Oto-Pamean

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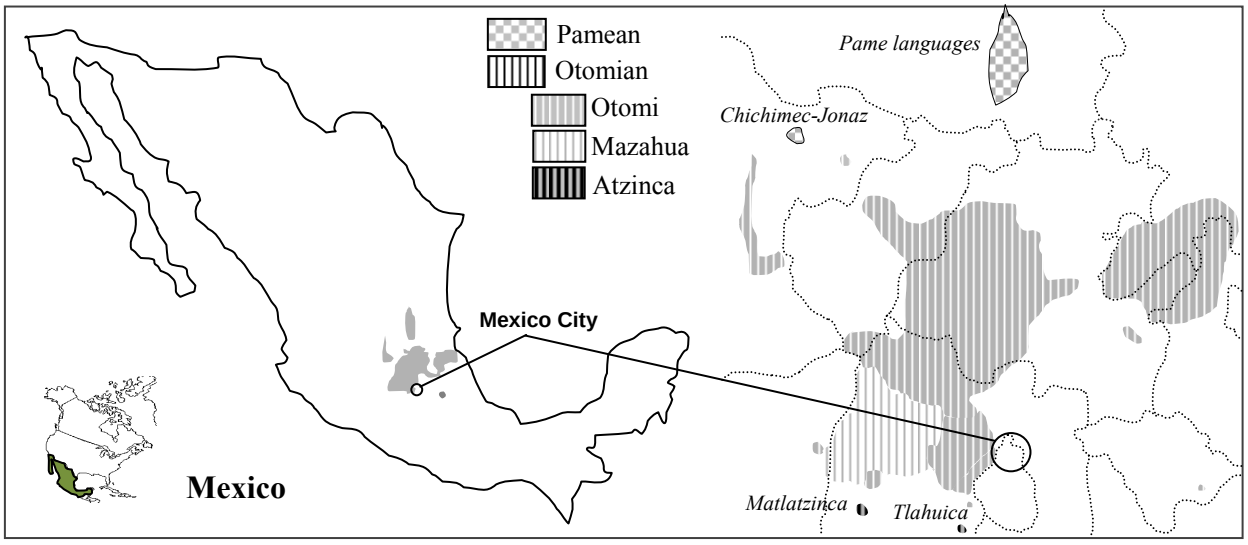
The Oto-Pamean languages of Mexico form the northernmost branch of the Oto-Manguean stock (see Kaufmann, this volume). They are currently spoken in isolated villages scattered throughout a very large area of Central Mexico from San Luís Potosí to the north to the far end of the State of Mexico to the south, and to the east in the mountainous ridges of Hidalgo and Puebla. Oto-Pamean languages are neighbours to Mayan Huastec, Totonac-Tepehua languages, Purepecha and Nahuatl.

Bartholomew (1965) proposes that Oto-Pamean is divided into two sub-branches: Pamean and Otomian. Since then, this taxonomy has been accepted by consensus. These sub-branches in turn sub-divide further into two groups each: Pamean into Chichimec and Pame, and Otomian into Atzincan and Otomi-Mazahua. A snapshot of Oto-Pamean is given in Table 1 and in Map 1.

Phylum	Branch	Sub-branch	Group	Language	Nº of speakers
Oto-Manguean	Oto-Pamean	Pamean	Chichimec:	Chichimeco-Jonaz	1,350/2000
			Pame:	Northern Pame	5,600/2000
				Central Pame	7,400/2000
				Southern Pame	†
		Otomian	Atzinca:	Matlatzinca	650/2000
				Tlahuica (Ocuiltec)	400/2000, 100/2011
			Otomi-Mazahua:	Mazahua	100,000/2000
				Otomi languages	241,000/2000

Table 1. Oto-Pamean at a glance.



Map 1. Location of Oto-Pamean (following Soustelle 1937).

All these groups except Chichimec consist of various languages. The total number of speakers in the census by the National Institute of Indigenous Languages of Mexico (INALI) from 2000 surpasses 360,000. Three languages are particularly endangered: Tilapa Otomi, Ixtenco Otomi and Tlahuica. For these languages, 15 years makes a fundamental difference

regarding number of speakers. For example, the INALI estimated 250 speakers in 2000 for Tilapa Otomi, but at the time of writing there are fewer than a dozen fluent speakers alive.

Within Oto-Pamean, Otomi-Mazahua is the group with the largest number of speakers and the greatest degree of internal diversity. Knapp (2002) proposes that Mazahua consists of at least 12 main dialects as indicated in Table 2. As for Otomi, although at least 22 different linguistic sub-systems have been identified as Otomi, there is no established consensus as to which of them should be treated as independent languages and which as dialects. To circumvent the problem, Otomi has often been talked about as forming a dialectal continuum and the literature has avoided terms such as 'language' and 'dialect' in favor of a cover term such as 'variety'. Against this inertia, the current official stance by the INALI in the CLIN (Sp. *Catálogo de Lenguas Indígenas Nacionales*) (2008) is to treat Otomi innovatively as forming a linguistic family with nine different languages. Unfortunately, the methodology behind the classification of the CLIN is far from rigorous and it overrates the weight of sociolinguistic factors, so that closely related dialects are treated as different languages. I use Palancar's (2013a) taxonomy here, which advances on the taxonomy in Lastra (2001) by proposing the existence of the six main languages given in Table 1.

Language	Speakers	Variety
Mazahua	c. 100,000	Atlacomulco Mazahua Temascalcingo Mazahua El Oro Mazahua Jocotitlán Mazahua San Felipe del Progreso Mazahua Villa Victoria Mazahua Zitácuaro Mazahua Ixtlahuaca Mazahua Santa Cruz Tepexpan Mazahua Almoloya Mazahua Donato Guerra Mazahua
Northern Otomi	c. 113,000	Santiago Mexquititlán Otomi San Ildefonso Tultepec Otomi Tolimán Otomi Guanajuato Otomi Acambay Otomi Tierra Blanca Otomi San Ildefonso Chantepec Otomi Mezquital Otomi Ixhuatlán de Madero Otomi
Western Otomi	c. 84,000	Temoaya Otomi San Felipe del Progreso Otomi San Andrés Cuexcontitlán Otomi
Eastern Otomi (Eastern Highlands Otomi)	c. 44,000	San Gregorio Otomi San Antonio Otomi San Felipe Otomi Tenango Otomi Texcatepec Otomi Santa Ana Hueytlalpan Otomi
Tilapa Otomi	10 (fluent)	

Acazulco Otomi[1]	c. 400
Ixtenco Otomi	c. 450 (2000)

Table 2. Otomi-Mazahua.

Oto-Pamean languages have a clear verb vs. noun word class distinction, but adjectives are rare, if they exist at all (most property concepts are expressed by verbs in small relative clauses or in V+N compounds). All languages are head-marking, and although nouns do not have gender or inflect for case, they fall into different noun classes with interesting consequences for the morphological marking of number (§4.1) and the marking of possession (§4.2). Like nouns, verbs also have intricate morphology. They fall into different conjugation classes (§5.2) and they inflect for the person of subject and for a substantial number of tense/aspect/mood values (§5.1). They may also bear information about spatial deixis (§5.4) and negation (Tlahuica and Chichimec) and may carry applicative-like morphology for fronted adverbials (Otomi-Mazahua). All languages have semantic alignment (§5.5) at least involving the lexicalization of property concepts by means of verbs. The alignment in ditransitives is probably secundative historically, but the system has been considerably rearranged and it is now indirective in most languages. As for diathesis, transitive verbs have an impersonal-passive voice. Derivational morphology involving causativization, antipassivization and middle voice is now unproductive (§3). There is considerably use of clause-level serialization, which is particularly exploited in complementation contexts. An example of this is shown in (1) in Chichimec, where a notion such as 'I want to work' is conveyed literally as 'I want I would work'. The meaning of 'work' is itself conveyed by the serialization of two synonymic, inflected verbs. Another example of the same structure is given in (2) in Tilapa Otomi. When an example comes from a text, this is indicated as 'Txt'.

(1) sá [é-'i] [ná-tán+nú-tan]
CHI and 1.PRS-want 1.POT-work+1.POT-work
'And I want to work.' (Txt) (Angulo 1933: 191)

(2) porke [hín=a nde] [ta=tandy]=a
TIL porque NEG=3.INCPL.R want 3.CPL.IRR=buy.AS=PRTCL
'Because they don't want to buy it.' (Txt)

The use of clausal juxtaposition like in (1-2) is typical of Oto-Manguean languages, and goes hand in hand with the lack of non-finite forms in these languages. In this respect, while there are verb nominalizations in Oto-Pamean languages, the process is commonly unproductive and highly lexical, and no language has a proper inflectional infinitive, except perhaps for Eastern Otomi, which has intransitive infinitives of activity verbs with a limited set of matrix verbs, as for example in (3) (see Palancar, forthcoming).

(3) i=päh=[**na** mpefi] yo ts'unt'u
E.OTO 3.INCPL.R=know.AS[3OBJ] =INF work.NMLZ PL boy
'The boys know how to work.' (E&V, 2008: 167)

[1] Acazulco Otomi is spoken in San Jerónimo Acazulco, a village in the municipality of Ocoyoacac, State of Mexico. This village is a neighbor to San Pedro Atlapulco, where a different variety of Otomi is also spoken. But we know very little about this variety, apparently only spoken by a few elderly people. Tilapa Otomi is in turn spoken in Santiago Tilapa, a village that is known to have been founded in 1559 by Otomi people from San Pedro Atlapulco. As a result Atlapulco Otomi and Tilapa Otomi are descended from the same ancestor language.

As for word order, Oto-Pamean languages are typically verb initial, except for Chichimec. For verb initial languages, the typical order is VOS order. This is illustrated in (4) from Santa Ana Hueytlalpan Otomi, a variety of Eastern Otomi (Hernández-Gómez, in preparation).

(4) ya **idi=tsi** [rá tǒni]**O** [ra bruho]**S** =’bę
ANA PRTCL 3.INCPL=ingest [3OBJ] SG.3POSS marihuana SG shaman=CL
‘The shaman's already having his marihuana.’ (Txt)

Since Campbell *et al.* (1986), it is generally accepted that verb-initial clauses are a salient syntactic feature of Mesoamerica. Given the strong influence of Oto-Manguean in the development of Mesoamerica as a linguistic area, it is likely that the verb-initial character of Otomian is a conservative trait, but we cannot be sure. Nowadays, innovative languages like Mazahua and Northern Otomi have developed many traits of an SVO language, most probably under the influence of the dominant word order of Spanish.

In Pamean, while Pame has clear traits of becoming SVO like the innovative Otomian languages, Chichimec was still verb final with an SOV order at the time Angulo (1933) collected his textual materials. This is shown in (5) where all examples instantiate an OV word order; both (5a) and (5b) also exhibit an S; (5b) has a directional preceding the verb, and in (5c) the possessor phrase precedes the possessum, adapted and glossed from Angulo (1933: 192, 190, 186).

(5) a. [náná]**S** [n‹u›khű-s]**O** márhę-e-’í-s
CHI mother 1POSS/son-DU happy-3.IMM.PST-take.care[3OBJ]-DU
‘My mother took care of my two children.’

b. [ikág^{u}]**S** [kúri]**O** kú-há sá [távór]**ADV** ká-’í
I water 1.REC.PAST-drink and behind 1.REC.PAST-come
‘I drank water and came behind (the animals I was herding).’

c. man’í [u-ngwé]**POSS** [e-khú]**O** kí-tcá-v?
what 2POSS-animal/cattle.2POSS 3PL.POSS-leg.3POSS 2.REC.PAST-do-3DAT
‘What did you do to your animals' legs?’

It is possible that this special word order may have developed in Chichimec under the influence of some unknown Uto-Aztecan language. The same contact influence may also explain the fact that Chichimec has a fully developed system of genitive classifiers, which are unattested in Oto-Manguean, although found in Uto-Aztecan.

Following, I outline the main characteristics of Oto-Pamean by focusing on descriptive facts about their inflectional morphology, which is an area of their grammatical structure that makes this group particularly interesting from a typological point of view.

