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WALAPAI PHONOLOGY AND MORPHOLOGY

by

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Table of Contents

WALAPAI PHONOLOGY AND MORPHOLOGY

James E. Redden

0. Introduction

1. Phonology

0. Walapai belongs to the Yuman family.[1,2] Walapai, Havasupai, and Yavapai (Mohave Apache) constitute (1) the Northwestern or Upland Yuman or Pai branch of this family opposed to three other branches: (2) Colorado River or Up-River Yuman, consisting of Mohave, Yuma, Maricopa-Kavelchadom-Halchidom; (3) Delta River Yuman, consisting of Cocopa-Kohuana-Halyikwamai; and (4) Southern and Baja California Yuman, consisting of Diegueno-Kamia-Akwa?ala(Paipai)-Kiliwa-Nyakipa. Walapai, Havasupai, and Yavapai are dialects of one language.[3] Walapai and Havasupai are very close. In dialect distance testing, Biggs found a 95 °/o transfer between Walapai and Havasupai, an 89 °/o transfer between Walapai and Yavapai, and an 80 °/o transfer between Yavapai and Supai.[4]

0.1. At white contact, the Walapai had six main settlements or camps: Peach Springs, Kingman, Hackberry-Valentine, Big Sandy, Chloride, and Seligman,[5] though they roamed over a much larger area. Each group had its own dialect. But since 1873 the Walapai have been settled together more or less forcibly by the Federal government,[6] and by the present time there has been a great leveling of dialect variation. The main informant used for this study, Mrs. Jane Honga, lived for many years at Big Sandy and is probably as close as anyone living to a speaker of the Big Sandy dialect of Walapai.

There are 847 Walapai,[7] all of whom speak both Walapai and English. When I first went to the Walapai in 1959, there were two elderly Walapai who were monolingual, but they have since died. Children just beginning school often have difficulty because their Walapai is far better than their English. I have also noticed that the younger Walapai (from 35 down) tend to favor those Walapai structures which parallel English and tend to use many more English words in their

Walapai than older persons.

1. Walapai has 29 phonemes: 22 segmentals and 7 suprasegmentals. Segmentals are divided into 17 consonants and 5 vowels; suprasegmentals are divided into 3 stresses and 4 junctures. All segmentals occur both voiced and voiceless. Stress applies only to vowels, syllabic nasals, and syllabic lateral.

1.1.0. There are 3 kinds of consonants: stops, continuants, and a flap. There are 2 types of continuants: nasal and oral (or fricative). Consonants occur in 8 positions: bilabial, dental. alveolar, prepalatal, lateral, velar, postvelar, and glottal.

Stops occur in 5 positions: bilabial, dental, prepalatal, velar, and postvelar, for 5 phonemes. Fricatives occur in 5 positions: bilabial, dental, prepalatal, lateral, and glottal, for 7 phonemes. The opposition groove vs.slit occurs in the bilabials and dentals: groove /s/ and /v/ vs.slit /θ/ and /w/. The lateral is also dental. Nasals occur in 4 positions: bilabial, dental, prepalatal, and velar, for 4 phonemes. The opposition oral vs. nasal does not obtain for /h/. A retroflex flap occurs in the alveolar position for 1 phoneme. Stops and dental and glottal fricatives are most often voiceless; the flap, lateral, nasals, and bilabial, and palatal fricatives are most often voiced. These may be diagrammed as follows:

	bilabial	dental	alveolar	prepalatal	lateral	velar	postvelar	glottal
stops	p	t		č		k	q	
fricatives	v,w	θ,s		y	l			h
nasals	m	n		ɲ		ŋ		
flap			r					

1.1.1. Vowels occur at 3 levels: high, mid, and low. There is a front-back contrast at the high and mid levels. There are, then, 5 vowels: / i, e, a, o, u /. Vowel length is conditioned by the rhythm-stress pattern, but long or double identical nasals are clusters, and there is always a morpheme boundary and a potential juncture between them. Overlength is a stylistic feature indicating intensity. The

vowels / i, a, u / are much more common than / e, o /.

1.1.2. There are 3 stress phonemes: primary /ˈ/, secondary /ˌ/, and weak / /, unmarked except in diagrams where it is marked /˘/. All vowels may occur with any stress, but the syllabic nasals and the syllabic lateral occur only with weak stress. Overstress is a stylistic feature indicating intensity. In isolation all major morphemes occur with at least one primary stress, but in a sentence a major morpheme occassionally has a secondary stress. Primary stresses occur at regularly-timed intervals in a sentence. There is an alternating-stress system, whose most common pattern opposes a phonetically-long, primary-stressed vowel to two short non-primary-stressed vowels.

1.1.3. There are 4 juncture phonemes: statement final /#/, series or non-final /|/, question final /‖/, and plus /+/. A word may be defined in relation to juncture. Any sequence of phonemes that can be both preceded and followed by a juncture other than /+/ is a word, but a word may also be followed by /+/ or by no juncture.

1.2. All segmentals except /ŋ/ are easily attestable by minimal pairs. All segmentals except /r/ occur initially, and all segmentals except /w, y, h/ occur finally. Only one contrast was found for /ŋ/, but /ŋ/ is one of the common morphemes for second person and occurs in many analogous, but not minimally-contrastive environments with /m, n, n/.

(1) The phoneme /p/ contrasts with /t č k q v θ s l h m n ŋ w y r/ as follows:

p/t--/páp/ potato: /táp/ sole: /tát/ thorn

p/č--/púl/ wet: /čúl/ blow

p/k--/pá/ human: /ká/ who; /páp/ potato: /pák/ boil

p/q--/páv/ bake: /qáv/ call

p/v--/pá/ human: /vá/ this; /páp/ potato: /páv/ bake

p/θ--/pá/ human: /θá/ that one previously mentioned

p/s--/pá/ human: /sá/ rotten

p/l--/páp/ potato: /láp/ hit: /táp/ sole: /tál/ father

p/h--/pá/ human: /há/ water

p/m--/pá/ human: /má/ eat; /táp/ sole: /tám/ throw away

p/n--/páí/ all: /náí/ pine pitch

p/ɲ--/pá/ human: /ɲá/ I

p/w--/pá/ human: /wá/ house

p/y--/pá/ human: /yá/ this

p/r--/páp/ potato: /pár/ easy

(2) The phoneme /t/ contrasts with /p č k q v θ s l h m n ɲ w y r/ as follows:

t/p--see above.

t/č--/tá/ grind: /čá/ pour

t/k--/ták/ (to) tear: /kák/ not at all; /pút/ hat: /púk/ first

t/q--/táv/ very: /qáv/ split; /pút/ hat: /púq/ spill

t/v--/tá/ grind: /vá/ this; /tát/ thorn: /táv/ very

t/θ--/tá/ grind: /θá/ that one; /hát/ dog: /háθ/ saw

t/s--/tá/ grind: /sá/ rotten

t/l--/táv/ very: /láv/ prickly-pear cactus; /pút/ hat: /púl/ wet

t/h--/tát/ thorn: /hát/ dog

t/m--/tát/ thorn: /mát/ earth; /hát/ dog: /hám/ see

t/n--/tál/ father: /nál/ fall; /hát/ dog: /hán/ good

t/ɲ--/tál/ father: /ɲál/ (to) swallow; /mát/ earth: /máɲ/ flop

t/w--/táv/ very: /wáv/ ten

t/y--/ták/ (to) tear: /yák/ lie down

t/r--/tát/ thorn: /tár/ up

(3) The phoneme /č/ contrasts with /p t k q v θ s l h m n ɲ w y r/ as follows:

č/p, č/t--see above.

č/k--/čúl/ blow: /kúl/ rabbit; /píč/ leave:/pík/ die

č/q--/čáv/ fight: /qáv/ split

č/v--/čá/ pour: /vá/ come

č/θ--/čí/ fish: /θí/ drink; /kwáč/ side: /kwáθ/ yellow

č/s--/čám/ throw away: /sám/ scram

č/l--/čám/ throw away: /lám/ mash; /píč/ leave: /píl/ burn

č/h--/čá/ pour: /há/ bitter

č/m--/čúl/ blow: /múl/ name; /kwáč/ side: /kwám/ spoon

č/n--/čám/ throw away: /nám/ sew; /kwáč/ side: /kwán/ kill

č/ɲ--/čá/ pour: /ɲá/ road; /kwáč/ side: /kwáɲ/ transparent

č/w--/čí/ fish: /wí/ do

č/y--/čít/ mother: /yít/ intend; /čám/ miss: /yám/ go

č/r--/píč/ leave: /pír/ full

(4) The phoneme /k/ contrasts with /p t č q v θ s l h m n ɲ w y r/ as follows:

k/p, k/t, k/č-- see above.

k/q--/káv/ crack: /qáv/ split

k/v--/ká/ who: /vá/ this; /pák/ boil: /páv/ bake

k/θ--/ká/ who: /θá/ that one; /kwák/ deer: /kwáθ/ yellow

k/s--/ká/ who: /sá/ rotten

k/l--/káv/ crack: /láv/ prickly-pear cactus; /pík/ die: /píl/ burn

k/h--/ká/ who: /há/ water

k/m--/kúl/ rabbit: /múl/ name: /kwák/ deer: /kwám/ spoon

k/n--/kó/ hold: /nó/ heavy; /kwák/ deer: /kwán/ kill

k/ɲ--/kúr/ already: /ɲúr/ mail; /kwák/ deer: /kwáɲ/ transparent

k/w--/káv/ crack: /wáv/ ten

k/y--/kák/ not at all: /yák/ lie down

k/r-- /kwák/ deer: /kwár/ outside

(5) The phoneme /q/ contrasts with /p t č k θ s l h n w y/ as follows:

q/p, q/t, q/č, q/k--see above.

q/θ--/qáù/: break: /θáù/ young

q/s--/póq/ spill: /pós/ cat

q/l--/qáv/ split: /láv/ prickly-pear cactus

q/h--/qáθ/ call: /háθ/ saw

q/n--/qáù/ break: /náù/ carry

q/w--/qáv/ split: /wáv/ ten

q/y--/qáv/ split: /yáv/ beard

(6) The phoneme /v/ contrasts with /p t č k θ s h m n ɲ w y r/ as follows:

v/p, v/t, v/č, v/k--see above.

v/θ--/vá/ this: /θá/ that one; /qáv/ split: /qáθ/ call

v/s--/vá/ this: /sá/ rotten

v/l--/tív/ pregnant: /tíl/ flat

v/h--/vá/ this: /há/ water

v/m--/vá/ this: /má/ eat; /tív/ pregnant: /tím/ brother

v/n--/vám/ here: /nám/ sew

v/ɲ--/vá/ this: /ɲá/ I

v/w--/vá/ this: /wá/ house

v/y--/vá/ this: /yá/ this one over here

v/r--/páv/ bake: /pár/ easy

(7) The phoneme /θ/ contrasts with / p t č k q v s l h m n ɲ w y r/ as follows:

θ/p, θ/t, θ/č, θ/k, θ/q, θ/v--see above.

θ/s--/θá/ that one: /sá/ rotten; /ɲímθáv/ light green, /ɲímsáv/ white

θ/l--/kwáθ/ yellow: /kwál/ want

θ/h--/θá/ that one: /há/ water

θ/m--/θá/ that one: /má/ eat; /kwáθ/ yellow: /kwám/ spoon

θ/n--/θó/ if: /nó/ heavy; /kwáθ/ yellow: /kwán/ kill

θ/ɲ--/θá/ that one: /ɲá/ I; /kwáθ/ yellow: /kwáɲ/ transparent

θ/w--/θá/ that one: /wá/ house

θ/y--/θá/ that one: /yá/ this

θ/r--/kwáθ/ yellow: /kwár/ outside

(8) The phoneme /s/ contrasts with /p t č k q v θ l h m n ɲ w y r/ as follows:

s/p, s/t, s/č, s/k, s/q, s/v, s/θ--see above.

s/l--/sál/ roast: /lál/ rip

s/h--/sál/ hand: /hál/ flash

s/m--/sál/ hand: /mál/ suds; /pés/ money: /pém/ lack

s/n--/sál/ hand: /nál/ fall

s/ɲ--/sál/ hand: /ɲál/ (to) swallow

s/w--/sál/ hand: /wál/ feather

s/y--/sál/ hand: /yál/ under

s/r--/pés/ money: /pér/ intoxicated

(9) The phoneme /l/ contrasts with /p t č k q v θ s h m n ɲ w y r/ as follows:

l/p, l/t, l/č, l/k, l/q, l/v, l/θ, l/s--see above.

l/h--/lá/ moon: /há/ bitter

l/m--/lál/ rip: /mál/ YoSi; /kwál/ want: /kwám/ spoon

l/n--/lám/ mash: /nám/ sew; /kwál/ want: /kwán/ kill

l/ɲ--/lá/ moon: /ɲá/ road; /kwál/ want: /kwáɲ/ transparent

l/w--/láv/ prickly-pear cactus: /wáv/ ten

l/y--/láv/ prickly-pear cactus: /yáv/ beard

l/r--/tál/ flat: /tár/ wrap

(10) The phoneme /h/ contrasts with /p t č k q v θ s l m n ɲ w y / as follows:

h/p, h/t, h/č, h/k, h/q, h/v, h/θ, h/s, h/l--see above.

h/m--/hát/ dog: /mát/ earth

h/n--/hál/ flash: /nál/ fall

h/ɲ--/hál/ flash: /ɲál/ (to) swallow

h/w--/hál/ flash: /wál/ feather

h/y--/hál/ flash: /yál/ under

/h/ also contrasts with/∅/ in such pairs as /hùvák/ mosquito and /ùvák/ awl.

(11) The phoneme /m/ contrasts with /p t č k v θ s l h n ɲ w y r/ as follows:

m/p, m/t, m/č, m/k, m/v, m/θ, m/s m/l, m/h--see above.

m/n--/mál/ suds: /nál/ fall; /kwám/ spoon: /kwán/ kill

m/ɲ--/mál/ suds: /ɲál/ (to) swallow; /kwám/ spoon: /kwáɲ/ transparent

m/w--/mál/ suds: /wál/ feather

m/y--/mál/ suds: /yál/ under

m/r--/kwám/ spoon: /kwár/ outside

(12) The phoneme /n/ contrasts with /p t č k q v θ s l h m ɲ w y r/ as follows:

n/p, n/t, n/č, n/k, n/q, n/v, n/θ, n/s, n/l, n/h, n/m--see above.

n/n--/nál/ fall: /ɲál/ (to) swallow; /kwán/ kill: /kwáɲ/ transparent

n/y--/nál/ fall: /yál/ under

n/r--/kwán/ kill: /kwár/ outside

(13) The phoneme /ɲ/ contrasts with /p t č k v θ s l h m n ŋ w y r/ as follows:

ɲ/p, ɲ/t, ɲ/č, ɲ/k, ɲ/v, ɲ/θ, ɲ/s, ɲ/l, ɲ/h, ɲ/m, ɲ/n--see above.

ɲ/ŋ--/kíɲ/ YoSibling: /kíŋ/ (to) ring

ɲ/w--/ɲál/ swallow: /wál/ feather

ɲ/y--/ɲál/ swallow: /yál/ under

ɲ/r--/kwáɲ/ transparent: /kwár/ outside

(14) The phoneme /ŋ/ contrasts with /ɲ/ as follows:

ŋ/ɲ--see above.

(15) The phoneme /w/ contrasts with /p t č k q v θ s l h m n ɲ y/ as follows:

w/p, w/t, w/č, w/k, w/q, w/v, w/θ, w/s, w/l, w/h, w/m, w/n, w/ɲ--see above.

w/y--/wál/ feather: /yál/ under

(16) The phoneme /y/ contrasts with /p t č k q v θ s l h m n ɲ/ as follows:

y/p, y/t, y/č, y/k, y/q, y/v, y/θ, y/s, y/l, y/h, y/m, y/n, y/ɲ--see above.

(17) The phoneme /r/ contrasts with /p t č k v θ s l m n ɲ/ as follows:

r/p, r/t, r/č, r/k, r/v, r/θ, r/s, r/l, r/m, r/n, r/ɲ--see above.

(18) The phoneme /i/ contrasts with /e a o u/ as follows:

i/e--/í/ say: /é/ give; /pír/ full: /pér/ intoxicated

i/a--/í/ say: /á/ move; /pír/ full: /pár/ leg

i/o--/í/ wood: /ó/ fire; /kí/ YoSibling: /kó/ piñon nuts

i/u--/í/ say: /ú/ see; /míl/ YoSi: /múl/ name

(19) The phoneme /e/ contrasts with /i a o u/ as follows:

e/i--see above.

e/a--/é/ give: /á/ move; /yév/ self: /yáv/ mouth

e/o--/é/ give: /ó/ fire; /ké/ shoot: /kó/ hold

e/u--/é/ give: /ú/ look; many: /tú/ very

(20) The phoneme /a/ contrasts with /i e o u/ as follows:

a/i, a/e--see above.

a/o--/á/ move: /ó/ fire; /ták/ (to) tear: /tók/ take off

a/u--/á/ move: /ú/ see; /mál/ suds: /múl/ name

(21) The phoneme /o/ contrasts with /i e a u/ as follows:

o/i, o/e, o/a--see above.

o/u--/ó/ fire: /ú/ see; /kór/ MoMo: /kúr/ already

(22) The phoneme /u/ contrasts with /i e a o/ as follows:

u/i, u/e, u/a, u/o--see above.

