

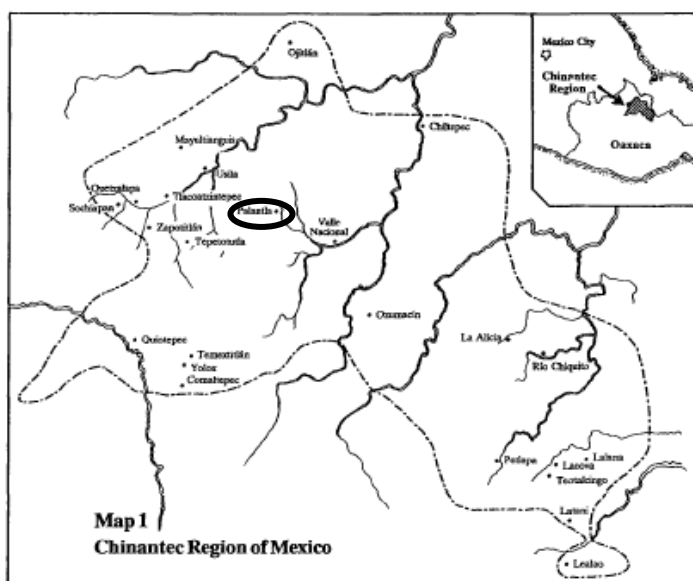
# Revisiting the complexity of the Chinantecan verb conjugation classes

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## 1. Introduction.<sup>1</sup>

Chinantecan is a Mesoamerican language family of the Oto-Manguean stock that comprises fourteen different languages spoken to the north of the state of Oaxaca, in Southern Mexico. The verb inflectional classes of Chinantecan languages have become a matter of interest for morphological theory because of their puzzling internal diversity and morphological abundance (see Finkel & Stump 2009, Stump & Finkel 2007). Foundational in the treatment of such classes is the approach by Merrifield (1968) of Palantla Chinantec, now called Tlapeuzco Chinantec (henceforth TCh), who proposes the existence of 89 different inflectional classes or conjugation classes. Map 1 comes from Merrifield and Rensch (1990: vi) and represents the geographical area where the Chinantecan languages are spoken. The map includes the identification of San Juan Palantla, where most of the linguistic community of San Pedro Tlapeuzco migrated after the 1928 storm which destroyed their original village.



Map 1. The Chinantecan languages of Mexico

In this paper, I study the inflectional properties of verbs in TCh in detail from a sample of 790 verbs collected from Merrifield and Anderson (2007). I analyze the interaction of inflectional exponents of grammatical person in creating the contrasts that build the different conjugation

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classes. Taking this perspective favors the observation of valuable generalizations of the inflectional system as first described in Merrifield (1968).

In the paper, I introduce the novel concept of an ‘inflectional series’, which I take to be an invariant set of prosodic exponents involved in the making of the principal stems of a Chinantecan verb. I take inflectional series to play an important role in the overall design of the verbal inflection of TCh. Using this unit as an organizing principle, I propose that the verbs of TCh fall into four different conjugation types, which I call ‘conjugation patterns’, which represent inflectional templates of verbs attending to the way grammatical person is realized.

Verbs of conjugation pattern 1 are uninflected, but all other verbs fall into different conjugation classes. The conjugation classes of TCh are typologically interesting because they are structured in complex ways. As I see it, much of this complexity lies in the way third person is encoded with respect to other grammatical persons. The other grammatical persons relevant for the grammar of TCh are: a non-third person, on the one hand, and the first person singular, the second person and the first person plural, on the other.

For TCh, I propose that the ways the third person is realized are independent from the ways involved in the expression of other grammatical persons. For example, it is the case that the forms that realize a third person value for verbs of patterns 3 and 4 are also found in verbs of patterns 1 and 2, but they do not realize person. I take this to mean that the forms that realize a third person value for some verbs acquire this function only by virtue of the existence of other forms in the paradigm of the same verbs which genuinely realize other grammatical persons.

One of the crucial points about the conjugation classes of TCh is the following: verbs that belong to patterns 3 or 4 belong simultaneously to patterns 1 or 2 for the purpose of realizing the third person. This simultaneous membership has consequences for the way conjugation classes are structured in the language. As an illustration, consider the following scenario.

Verbs of pattern 2 belong to ten conjugation classes, as presented in §5.2. In this view, when a verb of patterns 3 or 4 belongs to pattern 2 for the encoding of the third person, such a verb simultaneously belongs to one of the ten conjugations of pattern 2. In reality, such verbs only belong to six of those ten classes. Verbs of pattern 3 fall into six other classes themselves presented in §5.3, and those of pattern 4 into 29, given in §5.4. Consequently, a verb can belong simultaneously to different inflectional classes.

On the other hand, verbal lexemes in TCh need to store information about this simultaneous membership, i.e. lexeme  $x$  belongs to class  $A$  for the encoding of the third person but to class  $\alpha$  for the encoding of other persons; but lexeme  $y$  also belongs to class  $A$  for the third person but to class  $\beta$  for other persons; while lexeme  $z$  belongs to class  $B$  for the third person, but to class  $\beta$  for other persons, and so on and so forth. These different combinations need to be stored as inflectional properties of lexemes. But as some lexemes have the same type of membership, i.e. a given lexeme  $xx$  may select the same inflectional exponents like lexeme  $y$ , the lexemes in question also gather in classes, but at a more abstract level. I call such classes ‘superordinate inflectional classes’ and constitute a unique morphological property of TCh.

The possible permutations resulting from combining the classes for the third person with those of other persons are incredibly numerous. The numbers are increased further by adding verbs which select an uninflected form for the third person, that is, verbs which simultaneously belong to pattern 1 for the encoding of the third person, but to other classes

for the rest of the persons. Such a scenario is responsible for the high degree of apparent irregularity of the inflectional system of a Chinantecan language. For example, for verbs of pattern 3 we could obtain up to 66 different such combinations (6 classes of pattern 3 x 11 possibilities for the encoding of the third person (10 classes of pattern 2, plus the uninflected form proper of pattern 1), whereas for the verbs of pattern 4, the combinations would amount to 319, resulting into 385 hypothetically possible superordinate inflectional classes!

In reality not all combinations are allowed, suggesting there is some internal structure that constrains the system. In a sample of 790 verbs, we find that only 58 such permutations are allowed (i.e. there are only 58 superordinate inflectional classes), and while 25 such pairings are instantiated by one lexeme in each case, there are also combinations which are instantiated by dozens of lexemes, suggesting the existence of defaults in the choice of inflections.

To show all this, the paper is structured as follows. In the next section, I present an introduction to the verb types that exist in Chinantecan languages as well as to their most representative features of their inflection. In section 3, I introduce the traditional way the conjugation classes of Chinantecan languages have been characterized and I show how Merrifield and Anderson (2007) (henceforth M&A) argue that there are 89 inflectional classes in TCh. An alternative view of such classes is needed to allow for a better perspective on the generalizations of the system. This is provided in section 4, and it is implemented in section 5. The paper concludes in section 6 with a summary and a review of the proposal.

## 2. Verb types in the Chinantecan languages.

In the Chinantecan languages, there are two main types of verbs: stative verbs and dynamic verbs (also called ‘active verbs’). While the inflection of stative verbs remains poorly understood to date and for that reason they will be left out in this paper, we know more of the inflectional properties of dynamic verbs. Dynamic verbs fall into two types: (i) simple verbs as in (1a), which consist of a mono-morphemic and (mostly) monosyllabic root, and (ii) bi-partite verbs (also called ‘binomial’) given in (1b), which originated from old V+V compounds, and are thus disyllabic and consist of two morphs. Additionally, bi-partite verbs have a number of inflectional idiosyncrasies of their own (see appendix 1 for more details).<sup>2</sup>

- (1) a. *júh*<sup>12</sup> (tr) ‘bend’; *hlianh*<sup>12</sup> (tr an) ‘push’; *gøi*<sup>2</sup> (intr) ‘break down’, etc.  
b. *u*<sup>2</sup>+*hai*<sup>12</sup> (intr an) ‘go out’; *guu*<sup>2</sup>+*dsén*<sup>13</sup> (tr an) ‘ride’; *mi*<sup>2</sup>+*lei*<sup>13</sup> (tr) ‘show’; etc.

The inflection of dynamic verbs can be complex. Maximally inflected verbs have a number of stems or bases, as in (2).

- (2) - Present stem (or progressive stem)  
- Future stem (or intentive stem)  
- Completive stem (or past stem)  
- Directive stem (or ambulative stem)  
- Round-trip stem (or andative-venitive stem)  
- Imperative stem  
- Other stems: hodiernal, evidential, injunctive, and prohibitive

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<sup>2</sup> Abbreviations: C completive stem; CLF nominal classifier; *dtr an* ditransitive with animate (theme) object; *dtr* ditransitive with inanimate (theme) object; F future stem; *intr an* intransitive with animate subject; *intr* intransitive with inanimate subject; P past stem; PST past; *tr an* transitive with animate object; *tr* transitive with inanimate object.

Such stems are built on a base to which tone and pharyngealization are added as inflectional exponents.<sup>3</sup> Such exponents also commonly realize grammatical person; the maximal person distinction involves four persons: 1sg, 1pl, 2 and 3. An example of the paradigm of a maximally inflected verb appears in (3) with the paradigm of the verb *júh<sup>2</sup>* (tr) ‘bend’ from TCh (Merrifield and Anderson 2007) (henceforth M&A). The cell in shading {3, present stem} is used as the citation form for the lexeme. In the presentation of the paradigm, I include the cells for the third person first because it provides a convenient way to reflect important properties of the structure of verbal inflection, as will become clear.

(3) TCh *júh<sup>2</sup>* (tr) ‘bend’

	3	1sg	2	1pl
Present stem	<i>júh<sup>2</sup></i>	<i>júh<sup>12</sup></i>	<i>júh<sup>12</sup></i>	<i>júh<sup>12</sup></i>
Future stem	<i>júh<sup>2</sup></i>	<i>júh<sup>13</sup></i>	<i>júh<sup>13</sup></i>	<i>júh<sup>13</sup></i>
Completive stem	<i>júh<sup>2</sup></i>	<i>júh<sup>1</sup></i>	<i>júh<sup>1</sup></i>	<i>júh<sup>13</sup></i>
Directive stem	<i>júh<sup>1</sup></i>	<i>júh<sup>1</sup></i>	<i>júh<sup>1</sup></i>	<i>júh<sup>13</sup></i>
Round-trip stem	<i>júh<sup>13</sup></i>	<i>júh<sup>13</sup></i>	<i>júh<sup>13</sup></i>	<i>júh<sup>13</sup></i>
Imperative stem			<i>júh<sup>1</sup></i>	

The different grammatical tenses are built by adding TAM prefixes (at times also in the form of prefix series and proclitics) to the different stems. An illustration is given in (4). It may be noted that present and future are tense values realized by the bare stem. The examples in (4) are given for the first person singular of the verb *júh<sup>2</sup>* (tr) ‘bend’, the enclitic =*jni* is an obligatory subject agreement marker for the first person singular.

