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0. Introduction
1. Prefixes
2. Stem-initial consonant
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4. Suffixes

0. This article describes the inflection of nouns in Pame.[1] Nouns are inflected for number of the noun, number of the possessor, and person of the possessor. These categories are expressed by (1) prefixes, (2) stem-initial consonant modification, (3) tone-stress changes, or (4) suffixes, and often redundantly by two or more of these systems at once.[2] The four systems

are described separately. Morphophonemic processes operate within each of these systems and also where they interact. The reader is referred to Gibson's 1956 article for a systematic description of Pame phonemics and morphophonemics.[3]

Though each system is essentially independent, there are some correlations between them, especially between that of possessive prefixes and the stem-initial consonant modifications for possession. The choice between prefixes or suffixes for number of the noun is largely determined by the animateness of the noun. All inanimate nouns choose prefixation; all animate nouns use suffixation and a subclass of them use prefixation as well. The system of tone-stress changes is the most independent of the other systems, with the qualification that the pattern which maintains the same tone throughout the paradigm is found most frequently with those nouns which mark possession by inflectional suffixes rather than prefixes and with those which maintain the same stem-initial consonant throughout (but with changes in the prefix).

This article presents the regular patterns that have been found in a study of over 700

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[1] Pame is an Otomanguean language spoken by about 3,700 people in central Mexico. The variety described is Central Pame, spoken in Santa María Acapulco, on the southeast border of San Luis Potosí. The 1970 census places the population at 2,700. The mutually unintelligible North Pame accounts for the other 1,000 speakers. It is spoken in the region of La Palma, Tierras Coloradas, San Felipe Gamotes, Alaquines, and Hoya de Durazno in San Luis Potosí. South Pame as spoken by the few remaining speakers in Jiliapan, Hidalgo, was described by Leonardo Manrique Castañeda, "Structural Sketch of South Pame (Jiliapan Dialect)," in *Handbook of Middle American Indians*, vol. 5, *Linguistics*, ed. N. A. McQuown (New York, 1967), pp. 331–48. It also is quite distinct from Central Pame. Note the change from the classification of Santa María Acapulco as North Pame, as stated in Lorna Gibson, "Pame (Otomi) Phonemics and Morphophonemics," *IJAL* 22 (1956): 242–65.

[2] The redundancy in marking number and possession has its explanation partly in historical change. The modifications of stem-initial consonant and tone-stress constitute an older system

of inflection that has become partly ambiguous due to phonological changes in the language. The prefix system is somewhat more recent and serves to resolve some of the ambiguities. The suffix system is of more recent origin and marks the categories most explicitly. Pame is like other Otomanguean languages in displaying morphological layering which reflects a tendency for affixes to coalesce with the root in a single syllable.

[3] *IJAL* 22 (1956): 242–65.

nouns. There are also about twenty nouns that have some special irregularities in their inflection, which are not treated in this study. Most of these are kinship terms.

1. The prefix is an integral part of the Pame noun word; very few nouns have no prefix. The prefix may be nominalizing or simply nominal. In most cases, the prefix also has a classifying function. Examples of some of the prefixes:

kasą̢s *musician* (-są̢s *play an instrument*), AGENT

kapę́ *thief* (-pę́ *steal*) AGENT

naphę́ *thievery* (-pę́ *steal*, laphę́ 3d pl. future) ACT

kíchą̧s *playing of instruments* (-są̧s *play an instrument*, láchą̧s 3d pl. future) ACT

pingywą́ŋ *bone, skeleton* HARD

pikywá ʔ *flint* HARD

stilᵛháigŋ *feather(s)* FINE, LITTLE

stišèhiʔ *bullet(s)* FINE, LITTLE

Many of the noun prefixes also participate in a system of prefix modification to distinguish number of the noun or person of the possessor of a possessed noun (described below). Some prefixes are unchanging for plurals or for possessives, and in these cases those categories are marked by suffixes (see **4**).

Inanimate nouns are marked for plural by a modification of the consonant of the noun prefix. Many animate nouns are also marked for plural by prefix modification as well as by suffixation, the characteristic device for pluralizing animate nouns (see **4**).

The most regular prefix sets for absolute number are given in table 1. The basic prefix is used for singular or dual, and the modified prefix is used for three or more. The plural prefix has a weakened consonant: n is replaced by 1 or r; m is replaced by w; c and č are replaced by s and š; and both ŋgo and ko are replaced by M. The nasal prefix M assimilates to the

TABLE 1

Singular and Dual	Plural
(1).....ŋgo	M
(2).....ko	M
(3).....ni	li (rare)
(4).....ni	ri
(5).....na	la
(6).....na	ra
(7).....ma	wa
(8).....mi (rare)	wi
(9).....co	so
(10)....ca	sa
(11)....či	ši

point of articulation of the following consonant:

ŋgobɛ́ʔɛt *flag*, mbɛ́ʔɛt (pl.)

ŋgodèocʔ *bridge*, ndèocʔ

ŋgokhwèʔ *bean*, ŋkhwèʔ

ŋgosą́oŋ *night*, nsą́oŋ

ŋgolhwą́ *ear of corn*, nlhwą́

Some speakers omit the n before the lateral: (n)lhwą́ *corn*, (n)lhò̧s *salt* (pl.).

Stops not in a cluster with h are voiced after M:

kopóʔ *land*, mbóʔ (pl.)

ŋgophói *excrement*, mphói

ŋgopʔóho *seat*, mbʔóho

ŋgokwą́ŋ *tree, piece of wood*, ŋgwą́ŋ

Before other consonants the M is deleted, and except for stem-inital ʔ and h and clusters mh and nh, the stem-initial C is geminated in many words by some speakers.[4]

ŋgohwę̀ʔ *thorn*, hwę̀ʔ (pl.)

ŋgoʔwę̂i *mosquito*, ʔwę̂iky (animate pl.)

