

Valency-changing devices in Metzontla Popoloc¹

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1 Introduction

The subject of this paper is the valency-changing effect of derivational processes in Metzontla Popoloc.² Popoloc is a member of the Popolocan family and is a typical representative of the Otomanguean stock. The Popolocan languages are spoken in the southern part of the State of Puebla, the north-eastern part of the State of Oaxaca and in an adjacent fringe in the State of Veracruz. The Popolocan languages are Popoloc ($\pm 11,000$ speakers), Chochó ($\pm 1,000$ speakers), Ixcatec (no more than 8 speakers) and more distantly related Mazatec ($\pm 100,000$ speakers). Since all or nearly all inhabitants of the Popolocan villages speak Spanish, the influence of that language on the vernacular languages is considerable.

The data on which this paper is based were collected in Los Reyes Metzontla, a village with approximately 800 inhabitants located south of Tehuacán, Puebla in Mexico.³ Only older people still speak or have knowledge of Popoloc. A closely related dialect is spoken in nearby San Juan Atzingo. These so-called eastern dialects of Popoloc (cf. Williams & Pike 1968: 368; Kalstrom & Pike 1968: 16) show lexical and structural interference from Nahuatl, which is spoken in surrounding villages; some examples of influence from Nahuatl are given in Veerman-Leichsenring (2000*a*).

The Popolocan languages are basically verb initial (VSO) with the typologically correlated use of prepositions, noun-adjective (but quantifier-noun) and noun-possessor orders, noun followed by relative clause, the auxiliary preceding the verb and the use of a clause initial question marker

¹ The data presented in this paper were collected during several fieldwork periods between 1970 and 1997 which were largely supported by the Netherlands Organization for Scientific Research (NWO) and the Netherlands Foundation for the Advancement of Tropical Research (WOTRO).

² To make a clear distinction with the name of the language family, Popolocan, I use the name Popoloc to refer to the language, like Mixtec vs. Mixtecan, Chinantec vs. Chinantecan, etc. See also Longacre (1962), Kirk (1966: 2) and Gudschinsky (1959: 1ff.).

³ The exact number of inhabitants is difficult to determine due to frequent and extensive migrations to regions where work is offered.

(Greenberg 1966). When for pragmatic reasons a subject or object argument is placed before the verb, the canonical VSO order is recovered by placing a pronoun that is coreferential with the preverbal noun phrase after the verb word. The following clauses exemplify unmarked VSO (1a) and marked SVO order (1b).⁴

- (1) a. $\check{c}e^2-\check{?}e^3=ni^2$ $tha^3-xua^1na^1$ ni^3u^3
 give-3>3=INCL CL-Juana tortilla
 ‘Mrs. Juana gives us tortillas.’⁵
- b. $tha^3-xua^1na^1$ na^3 $\check{c}e^2-\check{?}e^3=ni^2=tha^3$ ni^3u^3
 CL-Juana FOC give-3>3=INCL=CO tortilla
 ‘It is Mrs. Juana who gives us tortillas.’

Probably under the influence of the Spanish SVO order, an unmarked verb medial word order instead of VSO occurs in the four languages. The extent of this development differs in each of the languages, and is probably related to different degrees of bilingualism and varying periods of contact with Spanish.

⁴ The phonemes of Metzontla Popoloc are: voiceless stops *c, t, ç, č, k, ?*; voiced stops *b, d, g*; aspirated stops *ch, th, çh, čh, kh*; prenasalized consonants *mb, nd, nž, ng, nr, nh*; fricatives *s, š [š, š], x [x, h]*; liquids *l, r*; approximants *w, y*; voiced nasals *m, n*, and voiceless nasals *M, N*; vowels *i, e, a, u* with their nasalized counterparts and phonemic vowel length. The three contrasting tones are represented with superscript numbers, ¹ for high, ² for mid and ³ for low tone. A vowel cluster marked with one toneme represents a diphthong or a long vowel. Syllables are open but may be closed by glottal stop *?*. Stress triggers lengthening in consonants that are not preceded by a long vowel. See Veerman-Leichsenring (1984 and 1991) for details.

⁵ The following abbreviations are used in this paper: 1 = 1st person, 2 = 2nd person, 3 = 3rd person, 1>3 = 1st person subject with 3rd person object, 2>1 = 2nd person subject with 1st person object, etc., A = agent, APR = approximative, ART = article, CL = classifier, CO = co-referential pronoun, COM = comitative, EXCL = 1st person plural exclusive, FUT = future tense, FOC = focus or topic marker, IMPERF = imperfective/habitual, INCL = 1st person plural inclusive, INST = instrumental, intr. = intransitive, irr. = irregular verb, NEU = neutral tense, NEG = negation marker, O = inflected object, PST = past tense, P = patient, PERF = perfective, PL = plural, PRES = present tense, Q = question marker, REC = reciprocal, R, REFL = reflexive, REV = reverential, S = inflected subject, Sp. = Spanish and tr. = transitive. Where appropriate and possible, enclitics are preceded by a double dash (=), prefixes by a single dash (-), disregarding tonal and assimilative phenomena. A dash after the stem indicates that an inflectional ending is obligatory.

