

## PIRO PHONEMES AND MORPHOLOGY

Esther Mattoson

The Piro are a linguistic group of the Urubamba River, Peru. The language is of the Arawak family, demonstrably related to the neighboring Machiguenga and Campa, but not mutually intelligible with any other language analysed so far. The Piro themselves report a distinct but mutually intelligible language, which they call that of the Manchine in the Madre de Dios department of Peru.

### I. Phonemes

1. Formation of phonemes. Piro has sixteen consonant phonemes, and five vowel phonemes: p, t, t<sup>v</sup>, c, č, k, s, š, x, h, l, r, n, ŋ, w, and y; i, e, a, o, and ɨ.

Stops, affricates, and fricatives and the vocoid h are voiceless. The stops and affricates are unaspirated. p is bilabial; t, t<sup>v</sup>, and c vary from the alveolar to the dental position. t<sup>v</sup> is a palatalized alveolar stop. č is alveopalatal; k is velar. The fricatives occur at the alveolar, alveopalatal and palatal points of articulation. The voiceless vocoid h is nasalized. It has the timbre of surrounding vowels.

The voiced lateral l, though it is a continuant, is similar in distribution to r rather than to the group of continuants in that l is restricted in word initial occurrence, occurs only as the third member of a CCC cluster, and does not occur in geminate clusters. The flap r varies after n to the voiced alveolar stop [d], and in the speech of some to the voiced retroflexed alveolar fricative with r off-glide [ɻ<sup>r</sup>], especially before o and ɨ.

The four voiced continuants m, n, ŋ and y are formed at the points of articulation traditionally indicated by the symbols. The bilabial w varies to the voiced bilabial fricative before front vowels, and to close mid in consonant clusters.

The vowels are formed in the positions indicated by the symbols. Front vowels i and e vary freely toward an open position. The central a is occasionally raised slightly in word-final position. The back rounded o varies freely to [u]. The back unrounded ɨ varies from close to open depending on surrounding consonants, being close following l and r, and reaching its most open position following the nasals and w.

All voiced continuants, whether vocalic or consonantal (except l), occur with length. They are interpreted here as clusters of identical consonants and vowels because clusters of non-similar consonants do occur, although there are no vowel clusters.

Occurrence of all twenty-one phonemes is illustrated in the following words: šweylá [šbeylí] 'humming bird'; hiscimta 'its border'; pčokorixre 'your harpoon'; tYani 'now'.

2. Non-phonemic features. Primary stress of words occurs on the penultimate syllable, and secondary stress on the first syllable. In words with an even number of syllables a slight stress occurs on all odd-numbered syllables. In words with an odd number of syllables a slight stress occurs on all odd-numbered syllables except the one immediately preceding the primary-stressed penultimate syllable. When not utterance initial, words of one syllable as well as unprefixed nouns of a certain class (see Section III, 4.1.5, Class III) are fused with the preceding word, the two words having only one primary and one secondary stress. Utterance stress occurs about equally on the first and penultimate syllables. However, in calling and exclamation the stress may be moved to the final syllable with raise of pitch and lengthening of the final vowel.

The intonation has not yet been analysed.

There is a special transition feature in all consonant clusters. The commonest phenomena of consonant-cluster transition are the syllabification of the first member of the cluster, and the occurrence of voiceless or voiced neutral vocoids [ə] and [ɐ] following the first member of a cluster. The transition vocoid is voiced if either member of the consonant cluster is voiced. The clusters Cy, word-initial xr, and word-medial xh have high front unrounded transition vocoids, conditioned by the palatal consonants. All consonant clusters are pronounced with one or the other of these three main types of transition, other types of transition being free variants of these three.

A detailed description of the types of transition follows.

In a cluster consisting of a stop plus a voiceless consonant, the transition vocoid is [ə], except that in the cluster kx the [ə] fluctuates freely with voiceless [i] and voiceless [ɥ].

When a stop is followed by a voiced consonant, the transition vocoid is [ɐ], with the following exceptions: In word-initial km, [ɐ] varies freely with [o]. In pn a voiceless [ə] was recorded in free fluctuation with voiced [ɐ]. This may have been due to an error in recording. In word-medial tYr, [ɐ] varies freely with [i] and [ɥ]. When a stop precedes y, the transition vocoid is always [i].

When c precedes a voiceless consonant, the fricative segment is syllabified, or voiceless [ə] follows the c. When c precedes a voiced consonant other than y, the transition vocoid is [ə]. When c precedes y, the transition vocoid is [i].

When č precedes a voiceless consonant, the transition vocoid is [ə]. When č precedes a voiced consonant, the transition vocoid is [ɐ], except

that in the cluster  $\check{c}r$ , the [ə] varies freely with [ʌ] or [i], and in the cluster  $\check{c}y$  the transition vocoid is [i].

When the voiceless fricatives s, š, and x precede a voiceless consonant, the fricative is syllabified, except that in the cluster xp, the syllabified [x] fluctuates freely with [x<sup>1</sup>]. When s immediately precedes any voiced consonant, the transition vocoid is [ə]. When š precedes the bilabial voiced consonants m and w, the š is either syllabified, or it is followed by [ə]. When š precedes the alveolar voiced consonants n and r, it may be followed by the transition vocoids [ə], [i], or [ʌ] in free variation. When š precedes l, the transition vocoid is [ə]. When š precedes y, the transition vocoid is [i]. When x precedes nasals m and n, the x is either syllabified or followed by a transition vocoid [ʌ]. When x precedes r or w, the transition vocoid is [ə], [i], or [ʌ] in free variation. When x precedes y, the transition vocoid is [i] or [ʌ].

h precedes only voiced consonants. When it precedes n, the transition vocoid fluctuates freely between [ə], voiceless [ə], and [o]. When h precedes n, l, r, and w, the transition vocoid is [ə]. When it precedes y, the transition vocoid is [i], with free variation word-medially between [i] and voiceless [i̥].

Each of the voiced consonants is slightly syllabified when it precedes any other consonant, with the following exceptions: there is free variation between the syllabified consonant and [C<sup>ə</sup>] in the clusters nk (word-initial), nr, nw, and nh (word-initial), nw (word-initial), lh, wt, wt<sup>y</sup>, wc, wč, ws (word-initial), wx (word-medial), wš, wn, and wh. The consonant is not syllabified, but the transition vocoid occurs, in the clusters mn, ml, nm, nw (word-medial), wl, and wr. Before y, syllabified l and n vary freely in word medial position with [l<sup>1</sup>] and [n<sup>1</sup>]. The other consonants preceding y are not syllabified, but the transition vocoid [i] occurs. In the cluster wy, there is free variation between the transition vocoids [i] and [ə].

Transition vocoids are never stressed, and are less in strength and duration than are the vowel phonemes.

3. Distribution. The form of the words is (C<sup>±</sup>C<sup>±</sup>C<sup>±</sup>V)<sup>14</sup>, the raised numeral indicating that the sequence may be repeated up to fourteen times. V is any vowel, and C is any consonant, subject to the restrictions described below.

The lateral l does not occur in word-initial position except in loan words. The flap r does not occur in stem-initial position except in loan words.

The following clusters of two consonants have not been found: geminate clusters, other than those of voiced continuants; alveolar stops and affricates preceding alveopalatal stops and affricates or s, and vice versa; alveolar or alveopalatal stops preceding homorganic affricates and vice versa; alveolar and alveopalatal voiceless consonants,

except t, preceding š; x preceding the affricates and the other fricatives; c and s preceding x; h preceding any voiceless consonant; n preceding l; l preceding r, and vice versa; y before tʃ and c; and c before n. The last two may be found later.

The following additional clusters of two consonants have not been found in word-initial position: tʃ preceding any consonant; č preceding x, n, or ŋ; voiceless alveolar and alveopalatal affricates or fricatives preceding h; c preceding w or y; any consonant except p, n, and w before tʃ; a palatal consonant before an alveolar, alveopalatal or palatal consonant, except for yy; x, š, and w before l; s preceding y; š preceding the affricates or fricatives; š or y preceding n. The clusters of three consonants which have been found are as follows:

Word-Initial Clusters

pkł	txw	nmh
pkn	tnh	nmł
pčk	tnł	wpl
psł	twh	wks
pxp	kwh	wkm
pxw	nph	wkn
pnh	npl	wčk
pml	nks	wsl
pwh	nkl	wxp
tpl	nkn	wxw
tkł	nkx	wrh
tkn	nčk	wmł
tkn	nsł	wml
txp	nxw	
	nmč	

Word-Medial Clusters

phy	wmr
pnx	ypl
rny	ypr
ntk	ykl
ntl	ywn
ntn	
ntn	
ntw	
nky	
nhx	
wrp	
wrk	
wrx	

Examples of words with clusters of three consonants: nknoyate 'my turtle'; pčkotite 'your white monkey'; rasikantna 'they ran right away'; renekantli 'he loaned it'.

A few consonant-vowel sequences do not occur: l following i, e, ɨ; (there is one exception, the word tsɨlala 'a small monkey'); x preceding a (in the dialect upon which this paper is based); s preceding i except in the one word sitʃo 'woman'; č, k, š, or tʃ preceding ɨ.

4. Orthography. An orthography is in current use among the Piro. Symbols differing from the phonemic symbols are listed below. Conformity to Spanish orthography influenced the selection of orthographic symbols.

Phonemic Symbol	Orthographic Symbol
tʲ	x
c	ts
ç	ch
s	sh
x	j
h	g
ʔ	u

In the succeeding sections of this paper the orthographic symbols will be used.

## II. Morphophonemics

1. Phonologically defined changes. When consonants which do not occur in clusters together (Section I) are juxtaposed in contiguous morphological forms, the following morphophonemic changes occur:

Clusters of \*pp, \*tt, \*kk, \*jj, \*ll, \*rr, and \*gg are reduced. Word-initially, \*CC > C: p- 'you' (sg.) + -pika 'fear' > \*ppika > pika 'you fear'. Word-medially V<sup>1</sup>CC > V<sup>1</sup>V<sup>1</sup>C: nika 'it eats' + -ka Passive > \*nikka > niika 'it is eaten'.

Clusters of \*tch, \*tts, and \*tx are reduced by loss of the first member of the cluster: C<sup>1</sup>C<sup>2</sup>t- 'she': -chanixa, chanixa 'she invites'.

The cluster \*nl > nr: china 'say' + -lu 'it' > \*chinlu > chinru.

The cluster V<sup>1</sup>rl > V<sup>1</sup>V<sup>1</sup>lr: gira 'drink' + leta Complexive > \*girlleta > giireta 'to drink'.

The cluster \*jch > sch: noji 'wing' (possessed) + chi Nominal > \*nojchi > noschi 'wing' (absolute).

The cluster \*gp > np: g- 'you' (pl.) + pogineta 'hear' > \*gpogineta > npogineta 'you hear'. In all clusters of g followed by voiceless consonant other than p or g, \*gC > nC: g- 'you' (pl.); shishpoklu 'skin it' > \*gshishpoklu > nshishpoklu 'you skin it'.

The cluster \*ts is reduced to the unit phoneme ts: t- 'she': tsaplewata 'scream'; tsaplewata, the ts being a single phoneme, pronounced without transition vocoid.

There are also morphophonemic variations due to the distribution of consonants in relation to vowels. The consonant l becomes r after i, y, and u: ganjita 'ask' + -le- Complexive > \*ganjileta > ganjireta 'to ask'. In one case l > r after a non-consecutive succession of front phonemes, possibly

because of the number of front phonemes in the word: nsheyipre 'my towel': n- 'ny' + sheyi- 'wipe' + pi 'gadget' + -lu Infinitive + -V > e Possessive.

2. Morphologically defined changes. It is characteristic of certain suffixes and postclitics occurring as bound forms that the preceding vowel is not retained before them, and of others that the preceding vowel is retained before them. These latter are marked by -V-: getashpotuta 'to just see well' < geta 'see' + -Vsha 'just' + potu Intensifier + -Vta Verbal; getpotushata 'to just see well' < geta 'see' + potu Intensifier + -Vsha 'just' + -Vta Verbal. With all suffixes the preceding vowel is retained if its loss would result in a cluster of three consonants: gerkapotuta 'wash well' < gerka 'wash' + potu Intensifier + -Vta Verbal. The preceding vowel is also retained when immediately following a stem of one syllable.

Class I prefixal person markers replace the initial g- of the stems with which they occur. When word-initial g- is replaced by any other phoneme before -i-, the i > u: nutaka 'I put' < n- 'I' + gitaka 'put'. The Class I verb gixa 'to be' is an exception to this statement, in that the stem-vowel i is not changed to u following the various person-marker prefixes.

### III. Morphology

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4. The noun
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7. The adverb
8. The particle
9. The interjection
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#### 1. Introduction.

1.1 General structure of the language. The Piro language is composed of major word classes--verb, noun, pronoun, adjective, adverb, particle; and minor word classes--the interjection and onomatopoeic words; plus seventy-four affixes and clitics, the greater part of which occur with all of the major word classes.

The form of simple stems is (C ± C ± C ± V)<sup>6</sup>. That of stems plus affixation is (C ± C ± C ± V)<sup>14</sup>. Forms of words here and throughout the paper are symbolized by CV representing consonant-vowel sequences in which V is a vowel, and C is a consonant subject to restrictions of occurrence

as described in Section 1.3. A raised number after a parenthesis indicates that the sequence within the parenthesis may be repeated up to that number of times.

The -i or -u masculine and -e feminine of gender differentiation have been treated for convenience as marking allomorphic alternants of the suffixes with which they occur, rather than constituting separate suffixes. Gender is assigned to all nouns, and reference to the noun consistently recognizes the gender, even to the extent of stating that "he laid eggs" and that the "father sits on the nest".

Three types of pluralizing suffixes occur as will be seen in Section 2: -kaka 22 'each', -Vne 27 Plural of human beings and animals, and the Person Markers 07. However, the plural is frequently represented by the singular. This is most common with inanimate objects, insects, fish and reptiles: tupnanatka 'she has now died' may mean that a large swarm of gnats has been exterminated. To a limited extent, the singular may represent the plural of human beings: wanna Cantirishi gapoka 'they Andrew arrived' means that Andrew and a group with him have arrived.