ŋgomhę́ *tortilla*, mhę́

ŋgomę̂hiʔ *squash*, (m)mǫ́hiʔ

ŋgowàhalʔ *horse*, (w)wàhaltʔ (animate pl.)

ŋgonwę́ *thunder*, nnwę́t (animate pl.)

ŋgonwę́ʔ *gopher*, nnwę́ʔt (animate pl.)

konèp *well*, nèp

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[4] Note that in the verbs, the stem-initial C of forms without a prefix is almost always geminate: wwài *he cries* (lawài *I cry*); ddóa *he walks* (ladóa *I walk*); but not in wôt *he barks*.

M is also an allomorph of the plural of the possessive prefix ŋgo and works the same way.

ŋgomá̧ŋ *his saying*, mmá̧ŋ (pl.)

ŋgomàs *his finger-ring*, mmàs (pl.) (cf. màs *more*)

ŋgowâs *your finger-ring*, wwâs (pl.)

ŋgomò *its corner, his hip*, mò *corners*, mòt *their hips*

ŋgonhį̧oˀ *his name*, nhį̧oˀ (pl.)

Examples of sets (3) to (11) in table 1 are:

(3) nikywá̧ŋ *capulincillo tree*, likywá̧ŋ

(4) níŋgyȩhe *year*, ríŋgyȩhe

(5) nacê *plum*, lacê

(6) nachȩ̀ŋ *key*, rachȩ̀ŋ

(7) macì *pitcher*, wacì

(8) mičâˀ *corn bin*, wičâˀ

(9) cóndo *egg shell*, sóndo

(10) camphá̧ŋ *pocket*, samphá̧ŋ

(11) čihàgŋ *spoon*, šihàgŋ

Examples of prefix sets on animate nouns in combination with number suffixes are:

(1) ŋgowàhalˀ *horse*, ŋgowàhailᵛˀ (du.), wwàhaltˀ (pl.)

(4) niyáho *fox*, niyáhoi (du.), riyáhot (pl.)

(5) nadò *dog*, nadòi (du.), ladòt (pl.)

(7) masát *deer* (sg., du.),[5] wasát (pl.)

(9) cómhɛ *butterfly, moth*, cómhɛi (du.), sómhɛt (pl.)

(10) camphá̧ŋ *bedbug*,[6] camphá̧iŋ (du.), samphá̧nt (pl.)

(11) čiŋgî *parrot* (sg., du.), šiŋgêˀky (pl.)

In addition to the more regular absolute number prefixes, there are some sets which distinguish plural by prefix suppletion: ki/ri, ka/im, ko/im, ŋgo/ri, Ø/ri, na/i. kíppiˀi *raw rum*, ríppiˀi (pl.) (this pl. is going out of use)

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[5] Compare the Aztec word masatl *deer*. Pame has reinterpreted the first syllable as classifier ma-.

[6] Some nouns have both animate and inanimate meanings and, accordingly, two different plural forms. Here, apparently a bedbug is an animate "pocket," and requires the plural suffix -t.

kimyâolˀ *round valley*, rimyâoˀt (inanimate pl. -t)

kamàhaigŋ *leader*, immyàhaigŋky (animate pl. -t)

koméigŋ *North Pame person*, immígŋky (ditto)

ŋgonhȩ̀iˀ *Huasteco Indian*, riŋhyȩ̀ˀky (ditto)

ŋgomhǫ́ˀo *adolescent female*, rímhyǫˀot (ditto), mhǫ́ˀo *adolescent female human*, rímhyǫˀot (ditto)

nanˀȩ́ŋ *Spaniard, mestizo*, ínyˀȩŋky (ditto)

The following noun has a second order prefix in the singular, which is a reduction of ko- *place*: knamáogŋ *water hole in rock*, ramáogŋ (pl.).

Noun prefixes modify the prefix vowel to distinguish person of the possessor. They are divided into three groups according to the vowel alternations for the singular noun, as shown in table 2. Examples are given in table 3.

TABLE 2
POSSESSIVE PREFIX SETS

	First Person	Second Person	Third Person
1. a/o/o	na	ŋgo	ŋgo
	ka	ko	ko
2. o/i/i	no	ni	ni
	ko	ki	ki
	sko	ski	ski
	co	či	či
3. a/i/a	sta	ski	sna
	ta	ki	na

Some nouns have a pattern ko/ko/ki (rather than ko/ki/ki). These nouns have a generalizer morpheme in the third-person plural possessor or the absolute form of the noun, whereas the ko/ki/ki nouns do not have a generalizer in this form but simply add a plural suffix to the third-person singular (see table 4).

There are four nouns of the co/či/či pattern that need to be distinguished from the regular ones of this pattern, which follow the EFE pattern of stem-initial

TABLE 3

	First	Second	Third
eye	nattào	ŋgotâo	ŋgotào
face	kattào	kotâo	kotào
roasting ear	nossà	nišâ	niššà
lower abdomen	konhôi	kiŋhyòi	kiŋhyôi
nape of neck	skombą́ʔa	skipyą́ʔa	skimbyą́ʔa
nose	connǫa	čiŋyǫa	čiŋŋyǫa
broom	staʔéogŋ	skiʔéogŋ	snaʔéogŋ
knife	tahéš	kihéš	nahéš

TABLE 4

	First	Second	Third Sg.	Third Pl.	Absolute
dwelling	kómmeho	komého	kímmiho	kímʔehept	——
handwriting ...	kóddε/kóddwε	kodè/kmadê	kíggyε	kílʸʔεp(t)	kílʸʔε *letters of alphabet*
food	kóssoehegŋ	kmaséhegŋ	kíššehegŋ	kíčʔehebmpt	kíčʔehegŋ
command	tmawái	kmawái	kimmyái	kibbyépt	kibbyái

TABLE 5

	First	Second	Third Sg.	Third Pl.	
ear	cokkwào	čikyâo	čikyào	šiŋkyhàp(t)	ABC
teat	coccwìʔ	čičìʔ	čičìʔ	šičʔèʔpt	
thigh	cokkwà	čikyôa	čikyòa	šiŋkyhòap(t)	
neck	cohhwìʔ	čiŋhîʔ	čiŋhìʔ	šiŋhyèʔky	
nose	connǫa	čiŋyǫa	čiŋŋyǫa	šiŋhywàp(t)	EFE
lips	collè	čilʸê	čiŋŋyè	šiŋŋyèt	

consonant alternation (see **2**). These (four) nouns follow the **ABC** pattern and also have in common that the root has a w always and only when the prefix contains an o (see table 5). One noun, *skirt*, has the irregular prefix set no/na/na: nokkòiʔ (1st), nákkoiʔ (2d), nakòiʔ (3d sg.), nakhòʔpt (3d pl., sg. of noun), rakhòʔpt (pl.).