1. An overview of the phonology

Oto-Pamean languages are known to have large segmental inventories. For example, Northern Pame (Berthiaume 2003, Avelino 1997) has been characterized as having 12 vowels and 40 consonants. But the most elaborated system by far is found in Mazahua (Knapp 2008,

see Table 3) with 15 vowels (oral and nasal) and 53 consonants, which include series of simple, aspirated and ejective consonants.[2]

Vowels			i e ɛ	ɨ ɘ a	u o ɔ			ĩ ẽ	ɨ̃ ã	ũ õ
Stops	Voiceless	Simple	p	t		t͡s	t͡ʃ	k	k^{w}	
		Aspirated	p^{h}	t^{h}		t͡s^{h}	t͡ʃ^{h}	k^{h}	k^{hw}	
		Ejective	-	t’		t͡s’	t͡ʃ’	k’	k’^{w}	ʔ
	Voiced	Prenasalized	^{m}b	^{n}d		^{n}d͡z	^{n}d͡ʒ	^{ŋ}g	^{ŋ}g^{w}	
		Ejective	ɓ	ɗ						
Fricatives	Voiceless	Simple			s		ʃ			h
		Aspirated			s^{h}					
		Ejective			s’					
	Voiced		β		z		ʒ	ɣ		
Approximants		Simple	w				j			
		Aspirated	ẉ				j̥			
		Ejective	w’				j’			
Nasals		Simple	m	n			ɲ			
		Aspirated	m̥	n̥			ɲ̊			
		Ejective	m’	n’			ɲ’			
Rhotics				ɾ						
				(r)						
Laterals				(l)						

Table 3. The phonemes of Mazahua, adapted from Knapp (2008).

Knapp (2008) treats approximants /ẉ, j̥/ and nasals /m̥, n̥, ɲ̊/ as instantiating an aspirated series to create featural coherence with stops and fricatives. Alternatively, these segments could be treated as voiceless, but in reality they are the only surviving units in Otomi-Mazahua of an old preaspirated series which is still observed in some phonologically conservative Otomi languages, such as Tilapa Otomi, as indicated in Table 4, where they are still found in operation in the sub-system of voiceless stops and affricates, but where the oppositions are considerably weakened elsewhere.

Voiceless	Simple	p	t	k	k^{w}	ts	s	ʃ	ʔ	h	ẉ	j̥	m̥	n̥
	Preaspirated	^{h}p	^{h}t	^{h}k	^{h}k^{w}	^{h}ts	–	–	–	–				
	Aspirated	p^{h}	t^{h}	k^{h}	k^{hw}	ts^{h}	–	ʃ^{h}	–	–	–	–	–	–
	Ejective	p’[ɓ]	t’	k’	k’^{w}	ts’	–	–	–	–	–	–	–	–
Voiced	Simple	b	d	g	g^{w}		z	–	–	–	w	j	m	n
	Prenasalized	^{m}b	^{n}d	^{ŋ}g	^{ŋ}g^{w}	–	–	–	–	–	–	–	–	–

[2] In the Oto-Pamean languages, both aspiration and ejection are laryngeal features which are clearly associated with the articulation of consonants. In other words, a model based on the proposal by Golston & Kehrein (2004) where such features are associated with the vocalic nuclei would not be optimal to account for the segmental phonology of these languages.

Ejective	ʼ^{m}b	ʼ^{n}d	ʼ^{ŋ}g	ʼ^{ŋ}g^{w}	–	–	–	–	–	ʼw	ʼj	ʼm	ʼn

Table 4. The phoneme inventory of consonants of Tilapa Otomi.

In Mazahua and in most Otomi languages, the old series of simple voiceless stops from the common ancestor, which are still attested in Tilapa Otomi, became voiced (i.e. *k>g) while the preaspirated series lost the preaspiration feature becoming simple voiceless segments (i.e. *^{h}k>k). Preaspiration survived word internally, but it is now a predictable phonetic feature (for details, see Palancar 2013b) (e.g. Old Otomi */ˈ^{h}kɨ^{h}ki/ ‘remove’ > Northern Otomi /ˈkɨki/ [ˈkɨ^{h}ki].

Like other Oto-Manguean languages, Oto-Pamean languages are tonal, but their tonal systems are basic. Pamean languages have a minimal low/high opposition which reflects the old system. For example, in Chichimec most words are disyllabic and suprasegmentally they are organized attending to the four melodies in (6) (Herrera-Zendejas 2009). Minimal pairs are not common, but they are found; a few are shown in (7).

(6)	/H-H/	*émbó*	‘woodland, hill’
CHI	/H-L/	*súnden*	‘scorpion’
	/L-H/	*kanzé*	‘cicada’
	/L-L/	*kithœ*	‘oven’

(7)	/H-L/	*únhi*	‘s/he dropped it’	vs.	/L-H/	*unhí*	‘s/he lost it’
CHI	/H-H/	*sígã́*	‘magical creature’	vs.	/L-H/	*sigã́*	‘his/her ear’
	/H-L/	*úrʔi*	‘forest’	vs.	/L-H/	*urʔí*	‘cloth’

Otomian developed an ascending tone in lexical roots (i.e. it is neither present in affixes nor stem formatives). Again minimal pairs based on tone are rare. The triplet in (8) is exceptional. The element *+ni* in (8) is a toneless stem formative that receives [H] at a prosodic boundary (#), e.g. [L-H]# [*khɨ+ní*]# ‘corn-dough’.

(8)	/H/	*khɨ́+ni*	‘facial hair’
E.OTO	/HL/	*khɨ̌+ni*	‘flat stone for grinding’
	/L/	*khɨ+ni*	‘corn-dough’

In Oto-Pamean, tone basically works at a lexical level, but it plays an occasional role in inflection. This is briefly discussed below in §5.3.

2. Word internal structure.

Lexical roots in Oto-Pamean are /CV/. In Otomian, there are also words with a laryngeal nucleus /CV^{h}V/, e.g. Eastern Otomi *tu̲hu̲* ‘have soup’, *tŭ̈hü* ‘sow’, etc. Bartholomew (1965) has proposed that in Proto-Oto-Pamean, verb roots were compounded with spatial adverbs to express complex meanings, spatial or more abstract, comparable to English phrasal verbs like *take up, take in, take on*, etc. At a later stage, these spatial satellites (in the sense of Talmy 2000) became bound morphemes and later lexicalized. They are now treated as opaque stem formatives. In Pamean, they were reduced to /C/ and then got lost in most cases. They were preserved in Otomian, most notably in Otomi-Mazahua, where they were levelled to the structure /Ci/. The stem formatives in Eastern Otomi are exemplified in (a) in Table 5. The formations in (b) include an extra nasal component, adapted from Echegoyen and Voigtlander (2006).

(a)						(b)		
+di	*pĭ+di*	'get scared'	+hmi	*kwă+hmi*	'stick'	+nni	*tsí+n_ni*	'leak'
+phi	*pe̲+phi*	'work'	+ni	*ʔda+ni*	'cross'	+mmi	*ku̲+m_mi*	'grind'
+gi	*ʔa̲+gi*	'bury'	+hni	*pắ+hni*	'sniff'	+nt'i	*wä+n_t'i*	'stir'
+hi	*kó+hi*	'stay'	+ti	*tsoh+ti*	'spit to'	+nts'i	*pé+n_ts'i*	'bend'
+i	*nĕ̆+i*	'dance'	+t'i	*k'é̲+t'i*	'burst'	+ngi	*pú̲+n_gi*	'bleach'
+ki	*ʔă+ki*	'tilt'	+ts'i	*khwá+ts'i*	'lean'	+ndi	*xă̆+n_di*	'multiply'
+'mi	*ná+'mi*	'scatter'	+xi	*hu̲+xi*	'whistle'			

Table 5. The stem formatives of Eastern Otomi.

Stem formatives are unproductive morphemes, most of them with opaque meanings, but a range of spatial senses can be reconstructed when a great number of lexeme families are studied in detail (see Hernández-Green 2009 and Voigtlander *et al.* 2006). Two such lexeme families appear in (9) from Mezquital Otomi, a variety of Northern Otomi. Some of such families have a monosyllabic root (a), some do not (b).

(9)	a.			b.		
N.OTO	*khu̲*	'grasp'		**hwe̲*	'produce light'	
	khu̲+t'i	'drag'		*hwe̲+t'i*	'flash'	
	khu̲+ts'i	'pull up'		*hwe̲+ts'i*	'shine'	
	khu̲+ki	'pull'				
	khu̲+'mi	'pull down'				

In Otomi-Mazahua, the lexicalization of stem formatives has given rise to a substantial portion of the verbal lexicon. For example, based on the 1864 verbal entries in Hernández *et al.* (2004) from Mezquital Otomi, Hernández-Green (2009) proposes that at least 1175 are verbs with stem formatives, and only 85 of them are basic monosyllabic roots (the remaining verbs include compounds and other root types).

Suffixation and enclitization occur after stem formatives and give rise to morphotactic adjustments, which at times display great complexity. But a number of formatives appear to have come in a second wave of compounding resulting in bipartite stems which can still be split. For example, in Atzincan, the formatives *+ts'i*, *+tʃ'i, +ti* and *+li* split from the root with the affixation of the applicative {*-p*}. This is shown in (10), adapted from Martínez-Ortega (2010, 2012). In Otomi, some verbs may show more than one formative, as in (11).

(10)	TLA					
	kwăh+ts'i	'stick' >	*kwăh-**p**+ts'i*	'stick to someone'		
	wi+li	'sell' >	*wim-**b**+li*	'sell to someone'		

(11) E.OTO *kŏ̲+x+ke* 'scrub' < * ^{h}*ko̲+ts'[i]+ki*

3. Derivation

Derivation, word formation and valence changing mechanisms are unproductive in Oto-Pamean. Nowadays, it tends to be Spanish loans which enrich the lexicon. However, one can identify in many verbs the outcome of old operations. For example, in Otomi-Mazahua many intransitive verbs bear a nasal prefix and have typical semantics associated with the middle voice (reflexive and reciprocal). Most of them come in lexical pairs, as in (12a); a few are deponent (12b). The same nasal prefix is also found in verbs with typical antipassive semantics involving an inanimate O like in (12c), others with animate O's have the suffix *-te* (12d). Examples are from the San Ildefonso Tultepec variety of Northern Otomi.

(12) a. *m-be+ni* ‘regain consciousness’ ~ *be+ni* ‘think, remember’
N.OTO *m-’[b]e+di* ‘get lost’ ~ *’be+di* ‘lose’
n-zengwa ‘visit each other’ ~ *zengwa* ‘visit’
b. *n-ko* ‘dress below waist’
ñ-he ‘dress above waist’
n-tï ‘get drunk’
n-the ‘meet up with someone’
c. *m-pe+ni* (intr) ‘do the laundry’ ~ *pe+ni* (tr) ‘wash clothes’
d. *tsa^{h}-te* (intr) ‘bite people’ (a dog) ~ *tsa* (tr) ‘bite’

Similarly, a substantial number of intransitive verbs originated from old V+N compounds, like in (13a). Most disyllabic stems come from frozen compounds whose compounding elements have opaque semantics, like in (13b). Examples are from Tilapa Otomi.

(13) a. *^{h}tyü-the* ‘be thirsty’ < *^{h}tyü* ‘die’ + *t*[*e*]*he* ‘water’
TIL *^{h}tsi-hme* ‘have a meal’ < *^{h}tsi* ‘ingest’ + *hme* ‘tortilla’
b. *^{h}tsa_ya* ‘rest’ < **^{h}tsa* ‘?’ + **ya* ‘?’
ze_ngwa ‘visit’ < **ze* ‘?’ + **ngwa* ‘?’

Valence changing mechanisms are only observable in lexical pairs. Many causative verbs were historically formed by a laryngeal nucleus, as in (14a), but the process is unproductive as it is also observed in many intransitive verbs (14b). There are a myriad of such mechanisms, reflecting a progressive accumulation of old morphological operations (see Palancar 2004, Palacios & Palancar 2010 and Palacios 2011). Examples are from the San Ildefonso Tultepec variety of Northern Otomi.

(14) a. *ʔo-ʔ+t’i* (tr) ‘dry’ ~ *ʔo+t’i* (intr) ‘dry’
N.OTO b. *khŭ-ʔ+t’i* (intr) ‘drip’

4. Nominal inflection

As is typical of Oto-Manguean, Oto-Pamean languages are canonically head-marking, so nouns do not inflect for case. But there is nominal inflection involving number and possession, which sometimes morphologically intricate in nature because these two dimensions interact with a noun class system, which is still vibrant in Pamean, still observable in Atzinca and present, albeit moribund, in Otomi-Mazahua.

4.1. Noun classes

Central Pame is the Oto-Pamean language with the most developed noun class system. It is commonly believed that this is a conservative feature rather than an innovation. In this language, nouns fall into at least 11 different classes attending to the prefixal elements they bear.[3] This is shown in Table 6, adapted from Gibson and Bartholomew (1979). The basic stem is used for both singular and dual.

Class	SG/DU	PL	SG/DU	PL	
1	*ŋgo-*	*N-*	ŋgo-p^{h}ói	m-p^{h}ói	‘excrement’
2	*ko-*	*N-*	ko-póʔ	m-bóʔ	‘land’

[3] To this list one may add a number of other nouns with idiosyncratic behaviour (see Gibson and Bartholomew 1979 for details).