The negative and privative affixes, preclitics gi and na, and the prefix na- 003 are particularly interesting in view of the fact that a negative or privative of an opposite idea is the strongest superlative. "Not ugly" is far more of a compliment than 'very beautiful', and in a love story text the bride said, "Then I didn't abhor him."

Reduplication occurs in some stems, especially in the names of birds: chpichpi 'pallari'. Occasionally affixes are reduplicated for emphasis: iwajejetkatu 'that which has never been' < n- Privative + gwa 'be' + -je- + -je- 'always' + -Vta Verbal + -ka Passive + -Vtu Nominal; kapatmenmenu 'cause for shame' < ka Having a certain attribute + pat- 'shame' + -menu+ -menu 'cause'; yinuwaka ginkakletletlu 'he began to tell him, he did' < yinuwak: 'begin' + ginkaka 'tell' + -le- + -Vta + -le- Auxiliary + -Vta Verbal + -lu 'him'.

1.2 Plan of presentation. For the purposes of this paper 'word', 'root', 'non-root' and 'stem' are defined as follows: A word is a minimal meaningful utterance which occurs in isolation + the listed non-roots of Orders 000 and 00 to 100. A root is a word minus the listed non-roots of Orders 000 and 00 to 100 (see Section 2.4). A stem is a root plus or minus an affix which determines word class; that is, a root plus or minus another root plus or minus a verbal -ka 11, -Vta 21, -kaka 22, -Vga 23, or -jixa 24, or a nominal -lu 15, -menu 17, -Vlu 25, -Vtu 26, -Vnu 28, -Vwaka 61, -Vyaka 63, or -Vchi 100.

The assumption that the break between inflection and derivation is between affixes of Orders 000 and 10 is of convenience more than of logic. It is based chiefly on the limited and arbitrary selection among the forms assumed to be derivational, in sharp contrast to the freedom with which the "inflectional" affixes combine with the stem. It might well be argued that the verbal -Vta 21, the intransitivizer -Vwna 12 and the semelfactive

-Vka 11 should be included in the stem. That would, however, result in an awkward description since they are replaceable, even with bound stems, by affixes of the type generally considered inflectional, specifically by -Vga 23 Hortatory, and -jixa 24 Proxy. Moreover -Vta 21 Verbal may optionally be preceded by several other "inflectional" items.

Again, it might be argued that the incorporation of free forms is derivational, but here, likewise, their listing with the inflectional forms which they parallel in occurrence is a convenience, as explained under Suffix 31 in Section 2.4. Since most of the non-roots occur in essentially the same order with all major word classes, the description of the non-roots by centuries and decades precedes the discussion of the word classes. This obviates the necessity of repeating separately under each word class the description of features of affixation common to various word classes. The definition of each succeeding word class implicitly excludes word classes previously defined.

2. Non-roots. The non-roots consist of postclitics, preclitics and affixes.

2.1 The postclitic. Postclitics are forms which function in rare instances as free forms, but occur with great frequency among the suffixes of all the major word classes. They occur in orders 22, 31, 76, 77 and 91 as described in Section 2.4.

These forms are composed of a single morpheme, such as sha 'only', or of a free form plus a bound form, as in gogne 'extensive' < gogi 'expansive' + -ne Possessive. The forms of postclitics are included in the formula (C + C + V)<sup>2</sup>.

The most common postclitics are those in the following list. Only those of Order 31 are described in detail here. For further information regarding the postclitics of other orders, see listings under the appropriate order in Section 2.4.

(1) gapka 31 'first', 'next in succession': getgapkata 'be the first to see' < geta 'see' + gapka 31 'first' + -Vta 21 Verbal; gitgapka 'no first' < gita 'no' + gapka 31 'first'.

(2) getko 31 'maybe': getgetkota 'may see' < geta 'see' + getko 31 'maybe' + -Vta 21 Verbal; tsrugetkoni 'maybe it is big' < tsru 'big one' + getko 31 'maybe' + -ni 73 Assertive.

(3) gina 31 Quotative: getginata 'be said to see' < geta 'see' + gina 31 Quotative + -Vta 21 Verbal; kshotergina 'it is said to be a deer' < kshoteru 'deer' + gina 31 Quotative.

(4) gogne 31 Expansive, of time or space: getgogneta 'see all the time' < geta 'see' + gogne 31 Expansive + -Vta 21 Verbal; gitsrukachigognenanyi 'you are permanently chief' < gitsrukachi 'chief' + gogne 31 Expansive + nanu 31 Distributive + -yi 02 'you'.

- (5) *gonu* 31 Exclusive: *gotgonutlu* 'see him rather than someone else' < *gota* 'see' + *gonu* 31 + *-Vta* 21 Verbal + *-lu* 03 'he'.
- (6) *kaka* 22 Causative, Reciprocal, 'each'.
- (7) *koxa* 91 'also'.
- (8) *kta* 76 Generalizer.
- (9) *naka* ~ *nka* 77 Optative.
- (10) *menu* 17 'cause'.
- (11) *minje* 31 Privative. Occurs with adverbs, particles and pronouns: *waneyminjetu* 'that which is not thus' < *wane* 'thus' + *-ya* 42 Indirective + *minje* 31 Privative + *-tu* 26 Nominal.
- (12) *mmu/o* 31 'unit'. *mmu* is masculine and *mno* feminine. Occurs with adjectives, nouns and pronouns: *gepinnuro* 'double feature (in design)' < *gepi* 'two' + *mmu* 31 'unit' + *-lo* 25 Individual.
- (13) *Vnanu* 31 Distributive. When incorporated into a verb, the particle must be followed by *-Vm-* 38 Superficial: *getananumta* 'see a number of items' < *gota* 'see' + *nanu* 31 Distributive + *-Vm-* 38 Superficial + *-Vta* 21 Verbal; *waneyalutu nanu* 'that which is thus throughout' < *wane* 'thus' + *-ya* 42 Indirective + *-lu* 15 Infinitive + *nanu* 31 Distributive.
- (14) *pguta* 31 'appear': *getpgutata* 'appear to see' < *gota* 'see' + *pguta* 31 'appear' + *-Vta* 21 Verbal; *wale pguta* 'it appears to be he' < *wale* 'he' + *pguta* 31 'appear'.
- (15) *pja* 31 'only'. Occurs with nouns, pronouns, and adverbs: *gita-pjani* 'it is only I' < *gita* 'I' + *pja* 31 'only' + *-ni* 73 Assertive.
- (16) *poko* 31 Manner, 'how', 'arrangement': *getpokota* 'see how' < *gota* 'see' + *poko* 31 'how' + *-Vta* 21 Verbal; *kiglepoklutu* 'mediator' < *kigle* 'good' + *poko* 31 'arrangement' + *-lu* 15 Infinitive + *-Vtu* 26 Nominal.
- (17) *potu* 31 Intensifier of result: *getpotuta* 'see well' < *gota* 'see' + *potu* 31 Intensifier + *-Vta* 21 Verbal; *wanepotuko* 'just like that' < *wane* 'thus' + *potu* 31 Intensifier + *-ko* 52 Emphatic.
- (18) *sha* 31 'just', 'only': *gctashata* 'just see' or 'allow' < *gota* 'see' + *sha* 31 'just', 'only' + *-Vta* Verbal; *katslu-sha* 'cane thicket' < *katslu* 'cane' + *sha* 31 'just', 'only'.
- (19) *yegi* 31 'where', 'in behalf of': *yayegita* 'go where' < *ya* 'go' + *yegi* 31 'where' + *-Vta* 21 Verbal; *wixyoglu* 'he is where we are' < *wixa* 'we' + *yegi* 31 'where' + *-lu* 03 'he'.

(20) yna 3l 'with'. Occurs with nouns and pronouns: waleymano 'I am with him' < walo 'him' + yna 3l 'with' + -no 0l 'I'.

Postclitics have valence to a head word which is a member of one of the major word classes, rather than to one another, except in a few instances in which the postclitic occurs without a head word. Postclitics have been found functioning as separate words prefixed by ka- 004 Having a certain attribute: kgonra 'being the one < ka- 004 +gonu 3l Exclusive+ -la 103, which calls attention to the subject. The postclitics naka and nnu have been noted in utterance-initial position, and gina, kta, and koxa occur only preceded by the preclitic gi Negative or Interrogative in utterance-initial position. In these cases the other clitics and/or affixes have valence to the postclitic occurring first. The order of the following clitics and/or suffixes is:

Stem:	22	3l	9l	4l	5l	62	77	73	92
	kaka	gina	koxa	-pa	-ka	kawa	naka	-ni	-ge

Examples: nakakta 'but', 'whereas' < naka 77 Optative + -kta 66 Generalizer; gi ginapni 'they say it was not so' < gi Negative preclitic + gina 3l Quotative + -pa 4l Change of state + -ni 73 Assertive.

2.2 The preclitic. A preclitic is a free form pronounced as one phonetic unit with the head word which it precedes. Preclitics are all single morpheme CV forms, as follows:

(1) ga. Occurs singly, reduplicated, or preceding the other preclitics gi or wa. ga Exclamatory: ga! wanotkalu 'Oh, there he is!' < ga Exclamatory + wanotkalu 'he is there now'. ga (preceding gi) Exclamatory: ga gi rixa! 'Well! Why not!' < ga Exclamatory + gi Interrogatory + rixa 'it is'. ga ga Points to or indicates: ga ga tujra 'there it is' < ga ga Indicator + tujra 'it there'. ga wa 'but', 'on the other hand': pinrine getlu ga wa pinrine gi gotlu 'Some saw it but others did not' < pinrine 'some' + getlu 'saw it' + ga wa 'but' + pinrine 'some' + gi Negative + getlu 'saw it'.

(2) ge Interrogative. Occurs reduplicated or following preclitic gi. ge ge Interrogative expecting negative answer. Used infrequently: ge ge punatlu? 'Did you know it?' < ge ge Interrogative + punatlu 'you know it'. gi ge Interrogative, primarily expecting positive answer: gi ge punatlu? 'Didn't you know it?' < gi ge Interrogative + punatlu 'you know it'.

(3) gi Negative, interrogative or exclamatory: gi kigleru 'it is not good' < gi Negative + kigleru 'good'; gi pejnu? 'how many?' < gi Interrogative + pejnu 'many'; gi psonanru! 'How big it is!' < gi Exclamatory + psonanru 'it is big'.

(4) na Privative. Occurs with verbs and nouns: na nunatkotu 'that which is not known' < na Privative + n- 003 Privative + ginata 'know' + -ko 52 Anticipatory Passive + -Vtu 26 Nominal.

(5) pa 'one', 'another', 'some'. Occurs with nouns and adjectives: pa gogne 'some day' - pa 'some' + gogne 'day'.

(6) wa Pause word, 'the', 'that', 'and', 'because': wa jeji 'the man' - wa 'the' + jeji 'man'.

Preclitics do not occur with affixes.

2.3 The affix. The form of the affix is  $C \pm C \pm V \pm (C+V)$ . The affix is properly, of course, a form which invariably occurs as a bound form. However, for convenience in this paper the word "suffix" will hereafter refer to either suffix or postclitic, except where a distinction is stated.

Most of the Piro non-roots occur in the same general relative order with the various word classes. Inasmuch as verbs have the highest frequency of affixation, decades of non-roots have been set up on the basis of their order of occurrence with verbs. The only deviation from the order indicated in this section will be indicated in the notes accompanying formulae of the various word classes. When within a decade, there are suffixes occurring only with verbs and suffixes occurring only with nouns, those occurring with verbs precede those occurring with nouns. Unless its occurrence is specifically stated, a suffix occurs with all major word classes.

#### 2.4 Centuries and decades of non-roots.

00. Prefixes occurring with all major word classes except the particle: Person Markers.

	Possessive Prefixes with Noun Classes			Subject Prefixes with Verb Classes		Object Suffixes	Predicativizing Suffixes
	III	II	I	II	I		
01	no-	n-	n-	n-	n-	-na	-na
02	pu-	p-	p-	p-	p-	-yi	-yi
03	gi-	Ø-	r-	Ø-	r-	-la	-la (ni 63)
04	to-	t-	t-	t-	t-	-i	-i (ni 63)
05	wu-	w-	w-	w-	w-	-wu	-wu
06	gi-	Ø-	g-	g-	g-	-gi	-gi
07	gi-...-na	Ø-...-na	r-...-na	Ø-...-na	r-...-na	-na	-na (na *nina 63 + 7)

Translations are as follows: 01 first person singular, 02 second person singular, 03 third person masculine singular, 04 third person feminine singular, 05 first person plural, 06 second person plural, 07 third person plural.

The prefixal Person Markers and the suffixal Person Markers each constitute classes of mutually exclusive units. However, a suffix and a prefix may occur simultaneously: notyi 'I see you' < n- 01 'I' + geta 'see' + -yi 02 'you'; noprayi 'you are my pet' < no- 01 'ny' + pra 'pet' + -yi 02 'you'. Prefixes occur with nouns and verbs as indicated in the paradigms; object suffixes occur with verbs; and predicatizing suffixes occur with everything but verbs. In the third person -ni 63 occurs instead of 03 and 04 and with 07 after -lu 25 Individual. Since each item of a vertical column occurs with complete regularity wherever any one item occurs, the Person Markers are not listed in detail in the formulae.

000. Prefixes occurring with nouns and verbs.

001 go- Extends or prolongs the action of a verb; lengthens the object named by a noun. Is prefixed as a Class I noun or verb: roganjita 'he asks and asks' < r- 03 'he' + go- 001 + ganji- 'ask' + -Vta 21 Verbal; gojepiru 'the long-eared one' < go- 001 + jepi 'ear' + -Vlu 25 Individual.