1.3. There are only a few restrictions on the occurrence of single consonants. All consonants occur medially. All consonants except /r/ occur initially, but /ŋ/ occurs initially only in the cluster /ŋw-/. All consonants except /w y h/ occur finally. The syllable types CV, CVC, and VC are by far the most common, but clusters of two and three consonants do occur initially, medially, and finally. The only initial CCC are /θkw-/ and /skw-/, but these often alternate with CV̆CC or V̆CCC, depending on the rhythm-stress pattern. A large number of CCC are possible finally when a major morpheme ending in a consonant followed by a demonstrative suffix /-v/, this, or /ɲ/, that, plus a stop-consonant case ending; however, these are very rare because a demonstrative suffix seldom occurs after a root ending in a consonant unless the suffix is followed by a definitizing suffix /-a/, e.g., /hátɲǎč/, that dog, (nominative case). If the case ending is a nasal or a lateral, it is syllabic after another consonant. Medial CCC are more common than initially or finally, but they are also rare; and when they do occur, there is usually a syllable break between them, nearly always C+CC. Across word boundaries, occassionally a CCCC occurs, but there is always a syllable break between them, usually CC+CC.

Initial CC are of two types: (1) /θ/, /s/, or /h/ followed by another consonant, and (2) /w/ preceded by another consonant. /θ/ clusters with /p t k m n/,

/s/ with all other consonants except /l/ and /h/, and /h/ with /w l m n/. /w/ clusters with /č k s l h m n/. Final CC with no apparent morpheme boundary between them are /-rk/, /-tθ/, /-nθ/, and /-lt/. Roots ending in a consonant plus suffixes beginning with a consonant form many final CC, many of which are not separated by a syllable boundary. Medial CC are very numerous, both those separated by a syllable boundary and those not so separated.

The structure of clusters is conditioned by the rhythm-stress pattern and by the structure of the immediately adjacent syllables. Consonant clusters at word boundaries are broken up by syllabification to a CV or CVC in so far as is possible, e.g., CV CCV is usually syllabified as CVC+CV, and CVC V is usually CV+CV. If a CV prefix occurs before a root beginning with a consonant, the V is usually /ø/ if the prefix is preceded by a word ending in a vowel; but if not preceded by a word ending in a vowel, CV occurs, e.g., /ɲà ɲə́hmi ʃnikwáí/, my husband's shirts, is usually /ɲà ɲə́hmi ɲ+kwáí/, whereas /ʃnikwáí/ after a juncture or a consonant always has a weak-stressed vowel after /ʃ/.

/s/ plus a voiceless vowel could be considered /hs/, but only after /#/ is it really difficult, though not impossible, to tell the quality of the voiceless vowel. Also spectograms of /s/ plus a voiceless vowel show mellowness which is not characteristic of [s].[8] F_2 is quite apparent and sometimes even F_1 can be seen. Also if [s$\breve{V}$] were interpreted as /hs/, this would be the only occurrence of an initial CCCC, i.e., /hskw-/.

All vowels occur initially, medially, and finally. Clusters of two different vowels occur in a single syllable nucleus. Across syllable boundaries, sequences of more than two vowels do occur. The inflectional combinations of stems and affixes make all 20 V_1V_2 possible, but six did not occur in the observed data: /eo/, /eu/, /oe/, /ue/, /ua/, and /uo/. These nuclei are made up mostly of /e/ and /o/, which are statistically much less frequent than /i/, /a/, and /u/.

Certain cluster reductions usually take place in words borrowed from English. Automobile, is /ə́tmopíl/ or /ə́nopíl/. It is not clear to me why this word was not

heard as /ármopíl/. From the way it has been assimilated, it must have been interpreted as [ádamobíl], which would be /átmopíl/ when the first weak-stressed vowel drops out. The change from /tm/ to /n/ is somewhat similar to the morphophonemic change of /km/ to /ŋm/ described in 1.6., but I have seen no case like this in native Walapai words. Vowels in non-prominent syllables are also subject to the Walapai rhythm-stress system, and vowels are dropped out or inserted just as in a Walapai word, e.g., parade, is /pirét/, which is [pIr̥éet], [piréet], or [pr̥éet], and grapes, which is [kIr̥éeps], [kiréeps], or [kr̥éeps].

1.4. Some of the phonemes set up above could be interpreted differently. Palatalization could be considered an SGC. /y/ and /w/ could be set up as allophones of /i/ and /u/ respectively. And /ʔ/, /ə/, and vowel length could be added as additional phonemes, as has been done by others who have worked on the Pai languages.[9] Since Walapai coexists with English, English words are constantly used with a varying degree of assimilation to the Walapai sound system. In order to account for the total system of expanded Walapai, it would be necessary to add at least a postpalatal fricative somewhat like American English /r/ and for some speakers also a palatal fricative /š/.

1.4.1. /č/ and /ɲ/ are not clusters of /ty/ and /ny/ respectively. /č/ is usually [t̥^{š}] and occassionally [t̥^{Y}]. These are palatal throughout and there is no reason to see and SGC here. However, it is interesting to note that English /š/ if not just borrowed unassimilated is interpreted as /sy/. I regard this as the nearest imitative assimilation since the /s/ is clearly dental and not palatal, even though folowed by palatal /y/, whereas /č/ and /ɲ/ are definitely palatal throughout.

1.4.2. /y/ and /w/ could be considered as non-syllabic allophones of /i/ and /u/ respectively in the environment before another vowel; but if this were done, vowel length would have to be made phonemic because length would occur in non-primary-stressed syllables and would be unpredictable. This would also give a very skewed distribution having /ii/ and /uu/ in both primary-stressed and non-primary-stressed syllables, whereas /ee/, /aa/, and /oo/ would occur only in

primary-stressed syllables, and length could be predicted for /e/, /a/, and /o/, but not for /i/ and /u/. Also this would give a new cluster type of $V_1V_1V_1$ in a single syllable, e.g., /yí/, start, would then be /iíi/. Also since vowel length would have to be made phonemic, two cluster types $V_1V_1V_2$ and $V_1V_2V_2V_3$ would occur in words such as /yiwə́i/, heart, which would then be /iiuə́i/. Making length phonemic would also make almost every word one or more phonemes longer.

1.4.3. Glottal creakiness is an important and pervasive phonetic feature. Glottal tension is much greater than in English; and toward the end of an utterance as the pressure of the air stream lessens, the creakiness becomes more and more evident. Glottal creakiness and stress account for the glottal stops that occur almost anyplace in an utterance. Anyplace there is a juncture, a consonant or vowel release, a change of rhythm, or a lessening of the pressure of the air column, a glottal stop is likely to occur. In a slow utterance, and especially toward the end of the utterance, a vowel may be very creaky and contain several glottal stops. Perhaps it would be better to call this type of vowel a glottalized vowel. Neither glottal stop nor glottalized vowels are phonemic since there is never a contrast and there is always an allophonic variant equivalent without the glottal component. In the discussion of the phonetics below, there is a discussion of how stress also conditions glottal stop.

1.4.4. There is never a contrast between [ə] and another vowel. [ə] never occurs under primary stress. All vowels have central allophones; and all vowels except /i/ have very central allophones. When under weak stress, vowels are very short, i.e., one-half mora. A stressed /ə́/ in a word borrowed from English is interpreted in Walapai as /á/, e.g., /tirə́k/, truck. The only reason I can see that /ə/ has been posited for Walapai is that the researchers have been speakers of English. This is discussed in detail in the phonetics section below.

1.4.5. Vowel length is conditioned by the alternating-stress system, but phonetic vowel length has a very complex distribution. Because of this complexity, it looks at first blush as though vowel length is phonemic. Making vowel length

phonemic creates more problems than it solves because each major morpheme then has a long and a short shape which occur in totally unpredictable distribution. Seiden commented on this alternation of long and short shapes for Havasupai and suggested that possibly "length in connected speech may act similar to features, say stress, for which there are no minimal contrasts in connected speech." [11] This whole problem disappears when it is seen that vowel length is not phonemic.

1.4.6. Vowel overlength is an expressive feature indicating intensity. If length were considered phonemic, an infinite series could be set up something like the following: /líl/, rip, /lííl/, rip up, /líííl/, rip to pieces, /lííííl/, rip to shreds, etc. Overlength is quite common, much more so than in English. Overlength is so common that I have set it up as an operator; but since it is a continuum and could be segmented only by making completely arbitrary cuts, it is an expressive feature and not a phoneme in the usual sense.

1.4.7. /r/ in words borrowed from English is often assimilated to Walapai flap /r/; but after a stop in words such as /tirâk/, truck, there is a postpalatal fricative, usually voiceless, and in English words beginning with /r/ there is a sound which is phonetically very similar to English /r/. Since Walapai /r/ never occurs initially, expanded Walapai could now be considered to have /r/ in initial position, and the above sounds would be the new initial allophones of /r/. Post-vocalically, then, /r/ would have these new allophones which would vary freely with flap /r/ in this position. Or a new postpalatal fricative phoneme could be added to the inventory. The problem of borrowings with English /š/ is discussed in 1.4.4.

1.4.8. Another new sound, a simultaneous /m̂/, is quite common as a result of contact with English. Kingman, Arizona, is the countyseat of Mohave County and the center on which the Walapai depend for a large part of their supplies and services. When the inner-locative suffix /-l/ is suffixed to Kingman, the forms /kíŋm̂âl/ and /kíŋm̂ì/, to/in Kingman, often occur; but equally often the forms /kíŋnâl/ and /kíŋnì/ occur without the labial component and with the same meaning.

1.4.9. Kroeber suggested that possibly /k^{w}/ would also turn out to be a Walapai

phoneme since /k^{w}/ is a frequent Yuman phoneme and since [k^{w}] does occur in Walapai.[12] But /kw/ is a cluster in Walapai. There is never a contrast between a /k^{w}/ and /kw/. The alternation which Krober observed is conditioned by the rhythm-stress system and is predictable as described in the phonetics section.

1.5. The Walapai phonemic system is quite asymmetrical, and not much can be done to make it seem more symmetrical. The empty slot for the velar fricative could be filled by /h/ since /h/ is sometimes [x] before /á/; but this velar phoneme of /x/ would have little relation to the phonetic reality in the large majority of its occurrences. It would make just as much and as little sense to set up another palatal fricative since /h/ also occurs before /i/.

/l/ is a dental fricative, but a separate lateral column under dental is still just as asymmetrical as a separate lateral column.

Alveolar /r/ just isn't palatal. It could be considered a dental since after the flap takes place the apex often hits the back of the upper teeth; but as in the case of /h/ with velarity, dentality is a marginal feature of /r/.

1.6. Except for the length harmony in vowels, there is very little morphophonemic change in Walapai. It is better to discuss length harmony in the phonetics section for a number of reasons. There are a few automatic changes that regularly take place both within and across word boundaries.

1.6.1. /k/ followed by /m/ is nearly always /ŋm/, but now and then is /kp/, [kb], e.g., /káŋ mímtóp/, Don't cry. /kák/, not at all, is the form that occurs in most environments. /k/ followed by /ɲ/ is also /ŋ/, e.g., /wáyiŋ ɲínwám/, If you sit on the chair. /wáyik/, on the chair, occurs usually.

There are many occurrences of /k/ to /ŋ/ before /m/ and /ɲ/, but in all my data there is only one occurrence of /č/ to /ɲ/ before /m/, /hánmiɲ | má/, It is/ They are good, there! The utterance occurs twice on the tape, and the first time it has /hánmiǐč/, but the repetition has /ɲ/ as given above. (/má/, means There!, i.e., You asked me and I told you.) However, this example is somewhat suspect because /|/ occurs between the two words, and automatic morphophonemic change doesn't operate

across juncture.

1.6.2. /ɲ/ followed by /w/ is regularly /ŋw/, e.g., if the weak-stressed vowel of /ɲiwá/, he, that one, does not occur because of the stress pattern, then /ŋwá/ is the form that occurs.

1.6.3. In the environment before /č/, I cannot tell whether there is a contrast between /t/ and /č/. Before another /č/, /č/ is usually an unreleased palatal stop [$t^{y'}$], i.e., for /čč/ there is just one stop, but the stop component is long. If /t/ occurs before /č/, it seems to me that the resulting cluster is also [$t^{y'}$č/.

1.6.4. /č/ plus /y/ is usually just /č/. Likewise /ɲ/ plus /y/ is usually just /ɲ/. Also I cannot tell /yy/ from ambisyllabic [y] on either side of primary stress. These elisions cause a number of problems which will be studied in the morphology.

1.7. The difficulties in interpreting the phonetics of Walapai have been well known since Kroeber. He found that of all the Yuman languages, Walapai consonants were the most difficult and that the vowels were the most slurred and variable in quality.[13] For the first few weeks I worked on Walapai, I had the same difficulty as Kroeber with the consonants because in citation forms and certain other environments a consonant usually does not vary in voicing. But when a morpheme is seen in a number of environments, it is clear that there is no voiced vs. voiceless series of consonants. The main reason that the reduced, slurred, or variable vowels have been such a problem is that Walapai has no central vowel phoneme of /ə/, but all phonemes except /i/ do have central allophones, and the inner or central boundaries between these phonemes is exceedingly different from English.

1.7.1. Stops are usually voiceless but are often voiced. Voiced stops are common between a vowel with primary stress and either another vowel or a voiced consonant. Stops are not usually aspirated but are sometimes slightly aspirated on either side of a vowel with primary stress; however, this is more a fortes release than aspiration. Vowels with weak stress are often voiceless, and this could be interpreted as aspiration, but the vowel quality is still evident though voiceless. All stops have both released and unreleased allophones. Released stops are by far the most

common, but unreleased stops often occur finally, before another stop, and before /+/. After primary stress all single consonants except /r/ are ambisyllabic if not preceded or followed by juncture, but an ambisyllabic consonant is not as long as a long or double consonant.and cannot be split by /+/ as can a long or double consonant. An ambisyllabic stop does not have a fortes release. All stops are slightly rounded before back vowels. Little else needs to be said about stops in general.

1.7.2. /t/ is almost always a dental but occassionally is alveolar. The dental release may sound somewhat like /θ/, but the released dental allophone of /t/ is quite distinguishable from the cluster /tθ/.

1.7.3. /č/ is most commonly an affricate; but if not preceding a primary stressed vowel, it is often a palatal stop, [$t^{y}_{\bullet}$] or [$d^{y}_{\bullet}$]. In the environments given above for unreleased stops, /č/ is also an unreleased stop.

1.7.4. /k/ is velar including before front vowels and /y/. /k/ is rounded before /w/. Before a voiceless vowel that is followed by /w/, /k/ is also usually rounded; but before a voiced vowel with weak stress that is followed by /w/, /k/ is not usually rounded.

1.7.5. The bilabial, palatal, and lateral fricatives are usually voiced except when final and after /h/. These fricatives are also usually voiceless in certain limited environments: /v/ before voiceless stop; /w/ and /y/ after a voiceless stop; /l/ after /#/. Before /#/, /l/ is also occassionally a flap. The dorsum of the tongue is lowered while the blade of the tongue is held, and then the blade is flapped, giving [ɬ̥ɾ̥]. /l/ is both a voiced and voiceless syllabic under weak stress.

1.7.6. The dental and glottal fricatives are usually voiceless, except that /θ/ is very often voiced intervocalically and between a voiced consonant and a vowel. /θ/ is interdental, but the apex of the tongue often touches the back of the upper lip. For some speakers /θ/ is also interlabial, and the air is blown through a slit under both the upper teeth and the upper lip. The kinetics involved in making an interlabial /θ/ necessarily take a few hundredths of a second longer than most sounds, but this is not a cluster.

1.7.7. The opposition oral vs. nasal does not obtain for /h/ since /h/ has nasal allophones in the environment before a nasal, /h/ then is a fricative onset, usually voiceless, made in approxiamtely the same position as the following vowel or consonant. [h] also occurs as a fricative coda or release, usually voiceless, before juncture; but there is never a contrast between final [h] and another consonant or /ø/. Final [h] then is a feature of juncture.

1.7.8 Nasals are nearly always voiced except sometimes when final or after /h/. Nasals are also syllabics with weak stress when a weak-stressed vowel drops out before them as required by the rhythm-stress system. Krober thought that Walapai had no /ŋ/,[14] but this is quite understandable since one could have a corpus of several thousand words and probably still would have no /ŋ/ if the right second-person verb forms didn't happen to occur. Probably the easiest, though not infallible, way to elicit this morpheme and phoneme is to ask a question beginning with, Did you...?[15] As attested in 1.2.13., except for the onomatopoetic /kíŋ/, a small bell, vs. /kíɲ/, younger sibling, /ŋ/ has to be set up by analogous environments and lack of predictability.