3	*ni-*	*li-*	ni-kʲwɑ̃ŋ	li-kʲwɑ̃ŋ	‘*capulincillo* tree’
4	*ní-*	*rí-*	ní-ŋgʲẽhe	rí-ŋgʲẽhe	‘year’
5	*na-*	*la-*	na-tsê	la-tsê	‘plum’
6	*na-*	*ra-*	na-tsʰɛ̀ŋ	ra-tsʰɛ̀ŋ	‘key’
7	*ma-*	*wa-*	ma-tsì	wa-tsì	‘pitcher’
8	*mi-*	*wi-*	mi-tʃâʔ	wi-tʃâʔ	‘corn bin’
9	*tsó-*	*só-*	tsó-ndo	só-ndo	‘eggshell’
10	*tsa-*	*sa-*	tsa-mpʰɑ̃ŋ	sa-mpʰɑ̃ŋ	‘pocket’
11	*ʧi-*	*ʃi-*	tʃi-hàgŋ	ʃi-hàgŋ	‘spoon’

Table 6. Noun classes in Central Pame.

Further research is needed to explore the origins of this system and its development, but nowadays the classes are largely semantically opaque, except for class 11 which includes most nouns denoting tools (but not exclusively). Class 1 serves as a default. Apart from the plural stems, an animate noun receives additional number marking by means of affixes (at times with additional stem adjustments): *-i* for dual and *-t* for plural. This is illustrated in Table 7, which shows a number of verbs that lie outside the system in Table 6, which are treated as ‘invariable’ (inv.). Such nouns include loanwords (b), agent nouns (c), and a set of nouns referring to animals (d).

		SG	DU	PL		
a.	cl.9	tsó-mʰɛ	tsó-mʰɛ-**i**	só-mʰɛ-**t**	‘butterfly’	
	cl.11	tʃi-kíl?	tʃi-kí**lʲ**?	ʃi-kíl‹**t**›?	‘goat’	
b.	inv.	pastól	pastó‹**i**›l**ʲ**	pastól-**t**	‘shepherd’	< Sp. *pastor*
c.	inv.	ka-pɛ̃́	ka-pɛ̃́-**i**	ka-pɛ̃́-**t**	‘thief’	< pɛ̃́ ‘steal’
d.	inv.	ko-pɛ̀ts?	ko-pɛ̀‹**i**›tʃ?	ko-pɛ̀**s**‹**t**›?	‘badger’	
	inv.	ko-tsʰí?	ko-tsʰí?	ko-tsʰé?kʲ	‘snake’	

Table 7. Number marking of animate nouns in Central Pame.

In Northern Pame, the original system has been considerably reduced, as shown in Table 8. The default class is the only one having a number contrast, where plural is realized by morphophonological adjustments in the stem. Other nouns are invariable. Animate nouns, regardless of class, have dual and plural by means of suffixes, but all nouns of the default class also have a dual. The data are adapted from Berthiaume (2003).

Class	SG	DU	PL			
Default	n-mʰɛ	n-mʰɛ-ji	j-mʰɛ	→	mʰjɛ	‘tortilla’
	n-t’ùs	n-t’ùs-i	j-t’ùs	→	ts’jùs	‘house’
	n-tʰú?	n-tʰú?-ji	j-tʰú?-ðɨt	→	tʃʰú?ðɨt	‘armadillo’
inv. *gu-* (animate)	gu-saʎ’	gu-saʎ’-i	gu-saʎ’-ɨt			‘eagle’
inv. *sɨl-* (instr.)	sɨl-hăw?	–	–			‘spoon’
inv. *dɨ-* (misc.)	dɨ-nâs	–	–			‘lemon’
inv. *kɨ-* (misc.)	kɨ-nte	–	–			‘water’
inv. miscellanea	pɨ-gas	pɨ-gas-i	pɨ-gas-ɨt			‘cow’ < Sp. *vacas*

Table 8. Noun classes in Northern Pame.

Within Otomian, the most elaborate noun class system is found in Atzincan, where we find the three classes shown in Table 9 in Matlatzinca, adapted from Bartholomew (nd).

Class	SG	DU	PL	
Default	in-ʃuʔyowi	te-ʃuʔyowi	ne-ʃuʔyowi	‘coyote’
	in-tʃuwampa	te-tʃuwampa	ne-tʃuwampa	‘tomate’
	in-buro	te-buro	ne-buro	‘donkey’ < Sp. *burro*
ni- (misc.)	ni-nseʔe	te-nseʔe	ne-nseʔe	‘big bird’
	ni-nto	–	–	‘hail’
	ni-k^{h}weːtʃi	te-k^{h}weːtʃi	ne-k^{h}weːtʃi	‘broom’ < *kwetʃi* ‘sweep’
we- (human)	we-benɔːbi	te-benɔːbi	ne-benɔːbi	‘dancer’
	we-to-waʔa	te-to-waʔa	ne-to-waʔa	‘child’

Table 9. Noun classes in Matlatzinca.

Tlahuica is like Matlatzinca, but with additional minor classes; particularly relevant are a *pi*-class which mainly includes body parts (e.g. *pi-ntyɨ* ‘forehead’), and a class with a stem prefix *nu-* (e.g. *nu-tho* ‘roof’, *nu-ye* ‘hand’), a few of whose members are interchangeable with the *ni*-class (e.g. *nu-ha* ~ *ni-ha* ‘earth’).

In Otomi-Mazahua, the nominal class system is in decline. It is still observable in the conservative Otomi languages of Tilapa and Ixtenco, whose classes are attested in the missionary grammar by Pedro de Cárceres, finished in 1580. In all languages of the group, number has been reduced to a singular-plural opposition.

Class	SG	PL		
Default	ar ʔjü	i ʔjü	‘path’	
ru (mainly borrowings)	ru mẹ^{y}diko	i mẹ^{y}diko	‘doctor’	< Sp. *médico*
ra (nominalizations and predicative NPs)	ra ^{h}nĕ	i ^{h}nĕ	‘dance’	< *nĕ* ‘dance’
di (nominalizations of Class III verbs)	di ^{h}pẹphi	i ^{h}pẹphi	‘work’	<^{h}*pẹphi* ‘work’

Table 10. Noun classes in Tilapa Otomi.

Finally, in both Mazahua and Northern Otomi the old noun class system has disappeared. These two languages are the most innovative within Oto-Pamean and they share many features in common probably due to intense contact during Colonial times. In some descriptions, the singular marker *ra*/*ar* (or in its reduced form *=r*) has been misinterpreted as being a definite article, when it has nothing to do with definiteness. This misconception is partly due to the fact that noun class markers in Otomi-Mazahua are not prefixes, but phonological words in their own right. This is illustrated in the contrast shown in (15) from Tilapa Otomi, where a hesitation pause (indicated by #) can naturally occur between the marker and its head noun.

(15) a. este**#...** [**rụ**=mẹ^{y}diko] re=ʔëna
TIL HES SG=doctor 3.INCPL.R=say
‘Eh...the doctor said.’ (Txt)

b. o giti=gwöntsụ=’mbe[**=rụ#...** berdolaga]
or 1.CPL.IRR=stir.in.AS=PL.EXCL=SG *portulaca.oleracea*
‘Or we stir in the... *verdolaga*.’ (Txt)

The behavior of nominal markers in Otomi-Mazahua has important consequences for the way we should interpret nouns and NP structure in the proto language. Following Givón's (1971) aphorism that today's morphology is yesterday's syntax, the wordhood of noun markers in

Otomi-Mazahua reveals an old stage of syntactic compounding. The markers involved were later reanalyzed as prefixes in all other groups, giving the nominal inflectional morphology of these languages a more canonical profile.

4.2. Possession

Nouns in Oto-Pamean also fall into different classes attending to how they inflect for the dimension of possession. Again, the Pamean group has the most intricate system while Otomian has the simplest.

In both Pame and Atzincan, possession classes correlate with nominal classes, but at times only tangentially. This means that if a noun belongs to a given noun class, this is often an indication as to what possession class it will belong to. But this is a matter of high probability rather than certainty.

4.2.1. Possession in Pamean. In Pamean, there are two major classes of nouns: (i) 'variable nouns', which have internal possession inflection, and (ii) 'invariable nouns', which have invariable stems. The morphology of possession is entrenched in Pamean to such an extent that variable nouns in Chichimec have been claimed by Angulo (1933) to lack an absolute form, that is, a form to be used when the noun is not possessed. This is illustrated in (16), where the form of a third person plural possessor is the one used to refer to a generic noun.

(16) *kúri* 'their water' → 'water' (see example 5b)
CHI *úvó* 'their land' → 'land, earth, world'

The full paradigm of a possessed noun in Chichimec is given in Table 11 with the noun *kunú* 'my field', adapted from Angulo (1933) (where low tone, being a default, is not represented). Notice that the different forms in the paradigm attend to the number value (SG, DU, PL) of both the possessor and the possessum. The forms in shading represent principal parts.

			Number of possessor					
			SG		DU		PL	
Number of possessum	SG	1st	kunú	EXCL	kunú-m^{p}	EXCL	kun-hű	
				INCL	kunú-s	INCL	kunú-n	
		2nd	kínu		kínu-s		kínu-n	
		3rd	kinú		kinú-s		kinhú	
	DU	1st	kunú-s	EXCL	kunú-vó-s	EXCL	kun-hű-n	
				INCL	kunú-s-és	INCL	kunú-s-ín	
		2nd	kínu-s		kínu-s-es		kínu-s-in	
		3rd	kinú-s		kinú-s-és		kinhú-s	
	PL	1st	kunú-r	EXCL	kunú-r-úm^{p}	EXCL	kunú-r-hű	
				INCL	kunú-r-és	INCL	kunú-r-ín	
		2nd	kínu-r		kínu-r-es		kinu-r-in	
		3rd	kinú-r		kinú-r-és		kinhú-r	

Table 11. The possession paradigm of a noun in Chichimec.

In the possession inflection of the noun *kunú* 'my field' in Table 11, there are apophonic changes in the stem, i.e. the forms for 1st person have ‹u› while the other persons have ‹i›. There are also tonal modifications, and the form for the 3rd person plural possessor has a stem change from *kinú* to *kinhú*. The paradigm in Table 11 represents a specific possession class, but there are three others. All four of them are given in Table 12 with examples.

Cl.	Segments				Examples					Tone changes				Stem changes			
	1SG	2SG	3SG	3PL	1SG	2SG	3SG	3PL		1SG	2SG	3SG	3PL	1SG	2SG	3SG	3PL
I	-	-	-	-	kanú	kánu	kànu	-	'nose'	LH	HL	LH	-	-	-	-	-
					námen	namén	námen	-	'knee'	HL	LH	HL	-				
II	‹u›	‹i›	‹i›	‹i›	rusé	ríse	risé	-	'skin'	LH	HL	LH	-				
					kunú	kínu	kinú	kinhú	'field'	LH	HL	LH	LH	n	n	n	nh
					númbe	nivé	nímbe	úveʔ	'hunger'	HL	LH	HL	HL	mb	v	mb	v
					nukhű	níkhü	nikhű	burʾű	'child'	LH	HL	LH	LH	kh	kh	kh	rʾ
					suką	síką	sugą	-	'ear'	LH	HL	LH	-	k	k	g	(kh)
					tsútsę	tʃítʃę́	tʃítʃę	-	'wing'	HL	LH	HL	-	ts	tʃ	tʃ	-
III	na-	u-	u-	u-	nátsa	utsá	úza	úts'a	'food'	HL	LH	HL	HL	ts	ts	z	ts'
					náku	ukú	úgu	úkhu	'road'	HL	LH	HL	HL	k	k	g	kh
					nátán	után	úrán	úrhán	'work'	HH	LH	HH	HH	t	t	r	rh
					námb[i]	ungw[i]	úm[i]	úp[i]	'music'	HL	LH	HL	HL	mb	ngw	m	p
IV	ta-	ki-	ta-	ta-	tásots	kisóts	tásots	tátshots	'belt'	HL	LH	HL	HL	s	s	s	tsh
				na-	táʃin	kiʃín	táʃin	názin	'axe'	HL	LH	HL	HL	ʃ	ʃ	ʃ	z
				ra-	taté	kíte	taté	rarhé	'knife'	LH	HL	LH	LH	t	t	t	rh

Table 12. The possession classes of Chichimec.