002 gi- Indicates that the subject cooperates with the object in the action. Occurs only with verbs and verbal nouns, taking the prefixes of a Class I Verb: numunkakyi 'conversing with you I tell you' < n- 01 'I' + n- 003 Privative + gi- 002 + ginkaka 'tell' + -yi 02 'you', a courteous form of speech in contrast to nunkakyi 'I tell you' < n- 01 'I' + ginkaka 'tell' + -yi 02 'you'.

003 n- na- Privative. na- occurs with nouns of Class III, and in free variation with ni- before verbs of Class II. It occurs apparently without meaning following the prefix gi- Cooperative with certain arbitrarily selected verbs (note example above): najnakotu 'deaf' < na- 003 + jnako 'ears' + -Vtu 26 Nominal.

004 k- ka- Having a certain attribute, belonging to a class. The variant ka- occurs before nouns of Class III and certain listed verbs of Class II.

Prefixes 001, 002, 003, may occur simultaneously in the order listed: nogimunkakyi 'conversing with you I tell you at great length' < n- 01 'I' + go- 001 Extensive + gi- 002 Cooperative + n- 003 Privative + ginkaka 'tell' + -yi 02 'you'. Prefix ka- 004 has not been found occurring simultaneously with the other prefixes of Order 000.

10. Suffixes occurring with verbs, nouns and pronouns.

11 -Vka Semelfactive. Occurs with nouns and verbs: kotpuka 'open once'. Contrast kotputa 'open repeatedly'.

12 -Vwna Intransitive verbal or verbalizing suffix. Occurs with verbs only: tseruwna 'grow' < tseru 'big object' + -Vwna 12.

13 -no Possessive. Occurs with nouns only: nshijne 'my corn' < n- 01 'ny' + shiji 'corn' + -no 13.

14 -Vto Possessive. Occurs with nouns only: ntoshtojito 'my button' < n- Ol 'my' + toshtojito 'button' + -Vto 14.

15 -lu Infinitive, nominal, nominalizer. Occurs as nominalizer of verb and adverb stems and as nominal with nouns and pronouns. Usually nominalizes but occasionally unifies an idea: wixkakluko 'among the group of us' < wixa 'we' + -kaka 22 Collective + -lu 15 + -Vko 52 Emphatic. Example as infinitive: gerkalu 'to wash' < gorka 'wash' + -lu 15 Infinitive.

16 V > e (following -lu 15 Infinitive) Possessive. Occurs only with nouns: notsale 'my cord' < n- Ol 'my' + gotsa- 'cord' + -lu 15 Infinitive + -V > e 16.

17 -menu 'cause' Nominalizes verb stems: gipnamenu 'cause of death' < gipna 'die' + -menu 17.

Suffixes of series 10 are mutually exclusive except that -V > e 16 occurs following -lu Infinitive 15.

20. Suffixes occurring with verbs, nouns, pronouns and adjectives.

21 -Vta -ta Verbal and Verbalizer. The alternate -ta occurs only after -Vn 38. Occurs as verbal with verb stems, and as verbalizer with nouns and adjectives: ganjita 'ask' < ganji- 'ask' + -Vta 21; powrata 'to clean' < powra 'clean' + -Vta 21.

22 -kaka Collective, 'each', or reciprocal with nouns, pronouns, and adjectives. Reciprocal with verbs in which the object is not expressed. Causative with verb plus object. With the verb, -kaka occurs in Order 20. With the noun, pronoun and adverb, -kaka occurs in Order 30: yopixrikaka 'each squirrel' < yopixri 'squirrel' + -kaka 22; yagotkaka 'fight each other' < yagota 'fight' + -kaka 22; salwakaklu 'cause him to visit' < salwa- 'visit' + -kaka 22 + -lu 03 'him'.

23 -Vga Hortatory. Occurs only with verbs, in sequence with -Vnu 53 Imperative: puylakaganru 'hit him' < p- 02 'you' + giyla- 'hit' + -Vka 11 Semelfactive + -Vga 23 + -Vnu 53 Imperative + -lu 03 'him'.

24 -jixa 'by proxy' or 'by command'. Occurs with verbs only: nuylajixlu 'I had him killed' < n- Ol 'I' + giyla- 'kill' + -jixa 24 + -lu 03 'him'.

25 -Vlu/o -ri/o -Vri/o Individual, designating a person or object. The variant -ri/o occurs following -Vchi 101 Participial; -Vri/o occurs in free variation with -Vlu/o with adjectival nouns and some noun stems. Occurs as nominal with nouns proper and interrogatives. Occurs as a nominalizer with adjective and verb stems: gasukachri 'the one fleeing' < gasuka 'flee' + -Vchi 101 Participial + -ri 25; jpiro 'lizard' < jpi- + -lo 25; kigloru 'the good one' < kigle 'good' + -Vlu 25.

26 -Vtu Nominal and nominalizer. Occurs as a nominal with nouns and a nominalizer with verbs, adjectives, and adverbs. Usually occurs in sequence with na- 003 Privative: naygitu 'toothless one' <na- 003 Privative +ygi 'tooth'+ -Vtu 26; nugletu 'bad' < n- 003 Privative + gige 'good' + -Vtu 26.

27 -Vne Plural of persons and animals and birds, and nominalizer.

28 -Vnu ~ -nu Possessed object, Abstract. The form -nu occurs following certain bound noun stems. Occurs as nominal with nouns, and nominalizer with other major word classes: gatnu 'path' < gat- + -Vnu 28; powranu 'cleanliness' < powra 'clean' + -Vnu 28.

Suffixes of Order 20 which occur with verbs are mutually replaceable, but not mutually exclusive; that is, there are sequences in which a suffix of Order 20 is obligatory, but more than one suffix of Order 20 may occur in a sequence. Likewise suffixes of Order 20 which occur with nouns are mutually replaceable but not mutually exclusive.

30. Suffixes which occur with all major word classes.

31 Any incorporated word, usually a postclitic, Class III noun, or other noun. While the incorporation into a verb of a Class III noun, especially one used to designate a part of the body, or form, is the most frequent type of noun-incorporation, any noun may be incorporated into a verb provided that the combination makes sense. In fact, a noun with its inflection may be incorporated, as in wyotuktsapaneta 'we bag-lifted' < w- 05 'wo' + yotuka 'lift' + tsapa 'bag' + -ne 13 Possessive + -Vta 21 Verbal. The incorporation of two successive nouns is not uncommon: npoginewajripnata 'I snore' < n- 01 'I' + pogino- 'make a sound' + -Vwa 32 Verbal + jri 'nose' + pna 'hole' + -Vta 21 Verbal. Adjectives, nouns and adverbs less frequently incorporate nouns: powragalu 'it is clear water' < powra 'clean' + ga 'water' + -lu 03 'it'; waneglu 'there is water' < wane 'there' + ga 'water' + -lu 03 'it'. The compounding of nouns is essentially the same as the incorporation of nouns occurring with the other word classes: nchichipagite 'my ash' < n- 01 'ny' + chichi 'fire' + pagi 'powder' + -Vte 14 Possessive.

Postclitics are affixed to word classes other than the verb, or follow them as separate words, not being incorporated. The postclitics kaka 22 and koxa 91 occur in Order 31 with word classes other than the verb.

The relative order of elements in Order 31 is not fixed, except that incorporated nouns tend to occur first, and nanu always follows potu when they occur simultaneously.

32 -Vwa- Verbal occurring with certain verb stems and verbalized noun and adjective stems: yonawata 'to paint' < yona- 'paint' + -Vwa- 32 + -Vta 21 Verbal.

33 -sa- Indicates that action is profuse, as that a speaker is loquacious. Occurs only with verbs: yanunsata 'he talks a lot' < Ø 03 'he' + yanuna- 'talk' + -sa- 33 + -Vta 21 Verbal.

34 -lowa- Suggests that the subject is characterized by the action or state of a verb. Occurs only with verbs. -lowa- 34 is mutually exclusive with -ga 23 Hortatory: giwlalewata 'be a cook' < giwla- 'cook' + -lowa- 34 + -Vta 21 Verbal.

35 -le- Occurs in the second of successive verbs, to which the preceding verb functions more or less as an auxiliary: galuka yalota 'want to go' < galuka 'want' + ya 'go' + -le- 35 + -Vta 21 Verbal.

36 -je- 'always'. May indicate that the action occurs always, or that the effects are lasting. Occurs only with verbs: jenjeta 'hear all the time' < jena 'hear' + -je- 36 + -Vta 21 Verbal.

37 -Vna- Temporal. In some situations corresponds to the progressive of English. Generally indicates that the action or state was not continued indefinitely. Occurs with verbs, nouns and adjectives: getanata 'see at the time' < geta 'see' + -Vna 37 + -Vta 21 Verbal.

38 -Vn- Indicates that the action of the verb is superficial. Occurs only with verbs: giknoganta 'pass by without stopping' < giknoga 'pass' + -Vn- 38 + -Vta 21 Verbal.

39 -Vta Exclamatory. Usually occurs as -Vtaa because of intonational modification (see Section I.2). Occasionally occurs as -tayy with a borrowing of the Quechua -y Exclamatory. Occurs with adjectives and nouns: kigleta (or kigletaa, or kigletayy) 'It is most beautiful' < kigle 'beautiful' + -Vta Exclamatory.

As many as five of the suffixes of Order 30 have been found occurring simultaneously: runkalewyenkakananumtña 'they talked together as they went along' < r- 07 'they' + ginkaka 'tell' + -lowa 34 Characterizer + -yogi 31 'in behalf of' + -kaka 22 Reciprocal + -Vnanu 31 Distributive + -Vn- 38 Superficial + -Vta 22 Verbal + -na 07 'they'.

The incorporation of items 31 might be described as derivational compounding. However the verb with incorporated free form exactly corresponds to verb plus bound suffix of Order 30.

#### 40. Suffixes occurring with all major word classes.

41 -Vpa With verbs, indicates that the subject goes or comes to perform the action. With other word classes indicates change. Occurs with all major word classes except the adverb. With verbs, the non-contiguous preceding vowel is lost unless the vowel loss would result in a cluster of three consonants, or unless the suffix -Vpa immediately follows a stem of only two syllables: gankapa 'come to give' < geneka 'give' + -Vpa 41 but gotapa 'go to see' < geta 'see' + -Vpa 41.

42 -ya -V > i + -ya + -V > i \* -Vya Locative, 'right there'. Serves also to show syntactic relationships such as are translated by the prepositions 'by, from, for, to, at', and makes the object of a verb indirect rather than direct. With verbs the preceding vowel is not retained except after a consonant cluster, in which case the alternant -V > i + -ya occurs; preceding the Passives 51 and 52 the alternant -V > i occurs. With other word classes the alternant -Vya occurs. Occurs with all major word classes except the particle: netapya 'I go there to see' < n- 01 'I' + geta 'see' + -Vpa 41 Movement + -ya 42; ninkiya 'I shot right there' < n- 01 'I' + ginka 'shoot' + -V > i + -ya 42; retika 'he was seen there' < r- 03 'he' + geta 'see' + -V > i 42 + -ka 51 Passive; waneya 'from there' < wane 'there' + -Vya 42.

Suffixes of Order 40 may occur together, in which case -pa 41 precedes -ya 42.

50. Suffixes which occur with all major word classes.

51 -ka \* -Vka Passive with verbs, except when following postclitics of Order 31 in their rare occurrences in Order 90. Affirmative with verbs, following elements of Order 90, and with other word classes. -ka occurs with verbs, -Vka with other word classes. Occurs with all major word classes except the adjective: retka 'he is seen' < r- 03 'he' + geta 'see' + -ka 51; walepakatkani 'it's going to be all right' < wale 'he' + -Vpa 41 Change + -Vka 51 + -Vtka 76 'now' + -ni 73 Assertive.

52 -ko \* -Vko Anticipatory passive with verbs, except when following postclitics of Order 31 in their rare occurrences in Order 90. Emphatic with verbs following elements of Order 90, and with other word classes. -ko occurs with verbs, -Vko with all other word classes: gotko 'be going to be seen' < geta 'see' + -ko 52; gitako 'I myself' < gita 'I' + -Vko 52; nutakinpotuko 'when I put well' < n- 01 'I' + gitaka 'put' + potu 31 Intensifier + -Vko Emphatic.

53 -Vnu Anticipatory and Imperative. Occurs with verbs and adverbs: petanu 'you are going to see' or 'Look!' < p- 02 'you' + geta 'see' + -Vnu 53.

54 -V > i + -ni Conditional, 'if' or 'when'. This morpheme might be described as -Vnu 53 with vowel change. Occurs only with verbs: petini 'if or when you see' < p- 02 'you' + geta 'see' + -V > i + -ni 54.

Suffixes of Order 50 are mutually exclusive, except that -Vka 52 and -V > i + -ni 54, in which case -Vko is emphatic rather than passive as usual with verbs.

60. Suffixes occurring with nouns and verbs.

61 -Vwaka 'time', 'place', 'manner'. Occurs as a verbal suffix with verbs, as a nominal suffix with nouns, and as a nominalizing suffix with adjectives, adverbs, and verbs. The order and selection of suffixes following verb stem plus -Vwaka 61 is sometimes that of the verb and sometimes that of the noun: runalwutyawakluma 'they were praising him that way' < r- 07 third.

person + ginalwu- 'praise' + -Vta 21 Verbal + -ya 42 'by' + -Vwaka 61 + -lu 03 'him' + -na 07 third person plural; yinaklewatyawaakaka 'each school' < yinaka 'teach' + -lowa 34 Characterizer + -Vta Verbal + -ya 42 Locative + waka 61 + -kaka 'each'; kiglewakni 'it is a good place' < kigle 'good' + -Vwaka 61 + -ni 73 Assertive.

62 -kawa 'following period of time'. Occurs only with nouns: goyechnokawa 'morning' < goyechno 'night' + -kawa 62.

63 -yaka Status. Occurs as a nominal suffix with nouns, and as a nominalizing suffix with verbs: tsroyakatkana 'I'm big now' < tsro 'big' + -yaka 63 + -Vtka 81 'now' + -no 01 'I'.

