alngèp* 'cool'; *alngeh*, stiff and sore';
alngoop 'a sheath'; *alngòp* 'shady'; *alngoot* 'to long for'; *alnguut* 'to
fold in half'.

ma- : *mangray* 'people'; *mangeh* 'a poisonous vine'.

1.8 With Fricatives

Presyllables have been found before initial *s* and *sr*.

s has been found with the following presyllables :

ka- : *kasak* 'sack' (from French *sac* 'sack, bag'); *kasàm* 'a thorny vegetable'; *kasàp* 'notebook'; *kasèt* 'honey bee'; *kasey* 'a string'; *kasiàng* 'bone'; *kasoong* 'night monkey'; *kasù* 'rubber' (from French *caoutchouc* 'rubber'); *kasu?* 'perspiration'.

al- : *alseh* 'to shave'; *alsiil* 'to blind with light'; *alsool* 'the spring of a trap'; *alsoong* 'while you're at it'.

?a- : *?aseh* 'horse'; *?asuang* 'to dance'.

sa- : *sasuang* 'to dart and dash'.

sr has been found with the following presyllables :

pa- : *pasrùng* 'angry'.

ka- : *kasreeng* 'to aim'.

ma- : *masro?* 'tomorrow'.

1.9 With Semi-vowels

Presyllables have been found with the semi-vowels *w* and *y*.

w has been found with the following presyllables :

ta- : *tawàt* 'to throw away'; *tawèl* 'round'; *tawe?* 'to turn over'; *tawìayh* 'strange'.

al- : *alwia?* 'a saw-toothed sickle'; *alwiil* 'blurred'.

y has been found with the following presyllables :

pa- : *payo?* 'to play'.

ka- : *kaya* 'ginger'; *kayaak* 'old age'; *kayaal* 'wind'; *kayaw* 'to refuse'.

al- : *alyool* 'bamboo fish net floats'; *alyuw* 'courtship'; *alyuk* 'to stagger'.

?a- : *?ayoh* 'tribal shirt'; *?ayoo?* 'to imitate'.

2. Restrictions on Non-reduplicative Presyllables

Before some consonant clusters, presyllables do not seem to occur. The following is an analysis of these clusters.

2.1 With Doubled Initial Voiced Consonants

bb, *dd*, *jj*, *gg*, *nn* have not been found with a presyllable.
bb as in *bbàng* 'a tie beam in a house'; *bbah* 'out-side of'.
dd as in *ddong* 'a winnowing basket'; *ddok* 'to sag'.
gg as in *ggah* 'to split in half'.
jj as in *jjua?* 'a spring pole trap for birds'.
nn as in *nna* 'rice wine'; *nnàl* 'the wall of a house'.

2.2 With Clusters of Three Consonants

Presyllables have not been found with clusters of three consonants.
mbr as in *mbràam* 'a derogatory remark'.
?br as in *?bruuyh* 'brush'.
dár as in *ddraay* 'a spring pole snare for birds'; *ddrep* 'lizard'.
ndr as in *ndrah* 'one half'; *ndruh* 'falsetto'.
kmr as in *hmra* 'day after tomorrow'; *hmruan* 'four days from now'.

2.3 With Certain Consonants Preceded or Followed by h

Presyllables have not been found with *ph*, *th*, *kh*, *hl*, *hm*, *hn*, *hw*, *hy* except in certain loan words which take the *ka-* from the Vietnamese *cái*.
ph as in *pha* 'difficult'; *phaak* 'to punish'; *phay* 'husked rice'.
th as in *thoong* 'brass' (from Chinese *thông* 'brass').
kh as in *kha* 'expensive'; *khàn* 'friend'; *khèel* 'a shield'.
hl as in *hlak* 'to sleep soundly'; *hlùng* 'a man's knife'.
hm as in *hmàn* 'pants'; *hmeew* 'to be healthy'; *hmcot* 'silence'.
hn as in *hnam* 'year'; *hnèep hnal* 'happy'.
hw as in *hwaay* 'besides'; *hwil* 'to forget'.
hy as in *hyil* 'sad'; *hyuw* 'to imagine'.

Presyllables have been found with *hl*, *hm* and *th* in some loan words.

pahlang 'French'

pukmon 'bandage or a bolt of cloth'

kathuung 'box' (from Vietnamese *cái thùng* 'box');

kathaang 'ladder' (from Vietnamese *cái thang* 'ladder').