Angulo (1933) illustrates the classes in Table 12 with 61 nouns: 12 are of class I; 29 of class II; 14 of class III; and 6 of class IV.[4] Membership to the classes is arbitrary. In other words, the phonological shape of the stem does not help to predict class membership, and neither does the semantics of the noun. For example, most nouns of class IV refer to tools—cognate with the possession class in Pame serving instrumental noun classes, see Table 15 below—but nouns for tools are also found in other classes, such as class III, and many are of the invariable type or are borrowings. Also in class IV we find the noun for 'plant' which is not a tool. Similarly, although half of the 61 nouns in Angulo's sample are body part nouns—a natural expectation for such a sample—the nouns are found across the classes without an apparent motivation. The same argument can be used with clothing, 'trousers' is in class I, 'clothes' is in class II, but 'shoe' and 'hat' are in class III, and many words for clothing are invariable.

On the formal level, the nouns of class I mark possession by a 2nd person by inverting the lexical melody. Class II is characterized by Angulo (1933) as having the apophonic series *<u>* vs. *<i>*. There are internal changes at stem level too. Such changes are morphophonologically predictable for some of the cases, for others they are not.

Possession class II has a cognate in Pame. The relevant data is given in Table 13, adapted from Berthiaume (2003) and Gibson and Bartholomew (1979).

		1SG		2SG		3SG		ABSOLUTE	
		SURFACE	ANALYSIS	SURFACE	ANALYSIS	SURFACE	ANALYSIS	SURFACE	ANALYSIS
SG	N.PAM	nʔkʾwɨ́ʃ	*n-ʔu-kʾɨ́ʃ*	ntʃʾɨ̌ʃ	*n-j-kʾɨ̌ʃ*	nʔtʃʾɨ́ʃ	*n-ʔj-kʾɨ́ʃ*	nkʾɨ́ʃ	*n-kʾɨ́ʃ*
	C.PAM	nokʾwéʃ	*no-kʾwéʃ*	nikʲéʃ	*ni-kʲéʃ*	nikʲéʃ	*ni-kʲéʃ*	ngokʾéʃ	*ngo-kʾéʃ*
PL	N.PAM	rɨʔkʾwɨ́ʃ	*r-ʔu-kʾɨ́ʃ*	ritʃʾɨ̌ʃ	*r-j-kʾɨ̌ʃ*	riʔtʃʾɨ́ʃ	*r-ʔj-kʾɨ́ʃ*	tsʾɨ́ʃ	*j-kʾɨ́ʃ*
	C.PAM	rokʾwéʃ	*ro-kʾwéʃ*	rikʲéʃ	*ri-kʲéʃ*	rikʲéʃ	*ri-kʲéʃ*	ngʾéʃ	*n-kʾéʃ*

[4] Angulo's sample includes c. 30 odd nouns that do not fully abide by the patterns in Table 12. Such nouns include body parts such as 'hand', 'penis', 'mouth', and 'face', common kinship terms such as 'wife', 'husband', 'mother', and 'father', and other nouns referring to commonly possessed entities such as 'house', 'name' and 'money', but also 'fire'.

Table 13. Possession forms of the word for ‘paper’ in Pame.

Surface forms in Pame pose an analytical problem. For Northern Pame, Berthiaume (2003) posits an underlying representation with double prefixation, i.e. the person of possessor is indicated by *ʔu-/j-/ʔj-* while the number of the possessum by prefixes *n-* or *r-*.[5] With this analysis, a surface form such as *nʔkʼwɬʃ* ‘my paper’ is interpreted as retaining the noun class prefix *n-* characteristic of Northern Pame. In contrast, for Central Pame, Gibson and Bartholomew (1979) propose the prefix series *no-/ni-/ni-* and *ro-/ri-/ri-* that conflate person of possessor and number of possessum. This means that for the cognate form *nokʼwéʃ* ‘my paper’ Central Pame is thought to have the prefix *no-* plus a stem alternation proper of 1st person which needs to be accounted for independently. Berthiaume's analysis of the stem change is accounted for by internal assimilation. The data in Chichimec do not easily yield to either analysis. Under the prefix analysis, for the 29 verbs of class II in Angulo one would have to propose five prefix series *nu-/ni-, ku-/ki-, ru-/ri, su-/si- and tsu-/tsi-*, while an analysis based on retaining a noun class marker would not hold synchronically because the nouns do not have independent absolute forms.

Possession class III in Chichimec is cognate with class *na-/ngo-/ngo-* in Central Pame, as shown in Table 14. But in Northern Pame, the cognate morphology has disintegrated.

		1SG		2SG		3SG		ABSOLUTE	
		SURFACE	ANALYSIS	SURFACE	ANALYSIS	SURFACE	ANALYSIS	SURFACE	ANALYSIS
SG	N.PAM	nhsɪ̌ʔ	*n-h-tsɪ̌ʔ*	nhsíʔ	*n-h-tsíʔ*	nsɪ̌ʔ	*n-(n)-tsɪ̌ʔ*	nsɪ̌ʔ	*n-tsɪ̌ʔ*
	C.PAM	natsːiʔ	*na-tsːiʔ*	ŋgotsîʔ	*ŋgo-tsîʔ*	ŋgotsiʔ	*ŋgo-tsiʔ*	ŋgotsiʔ	*ŋgo-tsiʔ*
PL	N.PAM	htʃɪ̌ʔ	*j-h-tsɪ̌ʔ*	htʃíʔ	*j-h-tsíʔ*	ntʃɪ̌ʔ	*j-n-tsɪ̌ʔ*	*tʃɪ̌ʔ	*j-tsɪ̌ʔ*
	C.PAM	itʃːiʔ	*i-tʃːiʔ*	ntsîʔ	*n-tsîʔ*	ntsiʔ	*n-tsiʔ*	ntsiʔ	*n-tsiʔ*

Table 14. Possession forms of the word for ‘tooth’ in Pame.

In Northern Pame, the class in Table 13 serves as a default for most nouns of the default noun class and for all nouns of the animate class. But in Central Pame, of the 67 nouns in noun class 1 in Gibson and Bartholomew (1979), 29 are found in the possession class of Table 13 while the 38 remaining ones are of the class in Table 14. On the formal level, surface forms pose further challenges for the morphological analysis.

Finally, Chichimec class IV is cognate with the possession class in Northern Pame given in (a) in Table 15, which serves the instrumental noun class in Table 8. This class merges two distinct possession classes in Central Pame: the one in (a) serves noun class 6 and that of (b) the instrumental noun class 11.

		1SG		2SG		3SG		ABSOLUTE	
		SURFACE	ANALYSIS	SURFACE	ANALYSIS	SURFACE	ANALYSIS	SURFACE	ANALYSIS
a.	N.PAM	stɨʔɛ̃s	*s-tɨ-ʔɛ̃s*	ʃkiʔʲɛ̂s	*s-kj-ʔɛ̂s*	sɨnʔɛ̃s	*s-ɨn-ʔɛ̃s*	sɨlʔɛ̃s	*sɨl-ʔɛ̃s*
	C.PAM	tahéʃ	*ta-héʃ*	kihéʃ	*ki-héʃ*	nahéʃ	*na-héʃ*	*nahéʃ	**na-héʃ*
b.		staʔéogŋ	*sta-ʔéogŋ*	skiʔéogŋ	*ski-ʔéogŋ*	snaʔéogŋ	*sna-ʔéogŋ*	*tʃiʔéogŋ	**tʃi-ʔéogŋ*

Table 15. Possession forms of the words for ‘knife’ (a) and ‘broom’ (b) in Pame.

Invariable nouns lie outside the inflectional sub-system made up by the possession classes. In Pame, they inflect for person-number of the possessor by means of the same suffixes used with the dative paradigm of verbs, as shown in (17), adapted from Berthiaume (2003).

[5] A cognate *r-* for plural of possessum is also found in Chichimec, but as a suffix. This can be seen in Table 11.

(17)	1.DAT	si-**k**	‘say to me’	1.POSS	sɨnt’ǽ-**k**	‘my waist’
N.PAM	2.DAT	si-**k’**	‘say to you’	2.POSS	sɨnt’ǽ-**k’**	‘your waist’
	3.DAT	si-**p**	‘say to him/her/them’	3.POSS	sɨnt’ǽ-**p**	‘his/her/their waist’

In Chichimec, invariable nouns enter into a possession relationship by means of compounding with one of the five possessed nominal elements in (18),[6] which work as genitive classifiers. The examples additionally show that number of the possessum is only marked on the possessed noun.

(18)	ANIMALS	[ná-**mbe**	urhẽ́-r]	FOOD	[na-**nté**[7]	kindi-r]
CHI		1SG.POSS.animal	horse-PL		1SG.POSS-CL.FOOD	soup-PL
		‘my horses’			‘my soups’	
	PLANTS	[ta-**ngwá**	rígṹ-r]	OTHER	[ná-**mbi**	kúro-r]
		1SG.POSS-plant	tree-PL		1SG.POSS-thing	stone-PL
		‘my trees’			‘my stones’	
	CLOTHING	[**n‹ú›nthü**	mátṹ-r]			
		1SG.POSS/clothes	shirt-PL			
		‘my shirts’				

4.2.2. Possession in Otomian

Like Pamean, Atzincan also has possession classes. In Tlahuica, based on the materials in Muntzel (1984), one can propose the three major classes in Table 16. For alienable nouns, their non-possessed form (i.e. absolute) is abbreviated as ABS.[8]

	cl. Ia		cl. Ib	cl. II	
	‘wood’	‘husband’	‘stone’	‘house’	‘throat’
1SG	m-(n)tsa	we-p-t’uma	ßu-nto	n[i]-aː-thoː	p[i]-aː-hɨː
2SG	lí-ntsa	we-lí-t’uma	lí-nto	n[i]-ák-thoː	p[i]-ák-hɨː
3SG	l-ntsa	we-l-t’uma	lu-nto	ni-thoː	pi-hɨː
1PL	ne-hu-ntsa	ne-hu-t’uma	ne-hu-ßu-nto	n[i]-aː-kew-thoː	p[i]-aː-kew-hɨː
2PL	ne-lo-lí-ntsa	ne-lo-lí-t’uma	ne-lo-lí-nto	n[i]-ák-kuk-thoː	p[i]-ák-kuk-hɨː
3PL	ne-lo-l-ntsa	ne-lo-l-t’uma	ne-lo-lu-nto	ni-thoː-hnə	pi-hɨː-hnə
ABS	ntsa	–	ni+nto	–	–
	cl. IIIa		cl. IIIb		
	‘belly’	‘forehead’	‘father’		
1SG	ni-ː-pi	pi-ː-t^{y}ɨ	w[e]a-ta		
2SG	ni-pi	pi-t^{y}ɨ	we-ta		
3SG	ni-m-pi	pi-n-t^{y}ɨ	we-n-ta		
1PL	ni-ː-pi-hnə	pi-ː-t^{y}ɨ-hnə	wa-ta-hnə		
2PL	ni-pi-hnə	pi-t^{y}ɨ-hnə	we-ta-hnə		
3PL	ni-m-pi-hnə	pi-n-t^{y}ɨ-hnə	we-n-ta-hnə		

[6] The same construction is also found in frozen compounds like *katá ngṹ* (1SG.POSS.face eye) ‘my eye’.

[7] The root *-nté* is the only one that is no longer a nominal, but a genuine genitive classifier. Etymologically, it is the word for ‘water’. The word for ‘food’ is nowadays *nátsa* ‘my food’, a nominalization of the verb ‘eat’.

[8] Given comparable data in sister language Matlatzinca, it is highly likely that the forms for 2nd person possessor also bear contrastive tone.

ABS	–	–	–

Table 16. Possession classes in Tlahuica.

Like in Northern Pame, noun class prefixes in Tlahuica are also retained and attach to the left edge of the word. Class Ia is a default class. Sub-class Ib has only *ni-* and *nu*-class nouns (but members of such classes are also found in classes II and III). The *we*-class of human role nouns split arbitrarily into two sub-classes according to their possession behavior: some nouns inflect as class I and some as class IIIb. This means that membership to possession classes is lexically-specified, e.g. body parts are found in the four classes. The few existing sources on Matlatzinca have scarce information about the encoding of possession but reveal a very different system from Tlahuica, as illustrated in Table 17, with tonal lowering for the 2nd person. Data is adapted from Bartholomew (nd).

	'stomach'	'head'	'face'	'tooth'
1SG	thé-yá	thé-nú	thé-mhí	thé-sibí
2SG	ní-ʔya	ní-ʔnu	ní-ʔmhi	ní-nsibí
3SG	ní-ʔyá	ní-ʔnú	ní-ʔmhí	ní-nsíbí

Table 17. Possession marking in Matlatzinca.