Suffixes of Order 60 are mutually exclusive.

70. Suffixes occurring with all major word classes.

71 -Vna ~ -na Intensifier of action or state. Also calls attention to unit actions of a process, as the strokes of a beating, or to a particular item associated with the object. The variant -na occurs with the verb and adverb when preceded by -nu 53 Anticipatory and followed by -Vtka 81 'now' or -Vtnaka 82 'again'. It occurs with the adverbial and verbal noun (though not with the noun proper), and with the verb, adjective, and adverb: petanunno 'look at me' (as 'at my finger') < p- 02 'you' + geta 'see' + -Vnu 53 Imperative + -Vna 71 + -no 01 'me'; petannatkano 'Look at me (as 'at my finger') now' < p- 02 'you' + geta 'see' + -Vnu 53 Imperative + -na 71 + -Vtka 81 'now' + -no 01 'me'; waneyannatkana 'now they are going to have them' < wane 'there' + -ya 42 Indirective + -Vnu 53 Anticipatory + -Vna 71 + -Vtka 81 'now' + -na 07 'they'.

72 -Vpa ~ -pa Preceding or following, but not coinciding with, the time implied in the context. This suffix may also indicate purpose--'for', 'in order to'. With this meaning -Vpa is usually preceded in the verb by -ya 42 or -V > i + ni 54 Conditional. The form -Vpa is used except when preceding -Vtka 81 or -Vtnaka 82: getyapa 'in order to see' < geta 'see' + -ya 42 'for' + -Vpa 'in order to'; waneyapyi 'you are going to have' < wane 'there' + -ya 42 Indirective + -Vpa 72 + -yi 02 'you'.

73 -ni Assertive. Stresses actuality, or points out the subject for particular attention. Occurs with all word classes except the interjection. With all word classes except the verb and adverb, the Assertive may be phonologically marked, occurring in various orders: pachwatni 'he's the one who has a fever' < pachwa- 'to have a fever' + -Vta Verbal + -ni 73; waleni 'it is he' < wale 'he' + -ni 73.

74 -na Reflexive. Occurs only in sequence with -wa 93 Reflexive with verbs: getnawa 'see oneself' < geta 'see' + -na 74 + -wa 93 Reflexive.

75 -V > i preceding -na Reflexive. Anticipatory or conditional of reflexive: getinwa 'is going to see himself' < geta 'see' + -V > i 75 + -na 74 Reflexive + -wa 93 Reflexive.

76 -Vkta Generalizes the statement, as adding the idea of 'whenever', 'whenever', 'whoever', 'all over', etc. Occurs with all major word classes: ruprigakta 'it dried all up' < r- 03 'it' + gipriga 'dry' + -Vkta 76; malakta 'anywhere down river' < mala 'down river' + -Vkta 76.

77 -naka ~ -Vnka Condition unfulfilled; optative; frustrated action. The alternate -Vnka occurs after a consonant cluster or a one or two syllable word. Occurs with all major word classes: getnaka 'would see' < geta 'see' + -naka 77; kiglenkalu 'it would be good' < kigle 'good' + -Vnka 77 + -lu 03 'it'.

Suffixes of Order 70 occur successively in the order numbered, except when occurring with the verb. With the verb the order is determined by the combinations of suffixes of Order 70 occurring.

80. Suffixes occurring with all major word classes.

81 -Vtka 'already', 'then', 'now': getatka 'already saw' < geta 'see' + -Vtka 81; wixanutka 'it is already ours' < wixa 'our' + -Vnu 28 Possessed object + -Vtka 81.

82 -Vtnaka Repetitive. Occurs with all major word classes except the particle: getatnaka 'see again' < geta 'see' + -Vtnaka 82; gitatnaka 'It is I again' < gita 'I' + -Vtnaka 82.

83 -Vwa 'yet', 'still'. Occurs with the verb, noun, and particle. Is mutually exclusive with -nu 53 and -pa 72: getawa 'still see' < geta 'see' + -Vwa 83; goyechnowa 'still night' < goyechno 'night' + -Vwa 83. The suffix final vowel is retained before all following affixation.

Suffixes of Order 80 are mutually exclusive.

90. Suffixes occurring with all major word classes.

91 koxa 'also'. With verbs, koxa occurs in Order 90. With all other major word classes, koxa occurs among suffixes of Order 31. With the noun and pronoun, koxa occurs either among suffixes of Order 31 or in Order 90, but not in both positions simultaneously. koxa varies optionally between a free and a bound form: getna koxa or getkoxna 'see then also' < geta 'see' + koxa 91 'also' + -na 07 'then'; gitkoxa 'me too' < gita 'me' + koxa 91.

92 -V > e Indicates personal interest on the part of the subject. Occurs only with the verb.

93 -Vwa e -wa Reflexive or Invitational. The vowel is retained before -wa except when it immediately follows -V > i + ni 65 Anticipatory Reflexive. Indicates the speaker's interest in the action. Occurs only with the verb. Mutually exclusive with suffixes of Order 80: wetkoxewa 'let's see' < w- 05 'we' + geta 'see' + koxa 91 'also' + -V > e 92 Possession + -Vwa 93.

Suffixes of Order 90 occur successively in the order numbered.

100. Suffixes occurring with all major word classes.

101 -Vchi ~ -chi Implies a degree of syntactic independence. For example, nouns of Class III cannot occur without a prefix or head word except with -Vchi 101. With the verb, it forms a sort of participle. The variant -chi occurs after bound verb stems. Occurs with all major word classes except the particle. With the noun it occurs between Orders 10 and 20: *metanuchi* 'I'm going to be seeing' < *n-01* 'I' + *geta* 'see' + -Vnu 53 Anticipatory + -Vchi 101; *nyochi* 'anyone's hand' < *nyo* 'hand' + -Vchi 101.

102 -Vle Seems to be an endearment or literary flourish, used in exclamations and in songs especially. Also occurs frequently before -ge 105 Interrogative. Occurs with all major word classes except the verb and particle: *wixapale* 'we're going to be the ones' < *wixa* 'we' + -Vpa 72 'not now' + -Vle 102.

103 -Vla Calls attention to the subject. Occurs with the noun, pronoun, and adverb: *gitakla* 'I am the one' < *gita* 'I' + -Vko 52 Emphatic + -Vla 103.

104 -Vli Probably a diminutive or endearment. Occurs with verbs and nouns: *pukshikantakawuri* 'you have now found us' < *p-02* 'you' + *gikshika* 'find' + -m- 38 Superficial + -ta 21 Verbal + -Vtka 81 'now' + -wu 06 'we' + -Vli 104; *namali* 'mother dear' < *nama* 'mother' + -Vli 104.

105 -ge Interrogative. Occurs with all major word classes except the particle: *gi pixanroge?* 'What are you going to do to her?' < *gi* Interrogative preclitic + *p-02* 'you' + *gixa* 'do' + -Vnu 53 Anticipatory + -lo 04 'her' + -ge 105; *walerge* 'Is it he?' < *wale* 'he' + -Vle 102 or -Vli 104 + -ge 105.

Suffixes of Order 100 are mutually exclusive, except that -ge 105 may follow either -Vle 102 or -Vli 104.

It will be noted that the preceding sets of suffixes are grouped according to the relationship of the suffixes within the group as they occur with the verbs. Suffixes of Order 20 are mutually replaceable, though not mutually exclusive. Suffixes of Order 30, though varying somewhat in mutual relationships, are grouped together because of their being followed by a suffix of Order 20. Suffixes of decades 10, 50, 60, and 100 are mutually exclusive with a few exceptions. Suffixes of decades 40 and 90 are successive. Suffixes of Order 70 are interlocking.

In the formulae below, when a suffix occurs in an order other than that which is usual for its decade, the number of the suffix (rather than the decade number) is listed in the formula. Example:  $\pm 40 \pm 73 -ni \pm 50$ .

### 3. The verb.

3.1 Definition. A verb is a form with which a suffix of Order 20 is obligatory after a suffix of Order 30.

3.2 Derivation. A verb stem may be free or bound. The bound stems are those occurring only with a suffix of Order 20, as in *gechgota* < *gechgo-* 'sneeze' + *-Vta* 21. An example of a free stem is *gerka* 'wash'

Whether or not single morpheme verb stems occur in Piro is a matter difficult to determine. Such verbs as *ya* 'go', *nika* 'eat' and *palna* 'stand up', which are cited above, might be said to be single-morpheme verbs, but the statement is open to question. All verb stems which are free forms end in *-a*, as do most of the verbal suffixes (see verb lists following.) Therefore the initial syllables (or consonant in a CV stem) of all free verb stems might be regarded as separate morphemes. Moreover, the same syllables are recurrent in different verbs with at least some shade of common meaning, and in certain stems are replaceable by other initial syllables. It may simply be assumed that there are a limited number of morphemes with which verbs may begin in Piro, and that this number may include many homophonous morphemes.

On the other hand, it may be assumed that the recurrence of phonetic sequences is due to the limitation of syllables which occur word-initially. This limitation is much more marked in Piro than, for example, in Spanish. Only forty-four verb stem initial syllables have been noted so far in Piro, and that includes two such syllables used only in borrowed stems. In contrast, at least half that many open syllables (which correspond more closely to Piro than do closed syllables) will be found beginning with the "k" sound alone in Spanish. Of one verb class constituting about half of the Piro verbs, the stems begin with *ga-*, *ge-*, *gi-*, or *go-*. Next in popularity are the syllables *ka-* and *ko-* which account for about one third of the remaining verb stems. Obviously then, scores of verbs begin with each of these sequences, and one has only to select groups of these verbs with some element of meaning in common, in order to identify the initial syllables as morphemes. Undoubtedly some initial syllables should be identified as morphemes, but where the line should be drawn is very hard to say, since for a given phonemic sequence a narrow or very broad meaning may be postulated.

The following lists of verb stems will illustrate the problem:

	kopxina- 'be at fault'	
	kose- +(-ta) 'pull'	
	kose- +(-ka) 'lead'	
	kojwa- +(-ka) 'bother'	
	kochipje- 'flog'	
gishrika 'tie'	koshrika 'untie'	
gishpaka 'go out'	koshpaka 'take out'	yoshnaka 'put in'
gitpu- +(-ka) 'open'	kotpu- +(-ka) 'open'	
(Intr.)	(Tr.)	
gimlaka 'come off'	komlaka 'pull off'	
gitspala- 'scatter'	kotspala- 'divide'	
giprika 'rinse out'	kopxika 'undo' (knot)	
gipte- +(-ka) 'jump'	kopteka 'dig up' (some- thing buried)	yopteka 'pierce' (as thorn)
	komreka 'be naked'	yomremreta 'worm its way out'
gimre- +(-ka) 'clear up, uncloud'	kometa 'mess up'	yometa 'root' (of hog)
gime- 'get drunk'	koscheka 'take off'	yoscheka 'put on' (as on fire)
	'guess'	
gipyoka 'crouch'		

Additional examples are: gijruka 'fall', yojruka 'knock down', jijruka 'poke, as with pole, so as to cause to fall', sajruka 'go around, surround', kajruka 'make fun of'; goplika 'pull out'; goplita 'pluck' (feathers); gokaka 'take off fire'; golka 'put out in sun, warm up by fire'; gomuka 'raise'; gostuta 'tie'; goyaka 'last, endure'; gomkagita 'follow'.

The final syllables of verb stems which are free forms and end in CV are necessarily limited to fifteen phonemic sequences, since all end in -a. By far the most numerous are -ta and -ka. Whether these are the same morphemes as the verbal -ta and semelfactive -ka, or whether they are separate morphemes at all in most of their occurrences would be hard to determine. This is the same problem as that presented in the initial syllables.

However, though it would be difficult to prove that any verb stem in Piro is a single morpheme, the occurrence of many polymorphemic stems is recognizable. Examples at the beginning of the left-hand column in the above list show stems composed of bound form plus bound form (plus a third bound form if the final -ka and -ta are assumed to be separate morphemes.)

Reduplication is not uncommon in verb stems: kowshiwshita 'shake'.

Besides the verb stems proper, a very great number of noun and some adjective stems are verbalized by the addition of one or more of the suffixes of Orders 20 + 30, in which case the stems function as verb stems of Class B. Examples are: tuwuta 'to salt' < tuwu 'salt' + -Vta 21 Verbalizer, and serowata 'ripen' < sero 'red' + -Vwa 32 Verbal + -Vta 21 Verbalizer. Certain noun and adjective stems have been found verbalized as Class B,

and alternately as Class C, in which case the Verbal -Vta 21 precedes as well as follows suffixes of Order 30. The following form was given by a young man: pokamlayegitanyi 'it will give you light' < pokamla 'light' + yegi 31 'in behalf of' + -Vta 21 Verbalizer + -Vnu 53 Anticipatory + -yi 02 'you'. It was corrected by his father to pokamlatyegitanyi, which would apparently have Verbalizer 21 -Vta following the stem and also following yegi 31. Alternate forms rugleyegitanru 'fix it for him' and rugle-tyegitanru were given by the same informant ( < r- 03 'he' + gile- 'good' + -Vta 21 Verbalizer + yegi 31 'in behalf of' + -Vta 21 Verbalizer + -Vnu 53 Anticipatory + -lu 03 'him' ).

In a very few instances the Verbal -Vta 21 has been found following the passives -ka 51 and -ko 52, as though the form with the passive suffix constituted a stem: wane nixa gimaletlekota 'thus I was hindered' < wane 'thus' + nixa 'I was' + gimaleta 'hinder' + -le 35 Combinative + -Vta 21 Verbal + -ko 52 Passive + -Vta 21 Verbal; wane nixa nuklukanuwnakakota 'thus I was condemned' < wane 'thus' + nixa 'I was' + n- 01 'I' + giklukanu- 'condemn' + -Vwna 12 + -ka 51 Passive + -Vta 21 Verbal; wane chinkotna 'thus it was said to them' < wane 'thus' + 07 'they' + china 'say' + -ko 52 Anticipatory Passive + -Vta 21 Verbal.