2.4 With the Clusters *mb* and *nd*

Presyllables have not been found with *mb* or *nd*.

m̄b as in *m̄bi* 'wild radish'; *m̄bu* 'distance between thumb and

index finger'.

nd as in *nda* 'distance between thumb and middle finger'; *ndaay* 'together'; *ndok* 'to bounce'.

In all the above examples *si-* may freely alternate with *m* or *n*. Thus *mbi* ~ *sibi*, *mbu* ~ *sibu*, *nda* ~ *sida*, *ndaay* ~ *sidaay*, *ndok* ~ *sidok*.

3. Reduplicating Presyllables.

The reduplicating presyllables in Jeh consist of the $C_1 V_1$ of the main syllable of the word except when the main vowel is *i*⁵. So far I have only a few examples of reduplicating presyllable in my data. Examples:

dudüüt 'to blow a horn (toot toot)'; *hohoh* 'buffalo'; *jajayh* 'frisky'; *jeleh* 'shorter'; *luluk* 'noisy'; *?na?naam* 'of a kettle to sing'; *?wi ?wia?* 'a little'.

When the vowel of the main syllable is *i*, the reduplicating presyllable vowel is *u*. Examples:

chuchih 'to erase'; *juji?* 'to scrub'; *lulit* 'a large biting fly'; *susi* 'tendon'.

4. Word Reduplication in Jeh.

For some words in Jeh, reduplication is obligatory for meaning. Color terms are usually reduplicated, though occasionally they can be used without reduplication.

4.1 Symmetrical Reduplication

There are two types of word reduplication. One type is symmetrical reduplication consisting of two identical words in either closed or open syllables.

The following are examples of closed syllable symmetrical reduplication.

bung bung 'to fall'; *chang chang* 'the side of a person'; *chun chun* 'the haunches'; *dam dam* 'young man'; *dèk dèk* 'truly'; *dì? dì?* 'different'; *dra? dra?* 'old person'; *druk druk* 'gray'; *kul kul* 'wrist'; *lik lik* 'dirt particles'; *mang mang* 'at night'; *nul nul* 'deaf'; *ngay ngay* 'during the day'; *sèe? sèe?* 'during the afternoon'; *yam yam* 'violet'.

5 See Gradin, sec. 6.2.

The following are examples of open syllable symmetrical reduplication :

chaw chaw 'locust' ; *dri dri* 'girl' ; *luw luw* 'boy' ; *looy looy* 'longer' ;
sri sri 'to fool around' ; *yaw yaw* 'a little bit'.

4.2 Non-symmetrical Reduplication

The second type of reduplication is non-symmetrical though the two words are similar. Each fulfills the $C_1 V_1 C_2$ requirement for a main closed syllable word.

alma? alma 'hardship' ; *?ayaw ?ayeh* 'to pity' ; *búk bðok* 'brown color' ; *gung gíng* 'curved (road)' ; *hung hiang*, 'a small whet stone' ; *juk jul* 'elbow' ; *luk lek* 'to be crooked, deceitful' ; *nhuk nhek* 'to shake' ; *ngiat ngiah* 'light green' ; *samu? sama?* 'untidy' ; *suk seh* 'to shake a winnowing basket' ; *truk trul* 'to jump'.



Consonantal tone in Jeh phonemics ¹

DWIGHT GRADIN

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0. Introduction.

The Jeh language of the Mon-Khmer family is spoken by approximately 9000 people in a narrow stretch of land next to the Laos border in northern Kontum province, Viet Nam. This paper presents the southern Dak Wàk dialect spoken in the Dak Sut area. Southern and northern Jeh are mutually intelligible, but the northwestern, Dak Bùng dialect and other dialects near the Laos border appear to be barely intelligible with the northern and southern dialects, though maintaining Jeh as their language name.