Finally, in clear contrast to what happens in the other groups, in Otomi-Mazahua the marking of possession is syntactic. This is illustrated in Mazahua in Table 18, adapted from Knapp 2008. The markers *nu* and *k'o* are definite determiners, of singular and plural respectively. Possessive determiners occur closer to the noun. Enclitics mark person and number of possessor and serve to disambiguate between a 1st and a 2nd person possessor.

			Number of possessor				
			SG	DU		PL	
Number of possessum	SG	1st	nu in nzhɨnɨ=gɔ	EXCL	nu in nzhɨnɨ=gɔ=ɓe	EXCL	nu in nzhɨnɨ=gɔ=^{h}me
				INCL	nu in nzhɨnɨ=gɔ=βi	INCL	nu in nzhɨnɨ=gɔ=hi
		2nd	nu in nzhɨnɨ=ge		nu in nzhɨnɨ=ge=βi		nu in nzhɨnɨ=ge=hi
		3rd	nu o nzhɨnɨ				
	PL	1st	k'o in nzhɨnɨ=gɔ	EXCL	k'o in nzhɨnɨ=gɔ=ɓe	EXCL	k'o in nzhɨnɨ=gɔ=^{h}me
				INCL	k'o in nzhɨnɨ=gɔ=βi	INCL	k'o in nzhɨnɨ=gɔ=hi
		2nd	k'o in nzhɨnɨ=ge		k'o in nzhɨnɨ=ge=βi		k'o in nzhɨnɨ=ge=hi
		3rd	k'o o nzhɨnɨ				

Table 18. Possession marking of the noun for 'ox' in Mazahua.

A handful of nouns in Mazahua require a palatalized stem when possessed by a 1st or a 2nd person. The nouns do not form a coherent natural class (e.g. 'bench', 'blood', 'bone', 'door', 'eye', 'lamb', 'song', 'stone', 'woman', etc.). One example is given in (a) in Table 19 to be compared with an invariable noun in (b), adapted from Knapp 2008. At least five other body part nouns require a prenasalized stem for the 3rd person. The noun *tɔ* 'eye' in (c) is one of them.

	(a) 'stone'	(b) 'chocolate'	(c) 'eye'
1st	^{n}d→ **^{n}dʒ** in ^{n}dʒóho=gɔ	^{n}d in ^{n}dɛk^{h}ɨ=gɔ	t→ **tʃ** in tʃɔ=gɔ
2nd	in ^{n}dʒóho=ge	in ^{n}dɛk^{h}ɨ=ge	in tʃɔ=ge
3rd	^{n}d o ^{n}dóho	o ^{n}dɛk^{h}ɨ	t→ **^{n}d** o ^{n}dɔ

Table 19. Nouns with and without stem alternations in Mazahua.

Stewart (1966) reports that kinship terms in Mazahua may take the marker *mi* for a 1st person possessor, as in (19). This marker is cognate with the prefix *m-* of possession class Ia in Tlahuica. It is also found in Old Otomi, where it was used for a female speaker. Male speakers used *ma* instead, which later generalized in all Otomi languages as the only possessive marker for 1st person, except in the conservative Otomi languages of Tilapa and Ixtenco, where the old speaker-oriented gender distinction was kept. This is illustrated in (20) in Tilapa Otomi with the markers *mi* and *mɨ* (the reflex of old *ma*).[9]

(19) k'ɨ **mi** tata=gɔ
MAZ DET.SG 1POSS father=1
'my father'

(20) a. Male sp.: rangeh=na [**mu** hephesita] xu=phunts'i
TIL with.AS=that 1POSS♂ mother 3.PRF.R=fall
'Because of it my mother fell.' (Txt)

b. Female sp.: o grá=nde=wi=gi ʰto?mu=wi [a **mi** ʰtömbẹ]?
or 2.INCPL.R=want=PL=2.INCPL.IRR wait.AS=PL DEF.SG 1POSS♀ mother
'Or do you want to wait for my mum?' (Txt)

While, for the encoding of a 2nd person possessor, Otomi languages have reflexes (*ni, ri, di*) of an old marker *ni*, cognate with the corresponding forms in Mazahua and Atzincan, they are the only ones within Oto-Pamean to use a floating high tone to encode a 3rd person possessor. This tone works as an enclitic and it falls on the word preceding the noun by replacing its lexical tone. The hosting word is often the noun class marker (glossed here as just SG or PL), as shown in (16a-b). But when the class marker is encliticized, the autosegment for 3rd person possessor falls on (the last syllable of) the preceding word, whether it be another determiner like in (21) or a verb (21d). Examples are from the San Ildefonso Tultepec variety of Northern Otomi.

(21) a. 'na=r ndo xa mí=künt'ei [**ár** 'behñö]
N.OTO INDF.SG=SG man INT 3.IMPF=watch.over SG.3POSS lady
'A man watched over his wife a lot.' (Txt)

b. pe handi tü [**yá** ndoni]='na
but [3.INCPL]see [3.INCPL]have.on PL.3POSS horn=QUOT
'But he sees that he has horns on.' (Txt)

c. 'ne ya no=r khö'i='ya, [**nó**=r döme], handi
and P DEF.SG=SG person=P DEF.SG.3POSS=SG husband [3.INCPL]see[3OBJ]
'And the man, her husband, sees it.' (Txt)

d. habu 'in=da hyandá[=r male]
where NEG=3IRR SS/see.AS[3OBJ]3POSS=SG granny
'Where their granny would not see them.' (Txt)

[9] The kinship terms in (20), *hephesita* (from Spanish *jefecita* 'little boss (female)') and *tömbė* ('old lady'), both mean 'mother', but the former is a term of male speech, while the latter of female speech.

Possession markers in Otomi-Mazahua languages have the same prosodic behaviour as other determiners. This suggests that, just like with noun class markers, the grammar of possession operates directly from the syntax, but has morphologized in the other groups of Oto-Pamean. Further evidence for this syntactic character comes from plurality of the person of the possessor. When both possessor and subject are co-referential in the same clause, only the number marker associated with the noun is used, as shown in (22) from the San Ildefonso Tultepec variety of Northern Otomi. This is an indication that the morphosyntax of number of person is an inflectional value to be realized at clause-level syntax and not by the inflectional morphology of either verbs or nouns.

(22) ma=dá kwa^{h}ta[=ma beni]=**he**
N.OTO MOT=1.CPL put.away.AS=1POSS suitcase=PL.EXCL
'(So that) we went to put our suitcases away.' (Txt)

4.2.3. About the marking of possession in Oto-Pamean

Nouns with canonical inalienable semantics such as body parts and kinship terms, together with a handful of cultural artefacts, such as pieces of clothing and food (i.e. tortilla, maize, etc.) are obligatorily possessed in Oto-Pamean, just as they are in most Mesoamerican languages. In Otomi-Mazahua, without possession classes, obligatorily possessed nouns could be said to form the class of inalienable nouns.

But what happens in the other languages with possession classes? Perhaps the best way to tackle possession classes in Pamean and Atzincan as a grammatical phenomenon is to regard them as inflectional classes. In other words, they constitute a case of inflectional allomorphy whose selection is largely determined by the lexicon. Indeed, such classes have little to do with the dimension of alienability.

It is only in Chichimec where one could argue that the division between variable and invariable nouns reflects a split between inalienable and alienable nouns. This is because variable nouns cannot exist in absolute form and must thus be obligatorily possessed.

However, it is less clear what the status of variable nouns is. From the existing materials we can elucidate that: (a) they include borrowings and old compounds. This means that they are nouns with special stems that lie outside the morphology, which is hardly a property of semantic alienability; and (b) they include nouns which pertain to semantic fields characteristically associated with inalienability, such as body parts, clothing, etc. Again this makes possession classes look like an inflectional phenomenon rather than a semantic property of nouns.

5. Verbal inflection

Verbs in all Oto-Pamean languages are inflected for tense/aspect/mood values by means of markers preposed to the verbal stem, which may be referred to as 'inflectional formatives'. Often inflectional formatives also encode agreement with subject in person and number in a portmanteau fashion.

In Otomi-Mazahua, inflectional formatives share properties of affixes and properties of clitic words. For example, like prefixes, they always occur preverbally. This is illustrated in (23), where it is shown in Tilapa Otomi that the occurrence of the formative *ra* for the 3rd person incompletive realis is ungrammatical in any position but preverbally.

(23) (*ra) pwes (*ra) nt'a (*ra) rú̲ (*ra) mbek'o̱ ***(ra)** 'ëm-bi (*ra)
TIL so one SG.3POSS brother.in.law 3.INCPL.R say-3DAT

'So one of his brothers-in-law is telling him.' (Txt)

But as clitics, they may be phonologically hosted on a word other than the verb, like on a preverbal adverbial or a pronominal, with subsequent phonological adjustments, as exemplified in (24), which shows two instances of the same formative *ta* for 3rd person completive irrealis.

(24) **ta**=nde o hin=**da** nde
TIL 3.CPL.IRR=want or NEG=3.CPL.IRR want
'May he want or may he not want.' (Txt)

Formatives often depend on a word that has nothing to do with their syntactic domain. This is observed in (25) by the placement of hesitation pauses, indicated by #.

(25) a. #tú=mbe=ʼmbe=**[tú**...# **tú**=^{h}tsu=ʼmbe]=r t'egi=gwa=a#
TIL 1.CPL.R= SS/go.DU.EXCL=PL.EXCL=1.CPL.R 1.CPL.R=reach=PL.EXCL=SG car=here=CL
'We went to...to take the bus here.' (Txt)

b. #nthönt'o té=ʔëh=a**[=tú...** # ^{h}kundy]=a ni ʔi=a#
soon 1.CPL.R=come.AS=CL=1.CPL.R grind.AS=DET.SG DEF.SG chili=CL
'Soon I got here to...grind the chili.' (Txt)

As the entire verbal inflection of Otomi-Mazahua is achieved by such formatives, the verbal inflection in these languages is entirely periphrastic. However, one cannot analyse the formatives as auxiliary verbs, at least not synchronically. In the literature, the formatives of other Oto-Pamean groups have been treated as prefixes, except for Matlatzinca in Bartholomew (nd). In Atzincan, their structure indeed suggests that they are clitic words like in Otomi-Mazahua, so we could think of it as an Otomian phenomenon. In Pamean, however, they behave like canonical prefixes. In Chichimec they are toneless and monosyllabic. In Pame, as illustrated in Table 20, the prefixes that are not reduced to a single consonant have a centralized vowel as a nucleus and, at least in Berthiaume (2003), they are seen as responsible for producing stem modifications at the surface level.

	INCPL		CPL		POT	
	SURFACE	ANALYSIS	SURFACE	ANALYSIS	SURFACE	ANALYSIS
1SG	ləkáʔs	***lə**-káʔs*	nəkwáʔs	***nə-w**-káʔs*	nʔkwáʔs	***n**ʔ-**w**-káʔs*
2SG	kʼə$\widehat{\text{tʃ}}$áʔs	***kʼə-j**-káʔs*	nə$\widehat{\text{tʃ}}$áʔs	***nə-j**-káʔs*	nʔkáʔs	***n**ʔ-káʔs*
3SG	kwáʔs	***w**-káʔs*	dəkwáʔs	***də-w**-káʔs*	nʔkáʔs	***n**ʔ-káʔs*

Table 20. Partial paradigm of the verb 'soften' in Northern Pame.

5.1 Values of TAM

All systems have at least two sub-paradigms for the basic aspects, incompletive vs. completive (traditionally called 'present' and 'past') and one or various sub-paradigms for the irrealis (often called 'future' and/or 'potential'). Chichimec has a rich system; it is described by Angulo (1933) and Lastra (1984) as having three different past tenses and a sequential tense used in clause combining constructions. Examples are presented in Table 21.

PRS	*e-nú*	's/he's seeing it'
IMM.PST	*zu-nú*	's/he's just seen it'

REC.PST	*ku-nú*	‘s/he's seen it’
ANT.PST	*u-nú*	‘s/he saw it’
FUT	*ga-nú*	‘s/he will see it’
POT	*mu-nú*	‘s/he'd see it’
SEQ	*ru-nú*	‘ and she see it’

Table 21. TAM forms (3rd person singular) of the verb ‘see’ in Chichimec

But it is in the conservative Otomi languages, like Tilapa Otomi, where one observes the most developed TAM system within Oto-Pamean with at least 12 values. This is shown in Table 22 with the forms of the verb for ‘fall’.