According to the basic VSO order, extensive verb coding is one of the essential properties of Popoloc. Most grammatical relations are expressed in the verb word assigning the verb the more important role in clause and sentence. Figure 1 represents the order and the maximal number of morphemes in post-root position:

Figure 1

ROOT | derivational suffixes | person | negation | plural and co-reference

The derivational suffixes, such as comitative and instrumental (see 4.2 and 4.3 below) must precede the inflectional suffixes. Plural enclitics and co-referential pronouns mark the end of the verb phrase.

The order of morphemes in initial position is more complicated and is generalized in a somewhat simplified way in Figure 2.

Figure 2

tense | aspect | derivational prefixes | passive or neutral tense marker | ROOT

Tense prefixes must precede the aspectual and derivational prefixes. The neutral tense marker is required after aspectual prefixes such as the imperfective, inchoative, and approximative but also after the derivational causative prefix (4.4). The passive form of the verb (4.5) is used after the passive perfective prefix and in some instances after the anticausative prefix (4.6).

Auxiliary verbs, which may be fully inflected for person and tense, precede the main verb. Tone and consonant substitution and vowel assimilation add to the complexity of morphological structure. The morpheme order within the verb phrase is exemplified in the following clause.

- (2) *či³? na³ čũ³ša¹ kʔu³tuã²-ʔa²=nda¹=či³?*
 pot FOC know.2 PST.paint.2-NEG=PL.2=CO
 'It is pots that you.PL did not know to paint.'

Since person, negation, tense and aspect marking is applied to the outer edges of the verb stem, these categories may be considered as inflectional whereas processes that affect the inner structure of the verb stem as derivational. However, an absolute distinction between inflection and derivation is difficult to make in terms of formal realization since none of the morphological processes are confined to one or the other domain. Furthermore, argument structure and lexical meaning do not form a firm basis for separation either. For example, some verbs may extend their valency and change their

meaning by using distinctive inflectional endings (see 4.1) whereas the valency reducing agentless passive (4.5) proceeds from consonant substitution, which is a regular means of expressing time reference.⁶

This paper is structured as follows: a global outline of tense and person marking is given in §§2 and 3 respectively. §4 focuses on valency-changing processes, both derivational and inflectional. Finally, conclusions are presented in §5.

2 Tense marking

According to their inflectional possibilities in initial position, verb stems are divided into two classes. 67% of the verb stems contained in my material have a plain vowel or a vowel preceded by glottal stop or aspiration in initial position. These stems, which are predominantly of the dynamic type, prefix *t-* for present tense, *ku-* [*kw-*] for past tense, and *c-* for future tense. Past and future tense may include tone substitution in the first syllable. An example is *ti²nga¹* ‘he runs’; *kui¹nga¹* ‘he ran’; *ci²nga¹* ‘he will run’. Since the present tense form is the least subject to phonological modifications, it can be considered the basic one. Accordingly, I call these verbs *t*-verbs.⁷

A neutral form, which is marked by a velar consonant resulting in initial *k-*, *k²-*, *kh-* or *x-*, is required after the imperfective prefix *k²ue¹-*, and after the active perfective prefix *ci¹-*, as shown in (3):

- (3) *kue¹-k²ɿ²* *kua²ye²* (*tɿ²* ‘to drink’)
 IMPERF-NEU.drink.3 much
 ‘He used to drink much.’

⁶ As discussed already by De Angulo (1926: 133), a drift from analysis to synthesis, from monosyllabism to polysyllabism, from ‘isolation’ to ‘affixation’ characterizes a large number of the Mesoamerican languages. Also in Popoloc, most disyllabic verb stems and practically all stems with more than two syllables show features of synchronic or diachronic composition. The complex layering of the actual Popoloc verb stems is largely due to recurrent and still operative transitivity and in-transitivity processes, which fused old pre-verbal items to the stem.

⁷ It is plausible that the present and past tense prefixes used in *t*-verbs in present-day speech have their source in aspectual distinctions that are typically used with dynamic verbs, such as progressive, perfective and imperfective. The difference between future tense and irrealis mode is subtle in actual speech. The fact that most non-*t*-verbs may apply a future tense prefix but not a past or present tense prefix suggests that these verbs encode essentially a realis-irrealis distinction.

The neutral tense form is also required after other aspectual and derivational prefixes, as, for example, the causative prefix $\check{c}ʔe^2$ - (see 4.4).

The remaining 33% of the recorded verbs have a consonant in initial position that does not allow substitution.⁸ They do not mark tense although the prefix cu^3 - may be optionally used to indicate future tense. It is mainly the context of discourse that disambiguates the interpretation of time reference. I call them non-*t*-verbs. Most of them are of the static type as, for instance, che^3 'he sings' / 'he sang'; $(cu^3-)che^3$ 'he will sing'.