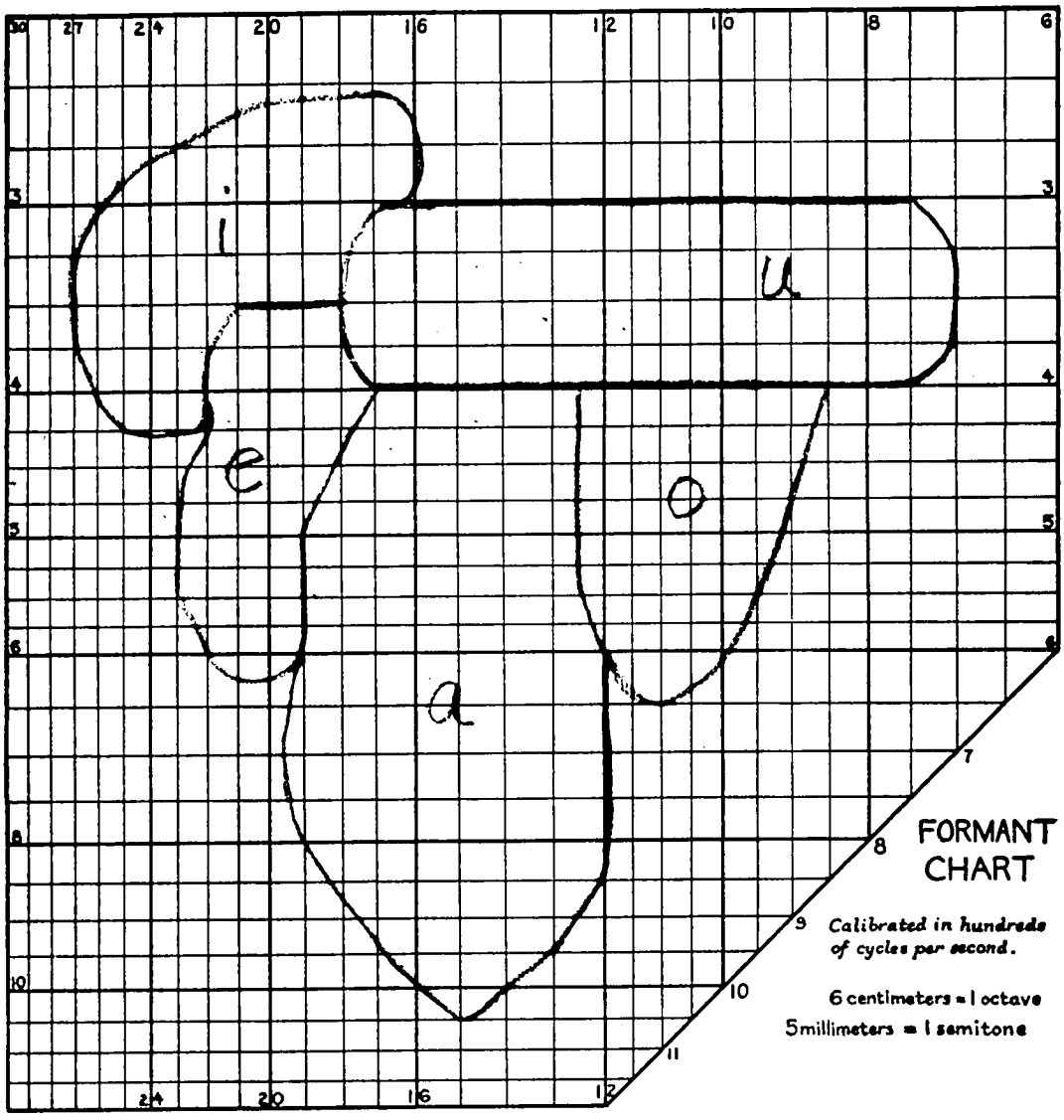
1.7.9. The retroflex alveolar flap /r/ is voiced except sometimes before a voiceless stop. Occassionally the release of the flap cannot be heard before a voiceless stop. If there is no release, then /r/ has as one of its allophones a retroflex alveolar voiceless unreleased stop.

1.7.10. The five Walapai vowels have an especially wide range of allophones. The vowel triangle is quite compact, and there are very many centralized allophones. This is shown quite clearly on the accompanying vowel chart. The chart is based on more than 200 vowels on spectograms and their corresponding interpretations by ear. The most striking feature of the chart is the allophones of /a/ which occupy the very center of the chart.

1.7.11. This centralization is very common for /u/. After /y/, /u/ has a front and central [ʉ] with and F2 of about 1600 or 1700 c.p.s., but in other environments /u/ seldom has an F2 of more than 1200 c.p.s.

1.7.12. Except for the lower front allophones of /u/, /a/ occupies the entire

WALAPAI VOWELS



center of the vowel triangle. When transcriptions of 92 occurrences of what were previously heard and transcribed by ear as /a/ were compared with spectograms, it was found that 17 had an F1 at 600 c.p.s., 43 at more than 600 c.p.s., and 32 at less than 600 c.p.s. That is to say that more than 34°/o of the sample have an F1 of less than 600 c.p.s. and fall in the very center of the vowel triangle. If those occurrences at 600 c.p.s. are added to these, then it is even more striking because 49 occurrences or more than 53°/o of the sample fall into the most central part of the vowel triangle. A comparison of the Walapai vowel chart with one for English shows that Walapai /a/ has degrees of tongue height and front-backness which correspond to tongue positions of all English vowels except /i/. This great overlap of the phonetics of the systems of the two languages, it seems to me, has been one of the two main reasons it has been so difficult for speakers of English to set up a Walapai vowel phonemicization. The other reason is that vowels with weak stress are the most centralized and have half-mora length in certain stress patterns. A speaker of English is bound to hear these short, weak-stressed, central vowels as [ə] until he learns to divide his English /ə/ into at least four different parts, which is no small task.

1.7.13. /e/ and /o/ are also quite central. The upper half of /e/ occupies much the same area as English /i/, but both English /iy/ and /i/ are heard in Walapai as /i/, e.g., /čím/, Jim; and English /ey/ and /e/ are both borrowed into Walapai as /e/. But English /ow/, /o/, and /u/ occur in Walapai as /o/, e.g., /pól/, ball, and /pós/, cat; and only English /uw/ becomes /u/ in Walapai. English /a/, /æ/, and /ɔ/ are all interpreted as /a/ in Walapai.

1.7.14. Primary-stressed vowels not preceded by a consonant are precededby [ʔ], except that medially [ʔ] alternates with open transition, e.g., /saár/, buy, is [sǎʔár], [sǍʔár], [sǎ+ár], or [sǍ+ár], or according to the stress rules given below also /sár/, [sár].

Before juncture a primary-stressed vowel, which is not followed by a consonant, is followed by [ʔ]. Final [ʔ] may be released or followed by [h] or by an echo

vowel (voiced or voiceless) plus [h] as the stress pattern requires. Final non-primary-stressed vowels are most often voiceless, or if voiced, become voiceless if phonetically long.

1.7.15. Walapai is stressed timed, i.e., the primary stresses occur at regularly-timed intervals in a sentence. There may be no syllable or several non-primary-stressed syllables between two primary-stressed syllables, but the amount of time between the primary stresses is still the same. Usually each syllable of a word that has primary stress in citation form also has primary stress in a sentence. Except in syllables which are already phonetically long, a primary-stressed vowel has two morae of length. This length is phonetic and non-contrastive. The total length of all syllables between two primary-stressed syllables is also two morae except in the two rhythm-stress patterns which have only one mora between primary-stressed syllables. If there is too much length between primary-stressed syllables, weak-stressed vowels are only a half mora or [ø]. If all weak-stressed vowels are [ø] and the remaining secondary-stressed vowels would total more than two morae if each had one mora of length, then two or more of the secondary-stressed vowels are one-half mora. If there is too little length, one or more /+/ are added.

It is perhaps more accurate to describe this as an alternating-stress system in which the beat falls on every other equal-length unit, i.e., a long primary-stressed unit alternating with a non-primary-stressed unit which, though made up of more than one syllable is equal in morae to the primary-stressed unit. The most common pattern is a long primary-stressed syllable and two short secondary- and/or weak-stressed syllables, i.e., [-́ ̆ ̆ -́ ̆ ̆ -́ ̆ ̆]. Another pattern is a two-morae primary-stressed syllable followed by either a one-mora secondary-stressed vowel plus two half-mora weak-stressed vowels or, just the reverse, two half-mora weak-stressed vowels plus a one-mora secondary-stressed vowel. As suggested in the preceding paragraph, there are several other ways of making up the required mora length in the non-primary-stressed unit.

There are some other slightly different patterns, but they are all stress-timed

and with an alternating beat. Some other patterns are: a two-morae primary-stressed syllable alternating with /+/, a two-morae primary-stressed syllable alternating with a one-mora non-primary-stressed syllable, and a one-mora primary-stressed syllable alternating with a one-mora non-primary-stressed syllable. These last two patterns probably occur in rapid-fire conversation more often than anywhere else.

If the primary-stressed vowel is followed by a voiced continuant, the syllable is already phonectically long, and the primary-stressed vowel then has only one mora of length though the syllable has two. Before certain voiced consonants and certain clusters, including voiceless clusters, a primary-stressed vowel has only one mora of length, and the rest of the required length is made up by the consonants; but at the present time I cannot give an exhaustive listing of these. A primary-stressed vowel, especially if not followed by a stop consonant, may have one mora of length plus [ʔ] plus an echo vowel to make up the two morae, but this structure alternates freely with a two-morae primary-stressed vowel in this environment.

The slot between primary stresses I call a rhythm-stress frame, and the structure of a pattern occurring in this slot I call a rhythm-stress pattern. An utterance may begin anywhere in a rhythm-stress pattern with any part of a rhythm-stress pattern, i.e., an utterance may or may not begin with a primary-stressed vowel; but an utterance must end at the end of a rhythm-stress frame and at the end of a rhythm-stress pattern, i.e., silence begins on what would be the next primary stress and the beginning of the next frame and pattern. If there are not enough syllables in the last frame of a sentence to fill out the frame and pattern, a voiceless allophone of the last phoneme is held to fill out the frame and pattern. If the last phoneme is a continuant, voiceless friction of the appropriate length occurs; but if the last phoneme is a stop, the stop may be released immediately and voiceless friction of the appropriate length occurs or the stop may be held and then released at the end of the frame and pattern.

After any juncture the rhythm-stress pattern may continue the same or shift to another rhythm-stress pattern. In a long sentence, the rhythm-stress pattern

may change several times. But the rhythm-stress pattern reoccurs in succeeding rhythm-stress frames in so far as possible, i.e., the rhythm-stress pattern of the first frame in a sentence seems to have a long component or prosodeme which conditions the rhythm-stress pattern in succeeding frames; and if the rhythm-stress pattern does change within a sentence, the new pattern then has progressive morphophonemic influence on succeeding frames. The speed of speaking seems to influence the choice of the first rhythm-stress pattern, but the most important factor seems to be the structure of the first rhythm-stress pattern in isolation.

The following is an utterance and its immediate repetition from R23.5.[16] /yéktm ɲà mánm há čipák vàtvòkúɲ #/ vs. /yéktm ɲà mánm há čpák vàtvòkúɲ #/, When I got up this morning, we had water again. The only phonemic differences are: /há/, water, has primary stress in the first occurrence, but /hà/ has secondary stress in the repetition; and the weak-stressed vowel of /čipák/ occurs in the first example, but is not present in the second. The two occurrences of the sentence have the same rhythm-stress pattern throughout, [ˊ- - -], but the first occurrence is one rhythm-stress pattern longer than the repetition. The difference between [ˆ] and [-] does not enter into the morphophonemics. The phonetic differences in these two occurrences of the same utterance illustrate quite well the automatic morphophonemic changes which the rhythm-stress patterns condition.

It is easier to see these changes in the following diagram.

[yéektm ɲà máɣm aháa + čipáak vàtvòkúɲ hh] vs. [yéektm ɲà máɣm hà čpáak vàtvòkúɲ hh]

[ˊ- - ˆ ˊ-- - ˊ- - - ˊ- ˆ ˆ ˊ- --] vs. [ˊ- - ˆ ˊ-- ˆ ˊ- ˆ ˆ ˊ- --]

[1 | 2 | 3 | 4 | 5] vs. [1a | 2a | 3a | 4a]

(In this diagram only, the vertical bar is used to mark the boundaries between rhythm-stress patterns, and it does not here represent the phoneme /|/.) Frames 1 and 1a are identical. Also except for following frames of different phonetic make-up frames 4 and 3a are identical, and so are 5 and 4a. /há/, water, in isolation is /há/, [háahh], or /aha/, [aháahh]. Any major morpheme may be emphasized by de-emphasizing another major morpheme by giving it secondary stress. In the first

example, the statement is matter of fact that the water was running, but in the repetition with /hå/, there is a bit of added emphasis on /čpák/, come out, and the idea is that the water was actually or finally running again. The morphophonemic conditioning of /há/ is different from that of /hå/. In frame 2, the [á] of /mánm/ plus the ambisyllabic [n] make a phonetically-long syllable, which is followed by two phonetically-short syllables [m] and [a] to complete the rhythm-stress pattern. But in frame 2a, [hå] is the second one-mora vowel and completes the pattern. Before a primary-stressed vowel, a weak-stressed vowel nearly always drops if the rhythm-stress pattern permits, hence /čpák/ occurs in the repetition and not /čipák/. If the unstressed [a] before [hå] had occurred, then there would have been three morae in the non-primary-stressed half of the pattern, a non-permissible pattern. Since weak-stressed vowels are the first to drop out, the [a] does not occur. In frame 3, /há/ is a two-morae syllable, but there is only one one-mora vowel before the next primary stress. Consequently, /+/ occurs between the words to give the required length. I have not written /+/ in the phonemic transcription above because it is 100 °/o predictable in this environment. As of the present, I have made plus phonemic because I cannot predict all its occurrences. It may turn out to be non-phonemic, but I rather think it is phonemic though some of its occurrences are predictable. The last frame in both occurrences has a long, primary-stressed syllable /kúɲ/, but the pattern must be completed. A two-morae voiceless [N] occurs to complete the pattern. I write [h] or [hh] as a cover symbol for this voiceless friction required to complete the rhythm-stress frame.

In connected speech there is a rapid change from one rhythm-stress pattern to another, so much so that Seiden suggested that vowel length is phonemic in citation forms but not in connected speech.[17] But any phonemic segment can be interpreted phonetically in a number of ways by a speaker, depending on what rhythm-stress patterns he starts with and what junctures he uses to fill out frames with too little length and what vowel and juncture elisions he makes in frame with too much length. As shown in the example above, the same grouping of segmentals can have a larger

or smaller number of primary stresses with consequent differences in the vowels and junctures.

1.7.16. I have strongly resisted seeing English stress and syllable patterns in Walapai, but there are many close parallels. This causes me to wonder whether it would be profitable to set up a typology of stressed-timed languages versus one of syllable-timed languages.

1.7.17. It is difficult to understand why certain Spanish words were apparently reshaped in Walapai because corresponding phones existed in Walapai. /àvón/, soap, is from jabón. The allophone of /h/ before /a/ is often [x] , and one would have expected [xàβón], i.e., /hàvón/. /wàksí/, cow, cattle, beef, from vaca is even more puzzling. There are Spanish dialects in the area that have waca instead of vaca, so it is easy enough to explain the /w/. /wáka/ would be interpreted as /wák/ plus the definitizing suffix /-a/, i.e., the cow, But I have no reasonable explanation for the /sí/. It might possibly be from the diminutive wakiya, little cow; but this still does not explain the /s/. /sí/ means in Walapai to call, name; but since this is a very productive stem, I see no reason why a Walapai should confuse it with part of a new stem in this one word. Also /wàksí/ is a strange word because sometimes it has different primary-stress patterns; both /wáksi/ and /wáksí/ occur. This makes it very suspect as a compound; but no Walapai recognizes the compound, nor can I find a suffix or stem other than /sí/, call, name, with this shape. I have not had the opportunity to study the Spanish dialects of the area or to investigate what changes they have undergone since the first period of colonial settlement. Therefore, I cannot tell if these Walapai borrowings might be explained by borrowings at an earlier date. Also these words were probably not borrowed directly from Spanish since the Spanish settlements were a long way from the Walapai. Probably most, if not all, Spanish words in Walapai were borrowed from other Indians who had previously borrowed them from Spanish. Consequently, there is no way to be certain that changes had not already been made in these words when they were borrowed into Walapai.

1.8. Pitch is by itself not phonemic but serves in part to mark stress and

juncture. Pitch then in Walapai is intonation or sentence tone rather than syllable tone.

1.8.1. A primary-stressed vowel is often higher in pitch than immediately adjacent vowels, but this is by no means always the case. What is heard as stress is a combination of loudness, pitch, and length. One, or even two, of these features may not be present, and stress will still be heard.

Pitch on weak- and secondary-stressed vowels is level except in the last syllable before juncture, in which case it falls. Pitch across phonetically-long, primary-stressed vowels usually falls slightly, but sometimes rather markedly, especially if the primary-stressed vowel has expressive overstress. Even in sentences without overstress, there is at least one most-prominent syllable. This is usually the root syllable of the subject; or if there is no subject independently grammatically marked, the root syllable of the verb.

1.8.2. There are two terminal junctures marked by change in stress, pitch, and voicing. Terminal final statement juncture /#/ is marked by sharp decrease in stress, pitch, and voicing. Except in very short utterances, the last two or three syllables are usually totally voiceless and very low in amplitude. This makes it very difficult to hear the end of an utterance. I have noticed on several occassions that when there wasn't sufficient redundancy in an utterance to give complete clarity that one Walapai if asked to repeat for another Walapai will often use a greater amount of voicing and amplitude on the last few syllables. This difficulty is one of the things Kroeber was talking about when he mentioned slurred, brief whisperings of variable quality.[18]

1.8.3. Statements and questions are distinguished by juncture. Question-final juncture is marked by a slight rise in pitch and amplitude. Also there is no devoicing except the release of the final phoneme. This juncture is written /‖/.

1.8.4. There are two internal or non-final junctures. Series or non-final juncture /|/, has little or no decrease in stress, pitch, and voicing, but is marked essentially by a pause slightly greater than that for /+/.

1.8.5. Internal juncture /+/ is open transition or very slight pause. It occurs within a word and between words. Its occurrence is conditioned by the rhythm-stress patterns, and to this extent it could be considered sub-phonemic; but there are some syllable boundaries and segmental clusters that cannot be predicted if /+/ is not postulated and written.