	REALIS			IRREALIS		
INCPL	ra	^{h}tagi	‘s/he's falling’	tra	tagi	‘s/he'll be falling’
HAB	ru	^{h}tagi	‘s/he falls’			
IMPF	ramá	^{h}tagi	‘s/he was falling’			
IMPF.HAB	múru	^{h}tagi	‘s/he used to fall’			
CPL	bi	tagi	‘s/he fell’	ta	tagi	‘s/he'll fall’
PST				tigi	tagi	‘s/he would've fallen’
PRF	xún	tagi	‘s/he's fallen’	xti	tagi	‘s/he'll have fallen’
PPRF	xkán	tagi	‘s/he'd fallen’			
PROSP				xtá	tagi	‘s/he's about to fall’

Table 22. TAM forms (3rd person singular) of the verb ‘fall’ in Tilapa Otomi.

5.2 Conjugation classes.

Oto-Pamean languages have conjugation classes whose membership is listed in the lexicon. This means that membership is not accounted for by properties of the lexeme, whether they be phonological, semantic or valence oriented. In this light, there are two main ways in which verbs are classified in Oto-Pamean for inflectional purposes: (i) ‘formative-based classes’, which are based on specific different sets of inflectional formatives which verbs may select; and (ii) ‘stem-based classes’, which are based on different stem alternation patterns different verbs may display in their paradigm. Let us see them in order.

5.2.1. Formative-based classes.

Chichimec has up to seven formative-based conjugation classes. Such classes display up to five different ways of partitioning the paradigm regarding the expression of number of the subject. The different forms are given in Table 23, adapted from Angulo (1933).

	1SG	1DU	1PL	2	3SG/DU	3PL	1SG	1DU	1PL	2	3SG/DU	3PL	1SG	1DU	1PL	2	3SG/DU	3PL
	cl. I						cl. II						cl. III					
PRS	e		ki		e		tu		su		u		tu		su		u	e
IMM.PST	u		i		zu		u		i		zu		u		i		zu	zu
REC.PST	ku		ki		ku		ku		ki		ku		ku		ki		ku	ku
ANT.PST	tu		ki		u		tu		ki		u		tu		su		u	e
FUT	ga		ki		ga		gu		ki		ga		gu		ki		ga	ga
POT	nu		mi		mu		nu		mi		mu		nu		mi		mu	mi
SEQ	ra		gi		ru		ra		gi		ru		ra		gi		ru	ru
	cl. IV						cl. V						cl. VI					
PRS	tu		ka		u		e	e	u	ki	e	e	e	e	u	ki	e	
IMM.PST	u		i		zu		ka	ki	ki	ki	ku	ku	sa	si	si	sa	sa	

REC.PST	ku		e	ku	ka	ki	ki	ki	ku	ku	sa	si	si	sa	sa
ANT.PST	tu		ka	u	ta	ti	ti	ki	u	u	ta	ti	ti	sa	ta
FUT	ga		ka	ga	ta	ti	gu	ki	ga	ga	ta	ti	gi	sa	ta
POT	mu		ma	ma	ma	ma	mu	mi	ma	mi	na	ni	ni	za	na
SEQ	ra		ga	ru	na	na	nu	mi	ra	ra	na	ni	ni	za	na
	cl. VII														
PRS	ti	ti	si	i											
IMM.PST	i	i	i	i											
REC.PST	sa	si	sa	sa											
ANT.PST	ta	ti	sa	ta											
FUT	ta	ti	sa	ta											
POT	na	ni	za	na											
SEQ	na	ni	za	na											

Table 23. The formative-based conjugation classes of Chichimec.

While membership to the classes is arbitrary, verbs with middle semantics (i.e. reciprocal, reflexive, posture, grooming, etc.) are found in class VII, as shown in (26). This is a characteristic feature of Oto-Pamean, where languages have active verbs in one class and their middle voice counterparts are inflected in another class.

(26) *e-nú* (I) 'I see it' ~ *ti-nú* (VII) 'I see myself'

Atzincan has six formative-based classes, with slight differences between Tlahuica and Matlatzinca. They are shown in Table 24, adapted from Carranza-Martínez (2013), (dual forms are not included; the 1st plural form is the inclusive, 'Σ' represents the stem).

	PRS	PRF	POT	PRS	PRF	POT	PRS	PRF	POT
	cl. I (tr)			cl. II (tr)			cl. III (tr)		
1SG	tuh-	to-	ru-	tu-tú-	to-	ru-	tuht-	to-	ru-
2SG	ʔíh-	ʔo-	ri-	ʔí-tú-	ʔo-	ri-	ʔíht-	ʔo-	ri-
3SG	kuh-	tu-	tátu-	ku-tú-	tu-	tá-tu-	kuht-	tu-	tátu-
1PL	khwen-	kho-	ru-Σ-he	khwen-tú-	kho-	ru-Σ-he	khwent-	kho-	ru-Σ-he
2PL	čhen-	čho-	ri-Σ-he	čhen-tú-	čho-	ri-Σ-he	čhent-	čho-	ri-Σ-he
3PL	ron-	tu-Σ-he	tátu-Σ-he	ron-tú-	tu-Σ-he	tá-tu-Σ-he	ront-	tu-Σ-he	tátu-Σ-he
	cl. IV (intr)			cl. V (intr)			cl. VI (intr)		
1SG	tu-	taʔ-	ruh-	tu-te-	tah-te-	ruh-te-	tun-	tan-	run-
2SG	ʔi-	ʔíʔ-	riʔíʔ-	ʔi-te-	ʔeʔ-	riʔe-	ʔín-	ʔín-	riʔín-
3SG	ku-	kaʔ-	taʔ-	ku-te-	re-	táʔ-re-	kun-	kan-	tan-
1PL	khwen-	khweʔ-	rukhweʔ-	khwen-te-	khweʔ-	rukhweʔ-	khwen-	khwen-	rukhwen-
2PL	čhen-	čheʔ-	ričheʔ-	čhen-te-	čheʔ-	ričheʔ-	čhen-	čhen-	ričhen-
3PL	ron-	roʔ-	taroʔ-	ron-te-	roʔ-re-	tároʔ-re-	ron-	ron-	taroʔn-

Table 24. The formative-based conjugation classes of Matlatzinca.

Membership to classes in Atzincan is more clearly associated with transitivity. The transitive verbs in the language fall into classes I-III; intransitives into classes IV-VI. Transitive class I and intransitive class IV serve as morphological defaults (and most likely point to the genuine basic verbs of the proto-language). The distinctions making up the other classes are formally derived from these two classes, although the derivation is only historical. For example,

classes II and V originate, respectively, from historical causative verbs (derived by prefix {*tu-*}) and historical middle voice verbs (derived by prefix {*te-*}).

Otomi-Mazahua has considerable internal diversity regarding conjugation classes. The conservative Otomi languages like Tilapa Otomi, Acazulco Otomi and Ixtenco Otomi have preserved the three main classes from Old Otomi in Cárceres (1907/1580). In other varieties, the system has undergone considerable change. The verbs in Table 25 illustrate the classes of Tilapa Otomi.

		'water (cornfield)' cl. I (tr/intr)				'cut up wood' cl. II (intr)				'pray' cl. III (tr/intr)			
		REALIS		IRR		REALIS		IRR		REALIS		IRR	
INCPL	1st	trá	xithe	gra	xithe	trá	xu	gratu	xu	trátí	xadi	grati	xadi
	2nd	grá	xithe	gra	xithe	grá	xu	gragu	xu	grátí	xadi	grati	xadi
	3rd	ra	xithe	tra	xithe	ra	xu	tra	xu	rati	xadi	trati	xadi
CPL	1st	tú	xithe	gi	xithe	túdú	xu	gutu	xu	tú	xadi	giti	xadi
	2nd	gú	xithe	gi	xithe	gúgú	xu	gugu	xu	gú	xadi	giti	xadi
	3rd	bi	xithe	ta	xithe	bi	xu	ti	xu	bi	xadi	ti	xadi
PRF	1st	xtú	xithe	xkugu	xithe	xtúdú	xu	xtigutu	xu	xtú	xadi	xkugu	xadi
	2nd	xkú	xithe	xkugu	xithe	xkúgú	xu	xtigugu	xu	xkú	xadi	xkigi	xadi
	3rd	xún	xithe	xti	xithe	xpi	xu	xtigi	xu	xpi	xadi	xtigi	xadi

Table 25. The formative-based conjugation classes of Tilapa Otomi.

Class III results from a merger of two distinct classes in Otomian, whose reflexes survive in Atzincan classes II and V. As a result of this merger, Otomi class III contains both highly transitive verbs and intransitive verbs with middle voice semantics. For such a historical merger to be able to happen, the morphology involved had to be perceived by speakers at the time as functionally opaque. Otomi class II contains intransitive verbs only, and most of its members refer to activities performed by animates, mostly humans. In Eastern Otomi, class II has an innovative nasal marker distributed in the paradigm, most probably as an extension of the middle voice marker, which is also a nasal (Palancar 2006). This language is also innovative in having developed an intransitive class IV, as a heteroclite of classes II and III. These facts are summarized in Table 26, adapted from Voigtlander & Echegoyen (1985).

		'gather' cl. Ia (tr/intr)		'save' cl. Ib (tr)		'walk' cl. II (intr)		'fix' cl. III (tr/intr)		'hurry' cl. IV (intr)	
INCPL	1st	dí	kho	dín	yäni	dí	ʔyo	dídí	ho^{h}ki	dídí	xoni
	2nd	gí	kho	gín	yäni	gí	ʔyo	gídí	ho^{h}ki	gídí	xoni
	3rd	(i)	kho	in	yäni	(i)	ʔyo	(i)di	ho^{h}ki	(i)di	xoni
CPL	1st	dá	kho	dá	yäni	dán	ʔyo	dá	ho^{h}ki	dán	xoni
	2nd	gá	kho	gá	yäni	gán	ʔyo	gá	ho^{h}ki	gán	xoni
	3rd	bi	go	bi	yäni	bin	ʔyo	bi	ho^{h}ki	bin	xoni
IRR	1st	ga	kho	gan	yäni	dan	ʔyo	ga	ho^{h}ki	dan	xoni
	2nd	gi	kho	gin	yäni	gan	ʔyo	gi	ho^{h}ki	gan	xoni
	3rd	da	go	da	yäni	din	ʔyo	di	ho^{h}ki	din	xoni

Table 26. The formative-based conjugation classes of Eastern Otomi.

5.2.2. Stem-based classes

Apart from classes defined by sets of inflectional formatives, Oto-Pamean verbs also fall into classes attending to the stem alternation patterns they display. This happens in all groups except in Atzinca where the historical allomorphy of stems was effaced. The simple system is found in Otomi-Mazahua, the most complex in Pamean.

In the Otomi languages with formative-based classes, class I verbs have two stems: a basic 'primary stem' and a derived 'secondary' stem, e.g. E.OTO *kho* vs. *go* 'gather'. In Northern Otomi, the nasal marker characteristic of class II in Eastern Otomi merged with the stem as a typical prefix. In this innovative language, all formative-based classes were also levelled to class I, but the old stem alternation distinctions were retained, preserving old class contrasts, but this time realized by stem alternations only. This is shown in Table 27.

		'gather' cl. I		'walk' cl. II		'fix' cl. III	
INCPL	1st	dí	kho	dí	ʔyo	dí	ho^{h}ki
	2nd	gí	kho	gí	ʔyo	gí	ho^{h}ki
	3rd	(i)	kho	(i)	ʔyo	(i)	ho^{h}ki
CPL	1st	dá	kho	dá	ʔ‹ñ›o	dá	ho^{h}ki
	2nd	gá	kho	gá	ʔ‹ñ›o	gá	ho^{h}ki
	3rd	bi	go	bi	ʔ‹ñ›o	bi	ho^{h}ki
IRR	1st	ga	kho	ga	ʔ‹ñ›o	ga	ho^{h}ki
	2nd	gi	kho	gi	ʔ‹ñ›o	gi	ho^{h}ki
	3rd	da	go	da	ʔ‹ñ›o	da	ho^{h}ki

Table 27. The stem-based classes of Northern Otomi.

In Pamean the situation is complex, at least in Chichimec. Based on a sample of 170 verbs from Angulo (1933), Palancar and Avelino (forthcoming) propose that verbs fall into at least 14 different stem patterns. In Table 28, I present seven of the most representative ones. The different stems involved in the paradigms are labelled A, B, C, etc. attending to how they are distributed in the paradigm. Stem pattern 2 could be considered a default paradigm. This pattern serves as a base for the structure of patterns 3 to 6.