A distinctive phenomenon in Jeh is the limited high tone, which is interpreted as a consonant (cf. sec. 1). Deep vowel quality (cf. sec. 5. 1), which parallels the laryngealization of Sedang and the breathiness of

1 The analysis here described is the result of one year of study on the Jeh language, 1963-1964, under the auspices of the Summer Institute of Linguistics,

I am indebted to Richard Watson, whose 'Pacoh Phonemes' in *Mon-Khmer Studies I*, pp. 135-148, served as a guide to this paper, David D. Thomas has given much appreciated advice in this analysis. Patrick Cohen assisted with suggestions and an analysis of presyllables. Richard S. Pittman also gave valuable suggestions as to the organization of this paper. A special word of gratitude is here given to Sak of Dak Tráp and Nhor of Dak Rajèel, who served as main informants during this time.

Halang,² nearby languages, is another characteristic of southern Jeh. Jeh also has limited phonemic nasalization.

1. Consonantal Tone.

Mon-Khmer languages, for the most part, are not tonal, but in Jeh phonemic high tone has been discovered³. Though distribution of this high tone is limited to phonetically open syllables, phonemically it is very peculiar, occurring in complementary distribution to word final consonants.

The high tone is actualized as a level tone followed by a sharp rise (e.g. [tɛː] 'to scythe'). The main vowel remains level for the duration of a regular short vowel, and there is never any friction or occlusion succeeding the sharp rise in pitch. When high tone occurs with vowel glides, the syllable peak remains level, and the sharp rise coincides with the off-glide (e.g. [tiã] 'down there'). (Grave [˘] accent represents deep vowel. cf. sec. 5.1)

Final rising tone in adjacent languages and some northern dialects of Jeh is manifested as a glottal fricative [h], which does not exist in word final position in southern Jeh (e.g. [tɛh], [tiãh]). So high tone in southern Jeh, patterning as a consonant, is interpreted as an allophone of *h* in word final position (e.g. *tɛh* [tɛ'] 'to scythe'; *tiãh* [tiã] 'down there').

The sharp rise in pitch can cause the vowel to be broken up by a non-constrative glottal stop, like Vietnamese 'ngã' [ŋaʔá] tone. This becomes an interesting commentary on Haudricourt's postulation of Vietnamese 'hỏi' and 'ngã' tones as having come from an original *h* or *s*⁴. Jeh is an example of where this process appears to be actually going on.

High tone in Jeh can also occur on word final consonant *y*, thus becoming [ý] as in [daý] 'loud'. However, in some northern dialects

2 Research on Sedang, a language in central Kontum, Vietnam; is being carried on by Kenneth and Marilyn Smith.

Research on Halang; a language in western Kontum, Vietnam, is being carried on by Jasses and Nancy Cooper.

3 See Smalley, William A., 'Sre Phonemes and Syllables', *JAOS* 92.218.222, for a Mon-Khmer language which he describes as having the feature of 'tone-length'.

4 Haudricourt, A-G. 'De l'origine des tons en Vietnamien', *Journal Asiatique*, Vol. 242, No. 1 (1954), pp. 69-82.

this phone is manifested as *y* plus the fricative *h* (e.g. [dayh] 'loud'). So high tone, though coinciding with final *y* in southern Jeh, can still be interpreted as an allophone of *h* dayh S [daý], N [dayh] 'loud'. Distributionally, [ý] is interpreted as a close-knit sequence of two phonemes (*y* and *h*) that patterns as a unit consonant (cf. sec. 3.2)

FIG. 1 CHART OF CONSONANT PHONEMES

	<i>bilabial</i>	<i>alveolar</i>	<i>alveopalatal</i>	<i>velar</i>	<i>glottal</i>
vl. stops	p	t	ch	k	ʔ
vd. stops	b	d	j	g	
nasals	m	n	nh	ng	
liquids	w	l/r	y		
fricative-tonal		s			h

FIG. 2 CHART OF VOWEL PHONEMES

	<i>front</i>	<i>central</i>	<i>back</i>	
high glide	ia		ua	
high	i		u	
low	e	a	o	
				Suprasegmental : Length (aa)
				Deepness (à)
				Nasalization (ã)

In one local northern dialect (Dak Trap), high tone has a wider distribution. Word final voiceless stops do not exist in this dialect. Such phones do retain the same point of articulation as voiceless stops in the southern dialect but are manifested rather as nasal consonants with rising tone (e. g. [tram̃] *trap* 'muddy'; [waŋ̃] *wak* 'boy's name'). Thus in the Dak Trap dialect, final nasal consonants with high tone are interpreted as word final allophones of initial voiceless stops.