1.8.6. Winter suggested that a paragraph-final juncture was also needed because /‖/ occurs at the end of a declaratory sentence.[19] However, I don't see the need for this because it seems to me that /‖/ at the end of what could be considered structurally a sentence, marks that this is part of a compound sentence and that the rest of the sentence is still coming.

1.9. There are a few special features which are outside the usual phonemic system. Expressive vowel overlength was discussed in 1.4.6. Overstress is used to focus special attention on an item, to insist upon the validity of a statement, or to indicate emotional involvement with the thing being discussed. But like overlength, overstress is a continuum which can be quantified only in a completely arbitrary fashion and is outside the regular phonemic system.

1.9.1. There are many onomatopoetic words. Some are quite obvious, e.g., /tàltál/ blow a horn or trumpet, /číθ/, sneeze, /kíŋkíŋ/, ring a small bell, /kólkól/, ring a large bell, /wówó/, bark like a dog, /áá/, howl like a coyote. Others are less obvious, e.g., /kátét/, wagon, (sounds like a creaking wagon wheel when said with Walapai glottal creakiness), /kiám/, shoot a gun, /hwí/, smell, and /míŋmík/, crying.

1.9.2. There is one non-phonemic feature that greatly changes the phonetics of Walapai. Walapai point with their lips while speaking. This protruding of the lips and turning them up, down, or to the side in order to point at something being talked about greatly changes the size and shape of the lip orifice; and consequently, the speech sounds are quite different under these conditions, especially the vowels. However, though this pointing is done with the lips and perhaps also with the chin, it is a part of the cultural setting in which the language is used and is no more, but no less, a part of the language than pointing with the hands would be.

FOOTNOTES

1. The name Walapai has been spelled in a great variery of ways. It is spelled Hualapai on the records of the Bureau of Indian Affairs and the Hualapai tribe. In most anthropological and linguistic literature, it is spelled Walapai. For a listing of the various spellings, see The Walapai Papers, p.3.

2. Kroeber, A.L., Classification of the Yuman Languages, p.21, (1943). Edward Sapir in 1929 classified Yuman as belonging to the Esselen-Yuman branch of Hokan and Hokan as belonging to the Hokan-Coahiltecan branch of Hokan-Siouan in an article in the Encyclopaedia Britannica, 14th ed., 5:138-44, reprinted in Mandlebaum, Selected Writings, pp.169-79. This classification was also reflected in the first Voegelin Map of North American Indian Languages, in 1944. In 1964 Yuman was listed as a family in the Hokan phylum as differentiated from the Siouan Macro-phylum by Voegelin in Anthropological Linguistics 6:6:12, 13, 105, 111. This listing was also adopted by the Conference on American Indian Languages at Indiana University in 1964 and is reflected in the second Voegelin map now (spring 1965) in press.

3. Also noted by Biggs, Bruce, Testing Intelligibility Among Yuman Languages, IJAL 23:2:62 (1957) and Winter, Werner, Yuman Languages I: First Impressions, IJAL 23:1:20 (1957).

4. Biggs, op.cit., p.61.

5. The Walapai Papers, p.244, quoting a U.S.Army survey dated June 30, 1830. Same information given me privately and independently by Mrs.J.P.Anderson, Immanuel Mission, Valentine, Arizona, who has been a missionary among the Walapai since 1916, and by Suim Fielding, son of the last Walapai [redacted].

6. The Walapai Papers, pp.96, 106-8, 142-6, and Spicer, Edward H., Cycles of Conquest, pp.271-2. In the early 1860's Anglo cattlemen began moving into Walapai territory. The Walapai resisted and serious fighting broke out. In 1866-67 the Army carried out a campaign against the Walapai and fighting ceased. By 1871 most Walapai were living on a military reservation near what is now Peach Springs. In 1874 the Walapai were taken to the Colorado River Reservation, but conditions were so bad that they ran

away back to Peach Springs. They were rounded up and brought back to the Colorado River Reservation but escaped again and went back to Peach Springs. They were allowed to remain there, and the Hualapai Reservation was established by Presidential executive order in 1883.

7. Personal communication dated October 26, 1964, from Wesley T.Bobo, Superintendent, Truxton Canyon Subagency, Valentine, Arizona. Of this 847, 410 live at Peach Springs, 12 at Big Sandy, and 425 live off the reservation. These breakdowns calculated also with the help of information supplied to me by phone by Dorothy Van Roebel, Bureau of Indian Affairs, Washington, D.C., October 19, 1964.

8. Cf. Jakobson, Fant, and Halle, Preliminaries to Speech Analysis, p.47.

9. Seiden, W., Phonology and Morphology of Havasupai, p.3,

10.Madigan, R., private communication concerning Yavapai.

11. Seiden, op.cit., pp.84-85.

12. Kroeber, op.cit., p.30.

13. Kroeber, op.cit., pp.24 and 34. Walapai pronunciation is exceedingly slovenly.After hearing Walapai for nine weeks, I still wrote vowels variably, and some consonants too. The stops are made with unusually little breath, possibly also are voiced during part of their duration. I heard b, d, g, gw, and G (velar g) almost interchangeably with p, t, k, kw, q. In all other Yuman languages a few hours of acquaintance serve to establish a single phonemic series. Unaccented vowels tend to be slurred in quality in all Yuman languages. This is most marked, in so far as I know, in Walapai, where many initial, medial, and final vowels are reduced to brief whisperings or surd echoes, and these often seem definitely variable in quality.

14. Kroeber, op.cit., p.33.

15. This was first suggested to me by William Seiden in 1959.

16. The corpus on which this analysis is based is on magnetic taperecordings, copies of which are in the Archives of Languages of the World, Indiana University. The first number after the 'R' refers to the number of the taperecording, and the second number refers to the page number of the transcription of the tape.

17. Seiden, op.cit., pp.84-85.

18. Kroeber, op.cit., p.34.

19. Winter, Werner, Plateau, 34:4:114 (1963).

2.1. Major morphemes

2.2. Minor morphemes

2.3. Stem formation

2.1.1. Walapai has three major morpheme classes: verbs, nouns, and particles. Divisive for verbs are the closing verb suffixes /-wi/ and /-yu/, e.g.,/makwáŋwi/, you are speaking, is marked as a verb by the suffix /-wi/, and /kwíɲθikyu/, it is soft, is marked as a verb by the suffix /-yu/. /-wi/ and /-yu/ are weak-stressed by-forms of /wí/, do, and /yú/, be, repectively. These weak-stressed by-forms occur only as verb suffixes.

2.1.2. A noun may be formally defined as a word which may occur with the oblique case endings plus or minus the definite suffix /-a/, but with no other affixes, e.g., in /wílak/, by/toward the bush, /wílal/, in(to) the bush, and /wílam/, (away) from the bush, /wíl/, bush, plant, is marked as a noun by the definite suffix /-a/ and the oblique case endings /-k/, /-l/, and /-m/ since there are no other suffixes. Verbs also have suffixes with the same shapes and meanings as the oblique case endings, but other affixes also occur obligatorily with theses suffixes when they occur with verbs.

2.1.2.1. A noun may become a verb by the addition of a closing verb suffix, e.g., in /θíkyu/, it is salty, /θí/, salt, becomes a verb by the addition of the closing verb suffix /-yu/. It also has the third person subject suffix /-k/. Other examples are: /ɲáč ɲikwáivyu/, I am putting on/wearing a shirt, and /ɲáč hóvyu/, I am putting on/wearing a dress, in which /ɲikwáí/, shirt, and /hó/, dress, become verbs by the addition of the closing verb suffix /-yu/. The locational suffix /-v/ indicates that the action or state is in very close proximity to the speaker. /ɲáč/, I (nominative case), is the subject.

2.1.3. Particles may be formally defined in two ways: (1) an invariable word; and (2) a word that may occur with or without the intensive prefixes /ɲi-/ and /vi-/ but with no other affixes. Invariable does not necessarily mean monomorphemic, e.g., the interjection /ópo/, no, has two morphemes /ó/, not, and /-p/, yet, and the adverbs

of place also have two morphemes, e.g., /yé/, here, has /y-/, close to speaker, plus /-é/, place. The adverbs of place also take /ɲi-/ and /vi-/, e.g., /ɲiyé/, right here, and /ɲiviyé/, just right here, Particles are few in number and may be listed. They may be divided into four subclasses, according to their function in a sentence. These subclasses are interjections, adverbs, possessive pronouns, and articles. Numerals are verbs which may become nouns. Interrogatives of place are adverbs, but other interrogatives are pronouns.

It is tempting to classify /kák/, not at all, and /ɲím/, then, when, as particles because they are invariable and occur in various slots in a sentence like a particle. But /kák/ is /ká/, indefinite or unknown person or thing, plus the allative-adessive case suffix /-k/, which is the usual way of forming the partitive, and means (some) of it; and since /kák/ always occurs with a negative verb, it therefore means none at all, not any, never, /ɲím/ looks even more like a particle, but since the regular way of forming temporal modifiers is /ɲi-/ plus a stem meaning time plus the ablative-adessive case ending /-m/, e.g., /ɲiókm/, in/during the morning, is /ɲi-/ plus /yók/, early, morning, plus /-m/. /ɲím/, then, literally, of it from, has therefore a zero stem and means some unspecified time other than (i.e., away from) the present in either the past or future.

2.1.4. It is very common for words to change from one class to another. Nouns and particles become verbs by the addition of a verb closing suffix. Verbs become nouns by the addition of a case suffix , an instrument suffix, a location suffix, or an agentive-participial prefix. Nouns and verbs never become particles. However, since a noun with the vocative ending is an absolute construction, such a noun could be considered a particle.

2.1.4.1. Verbs may become nouns in four ways. It is very common for a verb to take a case ending, e.g., /yámčam/, during the trip, is the verb /yám/, leave, go away, plus the distributive suffix /-č/, indicating that the action will take more than just a short period of time, plus the definite suffix /-a/ and the ablative-adessive case ending /-m/. Since it is so common for words to change classes and

since all of the noun morphology also occurs with verbs, it is sometimes difficult, if not impossible, to decide whether a given word is a noun or a verb. Verbs have suffixes of the same shapes and meanings as the case endings indicating location and/or direction, e.g., the /-m/ of /yám/, leave, go away, has the same shape and meaning as the noun ablative-adessive case ending; and since suffixes of the same shapes and meanings as case endings are also suffixed to verbs after the closing suffixes to mark clause relationships, the /-m/ to mark coordinate clauses and the /-k/ to mark subordinate clauses, the distinction between nouns and verbs is extremely blurred.

2.1.4.2. A verb may become a noun by the addition of the instrument suffix /-í/, which means an instrument or tool with which to do verbing, e.g., /yúsámí/, eyeglasses, from /yú/, eye, and /siám/, close, cover, and /wáí/, chair, from /wá/, live, sit.

2.1.4.3. A verb may become a noun by the addition of the location suffix /-ó/, meaning place where verbing is done, e.g., /kwáncó/, slaughter house, from /kwán/, kill, and /yákó/, bed, from /yák/, lie on/at. The distributive suffix /-č/ often occurs with the location suffix since an activity is often repeated at the same place.

2.1.4.4. A verb may also become a noun by the addition of the agentive-participial prefix /ki-/, meaning the one that does verbing or the one that is characterized by verbing, e.g., /kiθié/, doctor, healer, from /θié/, heal, cure, and /kiqéč/, the little one, from /qéč/, be small in size.

2.2. Minor morphemes in Walapai are affixes and operators. There are four operators: reduplication, overlengthh, compounding, and word order. Reduplication has three morphemic functions: repeated action, intense action or state, and long or continued action or state. Prefix reduplication occurs with only the first two functions, but stem reduplication occurs with all three. There is also reduplication of all three functions by the use of anaphoric infinitives. Initial position in a sentence is the position of prominence. A word may be shifted to initial position for emphasis. This gives a sort of 'passive'.

2.2.1. The affix inventory is listed below except for some residual morphemes

or FL's, which may be submorphemic. Allomorphs are not listed here, but some morphemes have several allomorphs. The numbers indicate classes and orders of affixes.

100. Noun prefixes.

110. Subordinate

111. ji-, subordinate to, related to

120. Intensive

121. vi-, very, just

200. Particle prefixes

210. Subordinate

211. ji-, subordinate to, related to

220. Intensive

221. vi-, very, just

300. Verb prefixes

310. Nominaliser

311. ki-, characterized by, agent

320. Subordinate

321. ji-, subordinate to, related to

330. subject

331. a-, 1st person

332. ma-, 2nd person

333. Ø-, 3rd person

340. Causative-intensive

341. ti-, cause to change state/to be

342. či-, cause to act/move

343. vi-, cause momentarily/inceptively

344. si-, cause to be together/along side

400. Noun suffixes

410. Number

411. -č, paucal plural

412. -uv, multiple plural

420. Demonstrative

421. -ɲ, that

422. -v, this

430. Definiteness

431. -a, the, a certain

432. -i, the, this other

433. -u, the, that other

434. -o, the former, that

440. Case

441. -č, nominative

442. -Ø, accusative

443. -k, allative-adessive

444. -l, illative-inessive

445. -m, ablative-abessive

450. Appellative

451. -é, vocative

500. Particle suffixes

510. Adverbs

511. -é, place

600-800. Verb suffixes

610. Intensive

611. -č, distributive-iterative

612. -uv, distributive-reciprocal

620. Adverbials

621. -k, toward speaker

622. -m, away from speaker

623. -pí, first, before

624. -táv, much, intensely

625. -y, again

626. -ò, applicative, get, become

627. -v, very close to speaker

628. -ɲ, too. also

629. -kùra, long time, durative

630. Aspectual (?)

631. -t, by now, up to now (?)

640. Negative

641. -ó, not

650. Adverbial

651. -p, yet, by now

652. -m, before, previously

660. Tense

661. -a, aorist

662. -ayi, non-past, necessity

670. Modals

671. -almít, think, believe

672. -yít, intend, would but

673. -pá, want to

674. -pí, feel like

675. -há, intend, want to

676. -á, imperative

680. Number

681. -č, paucal plural

682. -v, multiple plural

690. Subject

691. -ø, 1st person

692. -ŋ, 2nd person

693. -k, 3rd person

700. Aspect

701. -wi, continued, immediate

702. -yu, interrupted, iterative

710. Aspect

711. -ɲ, perfective

712. -t, imperfective

720. Adverbial

721. -u, already

730. Conjunctivity

731. -m, coordinate

732. -k, subordinate

733. -č, dependent, unreal

800. Nominaliser

810. -ó, place where verbing performed, place where located

820. -í, instrument, tool

2.2.2. Affixes, with only a few exceptions, occur in ascending numerical order, i.e., left to right, both before and after the stem. 620 may occur before 610, 430 before 410 and 420, and 343 before 342. Except within 340, 410, 420, 620, and 730, there are no co-occurrences within decades. The density range of possible affixes per stem is 0-S-0 to 1-S-5 (S=stem) for nouns, except for pronouns which is 0-S-0 to 2-S-3, 0-S-0 to 2-S-1 for particles, and 0-S-0 to 4-S-13 for verbs; but it is rare to find more than 1-S-3 for nouns, 1-S-2 for pronouns, 1-S-1 for particles, and 3-S-8

for verbs. The following diagram shows the positions of the affixes in relation to the stem.

Nouns---- 110|S|410|420|430|440

S|410|450

110|120|S|430|410|440

Particles---- S

210|220|S|510

Verbs----310|320|330|340|S|610|620|630|640|650|660|670|680|690|700|710|720|730

340|S|620|810

340|S|620|610|820

Nouns derived from verbs may have 340 between 110 and the stem. A verb nominalized by 310 may be reverbalized by 700. 342 is the only prefix that can be reduplicated. If 342 is reduplicated, no other member of 340 occurs. It is common to find 411-412, but no occurrence of 681-682 was found. Many morphemes have very little contrast, but I have been reluctant to proliferate zero morphemes. However, I have posited the zero morphemes 333, 443, and 690 since there is a series in each case with at least two contrasts, and since when the slot is /Ø/, there can be no doubt as to what the morpheme is. Suffixes 440, 500, and 730 are always closing suffixes. Suffixes 410, 420, 430, 650, 660, 670, 700, 710, 720, 810, and 820 may be closing. 626 may also be closing. All other suffixes are non-closing: 610, 620 (except 626), 630, 640, 680.

2.2.3. Not all combinations of affixes occur. Listed below are possible combinations. An item marked by parentheses may be skipped in a series. Only one line of items marked by braces may occur at one time.

Nouns

(110+)S(+411(+412))(+430)(+440)

(110+)S(+421)(+422)(+430)(+440)

(110+)S(+411)(+421)(+430)(+440)

S(+411(+412))(+450)

(110+)(120+)S+430(+411(+412))(+440)

Particles

S

(210+)(220+)S+510

It is better to list verbs separately according to their compatible prefixes and compatible suffixes because if all combinations of prefixes and suffixes are given, the formulae become very difficult to handle.

Verbs

Prefixes

$$(310+)(320+)(330+)\left\{\begin{array}{l}(3414)(3424)\\(3414)(3434)\\(3414)(3444)\\(3424)(3434)\\(3424)(3444)\\(3434)(3424)\\(3434)(3444)\end{array}\right\}S$$

Suffixes

S(+610)(+620)(+630+640)(+650)(+660)(+670)(+680)(+690)(+700)(+710(+720))(+730)

S(+627)+810

S(+627)(+610)+820

2.3. The stem of a word is composed of a root plus or minus a causative prefix of 340. A root may be a compound and may have a morphological operator. A stem may be reduplicated. A stem is defined as that part of a word to which grammatical and

pronominal affixes may be added.