Some irregular non-*t*-verbs, such as $\check{c}ʔe^2$ 'to make' and the causative prefix derived from this verb, take particular syllabic prefixes to express time reference.

A consonant-initial stem may become a vowel-initial stem by derivation since derivational prefixes are often the unaccented forms of dynamic *t*-verbs. Tense is encoded then in the derivational prefix by the regular substitution of the initial consonant. For example, $tu^1-ni^1\check{r}^2$ 'he becomes ill', derived from $ni^1\check{r}^2$ '(to be) ill': $ku^1-ni^1\check{r}^2$ 'he became ill', $cu^3-ni^1\check{r}^2$ 'he will be ill'. Since adjectives are used without a copula, a large part of the non-*t*-verbs may be classified as adjectives.

Tense and aspect marking do not cause valency change and are excluded from further discussion in this paper.

3 Person marking

Four verb classes are distinguished in terms of person marking. The S-verbs, forming the largest class, encode only the person of the subject. A smaller class, the so-called SO-verbs, marks the persons of subject and object with one portmanteau morpheme. A few verbs are inflected either way dependent on the syntactic structure of the clause, the S/SO-verbs (see 4.1). The reflexive R-verbs, take pronominal enclitics like most of the predicate adjectives. Reciprocal is marked with a specific pronoun, which is added to the S- or SO-inflected verb. The S-, SO- and S/SO-verb classes show subdivisions

⁸ Some recurrent initial consonants in several sets of these verbs strongly suggest that they are the remains of old prefixes defining the verb for specific semantic features, which were later reinterpreted as forming part of the verb stem. For example, a series of verbs with an initial velar consonant express some sort of an iterative movement, as khi^1 'to shave oneself', khi^3 'to write', $xe^3n\check{r}u^3$ 'to smoke', $khâ^3$ 'to come back, to turn around'. Other verbs are obviously lexicalized future forms or agentless passives, such as $\check{s}u^1te^2$ 'it boils', $\check{s}e^2xua^2$ 'it is possible', $\check{s}aa^1gũ^3$ 'he/she is afraid'. These verbs lack an active form and need a derivational prefix in transitive predication (see also §4.5).

based on morphological features and/or paradigmatic deficiencies.

The type of inflection a verb takes, S, SO or R, is for the most part an inherent characteristic of the verb stem based on the semantic functions of subject and object. With the exception of the S/SO-verbs, the presence of a direct object argument in the clause has no influence on the type of inflection a verb takes. Both the S- and the SO-classes contain verbs that may take a direct object and also verbs that cannot take a direct object. This means that the standard notion of transitivity is not a relevant factor for the inflection of the Popoloc verb. Thus the terms 'transitive' and 'intransitive' will henceforth only be used in the semantic or syntactic sense in this article. Semantic transitivity plays a fundamental role in derivational processes, especially in the valency-changing ones.

3.1 S-verbs

The S-verbs are transitive or intransitive but encode only the subject which is prototypically a human agent. The direct object of the transitive verbs is mostly a non-human patient. A human patient may be involved in the action of the verb but is not encoded as object. Most S-verbs mark first and second person of the subject using a suffix *-a*, which fuses with the final vowel of the stem. The third person is the unmarked form.⁹ Example: *thi'tu³* 'he piles (something) up'; *thi'tua³* 'I pile up'; *thi'tua²* 'you pile up'.

Two subclasses, S-I and S-II, are distinguished on the basis of tone alternations. In subclass S-I, a tone change occurs only in the final position of the second person form with a mid tone substituting a stem final low or high tone as in the preceding example. In addition to the tone substitution in the final syllable of the second person form, tonal substitution occurs also in non-final syllables of first and second person forms in subclass S-II. A large part of these substitutions show a contrastive mirror-like pattern with a high tone substituted by a low tone and vice versa. The behaviour of the mid tones depends on the entire tonal context; see Veerman-Leichsenring (1991) for a complete description of tone substitutions in S-II-verbs.¹⁰ An example of an

⁹ A number of S-verbs is lexically impersonal with a default third person form. They refer to natural phenomena or to an action that is accomplished without the intervention of a human actor as, for example, *taa³ge²* 'it (the pot) breaks'. Depending on their meaning, impersonal verbs have active, mostly causative counterparts, such as *tʔa'ndaa'ge²* 'to break (pottery)'.

¹⁰ Pike's explanation (1972: 107) that tone substitutions in non-final syllables are the residue of an old inflection in originally independent auxiliaries that are retained in later compounds is a plausible one. His hypothesis is supported by the fact that most

inflected S-II-verb is $t\lambda'u^1ka^3$ ‘he beats’; $t\lambda'u^3ka^3$ ‘I beat’; $t\lambda'u^3ka^2$ ‘you beat’.