2. Phonemes.

See Figures 1 and 2.

3. Consonant Interpretation.

3.1 Consonant Clusters.

In Jeh there is a strong two-consonant cluster pattern, stop plus

liquid (e. g. *pr*, *kl*). Aspirated stops (e. g. *ph*) are interpreted as clusters, patterning after the non-suspect stop plus liquid pattern.⁵

3.2 Suspect Sequences

Phonemes /ʔ/ and /h/ differ distributionally from all other phonemes in Jeh, occurring in sequences [wʔ], [yʔ], and [ý] in word final position. These sequences, however, are not posited as clusters on the grounds that no non-suspect clusters occur in word final position. Rather, a suggestion from Pike appears to be the preferred interpretation for such phonemes (/ʔ/,/h/). He suggests that 'two separate, legitimate phonemes may be joined together in a special type of close-knit sequence which as a unit acts in further distribution like a single phoneme'.⁶ Thus, [wʔ], [yʔ] and [ý] are interpreted as close-knit sequences of two separate phonemes which act as unit consonants in distribution. Particularly the sequence [ý] demonstrates the validity of such an interpretation because the two phonemes [y] and high tone [-] occur not merely in a close-knit sequence but simultaneously. Examples :

chàwʔ 'nonsense' : *chàw chàw* 'grasshopper'

taayʔ 'correct' : *taay* 'slowly'

chooyh [t͡sɔ́-y] 'sand' : *chooy* 'to plant rice'

puayh [puáy] 'calf of leg' : *pùah* [pùá] 'flexible'

This interpretation is also applied to the following suspect sequences: preglottalized and pre-aspirated nasals and liquids (*hng* has not been found), preglottalized stops *ʔb* and *ʔd*, pre-nasalized stops *m̃b*, *nd*, and *ngg* and lengthened consonants. That two consonants occur in a sequence is not sufficient argument that they should fit the non-suspect stop plus liquid pattern. The peak of these suspect sequences is the final consonant; whereas it is the initial consonant in the strong pattern. So when the peak of the sequence occurs finally, it is interpreted as a close-knit sequence of two phonemes acting distributionally as a unit phoneme. Examples :

5 That the aspirated stops can be contrastively broken up, as in sec. 6, shows further that they follow the stop plus liquid pattern. However, presyllables do not occur before aspirated stops except in loan words (e.g. *kathaang* 'ladder').

6 Pike, Kenneth L., *Phonemics: A Technique for Reducing Languages to Writing* (University of Michigan), pp. 147, 148.

hnam 'year' *nggàl* 'large drum' *?le?* 'short'

3.3 Rising tone

Rising tone in the southern Jeh dialect is interpreted as an allophone of /h/ in word final position because (1) it occurs only on open syllables in complementary distribution with final consonant phonemes and (2) it corresponds to the final /h/ phoneme of some northern dialects which have free variation between rising tone and word final fricative [h] (cf. sec. 7.1).

3.4 sr- cluster

The sequence *sr* is manifested phonetically as a retroflexed alveopalatal fricative [ṣ] alternating freely with a retroflexed affricate [ṭṣ]. Phonetically it appears to be a unit phone, but phonemically it is interpreted as a cluster *sr*. It rarely occurs and varies to cluster *kh* in the Plày Talaat dialect. Examples:

sriam [tṣiəm] 'brittle', *chiam* 'to feed' *kriam* 'crossbow string'

kasreeng [kaṭṣe.ŋ] 'to aim' *kheeng* 'coals'.

4. Vowel Interpretation.

4.1 Basic system

Except for /e/, which has maintained a four-way contrast of short, long, deep, and long deep, vowels in Jeh have a three-way contrast of short, long, and deep. The deep form tends to be short in the high vowel *i*, *u* and central vowel *a* and long in the low vowel *o*. Central vowel *a* has a fourth contrast of long deep only for derogatory words. High back vowel *u* has a four-way contrast only when followed by liquids *l*, *y*. However, *u* in the Plày Talaat dialect has only a three-way contrast.

4.2 Distribution of vowels

Not all vowel contrasts occur in every environment. Short vowels can occur neither on open syllables nor before rising tone /h/.