(4)

Tense:	Prefix:	Stem:	Example:	
<i>present</i>	-	Present stem	<i>júh<sup>12</sup></i> = <i>jni</i>	‘I’m bending’
<i>imperfect</i>	<i>mi<sup>3</sup></i> -	Present stem	<i>mi<sup>3</sup></i> - <i>júh<sup>12</sup></i> = <i>jni</i>	‘I was bending’
<i>future</i>	-	Future stem	<i>júh<sup>13</sup></i> = <i>jni</i>	‘I’ll bend’
<i>potential</i>	<i>mi<sup>3</sup></i> -	Future stem	<i>mi<sup>3</sup></i> - <i>júh<sup>13</sup></i> = <i>jni</i>	‘I’d bend’
<i>past</i>	<i>ca<sup>1</sup></i> -	Completive stem	<i>ca<sup>1</sup></i> - <i>júh<sup>1</sup></i> = <i>jni</i>	‘I bent’
<i>hodiernal</i>	<i>na<sup>2</sup></i> -	Completive stem	<i>na<sup>2</sup></i> - <i>júh<sup>1</sup></i> = <i>jni</i>	‘I’ve bent (today)’

Starting from Merrifield (1968), the existing descriptive tradition of Chinantecan languages from the SIL suggests that the entire paradigm of a verb is retrievable from the inflectional information provided by only 12 cells, given in shading in (5). In this light, other cells in the paradigm are predictable from these 12 cells by rules of referral (except the stems for the third person, of which little, if nothing at all, is added in the sources).

(5)

	3	1sg	2	1pl
Present stem	X	X	X	X
Future stem	X	X	X	X
Completive stem	X	X	X	Use future stem
Directive stem	X?	Use completive stem	Use completive stem	Use future stem
Round-trip stem	X?	Use future stem	Use future stem	Use future stem
Imperative stem			Use completive stem	

<sup>3</sup> Stems may undergo palatization, apophony and consonant mutation and may also realize gender agreement, inversion, passive, and applicative morphology.

The 12 principal cells are made up of a combination of prosodic exponents as illustrated in (6) for the principal parts of the verb *júh<sup>2</sup>* (tr) ‘bend’. The language has six tones, but only five of them have a morphological function: three of them are level tones (3 is high, 2 is middle and 1 is low) and two are ascending tones (12 is low to middle and 13 is low to high). Additionally, notice that in the principal cells in (6) there is a high degree of syncretism.

(6) <i>júh<sup>2</sup></i> (tr) ‘bend’	3	1sg	2	1pl
Present stem	2	12	12	12
Future stem	2	13	13	13
Completive stem	2	1	1	13

Apart from tone, there is another phenomenon that plays an important role in the making of inflectional paradigms in Chinantecan languages. M&A and other SIL linguists posit that syllables in Chinantecan languages have two stress types: “controlled stress” vs. “ballistic stress”. A characterization of these stress types is found in Foris (2000: 16, but also in other authors such as Rench 1978, among others): “Ballistic syllables are characterized by an initial surge and rapid decay of intensity, with a resulting fortis articulation of the consonantal onset. [...] Controlled syllables generally display a more gradual surge and decay of stress, as well as a longer duration of the maximum stress.”

In contrast to this received view, ballistic stress has also been characterized as a reflection of laryngeal phonation either by an increased sub-glottal pressure in Mugele (1982) or by a laryngeal abduction in Silverman (1994).<sup>4</sup> M&A indicate ballistic stress by means of an acute stress vowel. In the paradigms, two phenomena may occur involving ballistic stress. One is its implementation in a lexical stem which otherwise would not have it in the lexical representation of the lexeme. Another is its removal in stems that would naturally have it in the lexical representation. The implementation is indicated here by the plus sign (+), its removal with the subtraction sign (-).

With this in mind, and following M&A's analysis, there are 11 prosodic exponence rules that play a role in the making of a verbal paradigm in TCh. These are spelled out in (7).

- (7)
- 1* [add low tone]
  - + *1* [add ballistic stress (if pertinent) & add low tone]
  - 2* [add middle tone]
  - + *2* [add ballistic stress (if pertinent) & add middle tone]
  - *2* [remove ballistic stress (if pertinent) & add middle tone]
  - 3* [add high tone]
  - + *3* [add ballistic stress (if pertinent) & add high tone]
  - *3* [remove ballistic stress (if pertinent) & add high tone]
  - 12* [add ascending tone to middle tone]
  - *12* [remove ballistic stress (if pertinent) & add ascending tone to middle tone]
  - 13* [add ascending tone to high tone]

In (8), I give the overall distribution of the prosodic exponents in (7) from a sample of the 182 verbs of M&A that have contrastive (non-syncretic) person marking for all grammatical persons, (P stands for ‘present stem’, F for ‘future stem’, and C for ‘completive stem’). The total is of 2,184 inflected forms, i.e. 546 forms inflected for each grammatical person per verb.

<sup>4</sup> I want to thank Daniel Silverman (p.c.) for pointing this to me.

(8)	3				1sg				2				1pl			
	P	F	C	Tot	P	F	C	Tot	P	F	C	Tot	P	F	C	Tot
<i>1</i>		135	121	256		3		3			132	132				
<i>+1</i>						18		18								
<i>2</i>	4	3		7	119	42		161	1	1	1	3	114			114
<i>+2</i>	32	32	45	109	18			18	48		48	96				
<i>-2</i>	4		4	8												
<i>3</i>													92	92		184
<i>+3</i>							137	137		48		48		15		15
<i>-3</i>					2	76	2	80					1	1	16	18
<i>12</i>	141	11	11	163	43	18	43	104	133	1	1	135	66	1		67
<i>-12</i>						10		10								
<i>13</i>	1	1	1	3		15		15		132		132	1	73	74	148
	182	182	182	546	182	182	182	546	182	182	182	546	182	182	182	546

As (8) shows, the prosodic exponents {1}, {+2} and {12} appear to be defaults in the realization of third person. However, these are also involved in the realization of the second person in addition to {+3} and {13}. In general, although there are tendencies across the board, most prosodic exponents are involved in the realization of more than one grammatical person, with the exception of {3}, which just realizes first person plural.

The distribution of the prosodic exponents in the realization of the three principal stems is given in (9). Here we observe that there is a tendency to keep the present and the future stems as maximally distinct formally. The figures in (9) are calculated from a total of 728 inflected forms for each stem (e.g. 182 present stems inflected for the four persons = 728 forms).

(9)	P	F	C
<i>12</i>	383	31	55
<i>2</i>	238	46	1
<i>+2</i>	98	32	93
<i>13</i>	2	221	75
<i>1</i>	-	138	253
<i>3</i>	-	92	92
<i>+3</i>	-	63	137
<i>-3</i>	3	77	18
<i>+1</i>	-	18	-
<i>-12</i>	-	10	-
<i>-2</i>	4	-	4
	728	728	728

In this section, I have shown that there are 11 different prosodic exponents involved in the realization of the principal 12 cells of the paradigm of a maximally inflected verb in TCh. Some exponents are used more than others in the realization of person, and there is a clear contrast or preference for those involved in the realization of TAM values in the three stems, i.e., ascending {12} and middle tone are mainly involved in the realization of the present stem, while ascending {13}, low tone {1} and high tone are mainly involved in the realization of either the future stem or the completive stem.

### 3. Conjugation classes in TCh: The traditional view.

As they select different inflectional exponents for their inflection, dynamic verbs (simple and bi-partite) fall into different conjugation classes.<sup>5</sup> This is illustrated if we compare the exponents involved in the principal cells for the paradigms of the two verbs *júh*<sup>2</sup> (tr) ‘bend’ and *tiu*<sup>12</sup> (tr) ‘cut’ in (10).

(10)		3	1sg	2	1pl
<i>júh</i> <sup>2</sup> (tr) ‘bend’	Present stem	<i>júh</i> <sup>2</sup>	<i>júh</i> <sup>12</sup>	<i>júh</i> <sup>12</sup>	<i>júh</i> <sup>12</sup>
	Future stem	<i>júh</i> <sup>2</sup>	<i>júh</i> <sup>13</sup>	<i>júh</i> <sup>13</sup>	<i>júh</i> <sup>13</sup>
	Completive stem	<i>júh</i> <sup>2</sup>	<i>júh</i> <sup>1</sup>	<i>júh</i> <sup>1</sup>	<i>júh</i> <sup>13</sup>
<i>tiu</i> <sup>12</sup> (tr) ‘cut’	Present stem	<i>tiu</i> <sup>12</sup>	<i>tiu</i> <sup>12</sup>	<i>tiu</i> <sup>2</sup>	<i>tiu</i> <sup>2</sup>
	Future stem	<i>tiu</i> <sup>1</sup>	<i>tiu</i> <sup>13</sup>	<i>tiu</i> <sup>3</sup>	<i>tiu</i> <sup>3</sup>
	Completive stem	<i>tiu</i> <sup>1</sup>	<i>tiu</i> <sup>1</sup>	<i>tiu</i> <sup>32</sup>	<i>tiu</i> <sup>3</sup>

The inflectional exponents involved in the paradigm of these two verbs are given in (11). The class to which the verb *júh*<sup>2</sup> (tr) ‘bend’ belongs requires a middle tone and ballistic stress for the third person. However, this is not obvious in (10) above because the verb in question has an inherent ballistic stress in its lexical representation. Similarly, the class to which the verb *tiu*<sup>12</sup> (tr) ‘cut’ belongs requires removal of ballistic stress for the completive stem and the second person, but as this verb is not taken to have ballistic stress in its lexical representation.

(11)		3	1sg	2	1pl
The <i>júh</i> <sup>2</sup> class	Present stem	+2	12	12	12
	Future stem	+2	13	13	13
	Completive stem	+2	1	1	13
The <i>tiu</i> <sup>12</sup> class	Present stem	12	12	2	2
	Future stem	1	13	+3	3
	Completive stem	1	1	-3	3

The class to which *júh*<sup>2</sup> (tr) ‘bend’ belongs contains 94 verbs in M&A's dictionary; the one to which *tiu*<sup>12</sup> (tr) ‘cut’ belongs has 66 verbs. There are many other classes. Fundamentally, M&A's (2007) analysis of the conjugation classes of TCh rests on the concept of a ‘triplet’, which can be defined as in (12).

(12) **Triplet.** An invariant set of prosodic exponents involved in the making of the three principal stems for a specific grammatical person.

There are nine different triplets which are involved in the realization of the third person, given in (13).

(13)	Examples of triplets of the 3 <sup>rd</sup> person								
	1	2	3	4	5	6	7	8	9
Present stem	12	12	12	+2	-2	2	13	2	-3
Future stem	1	1	12	+2	1	2	13	1	-3
Completive stem	1	+2	12	+2	-2	1	13	1	-3

<sup>5</sup> Aronoff (1994: 64) defines an inflectional class as “a set of lexemes whose members each select the same set of inflectional realizations”.

M&A classify verbs in four different groups according to the quantity of triplet types they require: **group A** verbs require four triplets (each triplet is used for the four grammatical persons: 1sg, 1pl, 2 and 3); **group B** verbs require two triplets (one is used to encode the third person; the other one for all other persons (i.e. a non-third person)); and **group C** verbs require only one triplet for all persons (i.e., there is no person distinction).<sup>6</sup> Next, I will be presenting the inflection of such groups separately.