Some of the possessive prefixes modify the prefix consonant to mark plural of the noun (see table 6).

There is not a one-to-one correlation between an' absolute prefix set and a possessive prefix set, except that of the ši absolute prefix with the sta/ski/sna set of possessive prefixes (forty-two nouns). The ŋgo/M absolute prefix set corresponds to the na/ŋgo/ŋgo possessive set (twenty-nine nouns) and also to the no/ni/ni possessive set (thirty-eight nouns). The na/ra absolute set corresponds to the ta/ki/na possessive set (eleven nouns). The na/la absolute set corresponds to the no/ni/ni possessive set (seven nouns). The other thirteen correspondences are scattered over twenty-one nouns, with one or two nouns representing each correspondence.

2. There are three patterns of stem-initial consonant variation for distinguishing the person of the possessor: (1) the **ABC** pattern in which the first and third persons are always distinct and the second person is either distinct or the same as the

TABLE 6

	First	Second	Third Sg.	
na/ŋgo/ŋgo → i/M/M	nattào	ŋgotâo	ŋgotào	*eye*
	ittào	ndâo	ndào	*eyes*[1]
	naccì?	ŋgocî?	ŋgocì?	*tooth*
	iččì?	ncî?	ncî?	*teeth*
ka/ko/ko → i/M/M	ka?ę́ŋ	kon?ę̀ŋ	kon?ę́ŋ	*pudding*
	?yę́ŋ[2]	n?ę̀ŋ	n?ę́ŋ	*batches of pudding*
no/ni/ni → ro/ri/ri	nossà	nišâ	niššà	*roasting ear*
	rossà	rišâ	riššà	*roasting ears* (pl.)
ko/ki/ki → ro/ri/ri	koncá	kičá	kinčá	*pond*
	roncá	ričá	rinčá	*ponds*
ko/ko/ki → ro/ri/ri	kódda?a	kodá?a	kíggya?a	*place to lie down, lair*
	ródda?a	rodá?a	ríggya?a	*places to lie down, lairs* (pl.)
ko/kma/ki → ro/—/ri	kóssoeheŋ	kmaséheŋ	kíššeheŋ	*food*
	róssoeheŋ	——	ríššeheŋ	*foods*
ta/ki/na → ta/ki/ra	tahéš	kihéš	nahéš	*knife*
	tahéš	kihéš	rahéš	*knives*
co/či/či → so/ši/ši	cokkwào	čikyâo	čikyào	*ear*
	sokkwào	šikyâo	šikyào	*ears*
(—/—/na) → ro/ra/ra	——	——	naŋgào	*side, cheek*
	rokkwào	raŋgâo	raŋgào	*inner ears* (only pl.)
no/na/na → ro/ra/ra	nokkòi?	nákkoi?	nakòi?	*skirt*
	rokkòi?	rákkoi?	rakòi?	*skirts*

[1] The i- may be weakened as a- or lost completely in the speech of most people today: attào is an alternate form of (i)ttào *my eyes*. The noun form nassì *my firewood* has been noted in the plural as (i)ššì or even aiššì.
[2] This form is not in use today; instead a phrase is used meaning "*much my-pudding.*"

third, (2) the **EFE** pattern in which the first and third persons are the same and second person is distinct, and (3) the **XXX** pattern in which there is no change of stem-initial consonant.

The **ABC** pattern was postulated originally in the reconstruction of Proto-Otopamean to handle the morphophonemic variation of stem-initial consonants in the whole language family.[7] There were four forms recognized for Pame verb paradigms: **A** third-person singular progressive, **B** third singular past, **C** third singular indefinite future, and **G** third plural in any tense-aspect. Parallel alternations in Pame noun paradigms correspond with **A** first person, **B** second person,

[7] Doris A. Bartholomew, "Proto-Otopamean (Mexico)" (Ph.D. diss., University of Chicago, 1965).

C third-person singular, and **G** third-person plural and/or the absolute (nonpossessed) form of the noun (see table 7).

The **A** form is a fortis consonant, usually geminate in Pame. The **B** and **C** forms are lenis. The stops pp and tt have both a strong and a weak alternation pattern. The strong pattern is a vestige of an older system and is exemplified by only a few words, all with oral root vowels. Although pp occurs in the **A** form of verb paradigms, the cluster mb appears instead in noun paradigms. In the weak patterns, the one example of stem-initial m has a single m in the **A** form instead of the expected mm. In the strong pattern, the **B** form is a continuant and the **C** form is a nasal. The ? and h add a nasal in the **B** and **C** forms. (The **B** form in verbs does not add a nasal, however.) The combination of n? before

TABLE 7
ABCG PATTERN OF CONSONANT ALTERNATIONS

		A	B	C	G
Strong	(1)	mb	w	m	b
	(2)	tt	l	n	(*d)
Weak	(3)	pp	p	p	ph/pˀ
	(4)	tt	t	t	lh/lˀ
	(5)	kk	k	k	kh/kˀ
	(6)	cc	c	c	cˀ
	(7)	ss	s	s	ch
	(8)	(m)m	m	m	mh
	(9)	nn	n	n	nh
	(10)	hh	nh	nhi	(lh)
	(11)	h	nh	nhi	lh
	(12)	ˀ	nˀ	nˀi	lˀ
	(13)	ˀ	d	di	lˀ

an oral root vowel produces d in Pame. The C form of a laryngeal consonant has an added palatal element, usually showing itself as an i or e (except before a front vowel, where it disappears).