Plurality is optionally marked but only in reference to human entities. The four enclitics presented in Table 1 encode number as well as person.

<u>Table 1.</u>	na^1	1 st person exclusive, added to the 1 st person form
	nda^1	2 nd person plural, added to the 2 nd person form
	na^2	3 rd person plural, added to the 3 rd person form
	ni^2	1 st person inclusive, added to the 3 rd person form

Examples:	$t\lambda'u^3ka^3=na^1$	‘we (EXCL) beat’
	$t\lambda'u^3ka^2=nda^1$	‘you (PL) beat’
	$t\lambda'u^1ka^3=na^2$	‘they beat’
	$t\lambda'u^1ka^3=ni^2$	‘we (INCL) beat’ ¹¹

3.2 SO-verbs

The SO-verbs form a morphologically defined class with semantically based features, expressing verb agreement with the subject and object arguments. SO inflection is associated with predicates that imply a human patient, in the grammatical role of a direct or indirect object, who is affected by a human agent, volitionally or unvolitionally, positively or negatively, physically or mentally. Typical SO-verbs are the equivalents of ‘to obey’, ‘to hate’, ‘to

prefixes, derivational as well as aspectual, substitute their tone when applied in different person forms. However, due to grammaticalization and consequent semantic reduction, the morphemic structure of the affected verbs is no longer recoverable. Beebe (1974: 5) supposes that stems with more than one tone change are two or more morphemes joined together with its own non-predictable tone change. This hypothesis is falsified by the unsegmentability of the greater part of the S-II verbs and by several verbs in subclass S-I that do **not** substitute their tones in non-final syllables while showing obvious signs of compounding. Furthermore, monosyllabic verb stems occur in both classes, in S-I with tone modification in the second person form only, and in S-II with tone substitution of the mirror-like type. The point of view offered by De Angulo (1926: 248) seems to fit better in synchronic analysis. According to him, grammatical tones have to be distinguished from lexical ones. The tone change in final position of the second person form is obviously a grammatical one dominating lexical tone. If no other tone change takes place, the tone is lexically fixed and an essential feature of the verb word itself. In the other verbs, my subclass S-II, the tone of the components is not lexically fixed showing substitutions that have a grammatical function in terms of person distinctions.

¹¹ The grammatical plural category is of fairly recent origin. Number is still lexically expressed in closely related Chocho and grammatically as well as lexically in Ixcatec. (See Veerman-Leichsenring 2000*b* and 2001).

forget', 'to know', 'to like', 'to love', etc. SO-verbs may be semantico-syntactically ditransitive but a non-human object is not expressed in the verb.

The following seven portmanteau suffixes are used in fully inflected SO-verbs. Two subclasses, SO-I and SO-II, are distinguished on the basis of phonemic differences in some person markers.¹²

	<u>S³</u>	<u>S¹</u>	<u>S²</u>
O ³	-ʔe ² / -ʔe ³	-ʔa ³	-ʔe ¹
O ¹	-na ³ / -nʔa ³	---	-na ² / -nʔa ²
O ²	-ʔa ²	-ʔa ¹	---

(The form after the slash is the SO-II marker.)

Vowel assimilation occurs in *-a*, *-e* and *-i* stems that add *-ʔa* or *-ʔe*. It is regressive in *-eʔa* > *-aʔa* and *-aʔe* > *-eʔe*, but progressive in *-iʔe* > *-iʔi*. An example of an SO-I inflected verb is *thua¹*- 'to love (a person)', as shown in (4):

- | | | |
|-----|--|--------------------|
| (4) | <i>thue¹-ʔe²</i> | 'he/she loves him' |
| | <i>thua¹-na³</i> | 'he/she loves me' |
| | <i>thua¹-ʔa²</i> | 'he/she loves you' |
| | <i>thua¹-ʔa³</i> | 'I love her/him' |
| | <i>thua¹-ʔa¹</i> | 'I love you' |
| | <i>thue¹-ʔe¹</i> | 'you love her/him' |
| | <i>thua¹-na²</i> | 'you love me' |

¹² The SO-II endings coincide with the possessive endings of class B nouns, which have predominantly a low tone in stem final position. In Northern Popoloc, a low tone in stem final position triggers a glottal stop in the 1st person object endings of SO-verbs, viz. *-ʔn.ã³* instead of *-n.ã³* (Stark 1976: 29), which suggests that the Metzontla SO-II endings are diachronically based on tonal characteristics also.

¹³ The morphemes expressing SO-relationships are diachronically fused suffixes that can be analyzed as segmental morphemes modified by tone morphemes. Table 2 shows a hierarchy that is based on distinctions of case as well as person, with O¹ (*-na* or *-nʔa*) as the higher ranked, followed by S¹ and O² (*-ʔa*) in equivalent positions, and O³ (*-ʔe*) dominating S², but outranked by S¹ (*-ʔa*). S³ is the lowest in rank and not encoded, as in the S-verbs. This hierarchy may be schematized as: O¹ > S¹/O² > O³ > S² > S³. The prominence of the object in the order of 1st > 2nd > 3rd person, which is obvious in most SO-endings, is interrupted by the 1st person subject. The equivalent hierarchical positions of S¹ and O² leads to analytical vagueness in the S¹O² ending, since the segment *-ʔa* can refer to an S¹-ending as well as to an O²-ending.