	1st	2nd	3SG/DU	3PL	1st	2nd	3SG/DU	3PL	1st	2nd	3SG/DU	3PL	1st	2nd	3SG/DU	3PL
	Stem pattern 1				Stem pattern 2				Stem pattern 3				Stem pattern 4			
PRS	A	A	A	A	A	A	A	B	A	A	C	B	A	D	A	B
IMM.PST	A	A	A	A	A	A	A	B	A	A	C	B	A	D	A	B
REC.PST	A	A	A	A	A	A	A	B	A	A	C	B	A	D	A	B
ANT.PST	A	A	A	A	A	A	A	B	A	A	C	B	A	D	A	B
FUT	A	A	A	A	A	A	A	B	A	A	C	B	A	D	A	B
POT	A	A	A	A	A	A	A	B	A	A	C	B	A	D	A	B
SEQ	A	A	A	A	A	A	A	B	A	A	C	B	A	D	A	B
	'laugh'				'see'				'heat'				'do'			
PRS	*tér*	*tér*	*tér*	*tér*	*nú*	*nú*	*nú*	*nhú*	*pan*	*pan*	*mban*	*phan*	*tsá*	*tcá*	*tsá*	*tshá*
IMM.PST	*tér*	*tér*	*tér*	*tér*	*nú*	*nú*	*nú*	*nhú*	*pan*	*pan*	*mban*	*phan*	*tsá*	*tcá*	*tsá*	*tshá*
REC.PST	*tér*	*tér*	*tér*	*tér*	*nú*	*nú*	*nú*	*nhú*	*pan*	*pan*	*mban*	*phan*	*tsá*	*tcá*	*tsá*	*tshá*
ANT.PST	*tér*	*tér*	*tér*	*tér*	*nú*	*nú*	*nú*	*nhú*	*pan*	*pan*	*mban*	*phan*	*tsá*	*tcá*	*tsá*	*tshá*
FUT	*tér*	*tér*	*tér*	*tér*	*nú*	*nú*	*nú*	*nhú*	*pan*	*pan*	*mban*	*phan*	*tsá*	*tcá*	*tsá*	*tshá*
POT	*tér*	*tér*	*tér*	*tér*	*nú*	*nú*	*nú*	*nhú*	*pan*	*pan*	*mban*	*phan*	*tsá*	*tcá*	*tsá*	*tshá*
SEQ	*tér*	*tér*	*tér*	*tér*	*nú*	*nú*	*nú*	*nhú*	*pan*	*pan*	*mban*	*phan*	*tsá*	*tcá*	*tsá*	*tshá*

	Stem pattern 5				Stem pattern 6				Stem pattern 7			
PRS	A	A	A	B	A	A	A	B	A	A	A	A
IMM.PST	A	A	C	B	A	D	A	B	D	D	D	A
REC.PST	E	A	C	B	A	D	C	B	E	D	C	A
ANT.PST	A	A	C	B	A	D	C	B	A	D	C	B
FUT	A	A	C	B	A	D	C	B	A	D	C	B
POT	A	A	A	B	A	D	A	B	D	D	D	A
SEQ	A	A	A	B	A	D	A	B	A	D	A	A
	‘learn’				‘want’				‘narrate’			
PRS	*pen*	*pen*	*pen*	*phen*	*ʔ*	*ʔ*	*ʔ*	*rʔ*	*pín*	*pín*	*pín*	*pín*
IMM.PST	*pen*	*pen*	*ven*	*phen*	*ʔ*	*tí*	*ʔ*	*rʔ*	*ngwín*	*ngwín*	*ngwín*	*pín*
REC.PST	*mben*	*pen*	*ven*	*phen*	*ʔ*	*tí*	*ndí*	*rʔ*	*mbín*	*ngwín*	*mín*	*pín*
ANT.PST	*pen*	*pen*	*ven*	*phen*	*ʔ*	*tí*	*ndí*	*rʔ*	*pín*	*ngwín*	*mín*	*mbín*
FUT	*pen*	*pen*	*ven*	*phen*	*ʔ*	*tí*	*ndí*	*rʔ*	*pín*	*ngwín*	*mín*	*mbín*
POT	*pen*	*pen*	*pen*	*phen*	*ʔ*	*tí*	*ʔ*	*rʔ*	*ngwín*	*ngwín*	*ngwín*	*pín*
SEQ	*pen*	*pen*	*pen*	*phen*	*ʔ*	*tí*	*ʔ*	*rʔ*	*pín*	*ngwín*	*pín*	*pín*

Table 28. The main stem-based classes of Chichimec.

5.3. Tone and inflection.

In general, compared to other Oto-Manguean languages, tone in Oto-Pamean does not play a major role in verbal inflection, but tonal alternations are nonetheless found in paradigms. In Pamean, they are restricted to a few verbs and they co-occur with the various stem patterns. This is illustrated in Table 29, where the focus is on the forms for the 2nd person as they all display the inverse tone of (most of) the forms for the 1st person. This marking mechanism is reminiscent of possession class I in Table 12.

	‘win’ (pattern 2 or 4)				‘work’ (subtype of pattern 5)				‘hurt’ (subtype of pattern 6)			
	1st	2nd	3SG/DU	3PL	1st	2nd	3SG/DU	3PL	1st	2nd	3SG/DU	3PL
PRS	*sá*	*sa*	*sá*	*tshá*	*tan*	*tán*	*tan*	*rhán*	*tsa*	*ʃa*	*tsa*	*tsha*
IMM.PST	*sá*	*sa*	*sá*	*tshá*	*tan*	*tán*	*tan*	*rhán*	*tsá*	*ʃa*	*tsá*	*tshá*
REC.PST	*sá*	*sa*	*sá*	*tshá*	*ndan*	*tán*	*rán*	*rhán*	*tsa*	*ʃa*	*za*	*tsha*
ANT.PST	*sá*	*sa*	*sá*	*tshá*	*tan*	*tán*	*rán*	*rhán*	*tsá*	*ʃa*	*zá*	*tshá*
FUT	*sá*	*sa*	*sá*	*tshá*	*tan*	*tán*	*rán*	*rhán*	*tsá*	*ʃa*	*za*	*tshá*
POT	*sá*	*sa*	*sá*	*tshá*	*tán*	*tán*	*tán*	*rhán*	*tsa*	*ʃa*	*tsa*	*tsha*
SEQ	*sá*	*sa*	*sá*	*tshá*	*tan*	*tán*	*tan*	*rhán*	*tsá*	*ʃa*	*tsá*	*tshá*

Table 29. Cases of 2nd person marking indicated by tone inversion in Chichimec.

A rare case of tone inversion has been reported in Acazulco Otomi by Hernández-Green (forthcoming) where it applies to stems of class I and II verbs for the building of a few specific tenses, for example the habitual realis. If the verb has a formative or the human antipassive *-te* or is a compound, the root receives a high tone. This is shown in (22) when compared with the lexical tone in the incompletive realis. If the verb has a monosyllabic root or has the enclitic *=tshe* ‘alone’, the root receives a low tone, as shown in (23).

(27)

INCPL.REALIS			HAB.REALIS		
ra=zo+ni	‘s/he's weeping’	/L/ > **/H/**	*an=zó+ni*	‘s/he weeps’
ra=hú+xi	‘s/he's whistling’	/H/ > **/H/**	*an=hí+xi*	‘s/he whistles’
ra=tsah-te	‘it's biting (people)’	/L/ > **/H/**	*an=tsáh-te*	‘it bites (people)’

	ra=nűh -te	‘s/he's seeing (people)’	/H/	>	**/H/**	*an=nűh -te*	‘s/he sees (people)’
	ra=tü-the	‘s/he's thirsty’ (die-water)	/L/	>	**/H/**	*an=tű-the*	‘s/he's often thirsty’
(28)	*ra=nű*	‘s/he's seeing it’	/H/	>	**/L/**	*an=nü*	‘s/he often sees it’
	ra=tsa	‘it's biting it’	/L/	>	**/L/**	*an=tsa*	‘it bites it’
	ra=hú+x=tshe	‘s/he's whistling alone’	/H/	>	**/L/**	*an=hu+x=tshe*	‘s/he whistles alone’
	ra=zo+n=tshe	‘s/he's weeping alone’	/L/	>	**/L/**	*an=zo+n=tshe*	‘s/he weeps alone’

Oto-Pamean inflectional tone is typologically atypical, and thus theoretically challenging for a number of reasons. For example, a specific tone value, whether it be a high or a low tone, is very rarely associated with a specific grammatical function; the only exception being the high tone marking 3rd person possessor in Otomi. Also, the tonal alternations in inflection involve some type of tone inversion. In Otomi, the inversion is contextual and depends on word structure. Finally, the distribution of tone is partly lexical and partly morphological. In the Otomi case, tone inversion is restricted to certain cells in the paradigm of a verb of a certain class. Once all conditions are met, it applies regularly. In Chichimec, however, all changes are lexically stored. Tone inversion does not have a clear-cut grammatical function in either system.

5.4. More about verbal inflection.

—*Deixis and motion*. Verbs in Oto-Pamean languages often inflect for deictic information. Otomi has again the most developed system. An example is given in Table 30.

	REALIS			IRR		
AMBUL	a	^{h}tagi	‘she falls all about the place’	–		
CISLOC	bá	^{h}tagi	‘she's coming and falling’	–		
PRF.TRANSLOC	xpán	tagi	‘she's just fallen away somewhere’	–		
PPRF.TRANSLOC	xkwá	tagi	‘she'd just fallen away somewhere’	–		
CPL.TRANSLOC	bwu	^{h}tagi	‘she fell away somewhere’	tu	tagi	‘she'll fall away somewhere’
ANDAT	ar	^{h}tagi	‘she passes by there and fall’	ti	tagi	‘she'll pass by over there and fall’
ADLAT		–		taga	tagi	‘she'll be going there and fall’

Table 30. Deictic paradigm of the verb for ‘fall’ in Tilapa Otomi.

—*Adverbial inflection*. The verbal inflection in Otomi-Mazahua includes formatives which have the function of registering a focused adverbial in the clause. This is shown in the contrast in (29), adapted from Stewart (1966: 131, 50). The morphosyntax of focus adverbials is restricted to a closed class with a few members; the one in (29c) does not require special inflection.

(29)	a. **ró**=ñá=gö	b. [naho] **rvá**=ñá=gö	c. [khá] **ró**=khwari=gö
MAZ	1.PST=speak=1	well 1.PST.ADV=speak=1	almost 1.PST=finish=1
	‘I spoke.’	‘I spoke well.’	‘I'm almost finished.’

Mazahua has three different sub-paradigms of adverbial inflection depending on three classes of adverbs. This is shown in Table 31.

		Basic	Adverbial					
			cl. I	cl.II	cl. III			
INCPL	1st	rí	rgá	rgá	rrí/rrú	cl. I	*na ho(’o)*	‘well’

	2nd	ín		gí	ní	ní		*na nihi*	‘fast’
	3rd	Ø		ga	ní	ní		*hamnch’a*	‘slowly’
CPL	1st	ró		rvá	rvá	rvá		*ts’ë ts’ë*	‘little by little’
	2nd	ín		ví	ví	ví		*ndahmetho*	‘in/for a while’
	3rd	ó		vá	vá	ví		*hã* (*c’o*)	‘how’
FUT	1st	rá		rga	rga	rga	cl.II	*ts’i*	‘early’
	2nd	rí		rgi	rgi	rgi	cl. III	*ya*	‘just’
	3rd	ra		rgá/rgí	rgí	rgí		*dya be*	‘still’
POT	1st	ri		rva	rva	rva		*ya xo*	‘also’
	2nd	ri		rvi	rvi	rvi			
	3rd	ri		rva	rva	rví			

Table 31. Adverbial inflection in Mazahua.

In Otomi languages, adverbial inflection registers a wider range of adverbial phrases including PPs, which may not be fronted to initial position (Hernández-Green 2015: 98).

(30) **dá**=k’ú^{h}ki=ga [**ko yá-m ts’í**]
ACA 1.CPL.GEN=tear[3.OBJ]=1 with DEM.PL-1POSS tooth
‘I tore it with my teeth.’

But when the construction involves an adverb, fronting is obligatory (Echegoyen & Voigtlander 2008: 4).

(31) maske [**asta nikheya**] dá=n=nü=wi ya (***asta nikheya**)
E.OTO but until next.year 1.IRR.ADV=MID=see=DU PTCL
‘But we won't see each other again until next year.’

Fronted wh-words and focus phrases trigger adverbial inflection when they have an adverbial meaning.