2.3.1. The root is the basic part of any word. It is the minimal stem. It may occur alone or with affixes and operators. The predominant root shapes are CVC and CV for all word classes, but nouns and verbs have more than fifteen additional root shapes. Other common shapes are: CVCVC, CVCV, CCVC, CCV, CVVC, and CVV. Other less common roots are: CCVV, CVCVV, C, V, CCVCC, VC, VCV, CVCC, CVCCVC, CVVCV, CVCVCC, and CVCCVC. Thus roots range from a minimum of a single V or C to a maximum of 3C with 3V or 4C with 2V in native words. There is little morphophonemic change as a result of affixation except in the elision of weak-stressed vowels. Consequently, roots are easily recognized in most cases except as discussed below. A root by itself cannot be classified as a noun, verb, or particle, but a root can only be assigned to a class on the basis of the affixes it takes and/or its position in a sentence in relation to other words.

2.3.1.1. Many roots have more than one shape since weak-stressed vowels may or may not be present according to the rhythm-stress pattern, as discussed in 1.7.15. Since Walapai has so many root shapes, words from other languages are readily adopted into Walapai with little change in their segmental shape except for voicing and weak-vowels, as is discussed in the last paragraph of 1.3. Some borrowed foreign words have longer roots than any Walapai word since a compound or a phrase may be borrowed as a root, e.g., a CVCCVCVC occurs in /hâltomíɲ/, Sunday, week, from Spanish domingo, Sunday. The /hâl/ doesn't seem to be the Walapai root /hál/, shine, flash, but rather is probably Spanish, perhaps hallar, find, meet, be in a place.

There are a number of roots that seem to be compounds, or perhaps roots plus affixes, but they are apparently now frozen as a single root, e.g., /paqí/, woman, wife, is probably a compound of /pá/, man, male, plus another element /qí/; but /qí/ does not occur elsewhere, and no one recognizes /paqí/ as a compound. There is a series of words beginning with /hm-/ or /hom/ which refers to males, /hmí/, husband, /hmé/, son, /hmár/, boy, and /hmáɲ/, young man, youth; but if the /hm-/ is cut from these words, the remainder seems to be submorphemic in every case, and there is no

apparent similarity to the corresponding words meaning the female of these categories. (/hmáŋ/ is also sometimes used to mean a young person of either sex.) However, it may be possible to identify the /-í/ of /hmí/ and /paqí/ and to consider that the root of /paqí/ is possibly a bound root /paq-/. A number of words referring to members of the family do end in /-í/, e.g., /čivsí/, Si, /mí/, OSibling, /kí/, YoSibling, /nipí/, FaSi, /niwí/, OBr, /niθí/, OSi, /noí/, OSiSo, and /pí/, BrSo. The /-í/ is probably a root, but perhaps a suffix, meaning (some sort of) relative, somewhat similar to Indo-European *ter, as in father and sister. But in practically all of these words if the /-í/ is cut off, the residue seems to be submorphemic, but perhaps they are bound stems also. However, this can easily be carried too far as is always the danger with submorphemic analysis since many other words also end in /-í/, e.g., the words for spider, snake, liver, cloud, and gully. Also at the opposite end of the word, i.e., initially, /y-/, which is morphophonemically /í-/, occurs as the initial phoneme, and perhaps morpheme, in at least a dozen nouns meaning body parts, and in several verbs meaning use body parts, e.g., /yáí/, nose, /yó/, tooth, /yáv/, beard, /yám/, go, walk, and /ýín/, have sexual relations. But I cannot tell whether this /y-/ is really the same as the final /-í/ in the words referring to persons. Though there are a number of these cases where it is difficult to tell what is a root and what is an affix, percentagewise their number is quite small.

In addition to separating morphemes from submorphemic FL's, there is, as suggested above, the additional problem of recognizing a root that never occurs without an affix. If such roots occur with more than one affix, the problem is not too difficult; but if it occurs with only one affix, it is difficult to decide whether it is really a root plus an affix or just a root. For example, /hám/, look at something in the distance, and /hák/, be looked at by someone from a distance; one can abstract the root /há-/, look at distant object, by cutting off /-m/, away from (622), and /-k/, toward (621). Thus despite the fact that /há-/ never occurs without a suffix, there is no problem in setting it up as a bound root. But in cases like /pál/, (to) swallow, is the /-l/ an adverbial suffix meaning into, related to the illative-inessive case suffix /-l/

(444), meaning in(to)? In that case the bound root would be /pá/; but there are at least three other roots with the shape /pá/, meaning, sun, I, and read. Also /ál/, which occurred only twice in my corpus of several thousand sentences, once referring to the stars coming out into view, and once to a mouse coming out of a hole into a room, could be considered the common morpheme /á/, move, plus an adverbial suffix /-l/, in(to). I have decided for the time being to consider /-l/ as part of the root in these two roots since these are the only two roots I found in which it is conceivable to abstract an adverbial verb suffix /-l/, whereas there are many, many occurrences of the /-k/ and /-m/. A larger corpus may make it possible to isolate /-l/ as an adverbial suffix belonging to decade 620.

2.3.2. One type of stem is an expansion by reduplication. Besides whole-stem reduplication, there are two other types: anaphoric infinitive and prefix reduplication. The most common type is the anaphoric infinitive. Whole-stem reduplication indicates repeated action, intense action or state, and long or continued action or state. The stem is reduplicated only once, i.e., the root is never repeated more than once in a stem. Additional emphasis may be obtained by vowel overlength. (see below.) The second root of a reduplicated stem always has primary stress. The first root of a reduplicated stem usually has secondary stress, but it often has primary stress for added emphasis. If the first root is stressed, it may be followed by /ɬ/. Some examples are: /nálnál/, fall apart, come to pieces, from /nál/, fall (down), drop; /čiáčiát/, (locomotive) is blowing its whistle, from /čiát/, holler, yell; /wóɬwó/, bark (dog), from /wó/, bark, which seldom occurs; /tévtév/, play a long time, from /tév/, play; /táltál/, blow/play a trumpet or horn; and /kólkól/, ring a large bell. It is necessary to define the stem as having a possible causative prefix incorporated into it in such stems as /tithóɬ-tithót/, habitually hides, from /thót/, hide, plus the causative prefix /ti-/ (341) because the pattern of reduplication cannot otherwise be explained except at great pains.

The use of an anaphoric infinitive is very common and is a characteristic of Walapai verbs. A verb may be preceded by one or more infinitives having the same stem

as the verb. It is not very common for more than one anaphoric infinitive to precede a verb, but it is by no means rare. Anaphoric infinitives are also used for all three functions described above. An infinitive can be considered a part of the stem or a separate word from the verb. An infinitive has the /-k/ subordinating suffix 732. If a stem is redefined as the part of a word which can be reduplicated, then an anaphoric infinitive can be considered a part of a reduplicated stem, e.g., in the sentence, /ká mwíŋmwíhimyi ||/, How are you going to do it? Then the first two /m-/ are the second-person subject prefix, the two /wí/ are the verb root, do, the /ŋ/ is morphophonemically from /-k/, and the rest of the word is various verb suffixes. /mwíŋ/ could be considered the first part of a stem such as /mwíŋmwí/, but I don't at all like considering the pronoun subject prefix as part of the verb stem. Also the infinitive suffix is never reduplicated, unless of course there are two or more infinitives preceding the verb. Furthermore, if this type of infinitive is included in the stem, all other infinitives could equally well be considered as part of the stem. This would complicate the verb morphology to a point where it would be totally unmanageable. Any infinitive plus a following verb grammatically works as a unit and nothing occurs between them. In my corpus of a few thousand infinitives, there are only three occurrences of something between an infinitive and a following verb. In each case my informants felt so uncomfortable when the tape was played back that I feel certain that they were either slips of the tongue or at best extremely marginal possibilities. I prefer for the present to consider an infinitive followed by a verb as a verb phrase rather than a compound. That such verb phrases have a large number of grammatical uses and specialised meanings is of course to be expected. Some further examples are: /smíksmámyíč/, sleeps all the time, from /smí/, sleep; /íčikíčkyu/, search for, from /í/, look; /čikwárikčikwára/, laughed and laughed, from /čikwár/, laugh; /wíkwíkwík/, do over and over, again and again; from /wí/, do; and /wákwákwámmyíčkyu/, he has lived here (since he was born), from /wá/, live, sit.

The causative prefix /či-/ (342) is the only prefix that can be reduplicated apart from whole-stem reduplication, i.e., no stem except a stem containing /či-/

can form a new stem by adding the suffix again. Some examples are: /nǎč čikiátowi #/, I am cutting it, and /nǎč čičkiátowi #/, I am cutting it up.

2.3.3. Another type of stem is an expansion by means of an operator of length. A root syllable with primary stress may be lengthened to a greater or lesser amount to indicate a greater or lesser degree of intensity. /:/ is used to mark overlength. The reasons for making overlength an expressive feature, though it is an operator, were given in 1.4.6. and are not repeated here. Expansion by overlength is very common and is used to express many of the same things that English expresses with the intensive adverbs very and reallyand the completive adverbs up and down, e.g., /lél/, tear, /lé:l/, tear up, /qáù/, break, /qá:ù/, break up, /té/, big, /té:/, very big, and /mín/, cold, /mí:n/, very cold.

2.3.4. Compounding is another type of stem expansion, Compounding occurs frequently and involves nouns and verbs, both as members of compounds and as the class resulting from a compounded form. The stem of a compounded form is defined as the roots plus any class-transformative affixes plus or minus 340. One type of compound is extremely productive; a noun, often just /kwé/, thing, or /pá/, person, plus an agent noun derived from a verb by the prefix /ki-/. Most any person or thing can thus be labeled, e.g., /kwékiswár/, phonograph, literally, thing that sings, and /hákié/, bridge, literally, watercrosser. One of the major differences I find between the speech of the younger Walapai and that of older persons is that the younger people tend strongly to use English words instead of this extremely-productive compounding of the older people.

Below are listed the types of compounds observed according to the roots and the resulting compounds. Roots that have changed classes are indicated by subscript letters: V_i, instrument noun derived from verb by instrument suffix /-í/, V_o, location noun derived from verb by location suffix /-ó/, and $_{ki}V$, agent noun derived from verb by agent prefix /ki-/.The extremely productive infinitive phrase, which acts in many ways like a compound (See 2.3.2.) is also listed, and V_k is used to indicate an infinitive marked by /-k/.

Resulting Noun Compounds			Resulting Verb Compounds		
NN	to	N	VV	to	V
NV	to	N	V_kV	to	V
NV_i	to	N	NV	to	V
NV_o	to	N	VNV	to	V
NNV_i	to	N			
$NN_{ki}V$	to	N			
NNV_o	to	N			

Some examples are: NN to N, /wâksímát/, beef, from /wâksí/, cow, plus /mát/, meat, flesh; /mílthé/, squirrel tail, from /mílt/, squirrel, plus /hé/, tail; and /sikósiám/, gate, from /sikó/, fence, plus /siám/, door, gate, lid. NV to N, /wátímwé/, the heating of a house, from /wá/, house, plus /mwé/, hot, warm, which has the causative prefix /ti-/; /pátái/, old man, from /pá/, man, plus /tái/, become/grow old; /hátúi/, a pump, from /há/, water, plus /tú/, pull/drag out, which has the instrument suffix /-í/; and /háčiámí/, water hose, from /há/, water, plus /čiám/, cause to go, lead, which has the instrument suffix /-í/; /hákiám/, river, from /há/ plus the agentive form of /ám/, go, literally then, water that moves. NNV to N, /péskwéčikwái/, wallet, purse, from /pés/, money, plus /kwé/, thing, plus /čikwá/, put in(to), which has the instrument suffix /-í/; and /hátwáksíkivsó/, stock dog, from /hát/, dog, plus /wâksí/, cow, plus /vsó/, look after, take care of, which has the agentive prefix /ki-/. VV to V,/yámí/, go see, from /yám/, go, plus /ú/, see; and /yókwám/, take with, from /yó/, take, which has the infinitive suffix /-k/, plus /wám/, carry. NV to V, /kwákapé/, deerhunt, from /kwák/, deer, plus /pé/, hunt; and /péstétáv/, be expensive, from /pés/, money, plus /té/, to be much/many/big, which has the intensive adverbial suffix /-táv/, very. VNV to V, /yámkúlpé/, go rabbithunting, from /yám/, go, leave, plus /kúl/, rabbit, plus /pé/, hunt.

2.4. There is in addition to the minor morphemes given above a small residue of minor morphemes, or perhaps in some cases roots, which occurred so seldom in my corpus

that it is impossible for me to identify them without more data, e.g., the /-n/ of /sikwín/, turn on (radio, faucet), in contrast to /sikwím/, turn off. The /-m/ would appear to be 622, a common verb suffix meaning, away, from, off; but I have no idea what the /-n/ is.

There are several occurrences of a suffixed morpheme or morphemes with the shape /-v/, which I cannot recognize, e.g., /yú/, eye, /yúv/, face; /kiná/, give orders, be in charge, and /kináv/, tell, recount. If there is any relation between these morphemes, if that is what they are, and 422 /-v/, this, and 627 /-v/, here, I have failed to see it.

/-pé/ is possibly an intensive or completive adverbial suffix, e.g., /θikém/, break, vs. /θikémpé/, break open (an egg). There are at least three morphemes with the shape /pé/, carry, and, certain, but again I find no relationship here.

3. Morphology of Verbs

3.0. Introduction

3.1. Person Markers

3.2. Number

3.3. Aspect

3.4. Tense

3.5. Negative

3.6. Modals

3.7. Adverbials

3.8. Causatives

3.9. Nominalizers

3.0. The Walapai language is undergoing a period of rapid change. This is very evident in more than in just the vocabulary. The structure of the language itself is in the process of being rather drastically reorganized. The differences between the speech of the younger Walapai and that of the older generation are so evident that it is a favorite topic of conversation. The greatest structural changes now going on are in the verb system. Walapai has a rather elaborate system of aspect, but only a minimal tense system. Presently, the number of aspect forms is being reduced or changed to tense markers. This is, it seems to me, due to pressure from English. The newly-developing systems and the old systems coexist and are intermingled all the time. Walapai is an excellent field for studying how languages change since changes are so many and so rapid.

The analysis presented herein is based on the speech of the person described in the introduction. She is a grandmother in her midfifties and does not have many of the newer developments in her speech. For her Walapai is still both her first language and her primary language. Nevertheless, I did use some younger informants, and I have tried to give as best as I can the structure of Walapai as spoken by persons under the age of twenty-five. Some of the changes are rather drastic.

3.1. Three persons are indicated by pronominal subject affixes: first, second, and third. There is both a prefix and a suffix for each person, counting contrastive zeros, but this does not mean that the person markers are discontinuous morphemes. Independent subject pronouns also occur with all three persons. Independent pronouns are a subclass of nouns. A verb may occur with all three subject markers: an independent pronoun, a prefix, and a suffix, or with no person subject marker, except possibly zero. The whole system for indicating person with verbs is presently in a state of flux and is changing to a system much like that of English, except that instead of opposing third person to first and second as English does with the suffix {-s} in the third person, Walapai has almost developed a system opposing second person to first and third with the prefix /ma-/ in the second person and the suffix /-k/ in the first and third persons. The two systems for marking person with verbs exist side by side, and there is constant variation and all degrees of shading between the two. The major difficulty I had in sorting the person-marking system out was that it took me a long time to realize that there were really two systems because if one takes a rather extensive corpus of Walapai, he is going to think that person marking in verbs is helter-skelter and non-systematic because the two systems are constantly blended together even in a single sentence.

It is easier to understand the two systems if one begins with the older system with its larger number of distinctions and then precedes to the newer system. The older system is diagrammed below on the left and the newer system on the right. Independent subject pronouns are given with the nominative case suffix /-č/ since they would occur thus. /θáč/ is given as the third-person independent subject pronoun, but there are many others. (V́-verb stem.)

OLD SYSTEM		NEW SYSTEM	
ɲáč	a-V́-ø	ɲáč	V́-k
máč	ma-V́-ŋ	máč	ma-V́
θáč	ø-V́-k	θáč	V́-k

In the old system, the weak-stressed first-person prefix /a-/ drops out in many verb

forms because of the rhythm-stress pattern, but in the new system /ɨ/ occurs to fill out the rhythm-stress pattern if there are an insufficient number of other vowels. As described in 1.6.1., the phoneme /k/ alternates morphophonemically with /ŋ/ in the environment before a nasal. I have never noticed a case of an older person mixing up /k/ and /ŋ/, but younger persons sometimes use /k/ and /ŋ/ in a number of morphemes that would be in the wrong places in the old system. I have tried in vain to find */ma-V́-k/ and */V́-ŋ/. It seems to me that the /-k/ of the first person in the new system is by analogy with the third person since both have a /ø/-person prefix contrasting with the second-person prefix /ma-/. It also would seem that the second-person suffix /ŋ/ is disappearing at least partly because it gets mixed up with /-k/ and because the prefix /ma-/ is sufficient to distinguish second person. If all three persons had a suffix /-k/, there would be no distinction of person at all by suffixation, and /-k/ would be an empty morpheme both lexically and grammatically. But a verb with a third-person subject never occurs without a /-k/ suffix in either the old or the new system. First- and third-person verb forms in both the old and the new system usually occur without an independent pronoun subject unless there is some ambiguity, but second-person verb forms almost never occur without an independent pronoun subject both in the old and in the new system except in the imperative where the independent subject pronoun often does not occur. This also has probably aided the analogical acquisition of the /-k/ suffix by the first person of the verb.