The regular plural enclitics are added in an OS order, as in *thua¹-na²=na¹=nda¹* ‘you.PL love us’ and *thue¹-ʔe¹=na²=nda¹* ‘you.PL love them’.

Some SO-verbs have a passive meaning and encode only the person of the object. In these S³O-verbs, the subject is an impersonal agent whereas the focus is completely on the object in the semantic role of patient, which undergoes the action of the verb.¹⁴ Some examples of S³O-verbs are *nu²-* ‘to know’ (it is known to a person), *tũ¹-* ‘to happen’ (it happens to a person), *ti²-tha¹nia²-* ‘to forget’ (it gets lost to a person). Most of the polysyllabic S³O-verbs show obvious signs of derivation, synchronic or diachronic. For example, the verb *tu¹-çhui¹-* ‘to like, to be pleased’, is derived from the adjective *çhui¹* ‘beautiful, pretty’ using the ingressive marker *tu¹-*; the verb *ti²-tha¹nia²-* ‘to forget’ contains the prefix *ti²-* and is related to the causative verb *çʔe²-tha¹nia²* ‘to lose’.¹⁵

3.3 Reflexive verbs

The action or state expressed by the reflexive verbs affects the subject of the predicate in a direct way. The subject, who fulfils the agent as well as the patient role, may be passive (to suffer, to feel warm) or active (to move oneself, to stretch oneself). The enclitic *na²* is applied for first and *a²* for second person. Stem tones are not substituted and the third person form is the unmarked one: *thu¹nga²* ‘he sneezes’; *thu¹nga²=na²* ‘I sneeze’; *thu¹nga²=a²* ‘you sneeze’.¹⁶ The reflexive type of inflection is also applied to predicate nouns and to the greater part of the adjectives: *çhi³* ‘woman/ she is a

¹⁴ Eight SO-verbs encode a default third person object although their meaning does not presuppose a human patient. Some of these verbs are *tha²kʔtha²-* ‘to open’, *tĩ²-* ‘to hear’, *tʔʔšã²-* ‘to enter’, *tʔa²ya¹-* ‘to receive’. My guess is that these verbs, expressing an impersonal object, are the relics of an older inflection type. I also registered four verbs that encode a default third person subject and object as well having consequently only the S³O³ form: *ši²the¹ʔe²* ‘it opens’, *thĩ²ʔ²* ‘it is kept’, *ti²tũ³ʔe³* ‘it is given (as a present)’, *ti²xe²ʔe³* ‘it closes’. These verbs refer to a spontaneous movement, not caused by a human agent and apparently not affecting a patient. Two of these verbs are impersonal reflexives with an anticausative meaning containing the prefix *ti²-* (see §4.6); three are the passive equivalents of the transitive SO³-verbs *ta²kʔe¹tha²-* ‘to open’, *tʔe³xa²-* ‘to close’ and *çʔe²tũ³-* ‘to give (as a present)’.

¹⁵ Some adjectives apply S³O endings in a predicative function, as e.g. *çe¹-ʔe²* ‘he is happy’, *ça¹-nʔa³* ‘I am happy’, *ça¹-ʔa²* ‘you are happy’. However, the S³O³ form is also used in an attributive function: *ngu²ndu³a³ çe¹-ʔe²* (a man happy-3>3) ‘a happy man’.

¹⁶ The second person enclitic *a²* fuses with the stem final vowel in a diphthong or single vowel.

3 rd person:	-ku ³	or	-kɫu ³
1 st person :	-kã ³	or	-kɫã ³
2 nd person:	-kua ²	or	-kɫua ²

The suffix is applied to S- and R-inflected verbs but is not found with SO-verbs. Although the valency of the verb is extended with another human argument, the derivation does not affect the semantic role of the subject nor does it change the inflectional class of the verb. The suffix takes over the reference to the subject, which is the agent of the action whereas the verb stem is unmarked for person, as exemplified in (10) by the comitative forms of the verb *tɫɫ²* ‘to drink’.

(10)	<i>tɫɫ²</i>	‘he drinks’	<i>tɫɫ²-ku³</i>	‘he drinks with another person’
	<i>tɫɫa¹</i>	‘I drink’	<i>tɫɫ²-kã³</i>	‘I drink with another person’
	<i>tɫɫa²</i>	‘you drink’	<i>tɫɫ²-kua²</i>	‘you drink with another person’

Usually, the comitative argument is nominal, whereas the person of the subject is expressed by pronominal inflection. The comitative argument immediately follows the predicate where it occupies the position that is normally taken by the subject/agent, as shown in (11).