(32) a. [**’be=ʔa**] ge **ga**=tsi?
E.OTO what=DEM.SG FOC 1.IRR=ingest[3.OBJ]
‘What am I going to eat?’

b. [**’be=ʔa**] ge **dá**=xah=ma thä ya?
what=DEM.SG FOC 1.IRR**.ADV**=peel.corncob.AS[3.OBJ]=1POSS maize PTCL
Instrument: ‘With what shall I harvest my corn?’
Reason: ‘For what reason shall I harvest my corn?’ (E&V 2008: 320)

(33) a. [**ge=ʔa**] dí-m=män=ga=ʔa=ya
E.OTO FOC=DEM.SG 1.INCPL-INFL=say.AS[3.OBJ]=1EMPH=DEM.SG=PTCL
‘THAT is what I mean.’ (E&V 2008: 115)

b. [**ge=ʔa**] **g-dí**=pa’ma=kaphe
FOC=DEM.SG 2-IRR.ADV=heat.AS[3.OBJ]=coffee
Instrument: ‘IT'S WITH THAT you may heat coffee.’ (V&E 1985: 223)

c. [**ge=ʔa**] **í**-n=ha^{h}-te
FOC= DEM.SG 3.CPL.ADV-INFL=cheat-HUM.ANTIP

Manner: 'IT'S SO that he cheated.' (V&E 1985: 222)

Bare NPs as triggers of the focus construction only occur in Eastern Otomi. This is evidence that in this language the syntax of adverbial registration has been realized as the syntax of oblique applicatives. This is illustrated in (29), adapted from Voigtlander and Echegoyen (1985: 220, 306).

(34) a. [**ra** **'ye**] **na**=nte yu paxi
E.OTO SG rain 3.INCPL.ADV=grow PL plant
'WITH THE RAIN, plants are alive.'
'IT'S WITH RAIN that plants are alive.'

b. [**ra** **koni**] **í**=ts‹ʔ›ix=ra phani
SG hackberry.rope CPL.ADV=‹PASS›carry.AS[3.OBJ]=SG mule
'WITH A HACKBERRY ROPE, the mule was brought.'
'IT'S WITH HACKBERRY ROPE that the mule was brought.'

In Acazulco Otomi there are three different paradigms to register a focused adverbial phrase (also sensitive to the conjugation class of the verb in question). The basics of the system are given in Table 32, from Hernández-Green (2015: 409 ff). The locative paradigm is used with a focused locative phrase, the adverbial paradigm is used when a given adverbial phrase of manner, time or duration is in focus; and the general one is used for anything else (means, instrument, allative, ablative, etc.).

		LOC	ADVERBIAL				GENERAL			
			REALIS		IRR		REALIS		IRR	
Class			INCPL	CPL	CPL	PST	INCPL	CPL	CPL	PST
I	1st	dí	dra	dá	dá	ngá	drá	dá	dá	ngá
	2nd	gí	gru	gí	dí	ngí	grí	gí	dí	ngí
	3rd	bí/rá	ga	gá	ká	ngá	rí	í	dí	ngí
II	1st	dí	dradi	dádí	dádí	ngádí	drádí	dádí	dádí	ngádí
	2nd	gí	gradi	gádí	dádí	ngádí	grádí	gádí	dádí	ngádí
	3rd	bí/rá	ga	gá	ká	ngá	rá	á	dá	ngá
III	1st	dídi	dra	dá	dá	ngá	drá	dá	dá	ngá
	2nd	gídi	gru	gí	dí	ngí	grí	gí	dí	ngí
	3rd	bídi	gi	gí	kí	ngí	rí	í	dí	ngí

Table 32. Paradigms for adverbial registration in Acazulco Otomi.

Besides adverbial phrases in focus in a given clause, in Otomi discourse the adverbial participant to which this special inflection makes reference is commonly an established topic. This can be seen in (35) where the reference is anaphoric, or in (36) where it is cataphoric.

(35) 'neh=a mbaha g‹w›u=^{h}tyü=hu [**yo** **sku-za**],
TIL and=CL SS/go.PL.INCL ‹CISLOC›1.CPL.IRR=bring[3.OBJ]=PL.INCL two DIM-stick
para gu=^{h}ka'tsu=hu,
PURP 1.CPL.IRR=burn.AS[3.OBJ]=PL.INCL
para **gata-tu**=^{h}potu=hu
PURP 1.IRR.ADV-1=make.tortillas.AS=PL.INCL

‘And now we're going to bring two sticks to burn them, to make tortillas that way/with them.’

(36) ya **ná-m**=’bu̲h=t=’a na ra xitsu:
E.OTO PTCL 3.INCPL.ADV-INFL=live.AS=DEL=DEF.SG DEM.SG SG woman
[nge hingi zäm=mi n’da ra n’yohu̲]
that NEG [3.INCPL]persist.AS=DU one SG man
‘In that way lives this woman, in that she never stays with one man.’ (E&V 2008: 48)

5.5. Argument encoding.
We have already seen that information about the person of the subject is encoded by way of distinctions in the inflectional formatives. Object of 1st and 2nd person is encoded by means of person suffixes that, when affixed, generate a string of intricate morphophonological adjustments on both simple and complex stems. Object anaphora of a 3rd person is realized by a bare stem (or a zero suffix). Examples are given in Table 33 from Tilapa Otomi.

	‘pick up’	‘frighten’	‘pull out’
1OBJ	tsi+n-**gi**	^{h}pih-**ki**	khu̲y-**ġi**
2OBJ	tsi+n-**k’i**	^{h}pi?-**k’i**	khu̲y-**k’i**
3OBJ	tsi+ni-Ø	^{h}pi+di-Ø	khu̲h+ki-Ø

Table 33. Person marking of object in Tilapa Otomi.

In Atzincan, transitive verbs may receive benefactive applicative {-pi} where the beneficiary is encoded as the primary object. The case is illustrated in Table 34, adapted from Martínez-Ortega (2012). The table also shows that verbs change valence by changing inflectional class. A verb such as ‘wake up’ can be inflected both as intransitive or as transitive, but in different classes.

	‘wake up’		‘wake sb. up’		‘wake sb. up for sb.’	
1st	tu-nŭ	‘I wake up’	kitu-nŭ-**khɨ**	‘you wake me’	kitu-nŭ-**pi**-khɨ	‘you wake him for me’
2nd	ki-nŭ	‘you wake up’	tatu-nŭ-**k’ɨ**	‘I wake you’	tatu-nŭ-**pi**-k’ɨ	‘I wake him for you’
3rd	mu-nŭ	‘he wakes up’	ntu-nŭ-Ø	‘he wakes him’	ntu-nŭ-**pi**-Ø	‘he wakes him for him’

Table 34. Three related verbs in Tlahuica with increased valence.

The Atzincan applicative {-pi} comes from a pronominal marker of benefactive of the 3rd person which is still found in the other groups. In Otomi-Mazahua for example, transitive verbs become ditransitive by predictable stem changes; some are shown in Table 35. Hernández-Green (2015) proposes that in ditransitive constructions, recipient and benefactive arguments are treated by the syntax as primary objects in the conservative language of Acazulco Otomi, while in innovative languages like Northern Otomi, Palancar (2009) claims that the alignment is indirective.

	‘give.as.gift’		‘sell’		‘frighten’	
1OBJ	hwëy-ġi	give.as.gift-1OBJ	pa̲-gi	sell.tr-1OBJ	^{h}pih-ki	frighten.tr-1OBJ
2OBJ	hwëy-k’i	give.as.gift-2OBJ	pa̲-k’i	sell.tr-2OBJ	^{h}pi?-k’i	frighten.tr-2OBJ
3OBJ	hwëh+ki-Ø	give.as.gift[3OBJ]	pa̲-Ø	sell.tr[3OBJ]	^{h}pi+di-Ø	frighten.tr[3OBJ]
1DAT	hwëy-ġi	give.as.gift-1DAT	pa̲h-ki	sell.dtr-1DAT	^{h}pih+ti-ki	frighten.dtr-1DAT
2DAT	hwëy-k’i	give.as.gift-2DAT	pa̲?-k’i	sell.dtr-2DAT	^{h}pih+ti-k’i	frighten.dtr-2DAT
3DAT	hwëh+ki-bi	give.as.gift-3DAT	pa̲h-pi	sell.dtr-3DAT	^{h}pih+ti-bi	frighten.dtr-3DAT

Table 35. Object and dative marking of three verbs in Tilapa Otomi.

Oto-Pamean also has semantic alignment. In Pamean, it appears restricted to stative predication, but in Otomian it is fully fledged. The most sophisticated system is observed in Mazahua (Vargas-Bernal 2012) and in Northern Otomi with three classes of intransitive verbs: (i) a patientive class including inchoative verbs and all passive verbs, like in (37) from the variety of San Ildefonso Tultepec (other verbs include *no^{h}ki* 'get fat', *pat'i* 'get warm', *thengi* 'redden, blush', *tset'i* 'get cold', *tïts'i* 'get well', etc.); (ii) a patientive class including stative verbs (38) (e.g. *k'a* 'be wet', *kuhi* 'be tasty', *ʔi* 'be spicy', *ʔu* 'be painful', etc.); and (iii) an active class including all other intransitive verbs (39).

(37) a. hi=mí t'axk-ʔa=ʔi
N.OTO NEG=IMPF get.pale-2OBJ.AS=2OBJ
'You weren't pale.'

b. bi=ts‹ʔ›ix-ka=gi
CPL=‹PASS›take-1OBJ.AS=1OBJ
'I was taken.'

(38) hi=már n-t'axi=ʔi
N.OTO NEG=IMPF ST-be.white=2OBJ
'You weren't pale-skined.'

(39) hi=ngí tagi
N.OTO NEG=2.IMPF fall
'You weren't falling.'

6. Final remarks.

Being geographically isolated in Central Mexico, the Oto-Pamean languages are notably different in spirit from the rest of the Oto-Manguean languages, which are mostly spoken in the southern states of Oaxaca and Guerrero. They have completely renovated the old verbal inflectional system by making it fully periphrastic. This system is at a cross roads in Otomian, while it has become synthetic again in Pamean. The nominal class system is among the most developed one in the phylum and its correlations with the marking of number and possession are unique. The Oto-Pamean languages are also languages with a plural and a dual number in both verbs and nouns (except for Otomi-Mazahua where nominal dual has been lost – for more details see Palancar 2013a). Such a number system is not common in Mesoamerica. Number agreement on verbs is also used in interesting ways not observed elsewhere. For example, in Otomian one finds a rare conjunctional strategy to express comitative semantics that is based on having a split subject by way of two NPs occupying two different positions in the clause with a verb that agrees in number with them as a totality.[10] This is illustrated by Eastern Otomi in (40), from the variety of Santa Ana Hueytlalpan, where the topical NPs occur thematized to the front of the clause (Palancar 2012: 267).

(40) [ma mbe] nuya bá=n-tsi-hme=**wi** [a mbahä]

[10] As a way to get to grips with the intricate syntax of the construction, some authors like Ecker (1952) and Hess (1968) concluded that the marker of dual worked as a comitative applicative, when in reality it is just a morpho-syntactic token to indicate that the verb has a dual or a plural subject.

ANA 1POSS mother today 3.CPL.TRANSLOC=MID-ingest-tortilla=DU DEF.SG priest
'My mother had lunch today with the priest.'

But despite their idiosyncrasies, the Oto-Pamean languages remain clearly Oto-Manguean. This can be seen in the fact that they are tonal, have intricate inflectional morphologies and unproductive derivational morphologies, and have a tendency towards juxtaposition as a syntactic device for clause combining and linking.

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Abbreviations

				Languages	
ABS	absolute	MID	middle	ACA	Acazulco Otomi
ADLAT	adlative	MOT	motion	ANA	Santa Ana Otomi
ADV	adverbial	NMLZ	nominalization	C.PAM	Central Pame
ANT	anterior	POSS	possessive	CHI	Chichimec
AS	adjusted stem	PPRF	plu-perfect	E.OTO	Eastern Otomi
CL	final phrase clitic	PRF	perfect	MATL	Matlatzinca
cl.	class	PST	past	MAZ	Mazahua
CPL	completive	R	realis	N.PAM	Northern Pame
GEN	general adverbial	REC	recent	N.OTO	Northern Otomi
IMM	immediate	SEQ	sequential	TIL	Tilapa Otomi
IMPF	imperfect	SS	secondary stem	TLA	Tlahuica
INFL	inflectional morpheme	ST	stative		
inv.	invariable	ST	stative		
IRR	irrealis	TRANSLOC	translocative		

Acknowledgements:
This research was partially supported by the ESRC/AHRC project RES-062-23-3126 “Endangered complexity: Inflectional classes in Oto-Manguean languages”. I wish to thank Søren Wichmann for inviting me to participate in this handbook. A version of this chapter was presented at the conference titled **“**State of the art in Mesoamerican Linguistics” celebrated at the Max Planck Institute for Evolutionary Anthropology in Leipzig in December 2014. I want to thank the conference participants for valuable comments received after the talk during breaks and especially to Roberto Zavala and Claudine Chamoreau for useful exchanges about the Oto-Pamean languages. I am very grateful to Tim Feist for his insightful comments and for proof-reading my English. All errors and deficiencies remain my responsibility.