**3.1. Group A verbs.** M&A (2007: 692) propose that group A verbs inflect for grammatical person by selecting one among a set of nine different triplets for each person.

(14)

		3 <sup>rd</sup> person for group A								
		1	2	3	4	5	6	7	8	9
Present stem		12	12	12	+2	-2	2	13	2	-3
Future stem		1	1	12	+2	1	2	13	1	-3
Completive stem		1	+2	12	+2	-2	1	13	1	-3

(15)

		2 <sup>nd</sup> person for group A								
		1	2	3	4	5	6	7	8	9
Present stem		12	2	2	12	12	+2	2	12	-3
Future stem		13	+3	+3	13	13	+3	+3	13	-3
Completive stem		1	2	-3	13	12	+1	-12	-3	-3

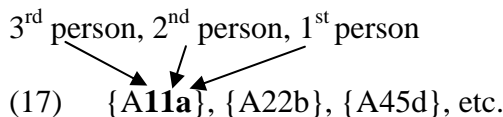
(16)

		1 <sup>st</sup> person (sg & pl) for group A									
		a		b		c		d		e	
		1sg	1pl	1sg	1pl	1sg	1pl	1sg	1pl	1sg	1pl
Present stem		12	12	12	2	+2	12	+2	2	+2	2
Future stem		13	13	13	3	+3	13	+3	+3	+3	13
Completive stem		1	13	1	3	+2	13	+2	+3	+2	13

		f		g		h		i	
		1sg	1pl	1sg	1pl	1sg	1pl	1sg	1pl
Present stem		-3	13	2	-3	12	13	-3	12
Future stem		-3	13	2	-3	12	13	-3	13
Completive stem		-3	13	2	-3	12	13	-3	13

The conjugation class to which a given verb belongs to is indicated in M&A's dictionary by a combination of the alphanumeric characters given to the triplets in (14-16), as shown in (17).



For example, the classes to which the verbs *júh<sup>2</sup>* (tr) ‘bend’ and *tiu<sup>12</sup>* (tr) ‘cut’ in (10) belong are described as being {A41a} and {A13b}, respectively. This notation attends to the different triplets they require for their inflection. This should be clear if the principal cells in (11) are checked out against the charts in (14-16). The total number of possible permutations in (14-

<sup>6</sup> M&A also identify a group of verbs they call ‘group D’ but the verbs in such a group are all intransitive verbs that belong to group C but have an inanimate argument, and for this reason they only inflect for the third person.



16) is 721, but in reality, the grammar of the language only allows 55 such possibilities (i.e. 55 conjugation classes). The combinations are listed in (18), from M&A (692-693).

- (18) {A11a} {A14a} {A16f} {A21a} {A32f} {A42e} {A46e} {A56a}  
 {A12a} {A15a} {A17a} {A22b} {A33h} {A42f} {A47a} {A61a}  
 {A12b} {A15d} {A17e} {A23b} {A34a} {A43b} {A48} {A65a}  
 {A12d} {A15f} {A18a} {A27a} {A35a} {A44a} {A49b} {A79i}  
 {A13a} {A16b} {A18d} {A31a} {A41a} {A45a} {A51b} {A82b}  
 {A13b} {A16d} {A19g} {A32d} {A42b} {A45d} {A51e} {A99g}  
 {A13f} {A16e} {A19j} {A32e} {A42d} {A46d} {A51f}

These 55 classes are not equally populated by the same number of verbs. M&A report that 75% of the verbs of group A belong to 15 such classes. This implies that a quarter of group A verbs is distributed across 40 minor classes.

**3.2. Groups B and C verbs:** The inflection of verbs of groups B and C are described in a similar way, (M&A: 695, 696).

(19)

	3 <sup>rd</sup> person for group B								
	1	2	3	4	5	6	7	8	9
Present stem	12	12	12	+2	-2	12	13	2	1
Future stem	1	1	12	+2	1	2	13	1	1
Completive stem	1	+2	12	+2	-2	1	13	1	1

(20)

	non-3 <sup>rd</sup> person for group B					
	a	b	c	f	g	h
Present stem	12	2	12	1	13	-3
Future stem	13	+3	13	1	13	-3
Completive stem	1	2	13	1	13	-3

Again, the possible permutations for the verbs of group B sum up to 54, but in reality only the 19 classes in (21) are allowed in the language, (M&A 2007: 696).

- (21) {B1f} {B3g} {B6a}  
 {B1g} {B3h} {B7h}  
 {B1h} {B4b} {B8h}  
 {B2h} {B4g} {B9g}  
 {B3a} {B4h} {B9h}  
 {B3b} {B5b}  
 {B3c} {B5h}

Finally, verbs of group C have the 15 conjugation classes in (22).

(22)

	All persons for group C														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Present stem	12	12	12	+2	-2	12	13	2	1	12	2	2	-3	-3	12
Future stem	1	1	12	+2	1	2	13	1	1	13	13	2	-3	1	1
Completive stem	1	+2	12	+2	-2	1	13	1	1	1	1	1	-3	-3	12

All conjugation classes put together sum up to a total of 89 (55 of group A, 19 of group B and 15 of group C). M&A (2007: 691) actually propose 103 because they consider the 14 different

classes of verbs of group D, but in reality these are just verbs of group C, although with an inanimate subject.<sup>7</sup>

The notation used by M&A for conjugation classes has pedagogical advantages, but it has serious shortcomings for the linguist interested in perceiving grammatical generalizations because it obscures the perception of encoding similarities across the classes. For example, the notation veils the way similar exponents are employed in the realization of the different persons. As an illustration, consider for example ‘triplet 1’ in (15) for the second person, and notice that it has the same exponents as ‘triplet *a*’ in (16) for the first person singular. This points to the possible existence of syncretism between these two grammatical persons, but interestingly, the same exponents also occur in ‘triplet *a*’ in (20), and this time they realize a ‘non-third person’, and even in ‘triplet 10’ in (22) when they do not realize person at all. All this is terribly confusing and an alternative view is helpful to shed light on how the inflectional classes are constructed. In the next section, I propose one such alternative view using a morphological ontology I call ‘inflectional series’.

#### **4. Inflectional series as an alternative view to the conjugation classes of TCh.**

I will follow M&A's tenet that the triplets have an important bearing in the shaping of the inflectional paradigms in TCh and not just the prosodic exponents by themselves. However, I hold an alternative view of their data and propose treating each different triplet as a different and mutually exclusive unit, which I call ‘inflectional series’, defined as in (23).

(23) **Inflectional series.** An invariant set of prosodic exponents involved in the making of the three principal stems, e.g. {12, 1, 1}, {-2, 1, -2}, {12, 2, 1}, etc.

There are 24 such inflectional series, given in (24) arranged according to their distribution in the encoding of grammatical person. Five of these inflectional series involve the same prosodic exponent for all stems, i.e. there is no stem distinction, e.g. {+2}.

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<sup>7</sup> Triplet 11 in (22) is apparently the only one not employed in the inflection of an intransitive inanimate verb, but this may be due to chance.

(24)	P	F	C	No person	3	non-3	1sg	1sg+2	2	1pl
I		<b>+2</b>		17.6%	35.7%		0.6%			
II		<b>12</b>		7.9%	7.3%		0.6%			
III		<b>1</b>		6.5%	4.6%	0.4%				
IV		<b>13</b>		4.3%	0.4%					1.3%
V		<b>-3</b>		2.3%	0.2%	96.3%		3.9%	1.4%	0.5%
1	<b>12</b>	<b>1</b>	<b>1</b>	28.3%	43%					
2	<b>-2</b>	<b>1</b>	<b>-2</b>	15.2%	3.4%					
3	<b>12</b>	<b>1</b>	<b>+2</b>	1.6%	3.6%					
4	<b>2</b>	<b>1</b>	<b>1</b>	4.6%	0.6%					
5	<b>12</b>	<b>13</b>	<b>1</b>	4.3%		0.9%	72.5%	96.1%	1.6%	
6	<b>2</b>	<b>2</b>	<b>1</b>	3.2%	0.8%					
7	<b>-3</b>	<b>1</b>	<b>-3</b>	1.6%						
8	<b>12</b>	<b>2</b>	<b>1</b>	1.3%	0.2%					
9	<b>12</b>	<b>1</b>	<b>12</b>	1.0%						
10	<b>2</b>	<b>13</b>	<b>1</b>	0.3%						
A	<b>2</b>	<b>+3</b>	<b>-3</b>						37.0%	5.2%
B	<b>2</b>	<b>+3</b>	<b>2</b>			2%			23%	
C	<b>+2</b>	<b>+3</b>	<b>+1</b>						9.8%	
D	<b>12</b>	<b>13</b>	<b>13</b>			0.4%			8.2%	54.7%
E	<b>12</b>	<b>13</b>	<b>12</b>						9.8%	
F	<b>2</b>	<b>+3</b>	<b>-12</b>						5.4%	
G	<b>12</b>	<b>13</b>	<b>-3</b>						3.8%	
a	<b>+2</b>	<b>+3</b>	<b>+2</b>				26.3%			
b	<b>2</b>	<b>+3</b>	<b>+3</b>							35.9%
c	<b>2</b>	<b>13</b>	<b>13</b>							2.4%

The inflectional series in (24) appear in four different alphanumeric notations. The different notations are meant as mnemonic indexes to the following criteria:

- Numbers, whether Roman (I-V) or Arabic (1-10), indicate series which realize the third person.
  - Roman numbers indicate series with no TAM distinction.
  - Arabic numbers indicate a series that has a TAM distinction in at least two stems.
- Letters, whether capital (A-G) or lower case (a-c), indicate that the series are NOT used for the third person.
  - Capitals indicate series used ‘mainly’ for the second person.
  - Lower case letters indicate series used for the first person only.

With this in mind, I present next the results of an analysis of the conjugation classes of TCh based on the implementation of the inflectional series in (24). The study in question is based on a sample of 760 verbs from M&A, but first a word about the sample is in order.

M&A (2007: 684) report that the TCh dictionary contains 912 entries of dynamic verbs with enough inflectional information to discern their class membership. From my experience, this is not entirely true. Of these 912 verbs, I have only been able to find 906: 748 simple verbs plus 158 bi-partite verbs. The sample on which I base this study consists of 790 dynamic verbs. This means that I have not included a total of 122 other verbs found in the dictionary. This is due to the following reasons: (i) 14 verbs are treated as irregular and no further class

information is given about them; (ii) 13 verbs are ambivalent about class membership, i.e., they can select the inflectional realizations of other classes for certain cells but not for all;<sup>8</sup> and (iii) 89 verb entries in M&A are not entirely independent lexemes. Although the verbs are treated by M&A (p. 690) as ‘objectless transitive verbs’, Foris (2000) advances a superior analysis of their counterparts in Sochiapam Chinantec as being inverse forms. In this way, for example, the verbal form *dsei*<sup>12</sup> ‘pull out’ in (25b) is the inverse form of the verb *DSEN*<sup>12</sup> ‘pull out’, of which one direct form is given in (25a).