(11)	<i>the³-the³xu¹-kɫu³=sẽ¹</i>	<i>tĩ¹</i>	<i>tɫe¹=sẽ¹</i>
	are-live.3-COM.3=REV	the	his.parent=REV
	‘They are living together with his parents.’		

When both arguments are nominal, the comitative argument appears in preverbal position followed by the focus marker, as in (12):

(12)	<i>tĩ¹</i>	<i>ndu³a³</i>	<i>na³</i>	<i>tɫɫ²-ku³</i>	<i>ši¹nɫa³</i>
	the	man	FOC	drink-COM.3	my.husband
	‘It is the man with who drinks my husband.’				
	(= With the man drinks my husband.)’				

Since subject and comitative arguments can both be expressed nominally or pronominally, the semantic function of these arguments cannot always exactly be defined, which may contribute to ambiguous interpretations.

Taking into consideration that two participants are involved in the action

and *thi³kɫu³* ‘to bring’, in which the comitative element is lexicalized, suggests that the presence of *ɫ* is based on a feature of direction.

of the comitative predicate, a complete paradigm of the comitative suffix should contain seven personal forms, with all possible combinations of the three grammatical persons, like the endings of SO-verbs. The fact that such detailed paradigms of the comitative suffix are not present in Metzontla Popoloc is in accordance with the agentive involvement of both participants in the action of the predicate, which may be represented as S/A and COM/A. This relationship differs fundamentally from the one between the participants in the SO-inflected verbs, which could be represented as S/A and O/P. The shared semantic function of the participants in the comitative predicate makes a paradigm of seven forms redundant. For example, the suffix *-kã³* refers to a first person associated with a third person in a function of co-agency, which can be represented as 1st + 3rd person or vice versa, 3rd + 1st person. Since comitative-derived predicates are not found with an SO inflection, the two categories seem to exclude each other. This should mean that it is impossible to express by morphological means that an agent together with a co-agent fulfils an action on behalf of another person. Of course, further research is needed to falsify this hypothesis.

The participation of two associate agents in the action of the verb, which in fact coincides with a dual distinction, can be pluralized using the regular plural enclitics:

- (13) a. *tʔ²çĩ²-kua²=nda¹*
 sleep-COM.2=PL.2
 ‘You.PL sleep together’ (2nd and 3rd persons)
- b. *tʔ¹çĩ³-kã³=na¹*
 sleep-COM.1=EXCL
 ‘We sleep together’ (1st and 3rd persons)

The shared agent function and the shared position in terms of word order, indicate that S/A and COM/A occupy a close or similar position in the semantic function hierarchy of Popoloc (Dik 1978: 70ff.). Such a prominent function with respect to the predicate is in accordance with a high degree of control of the associated agents. Although this kind of associated involvement in the action of the verb is distinct from a reciprocal relationship, where the involvement is mutual, a reciprocal pronoun may be added to the comitative predicate to express a relationship of affection between the agent and the co-agent, as shown in (14).¹⁸

¹⁸ A comparable kind of semantic and formal association of comitative and reciprocal categories is present in Otomí. In the dialect of Santiago Mexquititlán, a sin-

- (14) *the'xu³-kʔā³ ki'č'i'a³=na'*
 are-COM.1 REC.1=EXCL
 'We are together (like brothers).'

Some speakers use the conjunct *ku³* to introduce the comitative argument, as in (15):

- (15) *tʔā'* *ku³* *tī'* *ndu³a³*
 drink.1 and the man
 'I drink with the man.'

Spanish word order and the phonemic resemblance of the Spanish preposition *con* 'with' most probably influenced the development of this kind of analytic comitative structure.

An inflected comitative element, verbal, pronominal or prepositional, is used in several Otomanguean languages, for example, in closely related Ixcatec (Fernández de Miranda 1961: 13; Veerman-Leichsenring 2001), in Chinantec (Rupp & de Rupp 1996: 494), in Chiapanec and in distantly related Tlapanec (Søren Wichmann, p.c.; see also Suárez 1983 and 1986), and appears to be an ancient, or even a Proto-Otomanguean category.¹⁹

4.3 Instrumental

The instrumental (INST) suffix *-š'i²* extends the structure of the verb stem with an argument that is prototypically non-human. Neither the semantic role of the subject nor the type of inflection is altered. The inflection of the basic predicate just passes on to the suffix. The suffix is productively used in S-, SO-, and R-inflected verbs and in agentless passive verbs (see 4.5). The vowel of the suffix fuses with the ending *-a* in first and second person forms of the S-verbs; the suffix does not change its tone. SO-endings are added with the regular *-iʔe > -iʔ* vowel assimilation in S³O³ and S²O³ forms (see §3.2).