Not counting infinitives, verbs have two other suffix morphemes with the shape /-k/ besides the person marker, but the person markers are readily recognizable since they always occue immediately before the suffixes /-wi/ or /-yu/, or finally in a simple sentence, e.g., /úkwi/, he sees, and /máč mačθílvaŋyu/, you are going to take a bath, and /kwə́ mávayk/, they are going to eat. The suffix /-k/ marking a subordinate clause is always final, but in a compound or complex sentence the person marker /-k/ is always followed by a suffix.

3.2. Three numbers are marked in verbs: singular, paucal plural, and multiple plural. Singular is phonemically unmarked, but is defined as not having a plural

suffix; but I have not posited a zero morpheme for singular for the following reasons. Plural markers occur in the slot before person markers; and if the person marker is /ø/, the plural marker occurs before /-yu/ or /-wi/,or before /-a/ in imperatives, or is final. However, the plural marker is still recognizable because of its phonemic shape. But in the case of singular with no person marker or other suffix, the singular would be marked by /ø/ in the environment /ø/ . This could also be done for a whole series of suffixes so that most verb forms could have 25 or 30 /ø/ suffixes. Though a singular verb is defined as one not having a plural subject suffix, it seems to me unprofitable to define a morpheme /ø/ by an environment /ø/.

Walapai distinguishes two degrees of plural in verbs, nouns, and pronouns: paucal and multiple. The paucal plural, which I usually call just plural, is marked by the suffix /-č/ and means, some, a few; and the multiple plural is marked by the suffix /-uv/ and means, many. No Walapai can give an exact boundary between /-č/ and /-uv/ any more than a speaker of English can give an exact boundary between some and many. Unless there is some reason to specify many, /-č/ is used for all plurals in verbs. Though the preceding statement is true, it is still possible to give a range of contrast between /-č/ and /-uv/. Besides its indefinte meaning of, more than one, /-č/ also can mean from 2 to 19 and opposed to /-uv/ mean from 6 to infinity. That is to say that though /-č/ and /-uv/ are just as vague as some and many in English, they seem also to have the meanings, less than 20, and more than 5, respectively. Nevertheless, /-č/ occurs far more often than /-uv/.

If the subject is plural, the verb is always marked for plural; but the independent subject may or may not be marked for plural; or there may be no independent subject, since it is clear from the verb that the subject is plural, e.g., / kwè máčwi #/, and /ɲáč kwè máčwi #/, both meaning, we (few) are eating. (/má/, eat, must have an object. If there is no other object, /kwé/, (some)thing, occurs.) The closing suffix of /ɲáč/, I, we, is the nominative case ending, and not the plural marker. If the independent subject is marked for multiple plural, the verb is marked only for plural, e.g., /ɲáčuvč kwè máwi #/, we (many) are eating. If the independent subject is not

marked for multiple plural, or if there is no independent subject, the verb may be marked for multiple plural, e.g., /páč kwə́ mávwi #/, and /kwə́ mávwi #/, both meaning, we (many) are eating. It is far more common for the subject to be marked for multiple plural than for the verb to be. It is common for a noun or a pronoun to have a paucal plural followed by a multiple plural, as /páčuv/ above, but in my corpus there is no occurrence of both plural subject suffixes with a verb. One form does occur which could possibly be considered an occurrence of both plural markers with a verb. The distributive-iterative morphemes, /-č/ and /-uv/, are also suffixed to a verb and have the same shapes as the plural subject suffixes; and, though the plural and distributive suffixes occur in different suffix slots, there are some verb forms where distributive suffixes occur without a plural subject suffix, /-čuv/ does occur suffixed to the verb. Every case of a suffixed /-čuv/ in my corpus is a distributive (including reciprocal). A larger corpus might produce a form having both plural subject suffixes, but it seems to me that this is avoided to reduce ambiguity since, as shown below, there is a good bit of ambiguity between certain forms of the plural and the distributive.

3.2.1. There is an additional way of marking plural in a few verbs that refer to states . Such verbs that have /é/ in the root syllable of the singular have /íi/ in the root syllable in the plural, e.g., /qályévkyu/, it is big, /qályíivkyu/, they are big; /tékyu/, he is husky, /tíikyu/, they are husky; and /sékyu/, he is fat, /síikyu/, they are fat. Verbs with /é/ in the stem that do not refer to a state do not have a plural with /íi/ in the stem but have the plural suffix /-č/. Younger Walapai now tend not to use plurals in /íi/, but tend to use the plural suffix /-č/ after the old singular stem with /é/; however, plurals in /íi/ are still much more alive than some of the person markers.

3.3. Six types of aspect are used in Walapai, all marked by suffixation: distributive-iterative, continued, interrupted, perfective, imperfective, and habitual. As many as three aspects may occur with one verb, or a verb may have no aspect marker. Suffix /-t/ (631) may also possibly be an aspect marker. If 631 is aspectual, then as many as four aspect markers may occur with one verb.

3.3.1. The distributive-iterative aspect is also marked by suffixes with the shapes /-č/ and /-uv/ and means plural state or action, i.e., action is repeated by one or more subjects, or two or more subjects participate in the same action or state, but the distributive-iterative suffixes occur in a different slot than the person markers. Both the plural actor suffix /-č/ (681) and the plural action suffix /-č/ (611), i.e., distributive-iterative, may occur with one verb; but if only one of these suffixes occurs with a verb and if the subject is not marked for plural, the verb is ambiguous, i.e., the verb may be either singular distributive or plural, e.g., /ɲáč ɨ túčwi #/, if the /-č/ is the plural marker, means, we are burning wood; but if the /-č/ is distributive, then it means, I am burning wood in several places and/or on several occasions. If the context in which the sentence is used is not clear, /yév/, self, is added after the subject to mark the singular unambiguously, /ɲáč yév ɨ túčwi #/, I am burning wood myself, or a numeral or /pái/, all, is added after the subject to mark the plural unambiguously, e.g., /ɲáč pái ɨ túčwi #/, we are all burning wood. Besides the meaning to do in several places and/or on several occasions, which may be separated in time and space, the distributive-iterative also means to do intensively at one particular time, i.e., to do several times right together, e.g., /ɲáč ɨčik/, means, I look it over/inspect/examine carefully. The distributive also means to participate jointly in some action or state by more than one subject, e.g., /wíčuvču/, they own (their cattle) jointly. If a plural verb is also distributive, both distributive morphemes nearly always occur except in some forms of the reciprocal, e.g., in the sentence just above, /-čuv/ (611 + 612) both occur. (The closing suffix /-u/ is an allomorph of 702.) One of the submeanings of participate jointly is reciprocal. Since the reciprocal also has a causative prefix, either /ti-/ (341) or /či-/ (342), the reciprocal is discussed in the section on causative prefixes. A reciprocal may have both distributive suffixes /-čuv/ or just /-uv/. A non-reciprocal distributive plural does occur occasionally with just /-č/ (611), but there is no occurrence in my corpus of a non-reciprocal distributive with just /-uv/ (612). Some further examples are: /hátčuvču/, they raise/breed animals jointly; /hůvákáč misáčaykwi #/,

A mosquito stings several times; /ɲáč yéktam kwè máčam wíča #/, we eat early every day; /ɲáč ámčyu #/, I am walking around/taking a stroll; /ɲáč čiščuvčiščva #/, we give to each other; /ɲáč tiswálva #/, we love each other.

The distributive also usually occurs with location nouns derived from verbs, e.g., /kwèmáčó/, eating place, place to eat, i.e., place where eating is done on various occasions. This discussed below in the section on derived nouns.

3.3.2. The continuous-aspect suffixes /-wi/ and /-yu/, weak-stressed by-forms of the verbs /wí/, have, and /yú/, do, were given as divisive for verbs in 2.1.1.. /-wi/ means, continued without interruption, and /-yu/ means, continued with interruptions, It is very tempting to classify /-wi/ as a transitive marker and /-yu/ as an intransitive marker because in a large majority of cases, /-wi/ occurs with verbs that have objects and /-yu/ occurs with verbs that do not have objects. It is also almost possible to say that there are two verb subclasses or conjugations, one with /-wi/ and one with /-yu/, because even with verbs that occur both with or without objects, a particular verb stem nearly always has just one or the other of the continuous-aspect suffixes. A large number of stems apparently never occur with one or the other of the continuous-aspect suffixes through selection; but a large number of stems, though they usually occur with one of these suffixes, sometimes do occur with the other, e.g., /kó yówi #/, I am gathering piñon nuts, i.e., right at the moment of speaking, I am in the act of gathering piñon nuts, vs. /kó yóyu #/, I am gathering piñon nuts, i.e., right at this moment of speaking I may be sitting under a tree eating my lunch, but my main activity at this particular time is gathering piñon nuts. Since the lexical content of some verbs tends strongly toward one or the other of these meanings, a particular verb stem may rarely or never occur with one or the other suffixes. Younger Walapai have just about lost the continued without interruption/continued with interruptions distinction, in favor of a system with two verb classes or conjugations. For example, /má/, eat, nearly always occurs with /-wi/, if it is marked for continuous aspect, e.g., /ɲáč kwè máwi #/, I am eating, I am in the midst of eating; but older Walapai also have /ɲáč kwè máyu/, I am eating, I have sat down to eat; and while there is no food on

the table yet, I will be eating shortly, or, I may be answering the door right now, but I'm going to get right back to the table and continue to eat.

3.3.3. Verbs are also marked perfective and imperfective aspect: by /-ɲ/ for imperfective, and by /-t/ for imperfective. These suffixes occur in the slot after /-wi/ or /-yu/, but they do not usually occur unless the speaker wishes to emphasize completed or uncompleted action. Imperfective aspect occurs in the past, present, and future; and perfective aspect occurs in the past and present, but there was no occurrence of a future perfect in my corpus; and when I tried to elicit it, I just got the non-past tense.

The perfective aspect most often refers to the past since the action or state has been completed, but the perfective often means, a completed state or action with special reference to the present, e.g., /yámyuɲ/, I went, I have gone; /smákyuɲ/, he slept, he has slept. In verbs referring to states, it is often as difficuult to distinguish the meaning of a verb with the perfective suffix and a verb with no perfective or imperfective suffix as it is in English to distinguish some presents and present perfects, e.g., /ká m yú ‖/, How are you?, vs. /ká m yúɲ ‖/, How have you been? If the context is not clear, the speaker can indicate past by the suffix /-u/ (721), already, /yámyuɲu/, I went already, I have gone already.

Imperfective aspect is marked even less often than perfective aspect. Imperfective aspect most often occurs in subordinate clauses to indicate something going on at a particular point in time or simultaneous with something else, e.g., /mátikyu/, he is/was eating. In subordinate clauses, the imperfective aspect suffix is nearly always followed by the conjunction /-m/ (731), and, with, during the time that, e.g., /wáí ɲáč wátm qáù#/, I was sitting on the chair when it broke, in which /wá/, sit, is followed by /-t/, imperfect, and /-m/, with; /hmáqéčač vivák kwá tiávk wártm #/, The little boy came in while he was sharpening the knife, in which /wárv/, continue, is followed by /-t/ and /-m/. If the imperfect refers to the present, the stem is also often precede by an anaphoric infinitive (see 2.3.2.), e.g., /ɲáč wík wítwi #/, I have been doing it. The imperfect may also occur with a verb referring to a future

time, e.g., /kwé ɲtàtúíktm vák máhikyu #/, I'll keep the food hot until he gets here, literally, he will come eat things and which I am heating, in which /tàtúí/, to heat, make hot, is followed by /-k/, he, and /-tm/.

3.3.4. Habitual aspect is marked by a verb phrase, consisting of a verb root plus or minus prefixes 340 plus or minus suffix decades 610 through 650 plus the conjunctive suffix /-m/ (731) plus a primary-stressed verb with the stem /yú/ or /wí/ plus 700, i.e., /-yu/ and /-wi/, respectively, e.g., /ɲáč wávk wám yúčyu #/, I am always at home, literally, I sit and am around the house; /ɲiókm sáčwòl yámm yúčyu #/, I usually go to the store in the mornings, literally, I go and be store with mornings; /viyól ɲipáv máčm wíčwi #/, we eat baked mescal all the time, literally, we eat and do mescal that (is) baked; /kwí ɲvóm kák tárhártaópm wíčwí #/, When it rains, I don't work. The habitual aspect is marked as a verb phrase because /wí/ and /yú/ are primary-stressed independent verbs and not weak-stressed by-forms /-wi/ and /-yu/ which are verb suffixes. A habitual verb phrase is also often preceded by an anaphoric infinitive, e.g., /ɲàč yámk yám yúčyu #/, I'm always going, I go all the time.

The suffix /-t/ (631), which occurs before the negative suffix /-ó/(641), never occurs without /-ó/. This /-t/ ~/-ta/ is the only common morpheme to which I cannot with any kind of certainty assign a function or a meaning. It seems to be some kind of aspectual suffix meaning something like, by now, up to now. If it is related in any way to the imperfective suffix /-t/ (712), I cannot see it. Perhaps it is related to the intensive adverbial suffix /-táv/ (624), much, many. Examples are: /útaóp/, I didn't see it; and /hántópkyu/, it's no good.

3.4. Tense plays a very small role in Walapai, and the emphasis is on aspect as seen in 3.3. above; but there are two tenses: an aorist, and a non-past. The aorist tense is marked by the suffix /-a/ (661) and is an indefinite tense, referring to any time past, present, or future, e.g., /ɲáč kwána #/, I'm killing it, I kill it, I killed it, I'll kill it. It would appear that /-a/ (661) also has an allomorph /ø/ because a verb may occur without a tense marker, e.g., /ɲáč kwán #/, has all

the meanings given above for the verb with the /-a/ suffix. However, one could just as well argue that in /kwán/ there is no ending at all. Older Walapai use the aorist tense a large part of the time, but younger Walapai almost always avoid using the aorist; this they do by using /-wi/ and /-yu/ with every verb form where these morphemes are compatible with the rest of the verb form.

There is also a non-past tense marked by /-ȡyi/ (662) which refers to the immediate present or to the future, especially the near future. It also has the meaning, must, have to. The most common shapes of this morpheme are /-ȡy/ after a consonant and /-hí/ after a vowel. The shape /-ȡyi/ occurs occasionally after a vowel if there is a /ɬ/ between the preceding vowel and /-ȡyi/, e.g., /θiɬáyu/, I'm sleeping, I'm going to sleep; /páč wàksí sélčàywi #/, we are going to sell the cattle, (English sell has been totally assimilated in Walapai.); /wí čiyálčàywi #/, we have to paint the house; /θáč kwè máhiwi/, he's eating, he's going to eat; /ůhiyu/, I will see him; /páč vám wíhiwi #/, I'll do it now.

3.5. Every negative verb is marked by three contiguous morphemes: /-t/ (631) plus /-ó/ (641) plus most often /-p/ (651), but sometimes /-m/ (652). /-t/ (631), which has the alternate shape /-ta/, is the only common morpheme which it is impossible for me to classify at this time. Some of the reasons for this are discussed in 3.3.5. /-ó/ is a by-form of the verb /ó/, to say no, As the root of a verb, /ó/ is not preceded by /-t/, but the negative suffix /-ó/ is always preceded by /-t/. As a negative suffix /-ó/ cannot be part of a compound root or stem because it is in the wrong slot. It would make classification much simplier if /-taó/ could be considered the root /ó/ plus the causative prefix /ti-/ (341), because such a derived root could be condidered as compounded with the root it negates. But verb suffixes occur between the negated root and /-taó/ so that it cannot be considered as part of a compound root, and also /-ta/ has the wreng vowel because (341) is /ti-/. /-taó/ or /-tó/, according to the rhythm-stress pattern, is always followed by either /-p/ (651), yet, by now, or /-m/ (652), before, previously, e.g., /ůtaóp/, I haven't seen him yet, vs. /ůtaóm/, I haven't seen him before.

3.6. There are six modal suffixes, all of which indicate some attitude or judgment of the speaker toward the information given in the sentence, i.e., all the modals have something to do with thinking, feeling, understanding, or desiring.

3.6.1. The modal /almít/ indicates that in the judgment of the speaker that the information given in the sentence is probably true, or thatthe situation described in the sentence will probably materialize. /almít/ translates as, think so, believe probable, should/ought to by now, conclude, guess, estimate, e.g., /ɲáč yámalmítyu #/, I think I'll go, I'm thinking about going, I'll probably go; /yúálmít ‖/, Do you think he'll come?, Do you believe he might come?; /yámtɸalmítkyu #/, he probably did not go, I don't think he went.

3.6.2. The modal/-yít/ indicates the speaker's inability to do something at a given time and also expresses his intention to do the thing later if possible, e.g., /ɲáč yámayít #/, I would go, but I can't; /kwè máyíta #/, I'll eat, but later; /ɲáč yámayítàyu #/, I intend to go, I'm going to go later; /náč kanávayítyu #/, I tried te tell him, but ....; /ɲáč kák yámayíttaɸpakiɲ #/, I didn't want him to go, but ....; I didn't intend for him to go, but .....

3.6.3. The modal /-ɲá/ indicates want, desire, like, preference, e.g., /ɲáč yámɲà/, I want to go; /ɲáč vɸɲà/, I like to walk. The modal /-ɲà/ seems to be in the process of being replaced, possibly because of confusion with /-ɲa/ (628), too, also. Younger Walapai tend to use an infinitive phrase with /wál/, hope, wish, like, want, e.g., /kwè mák wála #/, I like to eat.