The form of the verb stem is (C + C + V)<sup>6</sup>. ya 'go' is the only CV verb stem noted. gwa = gawa 'be' is the only CCV verb stem noted, and the only verb stem that begins with a consonant cluster which is not derived from another word class. Two and three syllable verb stems are the most common: gina 'come', palna 'stand up', geneka 'give'. The longer stems are not however, uncommon: gaponshinikanu- 'trust'.

**3.3 Classification.** There are two main classes of verbs, Class I comprising all verbs beginning with the sequence gV- except ganunrota 'to marry a wife', ganuruta 'to marry a husband', girukota 'to care for', and giwakata 'to name'; and Class II comprising all other verbs. Verbs of Class I occur with Person Markers (Order 00) of Class I. Verbs of Class II occur with Person Markers (Order 00) of Class II.

Besides these two main classes of verbs, there is a further classification not correlated with Classes I and II. These are suffixal classes A, B, and C, and sub-classes A<sup>1</sup>, B<sup>1</sup>, and C<sup>1</sup>. Class A verbs are those which occur with -Vka 11 Semelfactive, which may be replaced by -Vta 21 Verbal. Class B verbs are those which require -Vta 21 Verbal, -kaka 22 Reciprocal-Causative, -Vga 23 Hortatory, or -jixa 24 Proxy. Verbs of these classes must be distinguished from those of Class C with stem ending in -ta; compare the Class A verb ganji- 'ask', occurring with -Vta 21 in the form ganjita, with the Class C verb geta 'see'. Class C verbs comprise all those not belonging to Classes A and B. Verbs of Class A in which -Vka 11 can be replaced by -Vwna 12 form Subclass A<sup>1</sup>. Verbs of Class B in which -Vta 21 can be replaced by -Vwna 12 form Subclass B<sup>1</sup>. The few bound stems of Class C occurring with -Vwna 12 constitute subclass C<sup>1</sup>. Examples are as follows:

Class A giylaka 'hit': giylata 'kill'.  
kotpuka 'open once': kotputa 'open more than once'.

A1 tseruwaka 'bring up': tseruwna 'grow up'.  
gimtuka 'damage': gintuwna 'become angry'.

Class B yokanata 'send', yogimata 'hide', gigleta 'arrange',  
chiyagata 'cry'.

B1 saleta 'punish': salewna 'suffer'.

Class C gwa 'be', geta 'see', gerka 'wash', nikloka 'swallow'.

C1 gixolewna 'multiply' < gixole- + -Vwna 12.

3.4 Affixation. The general formula of verb affixation is as follows:

± 00	± 000	+ Stem	± 10	± 20	± (30 +20)	± 40	±
	001 go-		11 -Vka	21 -Vta	31 Incorpor-	41 -Vpa	
	002 gi-		12 -Vwna	22 -kaka	ated Noun	42 -ya	
	003 n-			23 -Vga	31 gapka		
				24 -Vjixa	31 getko		
					31 gima		
					31 gogne		
					31 gonu		
					31. nanu		
					31 pguta		
					31 poko		
					31 potu		
					31 sha		
					31 yegi		
					32 -Vwa-		
					33 -sa-		
					34 -lewa-		
					35 -le-		
					36 -je-		
					37 -Vna-		
					38 -n-		
50	± 60	± 70	± 80	± 90	± 00	± 100	
51 -ka	61 waka	71 -Vna	81 -Vtka	91 koxa		101 -Vchi	
52 -ko	63 yaka	72 -pa	82 -Vtnaka	92 -V > e		102 -Vle	
53 -Vnu		73 -ni	83 -Vwa	93 -Vwa		103 -la	
54 -V > i + ni		74 -na				104 -Vli	
		75 -V > i				105 -ge	
		76 -Vkta					
		77 -maka					

One or more suffixes of Order 30 may occur as follows:

(1) Immediately following verb stem or suffix of Order 20 other than -Vta 21, and followed by -Vta 21: getlewjepotuta 'characteristically watch closely' < geta 'see' + -lewa- 34 Characterizer + -je- 36 Continuant + -potu 31 Intensifier + -Vta 21 Verbal.

(2) Immediately following verb stem, -Vka 11, or -Vwna 12 and followed by either -kaka 22, -Vga 23, or -jixa 24: salewnashkaka 'just cause to suffer' < sale- 'suffer' + -Vwna 12 + -Vsha 31 'just' + -kaka 22 Causative; puylakpotuganru 'hit him hard' < p- 02 'you' + giyla- 'hit' + -Vka 11 + potu 31 Intensifier + -Vga 23 Hortatory + -Vnu 53 Anticipatory-Imperative + -lu 03 'him'; (taluka 'she wants') giylalejixlu 'to have him killed' < giyla- 'kill' + -le- 35 Auxiliary + -jixa 24 Proxy + -lu 03 'him'.

When two or more suffixes of Order 30 and suffixes 22, 23, and 24 occur together with the same verb stem, their relative order is generally optional. Exceptions are given below. Obviously a comprehensive examination of relative orders of these suffixes and incorporated free forms is impracticable. The six bound forms whose relative order is not fixed at all when they occur together (-kaka 22, -Vga 23, -jixa 24, -lewa- 34, -le- 35, and -je- 36) yield 156 theoretically possible combinations. Besides that, these bound forms enter into combinations with an unlimited number of free forms with few restrictions as to relative order. Following are the exceptions to optional relative order in combinations of Suffixes 22, 23, 24, and Order 30.

(1) -Vwa- 32 immediately follows the stem: pogimewata 'make a sound' < pogime 'sound' + -Vwa- 32 + -Vta 21 Verbalizer. -sa- 33 is never far separated from the stem: gepongasata 'ask many questions' < geponga 'ask' + -sa- 33 Profuse action + -Vta 21 Verbal.

(2) -Vm- 38 Superficial immediately precedes -Vta 21: getamtlu 'glance at it' < geta 'see' + -Vm- 38 Superficial + -ta 21 Verbal + -lu 03 'it'. -Vna- 37 Temporal immediately precedes either -Vm- 38 or -Vta 21: netanata 'I am looking' < n- 01 'I' + geta 'see' + -Vna- 37 Temporal + -Vta 21 Verbal. nanu 31 Distributive immediately precedes -Vm- 38 Superficial: yananumta 'go along' < ya 'go' + nanu 31 Distributive + -Vm- 38 Superficial + -ta 21 Verbal.

(3) Incorporated nouns tend to precede the incorporated particles and suffixes of Order 30: terkamkagimata 'she says she is going to wash clothes' < t- 04 'she' + gerka 'wash' + mka 'clothes' + gima 31 Quotative + -Vta 21 Verbal.

Variations in the relative order of suffixes of Order 30 and numbers 22, 23, and 24 may result in variations of meaning which are more or less significant, as will be seen in the following examples: nenekashlewata 'I characteristically make gifts', neneklewashata 'I just characteristically give' < n- 01 'I' + geneka 'give' + sha 31 'just' + -lewa- 34 Characterizer + -Vta 21 Verbal; retjekaklu 'He causes him to watch', retkakjetlu 'He always

causes him to see' <r- 03 'he' + geta 'see' + -je- 36 'always' + -kaka 22 Causative + -Vta 21 Verbal + -lu 03 'him'; jempotgogneta 'always hear well', jemgognepotuta 'always hear well' <jema 'hear' + potu 31 Intensifier + gogne 31 Expansive + -Vta 21 Verbal.

Apparently the suffix farther from the stem modifies the stem plus the adjacent suffix.

In a few cases postclitics which commonly occur in Order 30 have been found in the order of Class 90: tyokwitingirilu 'when she deceived him' <t- 04 'she' + yokwita 'deceive' + -V >i + ni 54 Conditional + gina 31 Quotative + -lu 03 'him'; nutakinpotukma 'when I put them well' <n- 01 'I' + gitaka 'put' + potu 31 Intensifier + -ko Emphatic.

Suffix -pa 72 and the reflexives 74 and 75 are mutually exclusive with -Vnu 53 Anticipatory. When two or more suffixes of Order 70 occur simultaneously the relative order is as follows:

The relative orders of -Vna ~ -na 71 and -Vpa ~ -pa 72, and of 71 and -ni 73 are optional: rupnapana or rupnanapa 'he died' <r- 03 'he' + gipna 'die' + -Vpa 72 Change in time + -Vna 71 Intensifier; rupnannitka 'he died then' <r- 03 'he' + gipna 'die' + -na 71 Intensifier + -ni 73 Assertive + -Vtka 81 'then'; ruyolikninpatka 'then he went hunting (with effort)' <r- 03 'he' + giyolika 'hunt' + -ni 73 Assertive + -Vna 71 Intensifier + -pa 72 Change in time + -Vtka 81 'then'. Otherwise only the reflexive forms -na 74 and the corresponding anticipatory reflexive -V >i 75 + -na 74 precede -Vna ~ -na 71 Intensifier: nerkinwana 'if I scrub myself' <n- 01 'I' + gerka 'wash' + -V >i 75 Conditional of Reflexive + -na 74 Reflexive + -wa 93 Reflexive + -Vna 71 Intensifier.

Suffix -Vpa ~ -pa 72 Change of time may optionally precede or follow 71, 73, 76, or 77: retinmakapa or retinipmaka 'in order that he might see' <r- 03 'he' + geta 'see' + -V >i + ni 54 Conditional + -maka 77 Condition unfulfilled + -Vpa 72 'in order that'.

Suffix 75 occurs only preceding suffix 74. Suffixes 75 and 74 precede 71 but follow 72: ruylajnakotnanatkawa 'he hit himself hard on the ear then' <r- 03 'he' + giyla- 'hit' + jnako 'ear' + -Vta 21 Verbal + -na 74 Reflexive + -Vna 71 + -Vtka 81 'then' + -Vwa 93 Reflexive; rustakapyapnawa 'in order to cut himself there' <r- 03 'he' + gistaka 'cut' + -Vpa 41 Movement + -ya 42 Locative + -Vpa 72 'in order to' + -na 74 Reflexive + -Vwa 93 Reflexive.

When 74, whether or not preceded by 75, occurs with both 71 and 72 the order is 71 - 72 - 75 - 74: nuylakanapnawa 'I will hit myself hard' <n- 01 'I' + giyla- 'hit' + -Vka 11 Semelfactive + -Vna 71 Intensifier + -Vpa 72 Change of time + -na 74 Reflexive + -Vwa 93 Reflexive.

Suffixes -Vtka 76 and -maka ~ -Vmka 77 follow -na 71, -ni 73, and Reflexives 74 and 75. The relative order of -Vtka 76 with -maka 77, and of either of them with -pa, is optional: gerkanmakakta or gerkanuktamka 'would be going to wash them all' <gerka 'wash' + -Vnu 53 Anticipatory +

-iaka 77 + -Vhta 76; retyaktaplu or retyapaktalu 'in order for him to see it anywhere' < r- 03 'he' + geta 'see' + -ya 42 'for' + -Vpa 72 'in order to' + -Vhta 77 Generalizer+ -lu 03 'it'.

3.5 Verbal Auxiliaries. There are two verbal auxiliaries which precede a verb suffixed by -le- 35 Auxiliary Marker, as one verb precedes another. These auxiliaries are gali 'finished' and ge, which indicates that the action of the verb is occurring for the first time: nali giwlaleta 'I have finished cooking' < n- 01 'I' + gali 'finished' + giwla- 'cook' + -le- 35 Combinative + -Vta 21 Verbal; ne getletlu 'I saw him for the first time' < n- 'I' + ge 'for the first time' + geta 'see' + -le- 35 Combinative + -Vta 21 Verbal+ -lu 03 'him'.

4. The noun. A noun is a form which occurs with one or more of the possessive affixes (Order 00) of Class I, II, and III, with 13 -ne, 14 -Vte, and 16 -V>e or with one or more of the nominalizers 15 -lu, 17 -menu, 25 -Vlu, 26 -Vtu, 28 -Vnu, 61 -Vwaka, 63 -yaka, and 100 -Vchi, or with a stem-final noun following the stem of another word class.

Nouns are divided into the noun proper, the adjectival noun, the adverbial noun, the pronominal noun, the verbal noun, and the interrogative noun, on the basis of their derivation from stems of the various word classes, and on the basis of the difference of formulae of affixation. Each is described separately in the following sections.

#### 4.1 The noun proper.

4.1.1 Classification. The nouns proper are divided into Classes I, II, and III on the basis of possession. The derivational and possessive affixations are described separately for each class, and are therefore merely listed in the formula here.

Nouns of Classes I and III (including only the possessed forms of those which have stem alternants) do not occur without prefixation except when preceded by a noun or pronoun possessor which serves as a head word, or unless the suffix -Vchi is added. Example of Class I: (giro 'father') nuru or gita giro 'my father'; girchi 'anyone's father'. Example of Class III: (jri 'nose') nojri or gita jri 'my nose'; jrichi 'anyone's nose'.

4.1.2 Affixation. The general formula of affixation of the noun proper is:

± 000	± 00 +	Stem	± 10	± 101 -Vchi	± 20	± (30, 22, 91) ±
003 ma-			11 -Vka		25 -Vlu	31 gapka
004 ka-			13 -ne		26 -Vtu	31 getko
			14 -Vte		27 -Vne	31 gina
			15 -lu		28 -Vnu	31 gogne
			16 -V > e			31 gonu
						31 minje
						31 mnu
						31 nanu
						31 pguta
						31 pja
						31 potu
						31 sha
						31 yegi
						31 yma
						22 -kaka
						91 koxa
						37 -Vna
						39 -ta

40	± 73 -ni	± 50	± 60	± 70	± 80	± 73 -ni
41 -Vpa		51 -Vka	62 -Vkawa	72 -Vpa	81 -Vtka	
42 -ya		52 -Vko	63 -Vyaka	73 -ni	82 -Vtnaka	
				76 -Vkta	83 -Vwa	
				77 -naka		

90	± 00 ± 100
91 -koxa	102 -Vle
	103 -la
	104 -Vli
	105 -ge

The suffixes -Vlu 25 Individual, -Vtu 26 Nominal and -Vnu 28 Possessed Object, besides their derivational function in nouns, occur in a few instances following the stem: gojepiru 'the long-eared one' < go- 001 Extensive + jepi 'ear' + -Vlu 25 Individual; saturutu 'the one and only' < satu 'one' + -lu 15 Infinitive + -Vtu 26 Nominal; jejinu 'the man's object' < jeji 'man' + -Vnu 28 Possessed Object.