The G form of the ABCG pattern is used for the third-person plural possessor and also for the absolute form of the noun. The G form of the weak (most common) ABC patterns adds an h to the B form of all nonlaryngeal consonants except c (which has an added ˀ) and adds an l to the laryngeals ˀ and h. Note that the expected *sh is ch and the expected *th and *tˀ are

lh and lˀ (probably by analogy with the laryngeal clusters). Also note that if the root contains a vowel sequence interrupted by h, the h of the clusters ph, lh, and kh becomes ˀ.

The G form of the strong ABC patterns is b for the mb A form. The one example of the tt A form, *mouth*, is a body part and does not have an absolute form. The third-person plural possessed form does not modify the initial consonant, but simply adds the plural suffix. The expected G form would be d. The b and d would be the regular phonetic result of a ˀ added to the

TABLE 8

	First	Second	Third Sg.	Third Pl.
(1) *finger-ring*	nambàs	ŋgowâs	ŋgomàs	ŋgobàspt, mbàsp(t)
(2) *mouth*	kattè	kolê	konè	nèt
(3) *mat*	náppęhiˀ	ŋgopę́hiˀ	ŋgopę́hiˀ	ŋgopˀę́heˀpt
(4) *arrow*	nattàˀ	ŋgotâˀ	ŋgotàˀ	ŋgolhàˀpt
(5) *solid wall*	nakką́	ŋgokwą̀	ŋgokwą́	ŋgokhwą́pt
(6) *clay pot*	naccéˀ	ŋgocôeˀ	ŋgocóeˀ/-wéˀ	ŋgocˀwéˀp(t)
(7) *firewood*	nassì	ŋgosôi	ŋgosòi/-wì	ŋgochwèp(t)
(8) *saying*	namą́ŋ	ŋgomą̀ŋ	ŋgomą́ŋ	ŋgomhą́mpt, mhą́mpt
(9) *cornfield*	kannǫ̀a	konǫ̀a	konǫ̀a	konhwą̀pt
(10) *throat*	kahhèiˀ	konhwîˀ	konhwîˀ	konhwèˀky
(11) *name*	nahǫ́ˀ	ŋgonhǫ̂ˀ	ŋgonhı́oˀ	ŋgolhǫ́ˀpt
(12) *seeds* (pl.)	ˀyǫ́ŋ	nˀlǫŋ	nˀíoŋ	nlˀǫ́mpt
(13) *house*	naˀòs	ŋgodôs	ŋgodìos/ŋgodèos	ŋgolˀòspt

m and n of the **C** form of the strong patterns (see table 8).

The **EFE** pattern was also recognized in the reconstruction of Otopamean. The **F** form is basic to the pattern and is phonologically complex (or modified) in comparison to the **A** form of the **ABCG** pattern; it usually resembles a **G** form or a **B** form. The **E** form further modifies the **F** form. It adds a nasal to the nasals m and n and to the voiceless stops and affricate p, t, k, c. It strengthens the clusters lˀ and lh to tˀ and th, respectively. It geminates the continuatives s, l, and w and the voiced stops b and d. The laryngeals ˀ and h and clusters containing ˀ or h (except lˀ, lh) are not changed in the **E** form.

The consonant of the **F** form is used for second-person possessor and also for the absolute form of the noun. The third-person plural is the same as the **E** form, with plural marked by a suffix (see tables 9 and 10).

TABLE 9
EFE PATTERN OF CONSONANT ALTERNATIONS

F	E		F	E
(1) m	mm		(13) d	dd
(2) n	nn		(14) mˀ	mˀ
(3) p	mb		(15) nˀ	nˀ
(4) t	nd (t − tt)[1]		(16) mh	mh
(5) k	ŋg		(17) nh	nh
(6) c	nc		(18) cˀ	cˀ
(7) lˀ	tˀ		(19) ch	ch
(8) lh	tth/th		(20) kˀ	kˀ
(9) s	ss		(21) kh	kkh/kh[2]
(10) l	ll		(22) ˀ	ˀ
(11) w	ww		(23) h	h
(12) b	bb			

[1] Also one case of t — tt in *dough*: nottɔ̀hilˀ 1st, nikyɔ́hilˀ 2d, nikkyɔ̀hilp 3d sg. and pl. (absol. nikkyɔ̀hilˀ).
[2] This set of C alternations is not followed uniformly by all speakers. For *beans*, a few use kh in the E forms. For *chest* (anat.), the majority use nokkhwáˀa 1st, nikyhwáˀa 2d, nikkyhwáˀa 3d sg., rikkyhwáˀat 3d pl., whereas some follow a pattern resembling ABC, with kkh in 1st and kh in 2d and 3d.