- (25) a. *ca*<sup>1</sup>-*dsén*<sup>1</sup>=*jni* *chi*<sup>3</sup> *chieh*<sup>3</sup>  
 PST-pull.out.ANIM/OBJ.DIRECT.PST.1SG/DIRECT=1SG CLF chicken  
 ‘I pulled out the hen (from the box).’ (M&A: 52)
- b. *ca*<sup>1</sup>-*dsei*<sup>12</sup>=*dsa*<sup>2</sup> *mi*<sup>3</sup> *quianh*<sup>13</sup>=*jni* *jní*<sup>2</sup>  
 PST-pull.out.PST.3>1/INVERSE=3.HUMAN CLF.PL mate=1POSS I  
 ‘My mates pulled me out (of work).’ (M&A: 52)

I have taken all inverse forms, like the one in (25b), to realize the same lexemes whose direct entry is given elsewhere in the dictionary. For this paper, I have only analysed direct entries. A future study should aim to include inverse forms to understand their role in the making of conjugation classes. Removing thus the 122 verbs, the sample contains 790 verbs, as specified in (26).

(26)	Simple	660			
	Bi-partite	130			
	Total	790			

On the other hand, among these 790 verbs, there are many lexical pairs that could in principle be taken to represent the same lexeme, but realizing a different gender agreement. Verbs agree with their S or the O argument according to their animacy. Transitive verbs typically come in pairs: one entry which is used when the O argument is animate (e.g. *cúgh*<sup>12</sup> ‘eat an animate thing (a chicken, etc.)’ and another when O is inanimate (e.g. *cogh*<sup>2</sup> ‘eat an inanimate thing (beans, etc.)’). Often, these pairs display a similar inflectional behaviour, but not always. In this paper, I have treated them as representing two different lexemes for the purposes of inflection. A subtler and more sophisticated analysis of such pairs is still needed. For the present purposes, Table 1 shows that for inflectional purposes there is no substantial difference between the forms involved in the encoding of a third person subject, may it be inanimate or animate. Transitive verbs commonly have an animate subject.

Series for the 3 <sup>rd</sup> person	# of tr. verbs, mostly with an animate subject	# of intr. verbs with an animate subject	# of intr. verbs with an inanimate subject
1	205 42%	38 27%	53 33.3%
2	18 3.6%	17 12%	27 16.9%
3	16 3.2%	3 2.1%	4 2.5%
4	5 1%	5 3.5%	7 4.4%
5	3 0.7%	6 4.2%	4 2.5%
6	5 1%	3 2.1%	6 3.7%

<sup>8</sup> Given the great amount of inflectional variation, the fact that only 1.4% of the verbs in this sample display ambivalent behavior regarding class membership is in itself a remarkable phenomenon.

7	-		3	2.1%	2	1.2%
8	1	0.2%	2	1.4%	2	1.2%
9	-		2	1.4%	1	0.9%
10	-		1	1%	-	
I	166	34%	28	20%	33	20.7%
II	33	6.7%	17	12%	9	5.6%
III	25	5.1%	9	6.3%	8	5%
IV	9	1.8%	4	2.8%	2	1.2%
V	4	0.8%	3	2.1%	1	0.9%
	490	100%	141	100%	159	100%

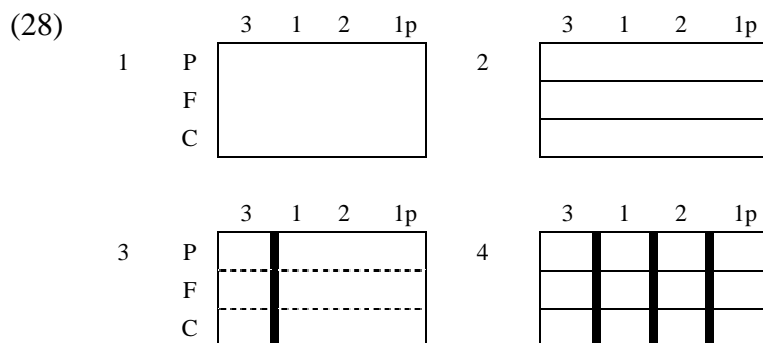
Table 1. Encoding of third person and type of subject (animate vs. inanimate).

### 5. Conjugation patterns and conjugation classes.

We have seen that M&A already treat verbs in groups A, B and C attending to the number of grammatical persons we observe in their inflection. Following this tradition, but modifying it a little to accommodate further contrasts, I propose that the dynamic verbs of TCh inflect according to four conjugation patterns. A conjugation pattern is defined in (27).

(27) **Conjugation pattern.** A schematic template for the inflection of a dynamic verb which reveals the treatment of grammatical person.

The conjugation patterns represent in themselves schematic verbal classes in that verbal lexemes in TCh are categorized according to the type of pattern they require for their inflection. If a verb belongs to a certain pattern, this gives rise to a number of expectations about its inflectional behavior. The four conjugation patterns are given in (28).



The conjugation patterns in (28) are templates that instantiate three possible stages of inflectional complexity with respect to the realization of person for TCh, and possibly for all other Chinantecan languages. Pattern 1 and 2 are ‘simplex’ because they are insensitive to person. Pattern 1 encapsulates uninflected verbs in the language. Pattern 2 has TAM distinctions. In pattern 3, there is a first split in the paradigm between the third person and all other persons. There are various subdivisions of this pattern according to whether there are additional TAM distinctions. Finally, pattern 4 displays a maximal person distinction which is often accompanied by TAM distinctions as well, but even here there are further splits, which I will discuss briefly in §6. Except for pattern 1, all other patterns display inflectional variance in the form of conjugation classes. I discuss these patterns in the following sections together with the classes we find.

### 5.1. Conjugation pattern 1: Uninflected verbs.

Verbs of conjugation pattern 1 have only one stem and are not inflected for person. Two examples are given in (29).

(29)	<i>róng<sup>2</sup></i> (tr) ‘mix’	Present stem	<i>róng<sup>2</sup></i>
		Future stem	
		Completive stem	
[1sg, 2, 3, 1pl]			
	<i>hěh<sup>2</sup></i> (intr an) ‘move’	Present stem	<i>hěh<sup>2</sup></i>
		Future stem	
		Completive stem	

Although most of the verbal lexemes requiring conjugation pattern 1 for their inflection could be said to be outside the morphology for inflectional purposes, some of them like the verb *cěn<sup>2</sup>* (intr an) ‘calm down’ in the example in (30) may have a distinctive future stem, produced by palatalization. The existence of such stems is an indication that at some deeper level, verbs of this type are sensitive to further TAM splits.

(30)	<i>cěn<sup>2</sup></i> (intr an) ‘calm down’	Present stem	<i>cěn<sup>2</sup></i>
		Completive stem	
		Future stem	<i>cién<sup>2</sup></i>

The distribution of the verbs with conjugation pattern 1 in the sample is given in (31). While the simple verbs in the sample having this pattern only amount to ten percent, the pattern appears to be specially favored by bi-partite verbs, as almost 30% of such verbs display the invariant conjugation pattern 1.

(31)	Total	Pattern 1	%
Simple verbs	660	71	10.7%
Bi-partite verbs	130	38	29.2%
Total	790	109	13.8%

M&A treat verbs of this type as constituting the conjugation classes C3, D3, C4, D4, C7, D7, C9, D9, C13 and D13. Contrary to such a view, I take the only stem of these verbs as the lexical representation of the lexemes (in the sense by Aronoff 1978). In this new light, the prosodic features in the stem (e.g. whether tone and/or stress) should be seen as representing the segmental phonology of the lexeme. Nonetheless, the lexical representation (LR) of a verb of this conjugation pattern shows certain tendencies in its phonological structure, as shown in (32), where it can be seen that many of them have a middle tone plus ballistic stress.

(32)	Total	%	simple	%	bi-part.	%	Examples
<b>1</b>	12	11.0%	1	1.6%	11	29.0%	<i>tian<sup>1</sup></i> ‘disfigure’, <i>u<sup>1</sup>+lian<sup>1</sup></i> ‘come here again’
<b>+1</b>	7	6.4%	3	4.2%	4	10.5%	<i>jón<sup>2</sup></i> ‘die’, <i>liág<sup>1</sup></i> ‘begin’, <i>tiúh<sup>1</sup></i> ‘be enough’
<b>2</b>	4	3.6%	3	4.2%	1	2.9%	<i>moh<sup>12</sup></i> ‘get crashed’, <i>ηě<sup>2</sup></i> ‘end’
<b>+2</b>	46	42.2%	40	56.3%	6	15.8%	<i>cěn<sup>2</sup></i> ‘calm down’, <i>cjiú<sup>2</sup></i> ‘get pinched’, etc.
<b>3</b>	4	3.6%	2	2.8%	2	5.2%	<i>cøh<sup>3</sup></i> ( <i>jmai<sup>3</sup></i> ) ‘be able’, <i>hiuh<sup>3</sup></i> ( <i>héh<sup>1</sup></i> ) ‘achieve’
<b>+3</b>	3	2.7%			3	7.8%	<i>tø<sup>2</sup>+júg<sup>3</sup></i> ‘lie (liar)’, <i>tø<sup>2</sup>+dsó<sup>3</sup></i> ‘be on top’
<b>12</b>	18	16.5%	16	22.5%	2	5.2%	<i>dsanh<sup>12</sup></i> ‘find’, <i>dsøh<sup>12</sup></i> ‘burn’, etc.

+12	2	2.2%	2	2.8%			<i>dsánh</i> <sup>12</sup> ‘find oneself’, <i>juánh</i> <sup>12</sup> ‘be scared’
13	10	9.1%	4	5.6%	6	15.8%	<i>hein</i> <sup>13</sup> , <i>hen</i> <sup>13</sup> ‘sound’, <i>tan</i> <sup>13</sup> ‘get satisfied’
+13	3	2.7%			3	7.8%	<i>ti</i> <sup>2</sup> + <i>dsén</i> <sup>2</sup> ‘ride’, <i>ja</i> <sup>2</sup> + <i>quién</i> <sup>13</sup> ‘approach’
Total	109	100%	71	100%	38	100%	

### 5.2. Conjugation pattern 2: Verbs with stems not inflected for person.

Verbs of this conjugation pattern have different stems, but they are not inflected for person. Two representative examples are given in (33).

(33)

<i>hlian</i> <sup>12</sup> (intr an) ‘shiver’	Present stem	[1sg, 2, 3, 1pl]	<i>jlian</i> <sup>12</sup>
	Future stem		<i>jlian</i> <sup>1</sup>
	Completive stem		<i>jlian</i> <sup>1</sup>

<i>cug</i> <sup>2</sup> (intr an) ‘get burned’	Present stem	<i>cug</i> <sup>2</sup>
	Future stem	<i>cug</i> <sup>1</sup>
	Completive stem	<i>cug</i> <sup>2</sup>

A quarter of all verbs in the sample are verbs of conjugation pattern 2, as shown in (34). The pattern is not favored by bi-partite verbs.

(34)

	Total	Pattern 2	%
Simple verbs	660	179	<b>27.1%</b>
Bi-partite verbs	130	5	3.8%
Sample	790	184	<b>23.2%</b>

The verbs of conjugation pattern 2 are organized in ten different conjugation classes, given in (35). I note such classes using the same Arabic numbers as in the inflectional series (e.g., 1, 2, 3, etc.). Most of the 184 verbs in the sample (70%) belong to either class 1 or 2. As we will see in §5.3, verbs of patterns 3 will also belong to six of these classes for the purpose of realizing a third person value.