Suffixes -Vle 102, -la 103, and -Vli 104 are not found with suffixes of Order 00.

#### 4.1.3 Class I.

4.1.3.1 Definition. Nouns of Class I are those which occur with the possessive prefixes of Class I (Person Markers, Order 00).

4.1.3.2 Derivation. Class I stems comprise noun stems beginning with gV-, except those listed under Classes II and III.

The stems occur in the forms CV + (C + C + C + V)<sup>4</sup>. A very few appear to be monomorphemic: ganna 'pineapple'. In the more common polymorphemic stems, the nominal suffixes -lu 15 Infinitive, -lu/o 25 Individual, -nu 28 Abstract, and -Vtu/o 26 Nominal, occur as well as many Class III stems: gagalu 'macana' (a bladed club) < gaga- 'pole' + -lu 15 Infinitive; giru 'father' < gi- + -lu 25 Individual; ginro 'mother' < gin- + -lo 25 Individual; gatnu 'path' < gat- + -nu 28 Abstract; gimatu 'clay cooking pot' < gima- + -tu 26 Nominal; goto 'yanchama' (tree from which bark cloth is made) < go- + -to 26 Nominal; gagapitsa 'vine' < gaga- 'pole' + pi 'long pliable object' Class III stem + -tsa 'cord' Class III stem; gipgyapto 'door' < gi- possibly 03 Class III Person Marker 'his' + pgya 'air' Class III stem + pto 'opening' Class III stem.

4.1.3.3 Possessive affixation. Class I stems are divided into eight groups according to the type of possessive suffixation:

(1) Stems which do not occur with possessive suffixation. Example: gaji 'heart': naji 'my heart'.

(2) Stems which occur only with -ne 13 Possessive. Example: giga 'mortar': nugane 'my mortar'.

(3) Stems which occur only with -Vte 14 Possessive. Example: gaganta 'bark strip': nagamtate 'my bark strip'.

(4) Stems which occur with -V > e 16 Possessive following stem-final -lu 15 Infinitive. Example: gagalu 'macana': nagale 'my macana'.

(5) Stems which occur with -lu 15 Infinitive plus -V > e 16 Possessive. Example: gagaje 'stick': nagajere 'my stick'.

(6) Stems which occur either with -ne 13 Possessive or with -Vte 14 Possessive. Example: gayi a kind of ant: nayne or nayite 'my ant'.

(7) Stems which occur either with -Vte 14 Possessive or with -V > e 16 Possessive. Example: gotsalu 'rope': notsalu or notsalute 'my rope'.

(8) Stems which occur either with -ne 13 Possessive, or with -Vte 14 Possessive, or with -V > e 16 Possessive following stem-final -lu 15 Infinitive. Example: gapijru 'annato': napijrune, napijrute, napijre 'my annato'.

Two of the Class I stems have alternate possessed and unpossessed forms: sana • gisana- (possessed) 'planting': rusanate 'his planting' < r- 03 Class I Person Marker 'his' + gisana- 'planting' + -Vte 14 Possessive; nso • gisne (possessed) 'genipa': wusne 'our genipa' < w- 05 Class I Person Marker 'our' + gisne 'genipa'.

#### 4.1.4 Class II.

4.1.4.1 Definition. Nouns of Class II are those which occur with the possessive prefixes of Class II (Person Markers, Order 00).

4.1.4.2 Derivation. Class II stems include (a) all noun stems beginning with a sequence other than gV-, except those listed under Class III; and (b) the following stems beginning with gV-: ganunro 'wife', ganuru 'husband', gimajiro 'mother-in-law', gimatjiru 'father-in-law', gitu (a tree), giwaka 'name', gosha 'woods'.

The stems occur in forms (C ± C + V)<sup>6</sup> and also CVCCVCCCVCV, with the exception that the monosyllabic form CV has not been found. Examples: plo 'jacksnipe'; seroploshejiro, a kind of fish. The stems may be monomorphemic, as tuwu 'salt'. They may be polymorphemic, including the derivational occurrence of -lu 15 Infinitive, -lu/o 25 Individual, -Vtu/o 26 Nominal, -Vnu 28 Abstract, and -Vchi 101 Participial, as well as reduplication and a great variety of compounds. Examples: chalu 'fishnet' < cha- + -lu 15 Infinitive; ganuru 'husband' < ganu- + -lu 25 Individual; ganunro 'wife' < ganu- + n- + -lo 25 Individual; chiretu 'pona' (a palm) < chire- + -Vtu 26 Nominal; kopnu 'copaiba' (a tree) < kop- + -Vnu 28 Abstract; kagonchi 'medicine man' < ka- 004 Having a certain attribute + -gon- possibly 18 'principal' + -chi 91 Participial; sokosoko or sukosuko 'musical bow'; kajpapago 'bowl' < ka- 004 Having a certain attribute + jpa 'thick fluid' or 'mud' + -pago; pochwaksuru 'sugar cane' < pochwa 'sweet' + ksu 'tube' + -lu 25 Individual.

4.1.4.3 Possessive affixation. Class II stems are divided into ten groups according to the type of possessive suffixation:

- (1) Stems which do not occur with possessive suffixation. Example: giwaka 'name': ngiwaka 'my name'.
- (2) Stems which occur with only -ne 13 Possessive. Example: chalu 'fishnet': nchalne 'my fishnet'.
- (3) Stems which occur with only -Vte 14 Possessive. Example: jimeka 'manioc': njimekate 'my manioc'.
- (4) Stems which occur with -V > e 16 Possessive following stem-final -lu 15 Infinitive. Example: chokoru 'harpoon': nchokore 'my harpoon'.
- (5) Stems which occur with -lu 15 Infinitive plus -V > e 16 Possessive. Example: kowigaje 'pole for canoe': nkowigajere 'my canoe pole'.
- (6) Stems which occur with either -ne 13 Possessive or -Vte 14 Possessive. Example: jixolu 'harvest fly': njixolne or njixolute 'my harvest fly'.
- (7) Stems which occur either with -Vte 14 Possessive or with -V > e 16 Possessive following stem-final -lu 15 Infinitive. Example: kashri

'arrow': nkashre or nkashrite 'my arrow'.

(8) Stems which occur either with -ne 13 Possessive, or with -Vte 14 Possessive, or with -V> e 16 Possessive following stem-final -lu 15 Infinitive. Example: kagli 'clay': nkagline, nkaglite, or nkagle 'my clay'.

(9) Stems which occur either with -ne 13 Possessive, or with -V> e 16 Possessive following stem-final -lu 15 Infinitive. Example: jipalu 'sweet potato': njipalne or njipale 'my sweet potato'.

(10) Stems which occur either with -ne 13 Possessive, or with -Vte 14 Possessive, or with a vowel change -V> e which does not follow -lu 15 Infinitive. Example: jinri 'agua,je': njinrine, njinrite, or njinre 'my agua,je'.

Six stems have alternate unpossessed and possessed forms: mshiri • -mashire (possessed) 'comb': nmashire 'my comb'; mturu • natur- (possessed) 'little one': nmaturne 'my little one'; speriri • superi- (possessed) 'cinani' (a palm): nsuperite 'my cinani'; kshoteru • -shoteru- (possessed) 'deer': nshoterute 'my deer'; jemjerne • jemjerne (possessed) 'a kind of fly': njemjerne 'my fly'; koya • koyag- (possessed) 'manioc liquor': nkoyagle 'my manioc liquor'.

There is one bound stem of Class II. It is -shicho 'daughter'. The third person masculine singular and third person plural possessive suffixes are irregular: nshicho 'my daughter' but rushicho 'his daughter' and rushichna 'their daughter'.

#### 4.1.5 Class III.

4.1.5.1 Definition. Nouns of Class III are those which occur with the possessive prefixes of Class III (Person Markers, Order 00).

4.1.5.2 Derivation. Nouns of this class must be listed, not being otherwise distinguishable from nouns of Classes I and II. They represent mostly body parts, close relatives, and forms (shapes of objects). The greater part of these stems have the forms (C ± C + V)<sup>2</sup>. Examples: ji 'seed', 'small member'; ktega 'tear'. A few have the forms (C ± C + V)<sup>3,4</sup> and one has the form CCVCCCV: mekagyi 'grandchild'; nekmatjiru 'brother-in-law of woman'; nnipgya 'breath'.

Probably most of the monosyllabic stems are composed of single morphemes: tsa 'cord'; pa 'pod'; jpa 'thick fluid'; ygi 'tooth' or 'sharp point'. Polysyllabic stems are probably all polymorphemic: chlaje 'pants' < chla- + -je 'pole' or 'long pliable object'; kotsa 'vein' < ko- + tsa 'cord'; mekanuru 'son-in-law' < meka- (used of certain in-laws) + n- + giru 'father'. Compounding of Class III stems is very free: myoji 'finger' < nyo 'hand' + ji 'small member'; jiwutsa 'hair' < jiwu 'head' + tsa 'cord'; jripna 'nostril' < jri 'nose' + pna 'hole'. These stems also occur frequently in compounds with noun Classes I and II, and with other word classes, as in Order 31 with verbs: nketajite 'my walnut' < n- 01 Class II

Person Marker 'ny' + keta 'walnut tree' + ji 'seed' + -te 14 Possessive; kapchosagitaa 'such a dirty fruit' < kapcho 'dirty' + sagi 'fruit' or 'ball' + -Vtaa 39 Exclamatory; pogimewajripnata 'he snores' < ø 03 'he' + poginewa- 'make a sound' + jri 'nose' + pna 'hole' + -Vta 21 Verbal.

4.1.5.3 Possessive Affixation. Nouns of Class III do not take possessive suffixes except for the words chiji 'land', which has the possessed form chijne, and tseru 'diarrhea' which has the possessed form tsere. The stems are free forms except for -turu 'son', which does not occur without a possessive prefix. A few stems have alternate forms: gonu 'water' • ga 'water' or 'liquid' (possessed); shechi 'bed' • jeko 'bed' (possessed); panchi 'house' • pji 'house' (possessed).

The primary possession of Class III stems generally expresses relationship rather than ownership. To express ownership of a Class III item not primarily related to the owner, the usual method is to name the primary possessor as possessed by the owner and add the Class III item: For example, 'my leg of tapir' would be njemate tpali < n- 01 Class II Person Marker 'I' + jema 'tapir' + -Vte 14 Possessive + tpali 'leg'. An alternate method is to affix to the Class III item ka- 004 'Having a certain attribute' and -lu 25 Individual, the resultant form being a Class II stem to which the appropriate possessive affixes are attached. Example: gigwu 'its flower' < gi- 03 Class III Person Marker 'its' + gwu 'flower': nkagwurate 'my flower' < n- 01 Class II Person Marker 'ny' + ka- 004 'Having a certain attribute' + gwu 'flower' + -lu 25 Individual + -Vte 14 Possessive.

A few stems of Class III indicate secondary possession in other ways. To the stem meji 'feathers' is added -Vte 14 Possessive or -ne 13 Possessive: tomeji 'its feathers' (the fowl's) < to- 04 Class III Person Marker 'its' + meji 'feathers': tomejite or tomejne 'her feathers' (the woman's) < to- 04 Class III Person Marker 'her' + meji 'feathers' + -Vte 14 Possessive or -ne 13 Possessive. To the stem kwa 'platform' is added -lu 15 Infinitive + -V > e 16 Possessive: gikwa 'its platform' (the house's) < gi- 03 Class III Person Marker + kwa 'platform': nokwale 'my platform' < no- 01 Class III Person Marker 'ny' + kwa 'platform' + -lu 15 Infinitive + -V > e 16 Possessive. To the stem powga 'lake' is added the Class II Person Marker and -Vte 14 Possessive: gipowga 'its lake' < gi-03 Class III Person Marker 'its' + powga 'lake': npowgate 'my lake' < n- 01 Class II Person Marker 'ny' + powga 'lake' + -Vte 14 Possessive. The stem gapi 'instrument' is compounded with the primary possessor. The suffix -ri (probably -ri 25 Individual) + -V > e 16 Possessive follows gapi: togapi 'its instrument' (as the 'fish's instrument', an arrow for shooting fish) < to- 04 Class III Person Marker 'its' + gapi 'instrument': nshinagaple 'my instrument for shooting fish' < n- 01 Class II Person Marker + shina 'fish' + gapi 'instrument' + -lu 15 Infinitive + -V > e 16 Possessive. The stem ga is preceded by its alternate form gonu, possessed as a Class I stem: nonnega 'my water' < n- 01 Class I Person Marker 'ny' + gonu 'water' + -ne 13 Possessive + ga 'water'.

## 4.2 The adjectival noun.

4.2.1 Derivation. The adjectival noun is composed of an adjective stem plus one of the nominal suffixes -Vlu/o 25 Individual, -Vtu/o 26 Nominal, -Vne 27 Plural, -nu 28 Abstract or -waka 61 'time', 'place', or 'manner': kigleru 'the good one' < kigle 'good' + -lu 25 Individual; muglo-tu 'the bad one' < n- 003 Privative + gigle (alternate stem) 'good' + -Vtu 26 Nominal; giglenu 'goodness' < gigle 'good' + -Vnu 28 Abstract; kiglewaka 'good place' < kigle 'good' + -waka 61 'place'. When nominalized, the adjective stem gektu 'ugly' occurs only with -Vtu/o 26 Nominal: gektutu 'the ugly one'; the adjective stem pixka 'like' occurs only with -lu 15 + -Vtu Nominal: pixkalutu 'the similar one'.