TABLE 10

	First	Second	Third Sg.	Third Pl.
(1) *squash*	nómmǫhiˀ	nimyǫ́hiˀ	nímmyǫhiˀ	nímmyǫheˀky
(2) *citrus fruit*	nonnàs	niŋŷâs	niŋŋ̀às	niŋŋỳàst
(3) *tomato*	nómbai	nipyài	nímbyai	nímbyaiky
(4) *water*	kóndɛ	kikyè	kíŋgyɛ	kíŋgyɛt
(5) *piece of flesh*	noŋgwèˀ	nikyêˀ	niŋgyèˀ	riŋgyèˀt
(6) *sore*	noncwés	ničés	ninčés	rinčést
(7) *blanket*	notˀwèˀ	nilʸˀê̂	nikyˀèˀ	nikkyˀèˀt
(8) *tamale*	notthę́ˀɛ	nilʸhę́ˀɛ	nikkyhę́ˀɛ	nikkyhę́ˀɛt
(9) *roasting ear*	nossà	nišâ	niššà	niššàt
(10) *lips*	collè	čilʸê̂	čiŋŋyè[1]	šiŋŋyèt
(11) *bark(ing)*	nówwot	niwyòt	níwwyot	ríwwyot
(12) *bed*	nobbé	nibyé	nibbyé	nibbyét
(13) *century plant*	nóddoa	nigyòa	níggyoa	níggyoat
(14) *months*	romˀą̀oˀ	rimˀyą̀oˀ	rimˀyą̀oˀ	rimˀyą̀oˀt
(15) *path*	nonˀɔ̀ɛhɛˀ	niŋˀę̀hɛˀ	niŋˀè̀hɛˀ	niŋˀè̀hɛˀt
(16) *tortilla*	nomhę́	nimhę́	nimhę́	nimhę́t
(17) *abdomen*	konhôi	kiŋhyòi	kiŋhyôi	kiŋhyôiky
(18) *huapillo plant*	nocˀàˀ	ničˀâˀ	ničˀàˀ	ničˀàˀt
(19) *maggot*	nochíˀ	ničhíˀ	ničhíˀ	ričhéˀky
(20) *paper*	nokˀwéš	nikyˀéš	nikyˀéš	nikyˀéšt
(21) *beans*	rokkhwèˀ	rikyhêˀ	rikkyhèˀ	rikkyhèˀt
(22) *chile*	noˀwèi	niˀî	niˀ̀i	niˀìky
(23) *calf of leg*	nohóˀ	nihyóˀ	nihyóˀ	rihyóˀt

[1] Note the nn instead of the expected ll in 3d. sg.

The **XXX** pattern has no change of stem-initial consonant in the first and second persons and in the third-person singular. The absolute form of the noun has the generalizer morpheme. There are two patterns for forming the third-person plural possessor. Some speakers use the **G** form initial consonant and add -pt; other speakers use the **X** form and add -t: *their medicine* šilᵛʔêpt or snadêt (šilᵛʔê *medicine*); *their table* šičʔéhebmpt or snaséhegŋky (šičʔéhegŋ *table*).

The nouns of the **XXX** pattern are derived from verbs by the instrumental nominalizer ši- (sta/ski/sna) or na- (ta/ki/na). The **X** form of the possessed noun appears to be based on the **B** form of the verb (third-person singular past tense).[8] The absolute form of the noun contains the generalizer appropriate for the verb from which it is derived.

The examples of the **XXX** pattern in the data support the pattern described earlier and add some further information. Some of the verbs from which the **XXX** nouns derive do not have consonant alternation but maintain a complex cluster throughout the paradigm. These words in the absolute form of the noun have the generalizer morpheme added to a fortis (double) consonant. In these cases, the t is not weakened to l, so that tʔ and tth appear in the data. The strong form of the **ABC** pattern for initial tt shows ll in the **X** form and tt or tʔ (before VhV) in the **G** form (see tables 11 and 12).

3. The tone-stress alternation patterns are found principally with those nouns which mark possession by prefixation (class 1), whereas the tones are held constant in those nouns which mark possession by suffixation (class 2, see **4**), with very few exceptions.

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[8] The **B** form for the laryngeals in verbs does not, however, have the accompanying nasal found in the **B** form of the noun **ABC** pattern.

TABLE 11
GENERALIZED FORMS OF XXX NOUNS

	X	G
Strong ......(1)	w	b
(2)	ll	tt
(3)	ll	tʔ (VhV)
Weak .....no ex.	p	ph/pʔ
(4)	t	lh/lʔ
(5)	k	kh/kʔ
no ex.	c	cʔ
(6)	s	ch/cʔ
(7)	m	mh
(8)	n	nh
(9)	h	lh
(10)	ʔ	lʔ
(11)	d	lʔ
(12)	pp	pph
(13)	tt	tʔ (VhV)
(14)	kk	kkh
(15)	tʔ	tʔ
(16)	kʔ	kʔ
(17)	cc	cʔ
(18)	cʔ	cʔ
(19)	hh	tth
(20)	nd	ndʔ
(21)	ŋg	ŋkh
(22)	nc	ncʔ
(23)	mh	mh
(24)	nh	nh

There is a predominant pattern in which first and third persons are alike in tone and in stress placement, and second person has a contrastive tone-stress. The vast majority of the nouns occurring with na/ŋgo and no/ni types of prefix sets share this feature.

Using L to represent low tone-stress, /ˋ/, H to represent high, /ˊ/, F to represent falling, /ˆ/, and pH to represent prefix with high tone-stress—which makes it predictable that the stem will have low pitch with secondary stress—the most frequent pattern is L F L (i.e., L in first person, F in second, L in third). After this, in order of frequency in our data, come pH L pH, H F H, H L H, pH H pH, L H L, F L F, L pH L, and H pH H. A list of examples is given in table 13.