5. Suprasegmental Features.

5.1 Deep vowel⁷

The deep vowel quality is produced by relaxing the faucal pillars, lowering the larynx, and giving increased pressure from the diaphragm. The result is a deep, somewhat gruff, voice quality. Pitch is usually lower than that of the clear form. Deepness, when occurring with short vowels, changes the vowel height, forcing it up in most instances. This accounts for the peculiar similarity of the /i/ and /è/, which have nearly identical vowel heights but which are completely different phonemes (cf. sec. 7. 2 for examples).

5.2 Length

Length can occur with all five vowels but not with glides. The vowel heights of /e/ and /è/ are lowered by length (cf. sec. 7. 2 for examples).

5.3 Nasalization

Nasalization is rare, though presumably can occur with any vowel. It occurs in a very limited environment — only in closed syllables and only after /h/ and /ʔ/. It does not affect vowel height. Examples:

həy 'enough', *həy* 'we (incl)', *həol* 'happy'
hool 'to tow' *ʔùul* 'to groan' *ʔuul* 'to seep'
ʔòòʔ 'to suppress', *ʔòʔ* 'pumpkin'.

6. Distribution of Phonemes.

The word in Jeh can be defined as having one main syllable, which may be preceded by an unstressed, but occasionally morphologically significant, presyllable. The existence of a presyllable in Jeh is established by the fact that a consonant cluster (e. g. *tr*) of the main syllable can be contrastively broken up, the first consonant (*t*) occurring in the presyllable and the second consonant (*r*) occurring in the main syllable.⁸

7 Deep vowel in Jeh parallels very closely the description of the 'second register' of the pitch range of Cambodjan by E. J. A. Henderson in 'The Main Features of Cambodian Pronunciation', *Bulletin of the School of Oriental and African Studies* (University of London), Vol. XIV, Part I, pp. 151ff. The grave accent (˘) is used as the phonetic symbolization for deep vowel in this paper.

8 If such a contrast were non-existent, Jeh could be interpreted as an agglutinative monosyllabic language. The *a* would serve only as an open transition between the C in the presyllable and the C in the main syllable. The contrast is proportionately rare in Jeh, having been found only with five C₃C₄ clusters: *pl*, *tr*, *th*, *kl*, *kh*. For a detailed analysis of Jeh presyllables from a different standpoint, see Patrick D. Cohen, 'Presyllables and Reduplication in Jeh', in this same volume.

Examples :

trah 'to chop out' *tarah* '(of chicken) to squawk'
khey 'month' *kahey* 'moon'

6.1 Presyllables pattern : $C_1 V_1$

Presyllables occur before single consonants, strong consonant clusters, and preglottalized consonants (but before no other close-knit sequences).

6.1.1 V_1 has one filler : *a*. There is complete neutralization of the vowel in the presyllable except after *ʔ*. Following *j* and *s*, which are in complementary distribution in the presyllable (cf. sec. 6.1.2), this vowel becomes *i*. Glottal stop *ʔ* maintains a distinction between *a* and *i*, possibly due partly to the fact that men's names are preceded by *a* and women's names by *i*. Examples :

ʔidrah 'one-half year' *ʔadrah* 'to scare'
taba 'branch' *pakaal* 'fence'

6.1.2 C_1 can be filled by voiceless stops *p*, *t*, *k*, *ʔ* by nasal *m*, and by alveolars *s*, *l* (e.g. *palek* 'to roll'). Voiced stops occur in C_1 only as alternating with voiceless stops or *m* (e.g. *bangaay* ~ *mangaay* 'person'). *j* is in complementary distribution to *s* in C_1 , occurring only before *k*, *ʔ*, *h*, *m* of the main syllable (e.g., *jihoom* 'lungs'). *s* precedes other consonants (e.g. *silang* 'face up'). *l*, though phonemically interpreted as a filler of C_1 , occurs phonetically inverted after V_1 . It occurs before every consonant except *ch* (e.g. *lapiat* [alpiat] 'tongue').

6.1.3 Reduplicative words

In a reduplicative word, presumably any consonant or consonant cluster, which occurs initially in the main syllable, can occur in the presyllable. Presumably any vowel can fill V_1 of a reduplicative word. And a syllable-final *C* can also occur. Examples :

dodoʔ 'to be in line' *drudruan* 'to fight'
pingpiang 'spider' *ʔnaʔnam* '(of kettle) to sing'
truktrool 'to jump up and down'

6.2 Main syllable pattern : $CV \pm C_5$ or $C_3C_4V \pm C_5$

V (main vowel) can be filled by any vowels in the chart. Short vowels cannot occur without C_5 .