3.6.4. The modal /-pí/ may also express desire, but the basic meaning is exist in a certain state, but the translation is very often, feel like, or an adjective with the /-y/ ending, e.g., /ɲáč kwè mápíyu/, I feel like eating, I want to eat, I'm hungry; /smápí/, I'm sleepy, I feel like sleeping; /ɲáč mònampí/, I'm cold, I feel cold.

3.6.5. The modal /-há/ also expresses desire or intention in the sense of expectation or permission of another person, e.g., /ɲáč kwè máhá ‖/, Shall I eat?, May I eat?, Do you want me to eat?; /kwè kiyí ká mwíhá ‖/, What do you want?, What

would you have?; /yámčihí ‖/, Should we go? /-hí/ also occurs expressing the intention or permission of the speaker, e.g., /kwè máhíwip #/, I intended to eat, I was going to eat; /kwè máhámíčkip #/, I let/permit him to eat.

3.6.6. The imperative is marked by the suffix /-á/, but /-á/ often has a /ø/ allomorph, plus the second-person prefix /ma-/(332). An imperative seldom has any other affixes except the plural subject suffix /-č/(681). Often the independent pronoun subject does not occur; and if it does occur, it may not have the nominative case suffix /-š/. In those cases where /ma-/ does not have the nominative case suffix, it is a vocative. I have found no instance of a pronoun with the vocative marker /-é/(451). Some examples are: /kwè mamí #/, Eat (sg.); /kwè mamíčá #/, Eat (pl.); /wík maskwí #/, Stand there; /pivák mayúčá #/, Be here. After a vowel, /-á/ sometimes has the allomorph /-wá/, e.g., /mayúwá #/, Come here. The third-person imperative is discussed in the section on causative prefixes with the prefix /či-/(342).

3.7. A verb stem may be followed by any of a number of adverbial suffixes, which indicate: direction or location, especially as in respect to the speaker, change of state, and order, repetition, or intensity of action.

3.7.1. The adverbial suffixes /-k/(621) and /-m/ (622) indicate motion in relation to some point of reference. /-k/ indicates motion toward or motion that has terminated near, or location near/at some point of reference. If no point of reference is specified, which is the most common usage, the point of reference is the location of the speaker. /-m/ indicates motion away from or motion that has terminated away from, or location away from some point of reference. Again, if no point of reference is specified, which is also the most common usage, the point of reference is the location of the speaker. For example: /tám/, throw away from speaker; /ták/, throw toward speaker; /hám/, look at distant object, /hák/, someone look at speaker from a distance; /yám/ leave, go away; /yák/, lie/be located at/near; /čipáyač viyárikikyu #/, The bird is flying away (from speaker), vs. /čipáyač viyárimkyu #/, The bird is flying this way (toward speaker); /wàlpáiyač kúrtáv vál wayókm yúčkyu #/, The Walapai have lived here a very long time, from /wayó/, lixa,

dwell, plus /-k/(621) plus /vál/, in this (place), i.e., have lived near/by this place. /-k/ has the allomorph, and /-m/ has /-im/. For emphasis, the weak-stressed vowel fairly often has primary stress, e.g., /viyárík ikyu #/, It's flying THIS way. This is overstress used to shift emphasis; and /-k/ does not have an allomorph /-ík/ unless one wishes to say that every morpheme has an overstressed allomorph. /-k/(621) and /-m/(622) have the same shapes and meanings as the noun case endings /-k/(443) and /-m/(445). In some cases it is possible to tell the word class of a particular item only by its position in relation to other words in a sentence.

There also may be an adverbial suffix /-l/, corresponding to the /-l/ (444) illative-inessive noun case ending, meaning, in(to); but if an /-l/ verb suffix does exist, it is much rarer than the adverbial suffixes /-k/ and /-m/. Only two possible examples of an adverbial suffix /-l/ occurred in my corpus, and they are illustrated and discussed in 2.3.1.1. in the discussion of bound roots.

3.7.2. The adverbial suffix /-pú/ means first, beforehand, earlier, already, e.g., /ɦáč kwè mápúkwi #/, he came first, i.e., he came before I did (and is still here; /ɲiθáč vák vápúkyu #/, he arrived first, i.e., he arrived before I did (and has left.

It could be possible that /-pú/ is the same as /-p/(651), yet, by now, which occurs after the negative suffix; but in several hundred occurrences of the negative /-p/(651) never had a following /ú/, and I have no occurrence of /-p/(651) without a negative. Despite the fact that their similarity in shape and meaning may indicate that they may be the same morpheme, which has /-p/ after the negative suffix and /-pú/ in positive statements, I have decided to classify them as separate morphemes because it would be very unusual for a minor morpheme with a primary-stressed vowel to lose that vowel under any circumstances and because in several hundred occurrences of /-p/ (651), it was never once followed by /-ú/.

3.7.3. The intensive adverbial suffix /-táv/(624) means, much, many, very, really, thoroughly, finally, e.g., /túítávkyu #/, It's really hot; /kwántávak/, he finally killed it, i.e., he finished off the kill with another bullet; /yútáv/, it was running

very fast. /-táv/ is also a very common suffix with nouns derived from verbs, e.g., /kwètétávɲu/, the very big one; /kwèkyúltávɲu/, the very long one. Also overlength is exceedingly common with /-táv/, e.g., /tétá:vkyu/, it's very, very big.

3.7.4. The adverbial suffix /-y/ means, again, e.g., /yámyayu/, I'll see him again; /kwè máyayu/, I'm going to eat again; /wíyakwi/, he did it again./-y/(625) is the middle /-y/ in the above forms. /-y/ has two allomorphs: /-y/ before a vowel and /-ya/ before a consonant if the rhythm-stress pattern allows; but /-y/ does occur before consonants if the /-a/ drops.

3.7.5. The suffix /-ð/ (626) indicates action directed toward someone or something, or becoming or attaining a certain state. It has the shape /-ð/ after a consonant and /-wð/ after a vowel. /-ð/ has a range of complexity and meaning much like English get plus the prepositions to and for. With many verbs, /-ð/ is an applicative or benefactive indicating to or for whom something is done. A verb with /-ð/ may have both a direct object and an indirect object, as in the first two examples below, or just an indirect object as in the second two examples: /ɲičítá hà nánðkwi #/, She's getting water for her mother; /náč kwè pá taθkwílðwi #/, I do washing for people; /káč ɲaɲ wíwðtópm #/, Nobody helped me; /ɲiθá yówðwi #/, I made it for him. Often there is no object of an applicative verb, e.g., /mwíwðwí ‖/, Will you help me?; /náč kwáuk kanávðkiɲ #/, I spoke to him; /náč čičkiátðwi #/, I'm cutting it up. Certain verbs with /-ð/ have a direct object but no indirect object. This type of construction is a reflexive in which the subject does something to or for himself, e.g., /náč ɲiwá hánó #/, I like that for myself; /náč ɲa sal čikiátðwi #/, I cut my my finger. With many verbs, /-ð/ indicates that a certain state exists without any mention of how or by what means or agent the state was achieved. Very often in this type of verb, the /-ð/ is closing; and in closing position it has primary stress, i.e., is /-ó/. Such constructions usually translate as an English false passive with be plus an adjective. Some examples are: /činálé #/, It is/has been lost, It has gotten lost; /ólðɲvč náhmírvðkuɲ #/, That horse is injured; /wáyič qáúðkuɲ náč hák wákm #/, The chair is/got broken because I sat on it; /qáúðkyu #/, It's split, It

has been/gotten split; /tavsó #/, It has bloomed, It is (in a state of) blooming; /kwèɲaməč páí čávèwiɲ #/, The food was/is all eaten up. A similar use of final, primary-stressed /-ó/ is to indicate the absence of persons as well as things, e.g., /ɲiθáč yámó #/, he was/is/has gone; /ɲáč yámó ‖/ Was I gone?, Did you find me gone?

Primary-stressed /-ó/ together with the plural-subject suffix /-č/(681) marks the cohortative, e.g., /kwè máčó #/, Let's eat!; /yámčó #/, Let's go!

3.7.6. The suffix /-v/ (627) indicates that the speaker is in very close proximity to the thing(s) talked about, e.g., /ɲáč kumpévyu/, I'm putting on/wearing socks; /ɲáč čiθúlvyu #/, I'm taking a bath, from /čiθúl/, wash; /ɲáč ólò θmákwiɲ #/, I'm renting a horse, vs. /ɲáč ólò θmávkwiɲ #/, I'm renting a horse here.

3.7.7. The suffix /-ɲa/ has the allomorphs /-ɲa/ and /-ɲ/ and means, too, also, in addition, e.g., /ɲáč yámɲayu #/, I'm going too; /ɲáč kák yámntaóp #/, I'm not going either; /máč maúna #/, You see it too.

I have tried to find a verb suffix of the shape /-ɲa/ meaning, not close to speaker, like noun suffix /-ɲ/(421), that; but I have been unable to find a single example. Morphemes with the shape /-v/ meaning, here, this, do occur with both nouns and verbs; but if /-ɲa/ with verbs ever meant, there, that, it has apparently been lost .

3.7.8. The suffix /-kùra/ indicates that the action lasted a long time, e.g., /ɲáč kwè mákùrayu #/, I took a long time to eat. /kúra/ also occurs as a particle before verbs meaning, some time ago. There are two other particles that occur before verbs as temporal adverbs, /már/, later, and /čúv/, about to,; but I failed to find any example of these two as adverbial suffixes with verbs.

3.8. There are four causative-intensive prefixes, decade 340. These prefixes are all stem-formative and are reduplicated as a part of the stem im whole-stem reduplication, as discussed in 2.3.2. Each of the four is a causative of some sort, but with some verb roots it is difficult to see anything but intensity as the function of these prefixes. Only the prefix /či-/(342) can be reduplicated apart from whole-stem reduplication. Two causative prefixes may occur within a verb stem; but if /či-/ is redup-

licated, no other causative prefix occurs. All of the possible combinations of causative prefixes are given in the chart in 2.2.3.

3.8.1. The prefix /ti-/ means, cause to change state, cause to be(come), e.g., /ɲáč wíla tipíl #/, I burnt the weeds, I set the weeds on fire, i.e., I caused the weeds to burn, from /píl/, burn, catch on fire; /ɲáč tisnún #/, I wake him up, I awaken him, from /sinún/, wake up, awaken (self); /wàksí hí tiswé #/, I'm fattening the cow, from /sé/, be fat; /ɲáč tihwáta #/, I'm making it red(der), from /hwát/, (be) red.

As stated in 3.3.1., one of the ways of forming the reciprocal is the prefix /ti-/ with the distributive suffixes, e.g., /ɲiθáč tilwáívikyu #/, they are married, i.e., they cause (ti-) to enter jointly (-v) into marriage, from /lwá/, wife, marry; /ɲiθáč tiswálv #/, They love each other, from /siwál/, love.

3.8.2. The prefix /či-/ means, cause to move/act, e.g., /hák čiskwí #/, I'm standing it up, from /sikwí/, be upright, be standing up; /čimíl/, I dropped it, I let/made it fall, from /míl/, fall; /máthíyač wíl čimínkwi #/, The wind blew the tree over, from /mín/, fall; /čikiát/, cut, from /kiát/, break, /čičkiát/, cut up, slash.

/či-/ plus the distributive suffixes is the other way of forming a reciprocal, e.g., /ɲiθáč čiéčuvčiéčva #/, we give to one another, from /é/, give, i.e., we participate jointly in giving. For a description of the distributive, see 3.3.1. The difference between the reciprocal with /či-/ and the one with /ti-/ is that with /či-/ there is mutual sharing of some material benefits, such as food, whereas with /ti-/ there is mutual sharing of some state or condition, such as marriage or love.

/či-/ is also used to mark the third-person imperative, i,e., have someone do something, e.g., /ɲiθé mčiám/, Have him go, Make him go.

There are also a rather large number of stems that always occur with /či-/, e.g., /čiθúl/, wash; /čiév/, eat up, consume; and there are other stems which almost always occur with /-č/, e.g., /čikiát/, cut, and /čiwé/, put/lay down.

3.8.3. The prefix /vi-/ means, cause momentarily/suddenly/quickly, cause to start to move, e.g., /ɲáč viskwí #/, I stand up, I get to my feet, from /sikwí/, be upright,

be standing up; /vinálkyu/, it fell off suddenly, it just dropped off, from /nál/, fall; /ɲáč visnúnvaka #/, I woke up all of a sudden, from /sinún/, wake up; /viyám/, run, from /yám/, go, walk; /vinám/, sew on a sewing machine, from /nám/, sew.

/vi-/ often means, to have just verbed, e.g., /vivákyu/, he has just arrived; /viwápam/, just as I sat down; /kwè mávičáv/, I've just finished eating.

A few words occur with /vi-/ plus /či-/ vs. /či-/ plus /vi-/ with contrastive meanings, e.g., /vičwó/, stop machinery/automobile; /čivyám/, start machinery/automobile, operate/run machinery/automobile.

3.8.4. The prefix /si-/ means, cause to be together/next to, and is often just an intensive, e.g., /sikwál/, mix together, from /kwál/, mix; /sihwák/, double, put side by side, from /howák/, two; /silél/, plow, from /lél/, tear.

There are many more bound stems with /si-/ than with any other causative prefix, e.g., /sikwí/, stand, have feet side by side, /sivók/, wait; /sičí(ví)/, comb, sweep; /siám/, close. There is one pair of words in which a contrast occurs between /si-/ and /ti-/ occurs that I cannot explain: /sikó/, non-solid barrier, fence, vs. /tikó/, solid barrier, dam, wall, from /kó/, hold (back). Derived meanings of course often cannot be predicted from the meaning of a root.

3.9. A verb may be nominalized by the addition of /ki-/(311), the agentive-participial marker, /-ó/(810), the location marker, /-í/(820), the instrument/tool marker, or a noun case ending. If a verb is nominalized, it may retain various verb affixes. It may be that infinitives and all other subordinate verbs may be best considered as nominalized verbs. But for the present, I am considering them as subordinate verb forms, as explained below.

3.9.1. The nominalizer /ki-/means, the one characterized by verbing. It is often the agentive of a verb, but it is also often a descriptive modifier of a noun, e.g., /kivsó/, herder, cowboy, from /visó/, look after, take care of; /kiθié/, healer, shaman, doctor, from /θié/, heal, cure; /kiɲimsávnu/, the white one, from /ɲimsáv/, white; /kičiálvinu/, the painted one, from /čiál/, paint, smear; /kiqéč/, the little one, from /qéč/, be small in size; /ki-/ forms many compounds with /kwé/, thing, or

some other noun, e.g., /kwèkičkwán/, butcher, one who kills things, from /kwán/, kill, plus the causative prefix /či-/. /ki-/ also forms many descriptive compounds with /ni-/, belonging to, of, from, e.g., /kinihát/, owner/raiser/breeder of animals.

3.9.2. Location nouns may be formed from verbs by the location suffix /-ó/(810), meaning, place where verbing is done. /-ó/ has the allomorphs /-ó/ after a consonant and /-wó/ after a vowel. Usually, /-č/(611), the distributive suffix precedes /-ó/, e.g., /kwèmáwó/, place to eat, place where someone eats/ate, vs. /kwèmáčó/, place to eat, place where eating is done often/reularly, place where people eat; /kwèhwálό/, field, garden, vs. /kwèhwálčó/, farm, extensive area under cultivation; /smáwó/, place to sleep, vs. /smáčá/, place where sleeping is done regularly, bedroom.

3.9.3. A verb may be nominalized by the instrument suffix /-i/(820), which means, instrument or tool with which to verb, e.g., /sičívi/, comb, broom, from /sičí/, comb, sweep, plus /-v/(422), indicating closeness to speaker; /siámi/, door, from /siám/, close; /kwètitúi/, (clothes)dryer, from /tú/, dry; /kwètóli/, cooking pot, from /tiól/, cook; /kwèvnámi/, sewing machine, from /nám/, sew.

3.9.4. Coordination and subordination are marked by conjunctions and a prefix. Conjunctions are suffixed to to verbs. They have the same shapes and very similar meanings as adverbial suffixes and case endings. Infinitives are also marked by conjunctions. The subordinating-linking prefix /ɲi-/ occurs with all three word classes. It has the same function with both verbs and nouns. It marks the item to which it is prefixed as dependent to or a modifier of something else in the sentence. /ɲi-/(321) means, related to, of, from. The conjunction /-m/(731) means, with, and, while, during. /-m/ also links coordinate verbs phrases in a clause or sentence. The conjunction /-k/(732) means, at, upon, after. /-k/(732) is also the infinitive marker and marks dependent verb phrases in a clause or sentence.

Some examples are: /kwí ɲivóm wá wá #/, When it rains, I stay home. The subordinate verb /vó/, come, has the subordinating prefix /ɲi-/ and the coordinating conjunction suffix /-m/, with, and, i.e., With the coming of the rain, I stay home, or, Of the rain comes,and I stay home. Structurally, /kwí ɲivóm/ looks just like any modified-

noun/modifier-noun phrase plus the ablative-abessive case ending /-m/(445), with, by, and possibly is best considered such. Syntax is beyond the scope of this present study; and until I have time to consider the structure of longer subordinate constructions containing several items such as objects and adverbs, I shall for the present consider this type of structure a subordinate verb clause, marked as described above, but it may well turn out to be that structurally it makes more sense to consider this type of construction a nominalized verb phrase.