(35)

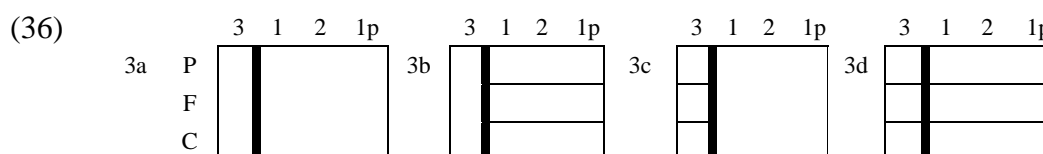
Class	Series	P	F	C	M&A	Total	%	simple	bi-partite
<b>1</b>	1	<i>12</i>	<i>1</i>	<i>1</i>	C1, D1	84	45.6%	80	4
<b>2</b>	2	<i>- 2</i>	<i>1</i>	<i>- 2</i>	C5, D5	46	25.0%	46	0
<b>3</b>	3	<i>12</i>	<i>1</i>	<i>+ 2</i>	C12, D12	10	5.4%	9	1
<b>4</b>	4	<i>2</i>	<i>1</i>	<i>1</i>	C2, D2	5	2.7%	5	0
<b>5</b>	5	<i>12</i>	<i>13</i>	<i>1</i>	C8, D8	14	7.6%	14	0
<b>6</b>	6	<i>2</i>	<i>2</i>	<i>1</i>	C10, D10	13	7.0%	13	0
<b>7</b>	7	<i>- 3</i>	<i>1</i>	<i>- 3</i>	C14, D14	5	2.7%	5	0
<b>8</b>	8	<i>12</i>	<i>2</i>	<i>1</i>	C6, D6	3	1.6%	3	0
<b>9</b>	9	<i>12</i>	<i>1</i>	<i>12</i>	C15, D15	3	1.6%	3	0
<b>10 (L1)</b>	10	<i>2</i>	<i>13</i>	<i>1</i>	C11	1	0.8%	1	0
						184	100%	179	5

The notation “L1” associated to class 10 indicates that there is only one lexeme as the extant member of this conjugation class, to which more members could eventually be added if

found. The verb in question is *dsén<sup>2</sup>* (intr an) ‘be hot’. Alternatively, this verb could be treated as a member of class 5, but with an irregular present stem.<sup>9</sup>

### 5.3. Conjugation pattern 3: Verbs inflected for third person vs. non-third person.

Verbs inflected according to conjugation pattern 3 have a person split that involves a non-third person. The forms realizing the third person are forms we find in patterns 1 and 2. This means that the forms realize a third person only by virtue of the presence of the other form in the paradigm, which in this pattern realizes other possible persons. There are four different variations of pattern 3, and they appear in (37). I will be presenting each of the sub-patterns in the following sections.



For the encoding of this non-third person, verbs in TIC belong to the six classes in (36). The classes are not populated evenly. A total of 210 verbs in the sample have a special form for a non-third person, and 96% of them belong to either class *a* or *b*. Such classes serve as defaults.

(37)

Class	non-3 Series	non-3	Total
<i>a</i>	V	-3	142
<i>b</i>	IV	-13	60
<i>c</i>	III	1	1
<i>d</i>	B	2    +3    2	4
<i>e</i>	D	12   13   13	1
<i>f</i>	5	12   13   1	2
Total			210

In this paper, I propose that the marking for the third person should be considered as an independent phenomenon from the marking of other grammatical persons, including a non-third person. Verbs that inflect according to pattern 3 are simultaneously classified in the lexicon as belonging to patterns 1 or 2 for the purpose of encoding the third person. This implies that for a given verbal lexeme, speakers would have to remember the exponents for the third person independently from the exponents for other persons. When the verb belongs to different conjugation classes for this purpose, the lexeme needs to store this simultaneous

<sup>9</sup> The individual lexemes as only extant members of a given inflectional class in my sample are the following: L1 *dsén<sup>2</sup>* (intr an) ‘be hot’ (uninflected, class 10); L2 *cø<sup>2</sup>+cáng<sup>12</sup>* (intr an) ‘stutter’ (IV); L3 *tø<sup>2</sup>+gugh<sup>12</sup>* (intr an) ‘defecate’ (V); L4 *tsø<sup>2</sup>+nióh<sup>12</sup>* (ditr an) ‘rub’ (VIII); L5 *hagh<sup>2</sup>* (tr) ‘bury’ (IX); L6 *huan<sup>2</sup>* (intr an pl) ‘go out’ (XII); L7 *jógh<sup>12</sup>* (intr an sing) ‘come back’ (XIII); L8 *góah<sup>12</sup>* (tr) ‘eat’ (XLIV); L9 *cøgh<sup>2</sup>* (tr) ‘eat’ (XLV); L10 *quih<sup>12</sup>* (tr) ‘hit’ (XLVI); L11 *niá<sup>2</sup>* (tr an) ‘let go’ (XLVII); L12 *quieg<sup>2</sup>* (intr an sing) ‘lie down’ (XLVIII); L13 *guuh<sup>12</sup>* (tr) ‘squeeze’ (XLIX); L14 *jjëh<sup>12</sup>* (tr an sing) ‘kill’ (L); L15 *tsøi<sup>12</sup>* (tr) ‘write’ (LI); L16 *hjióh<sup>12</sup>* (vtm) ‘girdle’ (LII); L17 *tsáih<sup>12</sup>* (ditr an) ‘tell’ (LIII); L18 *tsih<sup>12</sup>* (tr/tr an) ‘tie’ (LIV); L19 *u<sup>2</sup>+nio<sup>13</sup>* (vtm) ‘wrap’ (LVII); L20 *ti<sup>2</sup>+dsøa<sup>12</sup>* (tr sing) ‘put on top’ (LVIII); L21 *juúh<sup>2</sup>* (tr) ‘say’ (XV); L22 *cang<sup>2</sup>* (tr) ‘carry’ (XIX); L23 *hi<sup>2</sup>* (intr an) ‘go in’ (XXIV); L24 *jóh<sup>12</sup>* (tr) ‘clean’ (XXXII); L25 *dsen<sup>3</sup>* (*cah<sup>3</sup>*) (tr an) ‘follow’ (LV).



membership for the information to be recoverable for inflectional purposes. Verbs can in turn cluster in groups attending to their membership. I call such groupings ‘superordinate inflectional classes’, and will be presented in the following sections.

**5.3.1. Verbs of sub-pattern 3a.** The verbs of this sub-pattern have the simplest structure as they only have two forms inflected for person: one is used for the third person; the other form is used to cross-reference all other grammatical persons. In other words, the alternative form cross-references a non-third person. Two examples appear in (38).

(38)

		3	non-3
<i>giúg<sup>2</sup></i> (tr) ‘dig’	Present stem	<i>giúg<sup>2</sup></i>	<i>giug<sup>3</sup></i>
	Future stem		
	Completive stem		
<i>quiáh<sup>2</sup></i> (tr an) ‘choose’	Present stem	<i>quiáh<sup>2</sup></i>	<i>quiah<sup>3</sup></i>
	Future stem		
	Completive stem		

The form used for the third person is the default lexical representation of the verb. This means that the verbs following this sub-pattern are basically pattern 1 verbs, where the form of the lexical representation acquires the function of exponent of a third person value by virtue of the existence of the other form. The distribution of the verbs of this pattern in the sample is given in (39). Notice that more than half of the bi-partite verbs require conjugation pattern 3a.

(39)

	Total	Pattern 3a	%
Simple verbs	660	53	8%
Bi-partite verbs	130	69	<b>53%</b>
Sample	790	122	15.4%

The verbs of this pattern fall into two classes emerging from the combination of the selection they make for third person and the class encoding non-third person. To differentiate these superordinate classes (S-class) from the other types, I note them using roman numbers in small caps (i.e., *I*, *II*, *III*, etc.).

(40)

S-class	3 non-3		M&A	Total	simple		bi-part.	
	LR	Class						
<b>I</b>	LR	<i>a</i>	B3h, B4h	95 77.7%	46 86.8%	49 71%		
<b>II</b>	LR	<i>b</i>	B3g, B4g, B9g	27 22.3%	7 13.2%	20 29%		
				122 100%	53 100%	69 100%		

As expected, the phonological form of the lexical representation of these 122 verbs follows the same tendencies of the uninflected verbs of pattern 1. This is shown in (41), where the verbs of pattern 3a are compared with those of pattern 1.

(41)

	Patt. 3a	%	Patt. 1
<b>1</b>	23	18.8%	<i>11.0%</i>
<b>+2</b>	74	60.6%	<i>42.2%</i>
<b>12</b>	24	19.7%	<i>16.5%</i>
<b>13</b>	1	0.9%	

Total	122	100%
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If a verb has a given /+2/ structure in their lexical default form (i.e., their LR), the language user has to remember whether it further belongs to conjugation pattern 1 or 3a, or to other patterns for that matter, as we will soon see. Once the verb is recognized as belonging to a given pattern, NOTHING in the phonology of the LR will inform the language user about what other forms the verb will take. For example, if a verb is stored as inflecting according to pattern 3a, nothing in the phonology of the default form, used for the third person, will inform one what forms the non-third person will take.

**5.3.2. Verbs of sub-pattern 3b.** A very few verbs have this pattern. Such verbs have one stem for the third person but three different stems for the non-third person. As with verbs of pattern 3a, I assume here that the stem for the third person is the LR of the verb. This sub-pattern illustrated in (42).

(42)	<i>jénh<sup>2</sup></i> (intr an) ‘have hiccups’	Present stem Future stem Completive stem	3	non-3
			<i>jénh<sup>2</sup></i>	<i>jénh<sup>2</sup></i>
				<i>jénh<sup>3</sup></i>
<i>jénh<sup>2</sup></i>				
<i>quiog<sup>12</sup></i> (intr an sg) ‘lie’	Present stem Future stem Completive stem	<i>quiog<sup>12</sup></i>	<i>quiog<sup>2</sup></i>	
			<i>quiog<sup>3</sup></i>	
			<i>quiog<sup>2</sup></i>	

In the sample, there are only 5 verbs that display pattern 3b.

(43)	Pattern 3b
Simple verbs	2
Bi-partite verbs	3
Total	5

However, despite being a few verbs, the pattern has three conjugation classes, as shown in (44), two of them populated by only one member each.

(44)	S-class	3	non-3	3	non-3	M&A	Total	
		Class	P					F
III	LR	<i>d</i>	-	2	+3	2	B4b, B3b	3
IV (L2)	LR	<i>e</i>	-	12	13	13	B3c	1
V (L3)	LR	<i>f</i>	-	12	13	1	B3a	1
								5

Again, the lexical representation of these five verbs conforms to the general trend shown by patterns 1 and 3a: two verbs have /+2/ which occurs in the 42.2% of verbs of pattern 1 and in 60.6% of pattern 3, and the three remaining verbs have /12/, which occurs in 16.5% of verbs of pattern 1 and 19.7% of pattern 3a.

**5.3.3. Verbs of sub-pattern 3c.** This inflectional pattern is the mirror image of pattern 3b. It consists of verbs with three stems for the third person and only one for the non-third person, as shown in (45). 88 verbs in the sample inflect according to this pattern.