C (main consonant) has two classes of fillers : C_3 and cC.

Class C_3 fillers are composed of a single consonant, which may be any consonant in the chart.

Class cC fillers⁹ are composed of all close-knit sequences except *yh*, *wʔ* and *yʔ* (cf. sec. 3.2). See Fig. 3 for complete distribution of cC.

C_3 (main consonant of cluster) can be filled by *m*, *s*, and by all stops except *j*.

C_4 (second consonant of cluster) can be filled by *r*, *l*, *h*. See Fig. 3 for complete distribution of consonant clusters.

C_5 (final consonant) can be filled by close-knit sequences *yh*, *wʔ*, *yʔ* and by any single consonant except voiced stops *b*, *d*, *j*, *g*, the palatals *nh*, *ch*, fricative *s*, and *r*.

6.3 Summary of word pattern in Jeh

The word can be summarized as follows :

\pm presyllable (C_1V_1) + main syl. ($C_2V \pm C_5$) or ($C_3C_4 \pm C_5$) or ($cCV \pm C_5$).

7. Description of Phonemes.

7.1 Consonants

/p/ simple voiceless bilabial stops : [p].

pat 'to be extinguished' *bat* 'to remember'
mat 'eye' *phat* 'to be plugged' *waat* 'to pull back.'

/t/ simple voiceless alveolar stops : [t].

tiam 'to temper iron' *kadiam* 'onion' *chiam* 'to feed' *toong* 'cl.
for tools' *thoong* 'brass'

/ch/ simple voiceless alveopalatal affricate : [tʃ̥].

cheh 'to twist rope' *jeh* 'Jeh people' *teh* [to scythe] *keh* 'cup-
board' *cheeng* 'to carry with'

9 There is also a rare occurrence of close-knit sequence preceding a member of C_4 , but usually only as alternate pronunciations (e.g. *hmra* ~ *tamra* 'day after tomorrow' *ndruung* ~ *druung* 'cocoon').

Fig. 3 CONSONANT CLUSTERS AND WORD INITIAL CLOSE-KNIT SEQUENCES

Consonant clusters class cC

$\begin{matrix} C_3 \\ C_2 \end{matrix}$	r	l	h	nasal	dbl	C ? h	$\begin{matrix} c \\ C \end{matrix}$
p	pr	pl	ph	mb	bb	?b	b
t	tr		th	nd	dd	?d	d
k	kr	kl	kh		jj		j
b	br	bl		ngg	gg ¹⁰		g
d	dr					?m hm	m
g	gr	gl			nn	?n hn	n
m	mr	ml				?hn hnh	nh
s	sr					?ng	ng
					//	?l hl	l
						?r hr	r
						?w hw	w
						?y hy	y

Fig. 4 EXAMPLES OF WORD PATTERNS ¹¹

Main Syllable

$\begin{matrix} +C_2 \\ -C_5 \quad +C_5 \end{matrix}$

 $\begin{matrix} +C_3C_4 \\ -C_5 \quad +C_5 \end{matrix}$

 $\begin{matrix} +cC \\ -C_5 \quad +C_5 \end{matrix}$

PRESYLLABLE	none	ma pah	pra praan	?ya ndok
	C ₁ V ₁	ta.ma ta.pah	ma.dra ta.praang	

strap over shoulder' *kheeng* 'burning coals'

/k/ simple voiceless velar stop : [k].

kooy 'to carry on head' *gooy tuh* 'breast nipple'

¹⁰ Lengthened *g* occurs only in the Plây Talaat dialect.