In most active verbs, the instrumental suffix encodes that the action is carried out with an instrument. In these cases, the instrumental argument

gle series of suffixes is used to express comitative and reciprocal, as well as inclusive duality and plurality (Hekking 1995: 48, 51).

¹⁹ The comitative is an interesting category because it expresses the concept of plurality of agents. Grammatical plural developed rather recently in the Popolocan languages and cross-linguistic differences in the degree of grammaticalization of number appears to be inversely related to different degrees in the loss of the comitative (Veerman-Leichsenring 2004).

regularly precedes the predicate, as shown in (16a-c).

- (16) a. *ka³ši¹ na³ molde tɔu¹na²-ši²*
 all FOC mould is.made-INST.3
 ‘Everything is made with a mould.’
 b. *nda³ tha³te²-ši² čɔ¹-to²ma¹*
 stick beat-INST.3 CL-Tomas
 ‘Mr. Tomas beats with a stick.’
 c. *tu³tɔa¹ tɔu³nga²-ši²-ɔ¹*
 your.foot touch-INST-2>3
 ‘You touch him with your foot.’

The instrumental argument that follows the verb and its eventual nominal subject, occupies the object position and is not marked in the predicate, as shown in (17).

- (17) *tha³te² čɔ¹-to²ma¹ nda³*
 beat.3 CL-Tomas stick.
 ‘Mr. Tomas beats with a stick.’

The argument of the instrumental used with verbs of motion refers to the source of the action; when used with telic verbs it refers to the cause of the result. In both cases the argument occurs postverbally, as shown in (18a-b).

- (18) a. *tɔ³-ša² nda³či²na²*
 come-INST.1 Tehuacán
 ‘I come from Tehuacán.’
 b. *kɔu¹-ši² xi³nda³* (*tɔ³ē³ ‘to die’*)
 PST.die-INST.3 hunger
 ‘He/she died of hunger.’

In some cases, it is difficult to define the precise semantic value that the instrumental suffix adds to the basic predicate, as, for example in *tɔ²ɔ²-ši¹* ‘to understand’, an S-verb derived from SO³ *tɔ²ɔ²* ‘to listen’; likewise in *te²gũ³-ši²* ‘to trust’, derived from *te²gũ³* ‘to understand’, both S-verbs. Moreover, the meaning of ‘to trust’ and ‘to understand’ presupposes a human patient, which means that the valency of the basic predicate is extended with a human argument, and thus is contradictory to the prototypical non-human reference of the instrumental suffix. It is obvious that the main function of the instrumental suffix is a syntactic one, namely to increase the valency of the

verb with a further argument other than object or comitative. In most cases, the semantic value of the instrumental argument depends on and is disambiguated by the meaning of the verb to which it applies.

An element *-ši* is present in the final position of several verbs whereas a morphemic relationship with a verb without *-ši* is lacking. Examples are *sʔe¹-ši²* ‘to try’, *ti³ʂʔ²-ši³* ‘to dream’, *tha³ngi¹-ši²* ‘to begin’. Some of these verbs show signs of inflection in internal position, which signals that the suffix functioned as a free form in an earlier stage of the language, see (19):

- (19) *ti³ʂʔ²-ši³* ‘he is dreaming’
ti³ʂi¹-nʔa³-ša¹ ‘I am dreaming’
ti³ʂʔa²-ša¹ ‘you are dreaming’

The instrumental and comitative markers are mutually exclusive, thus when the clause or sentence contains both an instrumental and a comitative argument, only one of the arguments is encoded in the predicate and a conjunction is used, as shown in (20):

- (20) *xā¹ʔā³* *ku³* *xa²ʔa²* *na³* *kʔua³çhe²-ši²=ni²* *tī¹* *ča²a³sē²*
 I and you FOC PST.leave-INST.3=INCL the village
 ‘You and I left the village together.’

I have not discovered any criterion according to which the encoding of one argument is preferred over another.

4.4 Causative

Popoloc has three different types of causative constructions, which contrast semantically. Two are morphological derivations using one of the causative prefixes *çʔe²-* or *tʔe³-*. The third one is a periphrastic construction.

The derived verbs using a prefix are prototypically causative according to the characteristics formulated by Dixon & Aikhenvald (2000: 13), i.e., they are derived from underlying intransitive verbs; the argument in underlying S function (the causee) has O function in the causative; a new argument (the causer) is introduced as agent; there is some explicit formal marking of the causative construction.