Many nouns have the same tones in all

TABLE 12

	First Person	Absolute	Third Plural G
(1) *dough dish*	stawáhacʔ	šibyáhacʔ	šibyáhaspt
(2) *lamp*	stallèičʔ	šikkìčʔ	šikkìšpt
(3) *substitute*	stalléhegŋ	šikyʔéhegŋ	šikyʔéhebmpt
(4) *soap*	statą́hanʔ	šilᵛʔą́hanʔ	šilᵛʔą́hampt
(5) *raft*	stakàocʔ	šikyhàocʔ	šikyhàosp(t)
(6) *pattern, measure*	stasáoʔ	šičháoʔ	šičháʔpt
(7) *bladder*	stamę̀ʔt	——	šimhyę̀ʔpt
(8) *plow*	tanòa	nanhòa	nanhòapt/wą̀pt
(9) *drinking vessel*	taháoʔ	——	nalháʔp(t)
(10) *needle*	taʔɛ̀	nalʔɛ̀	nalʔɛ̂pt
(11) *medicine*	stadɛ̂	šilᵛʔɛ̂	šilᵛʔɛ̂p(t)
(12) *ribbon(s)*	stáppɛ	šípphyɛ	šípphyɛpt
(13) *marriage*	stattę̀heʔt	šikyʔę̀heʔt	šikyʔę̀heʔpt
(14) *defense*	stakkéʔet	šikkyhéʔet	šikkyhéʔept
(15) *gift received*	tatʔèogŋ	——	natʔèdnt
(16) *plane (carpentry)*	stakʔóahadnʔ	šikyʔóahadnʔ	šikyʔóahabmpt
(17) *stopper*	snaccèoʔ	šičʔèoʔ	——
(18) *rattle*	stácʔacʔ	šíčʔacʔ	šíčʔaspt
(19) *balance scales*	stahhéogŋ	šikkyhéogŋ	šikkyhébmpt
(20) *money*	tandéhɛdnʔ	——	nandʔéhɛbmpt
(21) *greeting*	staŋgàoʔ	šiŋkyhàoʔ	šiŋkyhàʔpt
(22) *fasting*	stancèhɛgŋ	šinčʔèhɛgŋ	šinčʔèhɛbmpt
(23) *toy (dolls)*	stámhɛŋ (nt)	šímhyɛŋ (nt)	šímhyɛmp (mpt)
(24) *pet name*	stánhę̨ʔɛn	šíŋhyę̨ʔɛn	šíŋhyę̨ʔɛmpt

TABLE 13

L F L . . . . nassì, ŋgosôi, ŋgosòi *piece of firewood*
        kahhèiʔ, konhwîʔ, konhwìʔ *throat*
        nondìlᵛʔ, nikîlᵛʔ, niŋgìlᵛʔ *candle*
        cokkwà, čikyôa, čikyòa *thigh*
        takèigŋ, kikîgŋ, nakèigŋ *grinding stone/mill (metate)*

pH L pH . . . . rócʔo, ričʔò, ríčʔo *guilt*
        nómmagŋ, nimyàgŋ, nímmyagŋ *jigger* (Span. *nigua*)

H F H . . . . nattócʔ, ŋgotôcʔ, ŋgotócʔ *sandal*

H L H . . . . kaʔę́ŋ, konʔę̀ŋ, konʔę́ŋ *pudding-drink*

H L H . . . . nattáogŋ, ŋgotàogŋ, ŋgotáogŋ *thing purchased*
        mę́oŋ, mę̀oŋ, mę́oŋ *stew, boiled food*

pH H pH . . . . . nómmaʔo, nimyáʔo, nímmyaʔo *laziness*
        kómmeho, komého, kímmiho *dwelling-place*

L H L . . . . nocʔàogŋ, ničʔáogŋ, ničʔàogŋ *avocado*

F L F . . . . nambâo, ŋgowào, ŋgomâo *waistline*
        konhôi, kiŋhyòi, kiŋhyôi *abdomen*
        taną̂, kiŋyà, naną̂ *tongue*
        statǫ̂lʔ, skikyǫ̀lʔ, snatǫ̂lʔ *swallower* (throat)

L pH L . . . . . . nokkòiʔ, nákkoiʔ, nakòiʔ *skirt*
        tatʔèogŋ, kíkʔeogŋ, natʔèogŋ *gift*

H pH H . . . . . rabbéoʔ, à/ébbɛoʔ, wobbéoʔ *uncle, nephew*
        a/akkwáʔ, á/ékkwaʔ, wakkwáʔ/wokkwáʔ *man's brother-in-law*

TABLE 14

H H H	nambáho, ŋgowáho, ŋgomáho *festival*
	nobbé²i, nibé²i, nibbé²i *musical instrument* (not wind)
	skombą́²a, skipyą́²a, skimbyą́²a *nape of neck*
	stahá²aiky, skihyá²aiky, snahá²aiky *saw* (tool)
	ta²áigŋ, ki²yáigŋ, na²áigŋ *brush*
L L L	stakàc², skikyàc², snakàc² *shallow wooden washtub*
	ta²wà, ki²wà /ki²yòa, na²wà *heart*
	tahèiky, kihyèiky, nahèiky *gun*
F F F	sta²ą̀i, ski²yą̀i, sna²ą̀i *farewell*
pH pH pH . . .	stác²ac², skíč²ac², snác²ac² *rattle*
	stáhhwat, skíhhwat, snáhhwat *forgiveness*
	stáppɛ, skíppyɛ, snáppɛ *ribbon for braiding hair*

persons. This is characteristic of the sta-/ski-/sna- type of prefix set. The patterns include H H H, L L L, F F F, and pH pH pH, which can all be symbolized by T T T, or unchanging tone-stress (see table 14).

There also exists a pattern in which nouns have the same tone in second and third persons: pH H H. At least three nouns follow this pattern in the plural of the noun, but have H H H in the singular of the noun. pH H H in both sg. and pl.: náttaho, ŋgotáho, ŋgotáho *work;* náttą̨han², ŋgotą́han², ŋgotą́han² *washing.* p H H in pl. but H H H in sg.: nambéhɛ, ŋgowéhɛ, ŋgoméhɛ *load;* íwwyɛhɛ, wwéhɛ, mméhɛ *loads;* nambéhe², ŋgowéhe², ŋgoméhe² *hat;* íwwyehe², wwéhe², mméhe² *hats;* nambá²ai, ŋgowá²ai, ŋgomá²ai *domesticated animal;* íwwya²aiky, wwá²aiky, mmá²aiky *domesticated animals.*

A few irregular nouns have irregular tone-stress patterns, as shown in table 15. Note the use of second-person suffix in *clearing* and *tail.*

Among class-2 nouns, the predominant tone pattern is T T T: piŋgywą́ŋk, piŋgywą́ŋk², piŋgywą́mp *skeleton;* macìky, macìky², macèp *jug;* šôtk, šôtk², šôp *cloth;* skáchadnk, skáchadnk², skáchabmp *embarrassment.*

One class-2 noun has been found with a rare rising tone: tàátk, tàátk² (3d sg. defective), a term for *father.* (tàát is a title of respect for one's father, godfather, father-in-law, son-in-law.) There are, however, at least three nouns of this class that have the pattern L F L: skambòk, skambôk², skambòp *fingernail;* sanhwàk, sanhwâk², sanhwàp *armpit* (also son-); naŋkhòe²k, naŋkhôiky², naŋkhò²p *pants.*

4. Absolute number is marked by suffixes in animate nouns and in special circumstances by a plural suffix in inanimate nouns.