¹¹ *ma* 'aunt'; *tama* 'flea'; *pah* 'to split'; *tapah* 'to be split'; *pra* 'to spread out, crisscross'; *madra* 'arbor'; *praan* 'strong'; *tapraang* 'to span'; *?ya* 'tobacco'; *ndok* 'to bounce'.

khooy 'to be used to' *?akuw* 'joint of bamboo' *?i?uw* 'common rafter'
 /ʔ/ ¹⁹ glottal stop : [ʔ].

ta?ua 'to bellow' *hùa ho?* 'airplane' *?akuw* 'joint' *?i?uw* 'rafter' *kong do?* 'land snail' *dok* 'monkey'

/b/ simple voiced bilabial stop : [b].

bok 'to dig' *pok* 'to open' *mok* 'site' *tabaang* 'third night of Jeh month' *ka?baang* 'table' *bbàng* 'tie beam'

/d/ simple voiced alveolar stop : [d].

dam 'young man' *tam* 'with' *kanam* 'corpse'

/j/ lenis voiced alveopalatal affricate : [dʒ]. In rapid speech, it varies freely to a voiced alveopalatal vocoid [y].

jaal 'round fish net' *yaal* 'fourth night of Jeh month' *joh* 'to peck' *goh* 'clean' *choh* 'to cut out' *?ayoh* 'tribal shirt'

/g/ simple voiced velar stop : [g].

gook 'smoking pipe' *kook* 'goiter'

/m/ simple voiced bilabial nasal : [m]. In word final position it can vary to a syllabic nasal [bm].

tama 'flea' *taba* 'points on antler' *?imuw* 'here' *kakuw* 'to rely on' *mùt* 'to go in' *?mùt* 'to take in'

/n/ simple voiced alveolar nasal : [n]. In word final position it can vary to a syllabic nasal [dn].

12 In this paper symbols follow Vietnamese orthography where possible. Exceptions are :

[iə] and [uə] are written *ia* and *ua* :

double vowels indicate length.

The current orthography of Jeh is the same as the phonemic symbols except in the following cases ;

Word initial *ɲw* and *ɲy* are written as *u* and *i*.

Word final *wɲ* and *yɲ* are written as *ü* and *ĩ*.

Word final *yhɲ* is written *yh* after short vowels and *ih* after long vowels.

Word final *w* and *y* are written as *u* and *y* after short vowels and as *o* and *i* after long vowels

i is used after *e* (e.g. *dei* 'not') because there is no length contrast after *e*.

Word final *uw* is written as *ou*.

Glottal stop *ʔ* is written, word initial, = word medial, and ~ word final. It is left unwritten

before word initial vowels.

The phonemic sign // is used only for clarity or when in contrast to the phonetic sign []. Elsewhere the phonemes are italicized.

nuat 'tumor' *duat* 'to pull out' *naam* 'a shed' *nhaam* 'to weep'
lana 'sheet' *langa* 'sesame seeds', *ka niap* 'small fish' *lup liap* 'thirteenth night of Jeh month' *nah* 'side' *?nah* 'some' *nnaah* 'wine'

/nh/ simple voiced alveopalatal nasal : [n̄]. It is the only nasal that does not occur in word final position.

lanhok 'to jostle' *tanok* 'beach' *ngok* 'mountain' *jong jok* 'rainbow'

/ng/ simple voiced velar nasal : [ŋ]. In word final position it can vary to a syllabic nasal [gŋ].

ngòh 'ridge of a notch' *gòh* 'to ignite'. See /nh/, /n/.

/l/ voiced alveolar lateral : [l]. In word final position it becomes a neutralization of /l/ and /r/ and can vary to a syllabic liquid [dl].

loh 'to go out' *roh* 'thin' *taal* 'stock of crossbow' *taan* 'to weave' *bal* 'species' *ban* 'to raise'.

/r/ voiced alveolar flap : [ṛ].

rok 'cow' *lok* 'white colored wasp'.

/w/ voiced bilabial rounded vocoid : [w]. It alternates freely to a slightly fricative allophone [b] in syllable-initial position.

wal 'to go back' *bal* 'species' *?waal* 'to drill' *ka* 'fish' *kaw* 'to call'.

/y/ voiced alveopalatal vocoid : [y].

kaya 'ginger' *?ya* 'tobacco' *yaang* 'spirit' *jaang* 'work' *yaal* 'fourth night of Jeh month' *nhaal* 'bronze colored mineral' *ha* 'hip' *hay* 'we'.

/s/ alveolar fricative : [s]. In initial position it alternates freely with voiceless alveolar affricate [ts].

saang 'to finish' *haang* 'hot' *?aang* 'rabbet joint' *kathaang* 'ladder'.