Some further examples are: /kwè ɲimák yámčikyu #/, They left after they ate, whose subordinate verb is /má/, eat, plus the /ɲi-/ prefix plus the subordinating-conjunction suffix /-k/, near, at, after, i.e., At their eating they left, or, At (when) they ate, they left. /viyál ɲipáv máčm wíčwi #/, We regularly eat baked mescal. There are two verbs in this sentence illustrating two different types of phrase structure. /páv/, bake, roast, has the prefix /ɲi-/, which marks it as subordinate to, or a modifier of /viyál/, mescal. In this type of construction, in which a verb is dependent upon a particular noun, it does not have a conjunction suffix. The verb /má/, eat, is part of the main verb phrase. Since it is not a subordinate verb, it does not have the prefix /ni-/. It has the plural-subject marker /-č/(681) and is followed by /wí/, have, do, which also has the same /-č/ plus the aspect suffix /-wi/ (701). Literally, then, the sentence is, We eat and have mescal which (is) baked. /háč ɲiyámik yóhikwi #/, If/When he goes, he'll get it. /yám/, go, is marked as a subordinate verb by /ɲi-/ and /-k/ and is literally, At/On going, he will get it. /yimák ɲinamákčm pái vómčikyu #/, After we quit dancing, we all went home. /yimá/ dance, is an infinitive with the /-k/ ending, which is part of the subordinate verb phrase with the next verb /namák/, stop, quit. /namák/ has the prefix /ɲi-/ plus the plural-subject marker /-č/ plus the /-m/ conjunction, and is literally, And/With quitting to dance, we all went home. The final /-k/ of /namák/ is part of the stem and not a suffix.

The conjunction /-č/ indicates contrary-to-fact or unreal situation. An example is: /kwèmáɲ mátaópč úk pés tém wíač úk θò #/, If I didn't have to eat, I would

be rich. /kwèmáŋ/ is an infinitive which is part of the verb phrase containing /mátaópč/, were not to eat, and /úk/, be, come to be, with subordinate /-k/. /wíač/ is the first member of the second verb phrase containing /wí/, have, do, plus the /-a/ of the aorist tense plus unreal /-č/ and /úk/, and is followed by /θð/, if, when. However, further study of the syntax may make it necessary to consider this an equational sentence, composed of two nominalised verb phrases, i.e., more literally then, At not having to eat, then at having lots of money.

4. Morphology of Nouns

4.0. Nouns are relatively uninflected. Not counting verb affixes in nouns derived from verbs, there are only thirteen noun suffixes and one noun prefix plus one additional prefix with pronouns. Pronouns are a subclass of nouns. Nouns average two suffixes per word. The prefix is not very common with nouns, but both prefixes are fairly common with pronouns. Any noun suffix may be closing, but case endings are always closing. All of the oblique case endings have an alternate shape beginning with weak-stressed /-i/, i.e., /-ik/, /-il/, and /-im/.

4.1. Three numbers may be indicated for nouns: singular, paucal plural, and multiple plural. The singular is not phonemically marked. The paucal plural is marked by /-č/(411) and the multiple plural by /-č/(411) plus /-uv/(412). Suffixes with the same shapes and meanings also occur with verbs. The range of meanings of (411) and (412) is the same as for the two verb suffixes (681) and (682). This is discussed in detail in 3.2. above and is not repeated here except to say that /-č/ means, a few, some, and /-uv/ means, many, a lot. A plural noun is not always marked for plural; but since verbs are always marked for plural, it is always possible to tell if the subject of a verb is singular or plural. However, in most cases, a plural noun is marked by /-č/. If a noun is marked for multiple plural, the verb has only the plural suffix /-č/. Some examples are: /pá/, a man, /páč/, a few men, some men, /páčuv/, several men, many men. Pronouns also take the same endings.

4.2. There are two demonstrative suffixes: /-ɲ/(421), that, and /-v/(422), this. /-v/, this, means, very close to speaker, possibly even in physical contact with the speaker. /-ɲ/, that, means, fairly close to speaker, and often translates, this, also. Both /-ɲ/ and /-v/ may occur with a noun in the order /-ɲv/, and the meaning is then, halfway between /-ɲ/ and /-v/, e.g., /ólòv/, this horse, /ólòɲ/, that horse, and /ólòɲv/, that closer horse.

4.3. Four degrees of definiteness is marked in nouns by suffixation, but only the degree with /-a/ is common. The four degrees are: /-a/, the, a certain one, a particular one; /-i/, that, an indefinite one; /-u/, that other, an indefinite one;

and /-o/, the former, non-present, no longer existing, e.g., /wàlpáívač/, a certain Walapai; /wàlpáiɲič/, some Walapai; /wàlpáiɲuč/, some Walapai or other; and /káto/, lost dog, dog I used to have, dog that is gone now.

4.4. Walapai has a five-case system in which the nominative /-č/(441) and accusative /ø/ (442) are opposed to three oblique cases: the allative-adessive /-k/ (443), the illative-inessive /-l/(444), and the ablative-abessive /-m/(445). Only one case ending may occur with a noun or a pronoun at one time.

4.4.1. The nominative case /-č/ is the subject case; however, there is only one nominative in a sentence; and if there are two logical subjects of the verb, the second one is in the ablative case, e.g., /páčač vák yúčkyu #/, Some people came to see me, in which /pá/, person, has the plural suffix /-č/(411) plus the definite suffix /-a/(431) and the nominative case ending /-č/(441); /hátθáùač hmáɲm hwák tiáítávm yúčkyu #/, The dog and the boy are both happy, literally, young dog (nom.) with boy two very happy be, in which the grammatical subject /hátθáù/, puppy, has the nominative case ending, but /hmáɲ/, boy, has the ablative ending /-m/. The subject, then, is /hátθáùač/, puppy, which is part of a phrase /hátθáùač hmáɲm/, literally then, the puppy with the boy. In equational sentences there is also only one nominative; the subject has no case ending, i.e., is accusative case, and the complement is nominative, e.g., /ɲá apávč yí #/, I am a human being, in which /ɲá/, I, has no case ending except the accusative /ø/, and /pá/, person, human, has the nominative /-č/. The same is true of demonstrative sentences. e.g., /ɲiwá čénč yó #/, That is Jane, in which /ɲiwá/, that, is accusative, and /čénč/, Jane, is nominative. If the subject is part of a phrase, the last element in the noun phrase has the nominative case ending, no matter whether it is the subject or one of its modifiers, e.g., /wàmpór ɲináč hák yák/, The railroad goes through here, literally, locomotive its/belonging road here is/lies, in which /wàmpór/, locomotive is accusative and a modified noun, and /ɲá/, road, marked as the modifier noun by /ɲi-/ has the nominative case.

4.4.2. The accusative case, as already indicated above, has no case ending, i.e.,

is /ø/. I have posited one of my three zero morphemes here since the accusative is part of a series with four other members and since it always is clearly contrasted with the other members of the series. The accusative is the verb object case, e.g., /ǰáč wáí wá #/, I'm sitting in a chair, literally, I sit chair, in which /wáí/, chair, has no case ending but /ø/; /ǰáč í túčwi #/, I'm burning wood, in which /í/, wood, is an accusative with no phonemic ending.

4.4.3. The allative-adessive case is marked by /-k/(443) and means, location close to some point of reference, or direction toward some point of reference. The point of reference unless otherwise specified is the location of the speaker. Near or close to also includes, in physical contact with, e.g., on, against. Some examples are: /tépalk čiwókwi #/, I put it on the table, in which /tépal/ has the /-k/ ending meaning, on(to); /apáč čák wá #/, The man is sitting on top, having /čá/, top, plus the /-k/ ending meaning, on. /náč kipévak yámayu #/, I am going toward the hill, having /kipév/, hill, with the /-k/ ending meaning, toward, in the direction of; /ótúík/, on the stove, from /ótúí/, stove, plus /-k/, on.

The /-k/ ending also is used to express the partitive, i.e., one or some of a group, e.g., /hmáǰnač sítik/, one of the boys, from /sít/, one, plus /-ik/, the partitive, of, from among; /ǰáč hwákθik/, two of us, from /hwák/, two, plus the partitive /-k/. (/-θ/ sometimes occurs after numerals when they refer to persons.)

In chapter 3, the alternate solution of considering infinitives and subordinate clauses as nominalized verbs in oblique cases instead of verbs was discussed at length. The close resemblance of these forms, which I have for the present considered as subordinate verbs, to nouns with oblique case endings is quite clear. One last example is : /náč kwé vmáǰnik simákyu #/, He ate and then went to bed, having the infinitive or nominalized verb with the ending /-k/ meaning, (up)on eating, i.e., after eating, after he ate.

4.4.4. The illative-inessive case is marked by the suffix /-l/(444) and means, location inside or within some point of reference, or direction into or out of the inside of some point of reference, e.g., /ták kwéhwálal tárhártaópaywi #/, We won't

be able to work in the garden, having /kwèhwál/, garden, plus the /-a/ suffix plus the allative-inessive ending /-l/ meaning, in, within; /ótúíl/, in the stove, from /ótúí/, stove, plus /-l/, in; /wílač hál mán #/, The tree fell into the water, havi /há/, water, plus /-l/, into; /pái wál vàwírm #/, We all ran into the house, having /wá/, house, plus /-l/, into. Since the basic meaning of /-l/ is, in, depending on verb it occurs with, the meaning of the sentence can be into or from within, e.g., /ɲiθáč wílal čikpá #/, He climbed (into) the tree, from /čikpá/, climb/come up, vs. /ɲiθáč wílal nálk #/, He came down from (in) the tree, from /nál/, come/fall down/o

4.4.5. The ablative-abessive case is marked by the suffix /-m/(445) and means, location from or at a distance from some point of reference, or direction away from some point of reference. If the point of reference is not otherwise specified, it i the location of the speaker. Motion away from also includes passing by at a distanc Some examples are: /wím yámayu #/, I'm going toward the hill, having /wí/, mountain hill, with the /-m/ ending meaning, away from where speaker now is; /mátwítam/, fro out of Meriwitika Canyon; /ɲáč kwályàu siqáù kikwáθa kiɲímsávam sivùk #/, I'm separating the egg yellow from the white, in which /kikwáθa/, the yellow, is accusative as a verb object and /kiɲímsávam/, from the white, is ablative,having the /-m/ endi

The meaning,from, out of, also includes making something from/out of certain material, e.g., /kwákkwíɲθam máɲo yóvk #/, I made shoes out of buckskin, from /kwák deer(skin), and /kwíɲθ/, soft, plus the ablative /-m/; /wílavákm kùptó yévèm [illegible] We make baskets out od smooth, straight branches, from /wílavák/, straight branch w no knotches, plus the /-m/ ending.

Another function of the/-m/ suffix is instrumental, i.e., with a tool, e.g., /náč ɲikwáíča avónam taθkwíl #/, I washed the clothes with soap, having /avón/, soa plus the /-m/ suffix, with; /náč ɲà sál kwám čikiát #/, I cut my hand with a knife, having /kwá/, metal object, knife, plus /-m/, with.

Another meaning of /-m/, with, is accompanying, in addition to, and, with, a person or thing. In 4.4.1. in the discussion of verb subjects, it was shown that /- is used to connect or link independent items, much like conjunctions in some other

languages. In section 3, also it was shown that /-m/ is used to form verb phrases of independent verbs. A further example of linking is: /wálpáikwáúk háikúkwáúkm íče #/, We speak Walapai and English, having /wálpáikwáúk/, Walapai speech/language, as an accusative verb object, and /háikúkwáúkm/, white man language, with the ablative /-m/.

4.4.6. The vocative, marked in nouns by the suffix /-é/(451), and phonemically unmarked in pronouns, is outside the regular case system. It indicates that the person or thing is being addressed, e.g., /hmáné/, Boys!; /misí+é/, Girls! There is one form in my corpus apparently having the definite /-a/(431) after a vocative, i.e., /páčéa/, People!, Indians!

4.5. Subordinate nouns are marked by the prefix /ɲi-/(111), and this indicates that the item to which it is prefixed is dependent upon or modifies the preceding noun. It may also be that what I have classified as the verb subordinating suffix /ɲi-/(321) is the same as 111 if subordinate verbs are nouns as discussed above.

It is difficult to see a difference of function or meaning between a compound noun and a noun phrase with /ɲi-/. The /ɲi-/ indicates, being possessed, or characterized by, e.g., the noun compound /wáksímáí/, cow milk, vs. the phrase /wáksí ɲimáí/, cow's milk, milk of/from cow(s); /[illegible] ɲiwá/, town, city, literally, Anglo his abode.

4.5.1. Pronouns, which are a subclass of nouns, in addition to /ɲi-/ also have the prefix /vi-/(121), an intensive prefix, e.g., /wá/, that (one), /ɲiwá/, that (one) there, /ɲiviwá/, that (one) right there.

4.6. There is a system of demonstrative-spatial pronouns that indicate varying degrees of remoteness from the speaker. The pronouns also occur with the definiteness markers, decade 430, and the case endings, decade 440. The demonstrative-spatial system consists of a set of stems plus the definiteness markers. The system is diagrammed below. All members of the pronoun subclass combine with /vi-/, and all member except /ká/, combine with /ɲi-/ also. /ká/ with question intonation means, who? In a state-/ká/, means, someone, somebody. In a negative statement /ká/ means, no one, nobody. In talking about something that is out of sight, probably /θá/ is the most commonly

used pronoun.

vɨ́	this, very close
yɨ́	this, rather close
wɨ́	this, close
ɲú	that, far away
wá	that, rather far away
há	that, very far away
θá	that, previously mentioned
ká	who, which, someone, no one

5. Morphology of Particles

5.1. Particles are few in number. They include four subclasses: adverbs, articles, possessive pronouns, and interjections. The demonstrative-spatial system described just above applies also to the adverbs of place. The intensive prefix /vi-/ (22:) occurs with all adverbs of place, and the prefix /ɲi-/ occurs with all of them except /ké/, where? The adverbs of place are marked by the suffix /-é/(51:), which means, place where, /-é/ does not occur with the stem /-ɲ/. The system then is:

vé	here, very close
yé	here, rather close
wé	there, rather far away
hé	there, very far away
θé	there, previously mentioned
ké	where

5.2. There are four articles: /và/, /yà/, /wà/, and /hà/. They are invariable, and they occasionally occur before nouns. They have the same meanings as their primary-stressed counterparts, the demonstrative-spatial pronouns, e.g., /và pá/, the man, this man; /wà pá/, the man, that man.

5.3. There are two possessive pronouns: /ɲà/, my, and /mà/, your, e.g., /ɲà mát/,

my meat, and /mà mát/, your meat. Younger Walapai use these two phrases only to mean, my body, and, your body, respectively. A possessive pronoun may be repeated in a phrase with /wí/, have, possess, /mà mát mà wínu/, your meat, that meat of yours.

There is no third-person possessive pronoun. Often /pá/, man, male, and /paqí/, woman, female, are used like third-person possessive pronouns. The younger Walapai have almost adopted the subordinating suffix /ɲi-/(¹¹¹) as a third-person possessive pronoun. This seems to be a reshaping of the older use of /pà/ and /mà/ before a noun with /ɲi-/, in which third-person possession is marked by /Ø/. The two systems are diagrammed below. (N=noun stem.)

OLD SYSTEM	NEW SYSTEM
nà ɲi-N	nà N
mà ɲi-N	mà N
Ø ɲi-N	ɲi N

5.4. There are a few miscellaneous particles: /tú/, very,very, /é/, yes, /óp/, no, /ánák/, ouch. /é/ and /óp/ could be considered just the verbs /é/, say yes, agree, and /ó/, say no, forbid; but I consider them particle by-forms since as particles they are always invariable and in absolute position.

There are three particles that are temporal adverbs: /mér/, later; /kúra/, some time ago; and /tív/, about to, right away. These adverbs are often used as sort of tense markers, especially with verbs that don't have aspect suffixes.

BIBLIOGRAPHY

Biggs, Bruce,

Testing Intelligibility Among Yuman Languages

International Journal of American Linguistics

Volume 23, Number 2

Waverly Press

Baltimore

1957

Jakobson, Roman, Fant, C.Gunnar M., Halle, Morris

Preliminaries To Speech Analysis

Technical Report No. 13

Massachusetts Institute of Technology

Cambridge

1952

Kroeber, Alfred L.,

Classification of the Yuman Languages

University of California Publications in American Archaeology and Ethnology

Volume 1, Number 3

University of California Press

Berkeley

1943

Sapir, Edward

Central and North American Languages

Encyclopaedia Britannica

14th edition, 5:138-144

Encyclopaedia Britannica Co.

London and New York

1929

Sapir, Edward

Central and North American Languages, reprinted in

Selected Writings of Edward Sapir

Mandelbaum, David G., ed.

University of California Press

Berkeley

1958

Seiden, William

Havasuapai Phonology and Morphology

Indiana University Ph.D. Dissertation

Bloomington

1963

Spicer, Edward H.

Cycles of Conquest

University of Arizona Press

Tucson

1962

Voegelin, C.F., Voegelin, E.W.,

Map of North American Indian Languages

American Ethnological Society

Publication No. 20

J.J.Augustin, Inc.

New York

1944

Voegelin, C.F., Voegelin, F.M.,

Languages of the World: Native America Fascicle One

Anthropological Linguistics

Volume 6, Number 6

Indiana University

Bloomington

1964

Walapali Papers

U.S.Senate Document 273

74th Congress, 2d Session

U.S.Government Printing Office

Washington

1936

Winter, Werner,

Stories and Songs of the Walapai

Plateau

Volume 35, Number 4

Museum of Northern Arizona

Flagstaff

1963

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