(45) <i>juen</i> <sup>12</sup> (tr) ‘break’	Present stem	3 <sup>rd</sup>	non-3 <sup>rd</sup>
	Future stem	<i>juen</i> <sup>12</sup>	<i>juen</i> <sup>13</sup>
	Completive stem	<i>juen</i> <sup>1</sup>	
	<i>juen</i> <sup>1</sup>		
(46) <i>iaj</i> <sup>12</sup> (tr an) ‘feed’	Present stem	3	non-3
	Future stem	<i>iaj</i> <sup>12</sup>	<i>iaj</i> <sup>3</sup>
	Completive stem	<i>iaj</i> <sup>1</sup>	
	<i>iaj</i> <sup>1</sup>		

The distribution of pattern 3c is given in (46).

(46)	Total	Pattern 3c	%
Simple verbs	660	80	12.1%
Bi-partite verbs	130	1	0.7%
Sample	790	81	10.2%

Verbs following pattern 3c fall in six major conjugation classes, which emerge when we put together how the two grammatical persons are encoded. In reality, only two classes contain most verbs.

(47)	S-class	3	non-3	3			non-3			M&A	Total	%
		Class	Class	P	F	C	P	F	C			
VI	<i>1</i>	<i>a</i>	<i>12</i>	<i>1</i>	<i>1</i>	<i>-3</i>	B1h	42	51.9%			
VII	<i>1</i>	<i>b</i>	<i>12</i>	<i>1</i>	<i>1</i>	<i>13</i>	B1g	33	40.1%			
VIII (L4)	<i>1</i>	<i>c</i>	<i>12</i>	<i>1</i>	<i>1</i>	<i>1</i>	B1f	1	1.2%			
IX (L5)	<i>2</i>	<i>a</i>	<i>-2</i>	<i>1</i>	<i>-2</i>	<i>-3</i>	B5h	1	1.2%			
X	<i>3</i>	<i>a</i>	<i>12</i>	<i>1</i>	<i>+2</i>	<i>-3</i>	B2h	2	2.5%			
XI	<i>4</i>	<i>a</i>	<i>2</i>	<i>1</i>	<i>1</i>	<i>-3</i>	B8h	2	2.5%			
								81	100%			

**5.3.4. Verbs of sub-pattern 3d.** The last sub-pattern is 3d and it is only found in two verbs of the sample. Such verbs have three stems for the third person and three other for the non-third person. The two verbs in question are given in (48), and by themselves they instantiate the two different classes in (49).

(48) L6	<i>huan</i> <sup>2</sup> (intr an pl) ‘exit’	Present stem	3	non-3
		Future stem	<i>huan</i> <sup>2</sup>	<i>huan</i> <sup>2</sup>
		Completive stem	<i>huan</i> <sup>1</sup>	<i>huan</i> <sup>3</sup>
L7	<i>jóg</i> <sup>12</sup> (intr an sg) ‘come again’	Present stem	<i>huan</i> <sup>2</sup>	<i>huan</i> <sup>2</sup>
		Future stem	<i>huan</i> <sup>1</sup>	<i>huan</i> <sup>3</sup>
		Completive stem	<i>huan</i> <sup>2</sup>	<i>huan</i> <sup>2</sup>
L7	<i>jóg</i> <sup>12</sup> (intr an sg) ‘come again’	Present stem	<i>jóg</i> <sup>12</sup>	<i>jóg</i> <sup>12</sup>
		Future stem	<i>jóg</i> <sup>2</sup>	<i>jóg</i> <sup>13</sup>
		Completive stem	<i>jóg</i> <sup>1</sup>	<i>jóg</i> <sup>1</sup>

(49)	S-class	3	non-3	3			non-3			M&A
		Class	Class	P	F	C	P	F	C	
XII (L6)	<i>2</i>	<i>d</i>	<i>-2</i>	<i>1</i>	<i>-2</i>	<i>2</i>	<i>3</i>	<i>2</i>	B5b	
XIII (L7)	<i>8</i>	<i>f</i>	<i>12</i>	<i>2</i>	<i>1</i>	<i>12</i>	<i>13</i>	<i>1</i>	B6a	

### 5.4. Conjugation pattern 4: Maximally inflected verbs.

Verbs following this conjugation pattern can be maximally inflected. They commonly have three stems for each grammatical person: third person (3), first person singular (1sg), second person (2), and first person plural (1pl), as illustrated by the two verbs in (10), repeated here as (50). There is a great degree of syncretism among the stems involved.

(50)		3	1sg	2	1pl
<i>júh</i> <sup>2</sup> (tr) ‘bend’	Present stem	<i>júh</i> <sup>2</sup>	<i>júh</i> <sup>12</sup>	<i>júh</i> <sup>12</sup>	<i>júh</i> <sup>12</sup>
	Future stem	<i>júh</i> <sup>2</sup>	<i>júh</i> <sup>13</sup>	<i>júh</i> <sup>13</sup>	<i>júh</i> <sup>13</sup>
	Completive stem	<i>júh</i> <sup>2</sup>	<i>júh</i> <sup>1</sup>	<i>júh</i> <sup>1</sup>	<i>júh</i> <sup>13</sup>
<i>tiu</i> <sup>12</sup> (tr) ‘cut’	Present stem	<i>tiu</i> <sup>12</sup>	<i>tiu</i> <sup>12</sup>	<i>tiu</i> <sup>2</sup>	<i>tiu</i> <sup>2</sup>
	Future stem	<i>tiu</i> <sup>1</sup>	<i>tiu</i> <sup>13</sup>	<i>tiu</i> <sup>3</sup>	<i>tiu</i> <sup>3</sup>
	Completive stem	<i>tiu</i> <sup>1</sup>	<i>tiu</i> <sup>1</sup>	<i>tiu</i> <sup>32</sup>	<i>tiu</i> <sup>3</sup>

There are 287 verbs of this conjugation pattern in the sample of 790 verbs (36.4%). These verbs display a great amount of inflectional variance, which could be organized in 29 different classes only attending to the allomorphy for the encoding of the first singular, the second person, and the first person plural. Such classes appear in (51).

Class	1sg	2	1pl	1sg			2			1pl			M&A
	Ser.	Ser.	Ser.	P	F	C	P	F	C	P	F	C	
<i>i</i>	5	A	b	12	3	1	2	3	-3	2	3	3	A13b
<i>ii</i>	5	B	b	12	3	1	2	3	2	2	3	3	A42b
<i>iii</i> *	5	5	b	12	3	1	12	3	1	2	3	3	A51b
<i>iv</i> *	5	5	D	12	3	1	12	3	1	12	13	13	A31a,A41a
<i>v</i>	5	D	D	12	3	1	12	13	13	12	13	13	A34a
<i>vi</i>	5	E	D	12	3	1	12	13	12	12	13	13	A35a, A45a
<i>vii</i>	5	F	D	12	3	1	2	3	-12	12	13	13	A47a
<i>viii</i>	5	G	D	12	3	1	12	13	3	12	13	13	A18a
<i>ix</i>	a	C	D	+2	+3	+2	2	3	1	12	13	13	A46d
<i>x</i>	a	E	D	+2	+3	+2	12	13	12	12	13	13	A45d
<i>xi</i>	a	B	D	+2	+3	+2	2	3	2	12	13	13	A32d, A42d
<i>xii</i>	a	B	c	+2	+3	+2	2	3	2	2	13	13	A32f
<i>xiii</i>	a	B	A	+2	+3	+2	2	3	2	2	3	-3	A32e, A42e
<i>xiv</i>	a	C	A	+2	+3	+2	2	3	1	2	3	-3	A16e
<i>xv</i>	a	5	A	+2	+3	+2	12	3	1	2	3	-3	A51e
<i>xvi</i> (L8)	5	B	D	12	13	1	2	+3	2	12	13	13	12a
<i>xvii</i> (L9)	5	C	D	12	13	1	+2	+3	+1	12	13	13	56a
<i>xviii</i> (L10)	5	C	b	12	13	1	+2	+3	+1	2	+3	+3	16b
<i>xix</i> (L11)	5	V	b	12	13	1		-3		2	+3	+3	49b
<i>xx</i> (L12)	a	5	c	+2	+3	+2	12	13	1	2	13	13	51f
<i>xxi</i> (L13)	a	A	c	+2	+3	+2	2	+3	-3	2	13	13	13f
<i>xxii</i> (L14)	a	C	c	+2	+3	+2	+2	+3	+1	2	13	13	16f
<i>xxiii</i> (L15)	a	E	c	+2	+3	+2	12	13	12	2	13	13	15f
<i>xxiv</i> (L16)	a	F	A	+2	+3	+2	2	+3	-12	2	+3	-3	17e
<i>xxv</i> (L17)	a	G	D	+2	+3	+2	12	13	-3	12	13	13	18d
<i>xxvi</i> (L18)	V	V	D		-3			-3		12	13	13	19j
<i>xxvii</i>	V	V	IV		-3			-3			13		99g, 19g
<i>xxviii</i> (L19)	II	V	IV		12			-3			13		79i
<i>xxix</i> (L20)	I	A	V		+2		2	+3	-3		-3		33h

\*In these two classes, the default exponents for the first person singular have been leveled up to realize the second person.

These conjugation classes are not populated evenly. Some have many members, like classes *i* and *iv*, while most have only a handful. This is shown in (52).

(52)	Total	simple	bi-part.		Total	simple	bi-part.
<i>i</i>	65	63	2	<i>xvi</i> (L8)	1	1	
<i>ii</i>	25	25	0	<i>xvii</i> (L9)	1	1	
<i>iii</i>	11	11	0	<i>xviii</i> (L10)	1	1	
<i>iv</i>	90	83	7	<i>xix</i> (L11)	1	1	
<i>v</i>	15	15	0	<i>xx</i> (L12)	1	1	
<i>vi</i>	8	8	0	<i>xxi</i> (L13)	1	1	
<i>vii</i>	9	9	0	<i>xxii</i> (L14)	1	1	
<i>viii</i>	6	6	0	<i>xxiii</i> (L15)	1	1	
<i>ix</i>	11	10	1	<i>xxiv</i> (L16)	1	1	
<i>x</i>	9	9	0	<i>xxv</i> (L17)	1	1	
<i>xi</i>	5	5	0	<i>xxvi</i> (L18)	1		1
<i>xii</i>	3	3	0	<i>xxvii</i>	3	2	1
<i>xiii</i>	8	8	0	<i>xxviii</i> (L19)	1	1	
<i>xiv</i>	4	4	0	<i>xxix</i> (L20)	1		1
<i>xv</i>	2	2	0	Total	287	273	14

Like verbs of pattern 3, verbs of pattern 4 belong simultaneously to either pattern 1 or 2 to realize the third person. Of the 287 verbs of pattern 4, 115 (40%) behave like pattern 1 and 172 (60%) like pattern 2. The 172 verbs that are like pattern 2 belong in turn to class 1 or class 2. In (53), I compare the behavior of such verbs with those of the TAM inflected verbs of pattern 2.