/h/ voiceless glottal fricative : [h]. In initial position in isolation and following voiceless stops it is a glottal fricative.

hèè? 'slow' *sèè?* 'afternoon' *?èè?* 'yes'

[M, N, N̄, L, R, W, Y] In initial position in sequences it has allophones of voiceless nasals and liquids before their voiced counterparts.

hmàn [Mmàn] 'pants' *?màn* 'forbid'

hnho? [Ñnoɔ] 'sad' *dey nho?* 'not much'
hraay hrày [Rra. y Rrày] 'to misplace' *raay* '(of rain) to stop'
hwaay [Wwa:y] 'besides' *waay* 'to redeem'
 [·] In final position /h/ is manifested as a rising tone. (cf. sec. 3.3)

tìh [tì:] 'big' *tì* 'hand'
puàh [pùá] 'flexible' *sùà* 'to believe'
tiàh [tiá] 'down there' *sia* 'to miss'

7.2 Vowels

/i/ /ii/ /i/ is a high open front unrounded vocoid : [ɪ].

/ii/ is phonetically similar but longer.
hwil 'to forget temporarily' ?*wiil* 'to coil'

/i/ is a high close front unrounded vocoid : [i].
 ('deep' vowel, cf. sec. 5.1).

hiw 'to flow' *chìw* 'to go' *chim* 'bird' *sìm* 'species of duck'

/ia/ /iá/ /iá/ is a glide from /i/ to a neutral central vowel (schwa)

/iá/ is phonetically similar but deep.

tiang 'to fasten' *tìang* 'to sunbathe' *kachiat driang* 'to be killed instantly', *driiŋg* 'yellow'

/e/ is a mid front unrounded vocoid : [e].

pet 'duck' *pít* 'to plant' *jep* 'sandal' *jeep* 'shoulder basket' *jèp*
 'to sew' *hnèp* 'happy' *kajip* 'centipede'

/ee/ is a low front unrounded long vocoid : [ɛː].

?*reeng* 'to look for' ?*riiŋg* 'spring pole snare' ?*rèeng* 'to look at'
reeng 'hundred' *reng* 'close together'

/è/ is a high open front unrounded deep vocoid : [ì].

tèng nèng 'guitar' *tìng dra* 'one-half full'. See /e/.

/èè/ is a mid front unrounded long deep vocoid : [èː].

pèeng 'upper' *pìiŋg* 'snap trap'. See /e/.

/a/ /aa/ /a/ is a low open central unrounded vocoid :

[a]. /aa/ is phonetically similar but longer.

wal 'to return' *wàl* 'wall plate pole' *waal* 'to tell'.

/à/ is a low close central unrounded deep vocoid : [ə̃].

ddàng 'equal to' *ddong* 'to help'. See /a/.

/u/ /uu/ _o /u/ is normally a mid close back rounded vocoid : [o].

It can vary freely to a high back rounded vocoid [u]. /uu/ is phonetically similar but longer.

sal puk 'field in fallow (first year)' *puuk* '(of stomach) to growl'
kung 'horizontal' *kong* 'forearm' *juuy* 'deer' *jùuy* 'after'.

/ù/ is a mid close back rounded deep voicoid : [ò].

chùk 'to irrigate' *chuk* 'to slug' *kaduy* 'small of back' *dùy* 'to pull'

/ua/ /ùà/ _o /ua/ is a glide from /u/ to a neutral central vowel (schwa).

/ùà/ is phonetically similar but deep.

yuan 'seed for wine' *yùan* 'we (excl.)' *jua?* 'to step on' *jùà?*
'sour' *sasuang* 'to dart and dash' *suung* 'to scald'

/o/ /oo/ _o /o/ is normally a low back rounded vocoid :

[ɔ]. It can vary freely to mid back position [o]. /oo/ is phonetically similar but longer.

bong 'to fall' *boong* 'to restore' *tabang* 'bamboo shoots' *chong*
'to eat rice' *pachoong* 'to test'

/ò/ is normally a low back rounded long deep vocoid : [ɔ̃]. It

alternates freely with a low close central vowel [ə̃].

pachoong 'to test' *chòong* 'to file' *chàng dramang* 'midnight'

/./ indicates nasalization. It is contrastive only after /h/ and /?/.

(See examples in discussion of nasalization sec. 5.3)