An incorporated noun may precede or follow the nominal suffix with difference of meaning corresponding to the position: sergalu 'red liquid' < sero 'red' + ga 'liquid' + -lu 25 Individual; serolga 'liquid of a red or ripe object' (used of the banana beverage which is the principal vegetable food of the Piro) < sero 'red' + -lo 25 Individual + ga 'liquid'. That the form serolga 'liquid of ripe object' is a compound rather than two words is indicated by the possessed form nserolgate 'my beverage..' < n- 01 'my' + sero 'red' or 'ripe' + -lo 25 Individual + ga 'liquid' + -Vto 14 Possessive.

4.2.2 Affixation. The formula for affixation of the adjectival noun is:

± 000	+ Stem ± 20	± (30, 91, 22)	± 40	± 73 -ni	± 50	± 70
003 n-	27 -ne	31 pja	41 -pa		51 -ka	76 -kta
		31 gina			52 -ko	77 -mka
		31 potu				
		31 nanu				
		31 yma				
		91 koxa				
		22 -kaka				
		37 -na				
± 80	± 73 -ni	± 00				
81 -tka						

The prefix n- 003 occurs with any of the nominal suffixes mentioned above except -lu/o 25 Individual.

## 4.3 The adverbial noun.

4.3.1 Derivation. There are a few rarely occurring adverbial nouns composed of the adverb stem wane 'thus', 'then', 'there', plus certain of the aspectual suffixes, plus one or more of the nominal suffixes -lu 15 Infinitive, -Vtu/o 26 Nominal, -Vne 27 Plural, -Vnu 28 Abstract and -waka 61 'time', 'place', 'manner'. The following adverbial nouns have been noted: waneklu 'right then' < wane 'then' + -ko 52 Emphatic + -lu 15 Infinitive; waneyalutu 'the one who has' < wane 'there' + -ya 42 Indirective + -lu 15 Infinitive + -Vtu 28 Abstract; wanoyminjetu 'the one who has not' < wane

'there' + -ya 42 Indirective + minje 31 Privative Postparticle + -Vtu 28 Abstract; waneyanu 'what one has' < wane 'there' + -ya 42 Indirective + -Vnu 28 Abstract; wanepnawaka 'furthermore' < wane 'there' + -Vpa 41 Change of state + -Vna 71 Intensifier.

4.3.2 Affixation. The formula of affixation for the adverbial noun is:

Stem ± 31 nanu ± 60 ± 71 -Vna ± 77 -maka ± 81 -Vtka ± 73 -ni ± 00  
 62 -kawa  
 63 -yaka

No suffixation has been found following the nominal -waka 61. Only nanu 31 Distributive has been noted after -Vnu 28. The Person Markers of Order 00 occur only following -Vtu 26.

#### 4.4 The pronominal noun.

4.4.1 Derivation. A pronominal noun is a pronoun plus -Vnu 28 Possessed Object: gitanu 'my object' < gita 01 'my' + -Vnu 28 Possessed Object; or plus -lu 15 Infinitive and -Vtu 26 Nominal: walaluto 'such a one as she' < wala 'she' + -lu 15 Infinitive + -Vto 26 Nominal.

4.4.2 Affixation. The formula for affixation of the pronominal noun is:

Stem ± 52 -ko ± 42 -ya ± 70 ± 81 -tka ± 00  
 72 -Vpa  
 73 -ni

No affixation has been found following the pronominal noun which includes -lu 15 and -Vtu 26.

#### 4.5 The verbal noun.

4.5.1 Derivation. The verbal noun is composed of a verb stem plus a nominal suffix or suffixes. Following is a list of types of verbal nouns. Numbers (1) to (6) are simple sequences of verb stem plus a single nominal suffix. Numbers (7) to (26) are sequences of verb stem plus nominal suffixes in a combination with specialized meaning. Type number (27) is a compound of verb stem plus noun stem. In most of the examples the verb yinaka 'teach' is used.

Verb stem plus:

(1) -lu 15 Infinitive. Action or state of the verb: yinaklu 'teaching'.

(2) -menu 17 'cause'. Cause of the action or state of the verb yayixmonu 'that which causes sickness' < yayixa 'be sick' + -menu 17 'cause'.

- (3) -Vnu 28 Possessed Object Abstract. Action or state of the verb: yochignu 'dazzling brilliance' <yochiga 'shine as the sun' + -Vnu 28. Occurs with a very limited list of verbs.
- (4) -waka 61 'place', 'time', 'manner'. Place, time, or manner of action of the verb: yimakwaka 'school'.
- (5) -Vyaka 63 'period of time'. Period of action of verb: naklutinyaka 'youth' <nakluta 'be young' + -V >i + ni 54 Condition fulfilled + -Vyaka 'status'.
- (6) -Vchi 101 Participial. Action or state of verb: yonchi 'painting' <yona 'paint' + -Vchi 101.
- (7) ka-...-lu <ka- 004 Belonging to a certain class and -Vlu 25 Individual. That which has the action or state of the verb: kayonalu 'that which has painting' <yona 'paint' + ka-...-lu.
- (8) -Vchri <-Vchi Participial + -ri 25 Individual. Subject of the verb: yimakachri 'teacher'.
- (9) -leru <-lu 15 Infinitive + -V >e 16 Possessive + -lu 25 Individual. Recipient of action of the verb: yinakleru 'student'.
- (10) k-...-leru <k- 004 Belonging to a certain class and -lu 15 Infinitive + -V >e 16 Possessive + -lu 25 Individual. One who possesses the object of the verb: kyinakleru 'teacher'.
- (11) k-...-Vnuru <k- 004 Belonging to a certain class and -Vnu 28 Possessed Object + -Vlu 25 Individual. Subject as characteristically performing action of verb or having state of verb: kjigeekanuru 'one who is displeased with everything' <jigoka 'find fault' + k-...-nuru. Occurs with very limited list of verbs.
- (12) -jeru <-je possibly 36 'always' + -lu 25 Individual. The one from whom the subject of the verb receives the passive action of the verb: yinakjeru 'one's teacher'.
- (13) -Vnru <-Vnu 28 Possessed Object + -lu 25 Individual. Object of the action of the subject: yirakanru 'what one teaches'.
- (14) -V >i + nri <-V >i probably 54 Condition fulfilled + -Vnu 28 Abstract + -ri 25 Individual. Action or state of verb as characteristic of subject: yinakinri 'one teaching'.
- (15) -kalu <-ka 51 Passive + -lu 15 Infinitive. Passive action of the verb: yimaakalu 'the being taught'.
- (16) -kolu <-ko 52 Anticipatory Passive + -lu 15 Infinitive. Anticipated action of verb: yimaakolu 'anticipated being taught'.

(17) -kaluru <-ka 51 Passive + -lu 15 Infinitive + -lu 25 Individual. Subject of the passive action of the verb: yinaakaluru 'that which is taught'.

(18) k-...-kaleru <k- 004 Having a certain attribute and -ka 51 Passive + -lu 15 Infinitive + -V > e 16 Possessive + -lu 25 Individual. One who is characterized by the passive action of the verb: kyinaakaleru 'one who has been taught'.

(19) -koklunu <-ko 52 Anticipatory Passive + k- possibly reduplication of -ko 52 + -lu 15 Infinitive + -Vnu 28 Abstract. Having undergone the action of the verb: yinaakoklunu 'having been taught'.

(20) n-...-lenu <n- 003 Privative and -lu 15 Infinitive + V > e 16 Possessive + -Vnu 28 Possessed Object. Lack of the action or state of the verb: Myinaklenu 'lack of teaching'.

(21) n-...-kletu <n- 003 Privative and -ka 51 Affirmative + -lu 15 Infinitive + -V > e 16 Possessive + -Vtu 26 Nominal. Lacking the action or state of the verb: nyinaakletu 'the one untaught'.

(22) n-...-katu/o <n- 003 Privative and -ka 51 Affirmative + -Vtu 26 Nominal. That which does not have the action or state of the verb: nyinaakatu 'that which is not taught'.

(23) n-...-kotu/o <n- 003 Privative and -ko Emphatic + -Vtu 26 Nominal. That which is not expected to have the action or state of the verb: nyinaakotu 'that which is not to be taught'.

(24) n-...-kanu <n- 003 Privative and -ka 51 Affirmative + -Vnu 28 Possessed Object. Lacking the action or state of the verb: nyinaakanu 'lacking teaching'.

(25) n-...-Vnutu/o <n- 003 Privative and -Vnu 28 Possessed Object + -Vtu 26 Nominal. One who lacks the action or state of the verb: nyinaakanutu 'one who is untaught'.

(26) n-...-V > i + nitipa <n- 003 Privative and -V > i + niti sequence not analysed + -Vpa 72 Directive. Action or state of verb as not characteristic of subject: nyinakinitipa 'one not to teach'.

(27) Noun stem. Examples: sheyipi 'towel' <sheyi- 'to wipe' + pi 'gadget'; jinapro 'baked or roasted food' <jina 'bake or roast' + pro 'disc'.

Besides the forms listed as special combinations, the n-003 Privative occurs in regular sequence with (1), (4), (12), (16), and (27).

Any verb may occur in all of these forms except with -Vnu 28 and -Vnuru, though actually not all of the types of nominalization have been noted with any one verb. Some combinations would be highly improbable because of the meaning that would result.

4.5.2 Affixation. Affixes of Orders 30, 40, and 50 occur before the nominalizers, as well as following the nominalizers. Examples: yinaklewa-tyawakaya 'in school' < yinaka 'teach' + -lewa 34 Characterizer + -Vta 21 Verbal + -ya 42 Locative + -Vwaka 61 'place' + -ya 42 Locative; naklutinyaka 'youth' < maklu 'young person' + -Vta 21 Verbal + -V > i + ni 54 Conditional + -yaka 63 Status; kasgakashlu 'slander' < kasgaka 'to slander' + sha 31 'just' + -lu 15 Infinitive, or kasgaklusha 'slander' < kasgaka 'to slander' + -lu 15 Infinitive + sha 31 'just'.

The formula of affixation of verbal nouns in general is:

± 00	± 000	± Stem	± 10	± (30, 22, 91)	± 40	± 50	± 70
	001 go-		13 -ne	31 gapka	41 -Vpa	52 -ko	71 -Vna
	002 gi-		14 -Vte	31 getko	42 -ya		72 -Vpa
	003 n-		16 -V > e	31 gima			73 -ni
				31 gonu			74 -na
				31 mnu			76 -Vhta
				31 nanu			77 -naka
				31 pje			
				31 potu			
				31 yma			
				22 -kaka			
				91 koxa			
				37 -Vna			
± 80	± 73 -ni	± 90	± 00	± 100			
81 -Vtka		93 -Vwa		101 -Vchi			
82 -Vtnaka				103 -Vla			
83 -Vwa				104 -Vli			

Affixes of Orders 10, 20, 50, 100, and 000 already described as part of the stem are not included in the formula. No affixation has been found after (26).

Prefixes of Order 00 occur as possessives without the addition of a possessive suffix with verbal nouns of types (2), (3), (4), (5), (9), (12), (13), (14), (15), (16), (19), (20), (24), and (26). Prefixes of Order 00 occur as possessives with the addition of a possessive suffix in type (1), and with or without the addition of a possessive suffix in type (27). With type (1) occurs the possessive suffix -V > e 16: nyinakle 'my teaching' < n- 01 'my' + yinaka 'teach' + -lu 15 Infinitive + -V > e 16. Verbal nouns of type (27) are possessed as Class I and Class II nouns; that is, those derived from verb stems beginning with gV- and occurring with prefixes of Order 000 function with regard to possessive affixes as Class I nouns, the rest as Class II nouns. Examples: nsheyipre 'my towel' < n- 01 'my' + sheyi 'to wipe' + pi 'gadget' + -lu Infinitive + -V > e 16 Possessive; njinaprote 'my baked banana or other object' < n- 01 'my' + jima 'bake' + pro 'disc' + -Vte 14 Possessive; netapi 'my spy-glass' < n- 01 'my' + gota 'see' + pi 'gadget'. Possessive suffixes -ne 13, -Vte 14, and -V > e 16 occur only with type (27) of verbal nouns as described above.

Prefix go- 001 occurs with type (1). Prefix gi- 002 occurs with type (13).

The Plural suffix -Vne 27 replaces -lu/li Individual in types (8), (12), (13), (21), (22), (23), and (25); follows -Vlu/li 25 Individual in types (10), (11), and (18); and either replaces or follows -Vlu/li 25 Individual in types (9) and (17). Examples: yimakachri 'teacher', yinakachine 'teachers' (8); kyimakleru 'teacher', kyimaklerune 'teachers' (10); yinakleru 'student', yinaklerune or yinaklene 'students'. -Vnu 28 occurs with type (8): yimakachrinu 'that which belongs to the teacher' < yinaka 'teach' + -chri Subject + -Vnu 28 Possessed Object.

The suffix -Vna 37 Temporal has been found only with types (1), (8), (10), (13), and (17). Example: gipxakjetachrinapni 'the one who is not now helping but is going to become a helper' < gipxaka 'help' + -je 36 always' + -Vta 21 Verbal + -Vchri Subject + -Vna 37 Temporal + -Vpa 72 Purposive + -ni 73 Assertive (8).

Of the suffixes of Order 70, -Vna 71 Intensifier has been found only with type (8); -na 74 Reflexive only with (8); -Vkta Generalizer only with type (3). Of the suffixes of Order 80, -Vtnaka 82 'again' has been found only with (3), (8), and (16); -Vwa 83 'yet' has been found only with types (22), (24), and (25). Of the suffixes of Order 90, -Vwa 93 has been found only in sequence with -na 74 Reflexive with type (8).

Suffixal Person Markers of Order 00 occur with types (1), (6), (7), (8), (9), (10), (11), (12), (13), (17), (18), (21), (22), (23), and (25). With type (6) the Person Marker (Order 00) is always preceded by a suffix of Order 40.

Suffix 101 -Vchi has been found with types (3), (4), (15), (19), (24), and (27). Suffix 103 -Vla has been found only with type (13). Suffix 104 -Vli has been found only with type (8).