Class	Series	Pattern 2 verbs			Total	%	Pattern 4 verbs with 3 <sup>rd</sup> person like pattern 2	
		P	F	C			Total	%
<b>1</b>	1	<i>12</i>	<i>1</i>	<i>1</i>	84	45.6%	136	<b>79.0%</b>
<b>2</b>	2	<i>- 2</i>	<i>1</i>	<i>- 2</i>	46	25.0%	15	8.7%
<b>3</b>	3	<i>12</i>	<i>1</i>	<i>+ 2</i>	10	5.4%	16	9.3%
<b>4</b>	4	<i>2</i>	<i>1</i>	<i>1</i>	5	2.7%	1	1.3%
<b>5</b>	5	<i>12</i>	<i>13</i>	<i>1</i>	14	7.6%		
<b>6</b>	6	<i>2</i>	<i>2</i>	<i>1</i>	13	7.0%	3	1.7%
<b>7</b>	7	<i>- 3</i>	<i>1</i>	<i>- 3</i>	5	2.7%		
<b>8</b>	8	<i>12</i>	<i>2</i>	<i>1</i>	3	1.6%	1	1.3%
<b>9</b>	9	<i>12</i>	<i>1</i>	<i>12</i>	3	1.6%		
<b>10</b>	10	<i>2</i>	<i>13</i>	<i>1</i>	1	0.8%		
					184	100%	172	100%

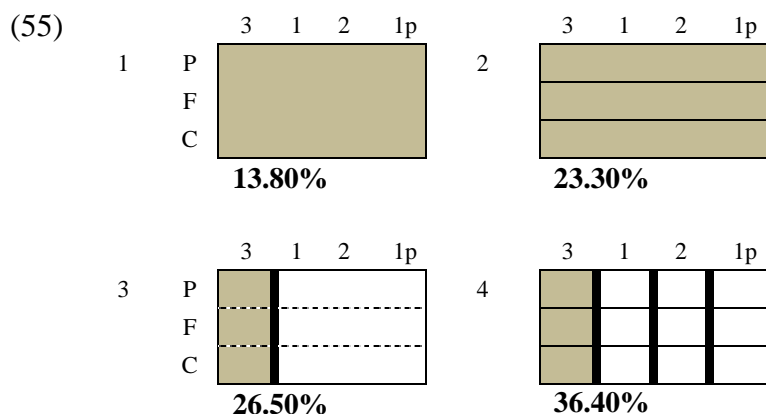
In principle, for the encoding of the third person, knowing whether a verb of pattern 4 is of class 1 or it just requires the LR already accounts for 80% of all 287 verbs that follow this pattern. This suggests that there is some degree of predictability in the system. The actual crisscrossing in the combinations for the encoding of all persons appear in (54), resulting in 45 other conjugation classes, which together with the 13 other displayed by pattern 3 verbs in §5.3 amount to a gross total of 58 superordinate inflectional classes.

(54)	S-Classes	3	1sg, 2, 1pl		
		Class	Class	#	M&A
	XIV	<i>l</i>	<i>i</i>	64	A13b
	XV (L21)	LR	<i>i</i>	1	A43b
	XVI	LR	<i>ii</i>	5	A42b
	XVII	3	<i>ii</i>	12	A22b
	XVIII	<i>l</i>	<i>ii</i>	7	A12b
	XIX (L22)	3	<i>ii</i>	1	A82b
	XX	2	<i>iii</i>	11	A51b
	XXI	LR	<i>iv</i>	70	A31a,41a
	XXII	<i>l</i>	<i>iv</i>	16	A11a
	XXIII	3	<i>iv</i>	3	A21a
	XXIV (L23)	6	<i>iv</i>	1	A61a
	XXV	LR	<i>v</i>	3	A34a
	XXVI	<i>l</i>	<i>v</i>	12	A14a
	XXVII	LR	<i>vi</i>	3	A35a, 45a
	XXVIII	<i>l</i>	<i>vi</i>	2	A15a
	XXIX	6	<i>vi</i>	3	A65a
	XXX	LR	<i>vii</i>	2	A47a
	XXXI	<i>l</i>	<i>vii</i>	6	A17a
	XXXII (L24)	3	<i>vii</i>	1	A27a
	XXXIII	<i>l</i>	<i>viii</i>	6	A18a
	XXXIV	LR	<i>ix</i>	7	A46d
	XXXV	<i>l</i>	<i>ix</i>	4	A16d
	XXXVI	LR	<i>x</i>	2	A45d
	XXXVII	<i>l</i>	<i>x</i>	7	A15d
	XXXVIII	LR	<i>xi</i>	5	A32d, 42d
	XXXIX	LR	<i>xii</i>	3	A32f
	XL	LR	<i>xiii</i>	8	A32e, 42e
	XLI	<i>l</i>	<i>xiv</i>	2	A16e
	XLII	LR	<i>xiv</i>	2	A46e
	XLIII	2	<i>xv</i>	2	A51e
	XLIV (L8)	<i>l</i>	<i>xvi</i> (L8)	1	12a
	XLV (L9)	2	<i>xvii</i> (L9)	1	56a
	XLVI (L10)	<i>l</i>	<i>xviii</i> (L10)	1	16b
	XLVII (L11)	LR	<i>xix</i> (L11)	1	49b
	XLVIII (L12)	2	<i>xx</i> (L12)	1	51f
	XLIX (L13)	<i>l</i>	<i>xxi</i> (L13)	1	13f
	L (L14)	<i>l</i>	<i>xxii</i> (L14)	1	16f
	LI (L15)	<i>l</i>	<i>xxiii</i> (L15)	1	15f
	LII (L16)	<i>l</i>	<i>xxiv</i> (L16)	1	17e
	LIII (L17)	<i>l</i>	<i>xxv</i> (L17)	1	18d
	LIV (L18)	<i>l</i>	<i>xxvi</i> (L18)	1	19j
	LV	<i>l</i>	<i>xxvii</i>	2	A19g
	LVI (L25)	LR	<i>xxvii</i>	1	99g
	LVII (L19)	LR	<i>xxviii</i> (L19)	1	79i
	LVIII (L20)	LR	<i>xxix</i> (L20)	1	33h

## 6. Summary and conclusions.

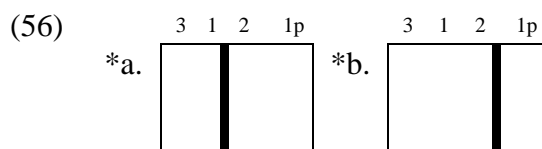
I have proposed that dynamic verbs in TCh fall into five different conjugation patterns. A number of conclusions can be advanced regarding the different ways grammatical person is encoded in the inflection of dynamic verbs in a Chinantecan language. The different available splits presented are repeated again in (55), together with their overall frequency. The areas in

shading in patterns 3 and 4 correspond to the zones in the paradigms where we find the defaults of patterns 1 and 2, here serving as exponents of third person.



Patterns 1 and 2, with no person distinction, amount to 37.1% of all verbs in the sample. Pattern 3 represents a primitive person split, creating a distinction between a third person and a non-third person, and accounts for more than a quarter of the verbs in the sample (26.5%). The rest, with almost equal weight as the verbs of patterns 1 and 2 together, are the verbs of pattern 4 with the more personal distinctions.

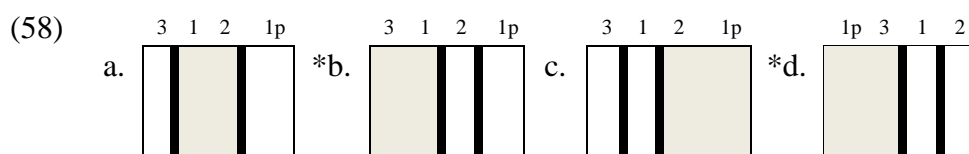
On the other hand, the type of person split in pattern 3 involves a distinction between a third person and all other persons. For example, the potential splits in (56), which involve the merging of third person with other persons, do NOT exist in TCh. This is in support of the analysis we have advanced that the encoding of the third person in conjugation patterns 3 and 4 verbs responds to independent criteria different from those applying to other persons.



Furthermore, when by virtue of further splits other persons emerge beyond the two primitive persons in pattern 3; it is common to maintain a full contrast among all persons like in (57). This happens in 58.2% of all verbs of the maximally inflected verbs of pattern 5 (167/287).



Another possibility is to have a person split according to the four options in (58). Collapse in person marking is indicated by the shading.



Of the possibilities in (58), only (a) and (c) occur, not (b) or (d). Pattern (a) is common, as it occurs in 36.5% of verbs of pattern 5 (105/287). The 15 remaining verbs show the split in (c).

These sub-patterns could be interpreted as the result of morphological levelling: the inflectional series realizing the second person is commonly used for the first person elsewhere, so the direction of the levelling is treating the second person as a first person singular. For pattern (c), the second person is also levelled out to the first plural. In contrast, the prosodic exponents involved in the realization of the non-third person are specifically devoted to this person, and do not emerge from the levelling of other persons (see 24 above).

I have proposed that the encoding for the third person combines with the encoding of other persons to create the different conjugation classes at a higher level of the inflectional system. I take the sample of 790 verbs as representative of the verbal lexicon of the language involving dynamic verbs. With this in mind, there are about 14% of verbs that do not have inflected stems for neither TAM nor person (pattern 1) and another 23% that only inflect for TAM, and such verbs fall into at least 10 different classes, two of them with the largest number of members. The rest of the verbs in the lexicon are sensitive to realize a person value (patterns 3 and 4). To encode a third person value, all such verbs are either characterized as belonging to pattern 1, using a lexical default, or to pattern 2, and they thus need to belong to at least six of the ten classes available for verbs of pattern 2 (class 1 is the default class). The very same verbs will inflect for other persons: a non-third person if they inflect according to pattern 3 and all other persons if they inflect like pattern 4. To realize a non-third person, such verbs fall into 6 different classes (*a-f*). Those that inflect according to pattern 4 are distributed in 29 classes (*i-xxix*). For inflectional purposes, a given verb of pattern 4, for example, may pertain to class 1 to encode the third person and to class *iv* to encode other persons. However, speakers not only remember these combinations, but they have clustered verbs in groups according to the different classes they belong to. For example, there is no verb in the sample that belongs to class 4 and to class *i*. Only a number of combinations are possible. I have treated such possible combinations as superordinate conjugation classes, and they amount to 58 (I-LVIII).

Graph 1 in the appendix shows the four most frequent combinations resulting in classes such as I, II, XIV and XXI, which have more than 30 members each. At the other extreme, we have combinations which are hardly entrenched at all. They are only instantiated by one lexeme in the sample, and they amount to 25 of them. These are given in Graph 2. Graph 3 shows the possible combinations of classes whose class membership ranks from two members to less than 30.

I hope to have shown that this new approach to the complexities of the verbal inflection of a Chinantecan language reveals a number of novel patterns of organization of the system which have not previously been detected. Such patterns are likely to be common to all the languages of the family.