The suffixes -i dual and -t plural are used to mark absolute number in animate nouns. The -i is positioned after the last vowel of the stem. Stem-final alveolar consonants are palatalized; stem-final velar (g)ŋ is

TABLE 15

H pH pH	rawé², wíyɛo², wómmeo² /wámmɛo² *father*
pH F F	kássa², kosâk², kosâ² *a clearing in woods*
H H pH	²yą́²ai, n²ía²a, wán²įa²a /wánnįa²a *wife*
H pH L	rawí, ác²ǫ/éc²ǫ, wac²ǫ̀ *mother*
pH L H	náttǫŋ, ŋgotòŋ, ŋgotóŋ *horn*
pH L F	nácce², ŋgocèok², ŋgocôe² *tail*

TABLE 16

			Dual	Plural
(1)	kamá	*murderer*	kamái	kamát
(2)	kammái	*judge*	kammái	kammáiky
(3)	kanhèʔ	*baby, child*	kanhèiʔ	kanhèʔt
(4)	pákkas	*head of cattle*	pákkaiš	pákkast
(5)	pastól	*shepherd* (Span. *pastor*)	pastóilʸ	pastólt
(6)	kawédnʔ	*priest*	kawéignʔ	kawédntʔ
(7)	talógŋ	*chicken*	talói[1]	talódnt
(8)	kapę̨́	*thief*	kapę̨́i	kapę̨́t
(9)	kochíʔ	*snake, worm*	kochíʔ	kochéʔky
(10)	coŋkhwês	*daddy longlegs*	coŋkhwês	soŋkhwêst
(11)	kamès	*spider* (certain nonpoisonous variety)	kamèš	kamèst
(12)	čikílʔ	*goat*	čikílʸʔ	šikíltʔ
(13)	kopècʔ	*badger*	kopèičʔ	kopèstʔ
(14)	nikywą́ŋ	*male of animal or tree*	nikywą́i	rikywą́nt

¹ Some speakers use the sg. form of the noun for dual rather than omit its distinctive ending.

deleted after the dual i-. The -i is nasalized after nasalized vowels. The cluster ii reduces to i. The -i dual is deleted after nonlow vowels before š.

The suffix -t is palatalized after stem-final i. Stem-final velar (g)ŋ assimilates to the -t. A final cluster with ʔ metathesizes the ʔ to appear after the t. Then a c is simplified to s before t. The vowel i is lowered to e before ʔt. Examples are given in table 16.

The suffixes are used with animate nouns even when there is a number prefix; see examples (10), (12), and (14) in table 16.

The word ŋgolʔòs *house* also means *vehicle* (airplane is a "house" that is flown). The inanimate noun is pluralized by a prefix: (n)lʔòs *houses*. The animate noun adds the plural suffix: (n)lʔòst *vehicles*. (There is no animate dual.)

Ordinarily, an inanimate noun shows

TABLE 17

	Sg.-Dual	Plural
soap	šilʸʔą́hanʔ	šilʸʔą́haʔt
fastener	ndappólʔ	ndappóʔt
bundle	kišócʔ	rišóʔt
fence	ŋgokʔwạ̀holʔ	ŋgʔwạ̀hoʔt

the plural only by prefixes. However, certain inanimate nouns ending in nʔ, lʔ, or cʔ in the sg.-du. absolute form take an inanimate -t suffix in the plural. The C preceding the final ʔ of the sg.-du. form is dropped before this -t. Note that this behavior contrasts with that of the animate -t, described above. Table 17 shows examples.

The inanimate -t plural suffix, although homophonous with the animate -t, is more correctly identified with the -t suffix for plural objects in verbs. Compare láttąhanʔ *I launder one or two pieces of clothing*, but láttąhaʔt *I launder three or more pieces;* lappólʔ *I fasten it* (sg.-du. object), lappóʔt *I fasten them* (pl. obj.); lasócʔ *I tie it up* (sg.-du. obj.), lasóʔt *I tie them up* (pl. obj.).

Another characteristic of the inanimate plural -t is that it precedes the person suffixes: ninčáolʔ *sugar cone*, rinčáoʔt *sugar cones*, ninčáolk *my sugar cone* (ʔ drops according to a regular rule), rinčáoʔtk *my sugar cones.*

The number suffixes used with nouns which show person of the possessor by prefixes are: -mʔ exclusive dual or plural, -i dual (nonexclusive), -t third-person

Singular	Nonsingular	
First ⟨ta-⟩	Exclusive -mʔ	
	Dual	Plural
Second ⟨ki-⟩	-i	-n
Third ⟨na-⟩		-t

FIG. 1.—Number suffixes

Singular	Nonsingular	
First -k	Exclusive -kʔŋ	
	Dual	Plural
	-iky	-kŋ
Second -kʔ	-ikyʔ	-kʔŋ
Third -p	-p	-pt

FIG. 2.—Person and number suffixes

TABLE 18

	plow	ribbon	ground
	nanhòa	šípphyɛ	ŋgohwâogŋ
my	tanòa	stáppɛ	nóhhwaogŋ
your	kiŋyȱa/ˋ	skíppyɛ	nihyàogŋ
his	nanòa	snáppɛ	níhhyaogŋ
our excl	tanòamʔ	stáppɛbmʔ	nóhhwabmʔ
our dual	tanòai	stáppɛi	nóhhwaoi
your dual	kiŋyȱai/ˋ	skíppyɛi	nihyàoi
their dual	nanòai	snáppɛi	níhhyaoi
our plural	tanòan	stáppɛdn	nóhhwaodn
your plural	kiŋyȱan/ˋ	skíppyɛdn	nihyàodn
their plural	——	snáppɛt	níhhyaodnt
their plural	nanhòapt	šípphyɛpt	——