Probably many more of the suffixes will eventually be found with each type of verbal noun.

#### 4.6 The interrogative noun.

4.6.1 Derivation. There is a small group of forms composed of a bound stem plus a nominal suffix -lu 15 Infinitive, or -lu/lo 25 Individual, or -Vtu 26 Nominal, which do not occur with possessives, and are not pluralized as are nouns proper. They are giklu 'when?'; giru 'which?', 'who?', 'whose?', or 'whom?'; katu 'who?', 'whose?', or 'whom?'; and klu/o/a 'what?'.  
4.6.2 Class A.

4.6.2.1 Definition. The simple interrogative noun described above constitutes Class A.

4.6.2.2 Affixation. The general formula of affixation for the Class A interrogatives is:

Stem + (31, 91) + 41 -pa + 52 -ko + 76 -kta + 81 -tka + 73 -ni + 00 + 105 -ge  
31 gapka  
31 getko  
31 gina  
31 pguta  
31 nanu  
31 yma  
91 koxa

In addition to these suffixes, klu (not klo nor kla) occurs with -ne 13 Possessive plus -lu 15 Infinitive: kluneruktani 'What on earth is it?' < klu 'what?' + -ne Possessive + -lu 15 Infinitive + -kta 76 Generalizer + -ni 73 Assertive. kla is followed by only 00 + -ge 105 Interrogative: Sino klayge pixa? 'Are you Simon?' < Sino 'Simon' + kla 'what?' + -yi 02 'you' + pixa 'you' (singular).

#### 4.6.3 Class B.

4.6.3.1 Definition. The stem of a Class B Interrogative noun is composed of the Class A stem giru or katu plus -Vnu 28 Possessed Object (cf. Sec. 4.4): katunu or girunu 'Whose is the object?'

4.6.3.2 Affixation. The formula for affixation of the Class B Interrogative is:

Stem + 52 -ko + 42 -ya + 70 + 81 -tka + 00  
72 -Vpa  
73 -ni

### 5. The pronoun.

5.1 Definition. A pronoun is a word in which person, number, and gender are implicit in the stem. There are four sets of pronouns.

#### 5.2 Classification.

5.2.1 Set I. The first set consists of personal pronouns. They are CVCV words, except for the third person plural which is CVCCV (bound stem plus plural suffix -na):

gita 'I', 'me', 'my'.  
pixa 'you', 'you', 'your' (singular).  
wale 'he', 'him', 'his'.  
wala 'she', 'her', 'her'.  
wixa 'we', 'us', 'our'.  
gixa 'you', 'you', 'your' (plural).  
wanna 'they', 'them', 'their'.

5.2.2 Set II. The three members of the second set may be translated by "this" or "that" (near). The pattern is CCV:

- tye Third person masculine singular 'this', 'that' (near).
- twu Third person feminine singular 'this', 'that' (near).
- nyi Third person masculine and feminine plural 'these', 'those' (near).

5.2.3 Set III. The four members of the third set may be translated by "that" (distant). The pattern is CVCCV.

- tujra Third person masculine singular 'that' (distant).
- tojra Third person feminine singular 'that' (distant).
- najra Third person masculine and feminine plural 'those' (distant).
- wajra Indefinite 'that' (distant).

5.2.4 Set IV. The two members of the fourth set may also be translated by "that" (distant) or "behind something else". The pattern is CVCV:

- tuka Third person masculine singular 'that' (distant).
- toka Third person feminine singular 'that' (distant).

5.3 Affixation. The formula for affixation of the pronoun is:

Stem	± (31, 22, 91)	± 10	± 40	± 50	± 70	±
	31 potu	15 -lu	41 -Vpa	51 -Vka	72 -Vpa	
	31 nanu		42 -ya	52 -Vko	76 -Vhta	
	31 pguta				77 -maka ~ -Vnka	
	31 gina					
	31 gapka					
	31 gonu					
	31 sha (with wajra only)					
	31 rnu					
	31 ninje					
	31 pja					
	31 yna					
	22 -kaka					
	91 koxa					

80	± 91 koxa	± 71 -Vna	± 73 -ni	± 00	± 100
81 -Vtka					101 -Vchi
82 -Vtnaka					102 -Vle
					103 -la
					104 -Vli
					105 -ge

Suffixes 102 and 103 occur followed by 105. Otherwise suffixes of Order 100 were not found occurring simultaneously: wannaklage? 'Is it they?' < wanna 'they' + -Vko 52 Emphatic + -la 103 Subject emphasizer + -ge 105 Interrogative.

## 6. The adjective.

6.1 Definition. An adjective may be identified as a free stem which occurs followed immediately by -Vlu 25 Individual or -Vta 26 Nominal plus a Person Marker of Order 00. The resultant nominalized form has been treated in Section 4.2, the type of nominalization having been mentioned here only as a distinguishing feature of the adjective.

6.2 Derivation. Nearly all adjective stems have the forms (C ± C + V)<sup>2</sup> or CVCVCV. The one exception noted is kpixowaka 'fat'. Here again the question (discussed above with regard to verb stems) arises, as to whether or not these stems are composed of single morphemes. Some are definitely polymorphemic: gowuka 'long' and goyaka 'durable' obviously contain the same morpheme go- that constitutes the prefix go- 001 Extensive, but whether or not the final -ka is a separate morpheme is not clear. The ka- ~k- of kigle • gigle- 'good', knatsu • natsu- 'fierce' and kapcho • pcho 'dirty' is evidently the same morpheme as prefix ka- ~k- 004 Comprising a class or Having an attribute, but it is not evident that the other occurrences of the sequence ka- or k- in the initial syllables of other adjectives represent this morpheme. Furthermore, one third of the adjective stems begin with po- without having any apparent common meaning. Examples: pochke 'quiet'; pole 'green', 'blue'; pomeno 'thin'; posu 'rotten'.

6.3 Affixation. The formula for affixation of the adjective is:

Stem ± (30, 22, 91) ± 40	± 73 -ni ± 50	± 70	± 80	±
31 potu	41 -pa	52 -ko	71 -Vna	81 -Vtka
31 gina	42 -ya		72 -pa	82 -Vtnaka
31 pguta			73 -ni	
31 getko			76 -Vkta	
31 gogne			77 -naka	
31 nanu				
31 sha				
31 yegi				
31 pirana				
31 nnu				
22 -kaka				
91 koxa				
37 -Vna				
39 -Vtaa				

00 ± 100
101 -Chi
102 -Vle
105 -ge

The exclamatory -taa 39 is not followed by any further suffixation: kigletaa 'It is very good!' < kigle 'good' + -taa 39 Exclamatory. When two or more suffixes of Order 70 occur together, they occur successively in the order shown: gi pixkaktankana 'What must they be like!' < gi Exclamatory proclitic, and pixka 'like' + -Vkta 76 Generalizer + -Vnka 77 Optative + -na

00 'they'.

## 7. The adverb.

7.1 Definition. An adverb is a free stem which is distinguished from adjectives in that, when nominalized, it does not occur immediately followed by -lu 25 Individual, and does not occur simultaneously with both -lu 25 Individual and Person Markers of Order 00 (see Adverbial nouns, Sec. 4.3).

7.2 Derivation. All adverbs are probably polymorphemic stems, but it has not been possible so far to determine whether or not they actually are so. For example, ginaka may be < gi Interrogative preclitic + -Vna 37 Temporal + -ka 51 Affirmative, or the syllables of ginaka may simply be homophonous with those morphemes. The forms of the adverbs are CVCV, CVCVCV, and CVCCV.

The adverbs are the following:

gawaka 'upriver'.  
gawla 'there'.  
gawi 'here'.  
ginaka 'where?'.  
nala 'downriver'.  
wane 'thus', 'then', 'there'.

7.3 Affixation. The formula for affixation of the adverb is as follows:

Stem	± 42	-ya ± (31, 91)	± 50	± 70	± 80	± 00	± 100
	31	gina	51 -Vka	71 -Vna	81 -Vtka		101 -chi
	31	gogne	52 -Vko	72 -Vpa	82 -Vtnaka		102 -Vle
	31	gonu	53 -nu	73 -ni			103 -la
	31	nanu		76 -Vkta			105 -go
	31	pja		77 -naka ~ -Vnka			
	31	potu					
	91	koxa					

Suffixes of Order 70 occur successively in the order indicated except that -Vna 71 and -ni 73 have not been found together: wanoginanaktalo 'they say she is somewhere there' < wane 'there' + gina 31 Quotative + -Vna 71 Particular + -Vkta 76 Generalizer + -lo 03 'she'; gewiktankalu 'it would be here somewhere' < gawi 'here' + -Vkta 76 Generalizer + -Vnka 77 Optative + -lu 04 'it'. Suffixes of Order 100 have not been found occurring simultaneously, except -Vle 102 Literary followed by -ge 105 Interrogative: wanerge? 'Is there?' < wane 'there (is)' + -Vle 102 Literary + -ge 105 Interrogative.

## 8. The particle.

8.1 Definition. The particles form a residual class of words which do not belong to the preceding classes, but which occur with affixation.

8.2 Derivation. The consonant-vowel pattern of the particles is  $C \pm V \pm (C \pm C + V)^{\#}$ .

The following are particles:

gachi 'but' < ga- + -Vchi 101 Participle.

gali ~ galu a call word or greeting. Occurs usually as galikaka, 'true' < gali- + -kaka 22 Causative or galukta 'perhaps' < galu + -Vkta 76 Generalizer.

gichi 'wait'. Usually occurs as gichikaka 'wait' < gichi + -kaka 22 Causative.

gigi 'yes' < gi Negative preclitic reduplicated.

gike 'no', 'not', 'none' < gi Negative preclitic + -ke.

giyago. Occurs in the following forms with specialized meanings:

giyagni 'then', 'therefore' < giyago- + -ni 73 Assertive; giyago-ktala 'be right' < giyago- + -kta 76 Generalizer + -la 103 Subject emphasizer; giyampotu 'quickly', 'rapidly', 'roughly' < giyago- + potu 31 Intensifier.

muchi 'previously'. Usually occurs as muchikawa < muchi + -kawa 62 'period of time'.

seyo 'but'. Usually occurs in forms seyini < seyo + -ni 73 Assertive or seyoka < seyo + -ka 51 Affirmative.

gwu 'all right', 'good'.

toyaka 'hurry'.

xa- 'now'. Usually occurs in the following forms with specialized meanings: xako 'Careful!' < xa- + -ko 52 Emphatic; xani 'now', 'today' < xa- + -ni 73 Assertive; xawakni 'now', 'today' < xa- + -waka 61 'time' + -ni 73 Assertive.

yigleko 'slowly', 'gently' < yigle- + -ko 52 Emphatic.

The affixation of the particle by Order 31 precedes the obligatory suffix in giyagni and yigleko: giyaginini 'therefore it is said' < giyago- + gina 31 Quotative + -ni 73 Assertive; yiglepotuko 'very slowly' < yigle- + potu 31 Intensifier + -ko 52 Emphatic.

8.3 Affixation. The suffixes following the obligatory or characteristically occurring suffix may be of an order which elsewhere precedes such a suffix. The order of affixation for particles is:

Stem ±	(31, 91)	± 41	-pa ± 50	± 70	± 80	± 73	-ni ± 00 ±
31 gina			51 -ka	72 -pa	81 -tka		
31 nanu			52 -ko	73 -ni	83 -wa		
31 getko				76 -Vkta			
31 potu				77 -Vnka			
91 koxa							

100 ± 51 -ka

103 -la

104 -Vli

Suffixes of Order 70 have not been found occurring simultaneously.

The affirmative is pleonastically marked in the word *xawakninanuklaka* 'during this time' < *xa-* + *waka* 61 'time' + *-ni* 73 Assertive + *nanu* 31 Distributive + *-ka* 51 Affirmative + *-la* 103 Subject emphasizer + *-ka* 51 Affirmative.

Suffixes of Order 00 occur only with *giyanpotu* and *xako*, *xani*, *xawakni*, and *yigleko*.

## 9. The interjection.

9.1 Definition. There are a number of interjections which occur in isolation without affixation. Their form is (CV)<sup>3</sup> :

*gayale* Exclamation of pain.  
*ge* Call for attention, as among hunters.  
*go* 'I don't know'. Also a call word, and exclamation of wonder.  
*gowa* 'So that's how it is!'  
*shi* 'Well, you don't say!'  
*tokali* 'Come!'  
*wuya* 'Get going', 'Step on it'.  
*ya* Frustration, as when something is dropped or spilled.  
*gmm* When a thought strikes.

9.2 Intonation. Intonational features have not been included in this paper elsewhere, but since the interjections are not separable from their intonation, a few notes are given here. *gayale*, the exclamation for pain, is usually pronounced rapidly with the exclamatory intonational feature of lengthened final vowel with raised pitch and change of stress to the last syllable. The call for attention, *ge*, is also high pitched. *go* 'I don't know', *gowa* 'So that's how it is!', *shi* 'Well you don't say!' and *ya* Frustration are pronounced very slowly and with heavy stress. The pitch on the two-syllable words is high-low. *wuya* 'Get going' is pronounced rapidly with very heavy stress.

10. Onomatopoeic words. Onomatopoeic words not represented in the major word classes are listed here. To write them glottal stop ' must be added to the orthography, although it is extra-systematic.

*ga ga ga ga ga* or *ga' ga' ga' ga'* Bark of a hunting dog in the chase.  
*to to to* Sound of a hammer, and 'all the Mashco say when they talk.'  
*tooooo* Sound of thunder.  
*pooooo* Sound of a house or tree falling, or of a landslide.  
*kla* Sound of falling in general.  
*klo klo* Sound of swallowing.  
*sojjjj* Sound of a canoe going downstream.  
*tru-ru-ru-ru-ru-ru* Sound of an aeroplane.  
'*rrrr*' Sound accompanying a heavy push or pull.  
*saa saa saa* Whistle to call others.  
*suu suu* Sound of a ghost.