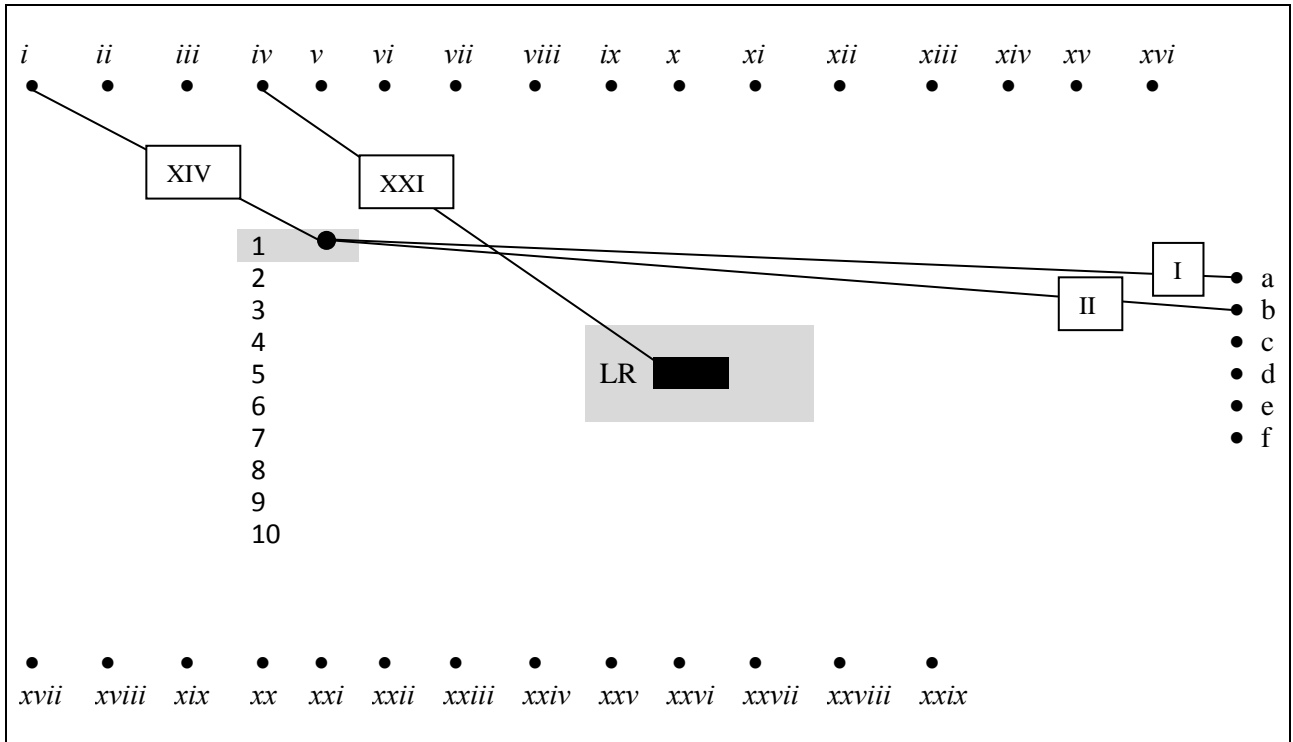
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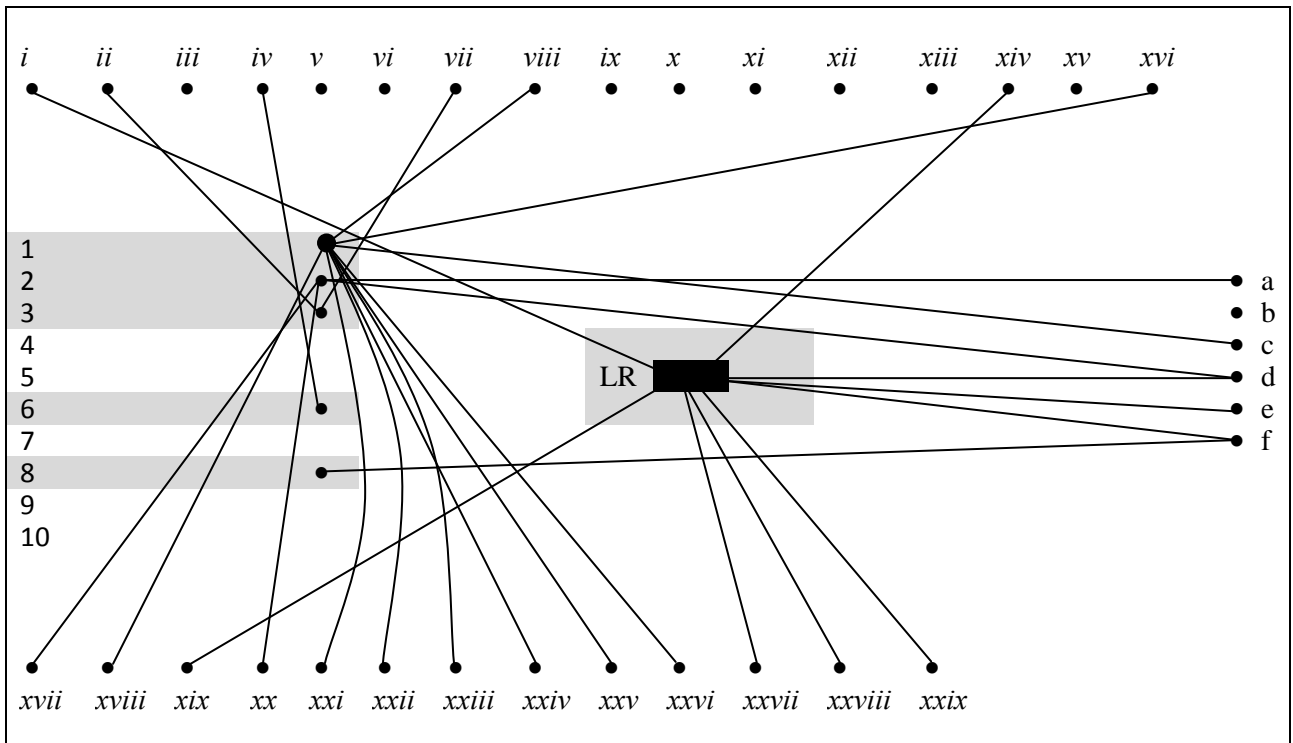


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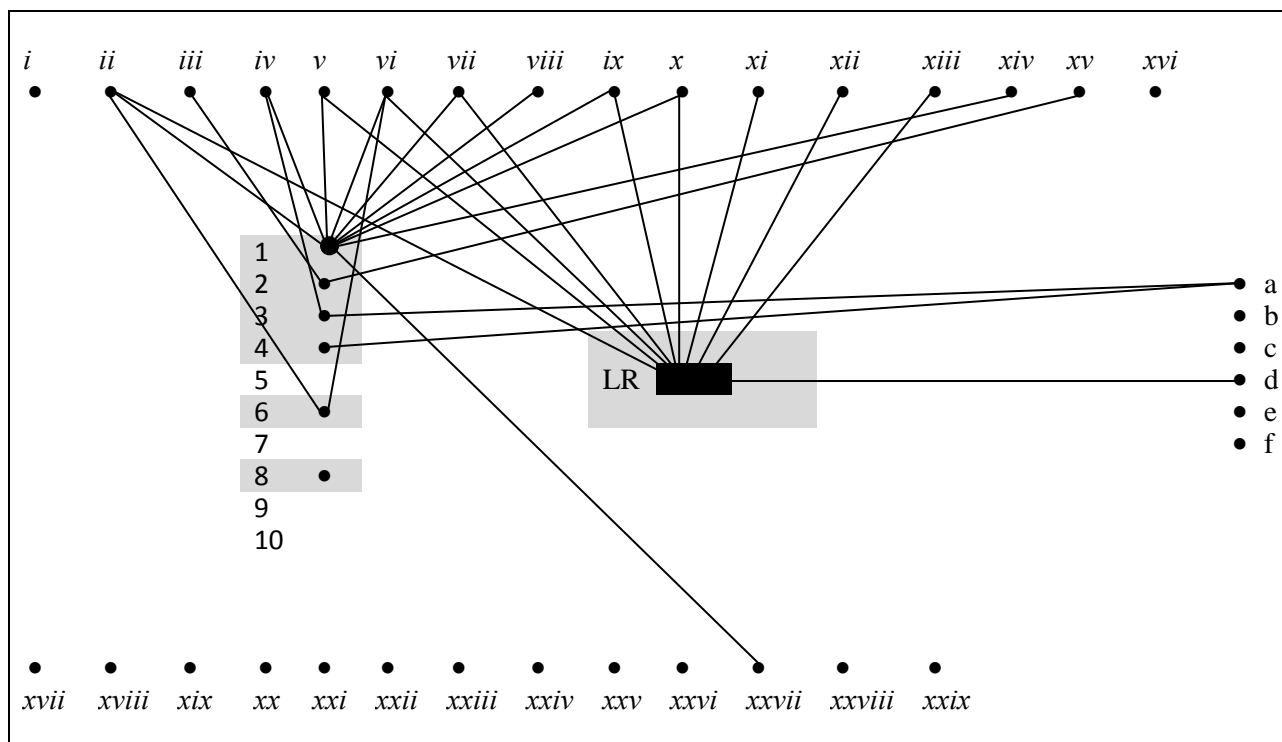
**Appendix 1: Superordinate conjugation classes.**



Graph1. Classes with more than 30 members.



Graph 2. Classes with just one member.



Graph 3. Classes with more than one member and less than 30.

**Appendix 2: Inflection of bi-partite verbs.**

In the inflection of a bi-partite verb like (1), both morphs have inflectional properties. The first morph inflects according to the fixed pattern in (1a), while the second, the morphological root, may have inflectional forms similar to simple verbs, as illustrated in (1b).

(1)  $h\emptyset^2+ts\acute{o}h^{12}$  (tr) ‘stump with foot’

Present stem	$h\emptyset^2+ts\acute{o}h^{12}$	$h\emptyset^2+ts\acute{o}h^{12}$	$h\emptyset^2+ts\acute{o}h^2$	$h\emptyset^2+ts\acute{o}h^2$
Future stem	$h\emptyset^1+ts\acute{o}h^1$	$h\emptyset^3+ts\acute{o}h^{13}$	$h\emptyset^3+ts\acute{o}h^3$	$h\emptyset^3+ts\acute{o}h^3$
Completive stem	$h\emptyset^1+ts\acute{o}h^1$	$h\emptyset^3+ts\acute{o}h^1$	$h\emptyset^3+ts\acute{o}h^3$	$h\emptyset^3+ts\acute{o}h^3$

a.		3	1sg	2	1pl	3	1sg	2	1pl
Present stem		2	2	2	2	$h\emptyset^2+$	$h\emptyset^2+$	$h\emptyset^2+$	$h\emptyset^2+$
Future stem		1	3	3	3	$h\emptyset^1+$	$h\emptyset^3+$	$h\emptyset^3+$	$h\emptyset^3+$
Completive stem		1	3	3	3	$h\emptyset^1+$	$h\emptyset^3+$	$h\emptyset^3+$	$h\emptyset^3+$
b.	Present stem	12	12	2	2	$ts\acute{o}h^{12}$	$ts\acute{o}h^{12}$	$ts\acute{o}h^2$	$ts\acute{o}h^2$
Future stem		1	13	+3	+3	$ts\acute{o}h^1$	$ts\acute{o}h^{13}$	$ts\acute{o}h^3$	$ts\acute{o}h^3$
Completive stem		1	1	-3	+3	$ts\acute{o}h^1$	$ts\acute{o}h^1$	$ts\acute{o}h^3$	$ts\acute{o}h^3$