TABLE 19

	chin	pitcher	palm leaf	reed(s) (junco)
	——	macì	čihwáʔa	kohwįʔo
my	manèk	macìky	čihwáʔak	kohwįʔok
your	manèkʔ	macìkyʔ	čihwáʔakʔ	kohwįʔokʔ
his	manèp	macèp	čihwáʔap	kohwįʔep
our excl.	manèkʔŋ	macìkʔŋ	čihwáʔakʔŋ	kohwįʔokʔŋ
our dual	manèiky	macìky	čihwáʔaiky	kohwįʔoiky
your dual	manèikyʔ	macìkyʔ	čihwáʔaikyʔ	kohwįʔoikyʔ
their dual	manèp	macèp	čihwáʔap	kohwįʔep
our plural	manèkŋ	macìkŋ	čihwáʔakŋ	kohwįʔokŋ
your plural	manèkʔŋ	macìkʔŋ	čihwáʔakʔŋ	kohwįʔokʔŋ
their plural	manèpt	macèpt	čihwáʔapt	kohwįʔept

TABLE 20
Resulting Final Consonant Clusters

Stem Ending	1 sg. -k	2 sg. -kʔ	3 sg. -p	1 dual -iky	2 dual -ikyʔ	3 dual -p	1 pl. incl. -kŋ	1 excl + 2 pl. -kʔŋ	3 pl. -pt
V . . . . k	kʔ	p	iky	ikyʔ	p	kŋ	kʔŋ	pt
t . . . . tk	tkʔ	p	iky	ikyʔ	p	tn	tʔn	pt
ʔ . . . . ʔk	kʔ	ʔp	eʔky	ikyʔ	ʔp	ʔkŋ	kʔŋ	ʔpt
s,cʔ . . . . . . sk	skʔ	sp	išky	iškyʔ	sp	sn	snʔ	spt
č,čʔ . . . . . . šk	škʔ	šp	išky	iškyʔ	išp	šn	šnʔ	špt
l,lʔ . . . . . . lk	lkʔ	lp	ilʸky	ilʸkyʔ	lp	ln	lnʔ/lʔn	lpt
n . . . . nk	nkʔ	mp	iŋky	iŋkyʔ	mp	(J) nk/nn (A)[1]	(J) nkʔ/nʔ (A)	mpt
ŋ . . . . ŋk	ŋkʔ	mp	iŋky	iŋkyʔ	mp	(J) ŋŋ/ŋn (A)	(J) ŋʔ/ŋʔŋ (A)	mpt
dn . . . . dnk	dnkʔ	bmp	igŋky	igŋkyʔ	bmp	dn	dnʔ	bmpt
gŋ . . . . gŋk	gŋkʔ	bmp	igŋky	igŋkyʔ	bmp	gŋ	gŋʔ	bmpt

[1] (J) stands for the speech variety represented by Juana Montero (de Rodríguez) and (A) the speech variety of Ascensiona Durán. The two women grew up a fifteen-minute walk apart.

plural, and -n plural (nonthird person) (see fig. 1).

The morphophonemic adjustments for -i and -t have already been described. Both -mˀ and -n have an oral stop transition after an oral vowel, -bmˀ and -dn. Stem-final (g)ŋ is deleted before -mˀ and -n as well as before -i. The cluster ai reduces to ɛ before -mˀ, and other clusters with i or o as second member lose the i or o before -mˀ. Examples are shown in table 18.

Nouns that show person of the possessor by suffixation employ -k for first person, -kˀ for second person, and -p for third person. The number of the possessor is shown by the same set of suffixes presented in figure 1, added after the person suffixes. The results of the combinations of the two suffix orders are shown in figure 2. Note that -mˀ assimilates to -k, and the ˀ metathesizes to follow the k, although many speakers pronounce it after the ŋ. The plural -n also assimilates to -k and -kˀ. The ˀ of the suffix -kˀ in the pronunciation of many speakers follows the ŋ. This results in homophonous endings for first-person exclusive and second-person plural.

The dual -i is lost before the suffix -p by the rule that deletes cluster-final i and o before a bilabial suffix; stem vowel i lowers to e before the -p of third person; vowel o in the second syllable of a stem is replaced by e before a bilabial suffix (in both nouns and verbs). Older speakers sometimes pronounce a voiceless I after the third-person -p in the dual (see table 19).

When the person and number suffixes combine with stem-final consonants (or consonant clusters), some cluster reductions take place. These are shown in table 20. Examples are shown in table 21.

TABLE 21

	life	anise	feather, pen
	——	skanhwàcˀ	stilʸháigŋ
my	manǫ̀tk	skanhwàsk	stilʸháigŋky
your	manǫ̀tkˀ	skanhwàskˀ	stilʸháigŋkyˀ
his	manǫ̀p	skanhwàsp	stilʸhébmp
our excl.	manǫ̀tˀn	skanhwàsnˀ	stilʸháigŋˀ
our dual	manǫ̀iky	skanhwàiško̧y	stilʸháigŋky
your dual	manǫ̀ikyˀ	skanhwàiškyˀ	stilʸháigŋkyˀ
their dual	manǫ̀p	skanhwàsp	stilʸhébmp
our plural	manǫ̀tn	skanhwàsn	stilʸháigŋ
your plural	manǫ̀tˀn	skanhwàsnˀ	stilʸháigŋˀ
their plural	manǫ̀pt	skanhwàspt	stilʸhébmpt

LINKED CITATIONS
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[Footnotes]

[1] **Pame (Otomi) Phonemics and Morphophonemics**
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[3] **Pame (Otomi) Phonemics and Morphophonemics**
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