The prefix *çʔe²-* is applied to intransitive S verbs, reflexive verbs, adjectives and some passive S³O predicates (verbs or adjectives). The prefix has the forms *çʔe²-* for second or third person and *tʔa²-* for first person, thus retaining the irregularities of the independent S/SO-verb *çʔe²* ‘to make’. The specific tense markers that are used with the independent verb, PST *kui¹-*, FUT

*ci*²-/ *si*²-, NEU *ki*²-, are also used with the prefix. The neutral form of the underlying *t*-verb follows the causative prefix. Non-*t*-verbs follow unchanged. The derived causative verb applies S or SO inflection according to the inflectional features of the underlying verb. The causee of the derived causative verb may be a non-human patient or a human patient lacking control of the activity. When the causee is non-human, the agent (causer) of the causative action is encoded as subject in the causative prefix and also in the final position of the causative verb, as shown with the reflexive verb *ti*²*ngi*² ‘to move oneself’ in example (21a). A human causee without control over the action is encoded as subject in final position of the causative verb whereas the causer is encoded as subject in the causative prefix, as shown in (21b). When the causative verb derives from an SO-verb, the causer is encoded as subject in the prefix whereas causer and causee are encoded in an SO port-manteau morpheme in final position, as in (21c-d).

- (21) a. *č**ɽe*²-*ki*²*ngi*² ‘he/she moves (something)’
*t**ɽa*²-*ki*²*ngia*² ‘I move (something)’
*č**ɽe*²-*ki*²*ngia*² ‘you move (something)’
- b. *ci*²-*t**ɽa*²-*sa*¹*nga*² *č**h**ã*³ (*sa*¹*nga*² S ‘to cry’)
 FUT-CAU.1-cry.3 child
 ‘I will make the child cry.’
- c. *t**ĩ*¹ *š**ũ*²*ã*³? *na*³ *kui*¹-*č**ɽe*²-*ni*¹-*ɽ*² *č**h**ã*³
 this medicine FOC PST-CAU.3-ill-3>3 child
 ‘This medicine made the child ill.’ (*ni*¹*ɽ*² S³O ‘to be ill’)
- d. *t**ĩ*¹ *š**ũ*²*ã*³? *na*³ *kui*¹-*č**ɽe*²-*ni*¹-*na*³
 this medicine FOC PST-CAU.3-ill-3>1
 ‘This medicine made me ill.’

The prefix *č**ɽe*²- also derives causative verbs from adjectives, which follow unchanged: *thu*¹*a*¹ ‘white’, *č**ɽe*²-*thu*¹*a*¹ ‘to make white’; *ša*¹*ma*¹ ‘dry’, *č**ɽe*²-*ša*¹*ma*¹ ‘to dry (TR.)’. In my corpus there is only one attestation of a causative verb derived from a noun, the intransitive *č**ɽe*²-*ša*³? ‘to work’, based on *ša*? ‘work’. The constraint of inserting morphemes between the two segments distinguishes the derived causative verb from the semantically similar verb phrase. Compare the two clauses in example (22).

- (22) a. *si*²-*č**ɽe*²-*ša*³-*ɽa*²=*ni*²
 FUT-CAU-work-NEG=INCL
 ‘We will not work’

- b. $si^2-če^2-ʔa^2=ni^2$ $ša^3ʔ$
 FUT-make-NEG=INCL work
 ‘We will not do the work.’²⁰

The intransitive counterpart of the causative prefix $čʔe^2-$ is the prefix tu^1- (PST ku^1- , FUT cu^1-), which derives passive verbs from adjectives. The prefix is the altered form of the S³O verb $tũ^1-$ ‘to become, to happen’. The derived verb takes over the type of inflection of the underlying predicate. The meaning of the derived verbs is ingressive, i.e. to enter unvolitionally into the state expressed by the adjective. As in other passive verbs, the subject is patient or impersonal, as shown in (23).

- | | | | | |
|------|------------------|-----------------|---------------|-----------------------|
| (23) | $tu^1-xũ^3ʔũ^2$ | ‘to become old’ | < $xũ^2ʔũ^2$ | ‘(to be) old’ |
| | $tu^1-xie^1ma^1$ | ‘to become fat’ | < xie^1ma^1 | ‘(to be) fat’ |
| | $tu^1-ti^3ye^2$ | ‘to get dark’ | < ti^3ye^2 | ‘(to be) dark, black’ |

No valency change is involved here since the subject of the original predicate continues to be the subject of the derived verb and no other argument is added.

In a number of verbs, the prefix tu^1- is commutable with the causative prefix $čʔe^2-$, whereas the second component of these verbs is not used independently.

- | | | | | |
|------|---------------------|------------------|-------------------------|------------------|
| (24) | $tu^1-tʔe^2$ (irr.) | ‘to get married’ | $če^2-tʔe^2$ (S) | ‘to marry (tr.)’ |
| | $tu^1-sa^1ya^2$ (S) | ‘to be thanked’ | $čʔe^2-sa^1ya^2$ (S/SO) | ‘to give thanks’ |

The tu^1- prefix appears in a relatively large number of impersonal verbs with an ingressive meaning where it cannot be omitted or substituted, as in tu^1-ndu^1 ‘night is falling’ or $tu^1-thē^2$ ‘it putrefies’.

The verbs $čʔe^2$ and $tũ^1-$ are used as auxiliaries with Spanish loan verbs to enable the expression of person and tense reference. S-inflected $čʔe^2$ is used with transitive verbs with a non-human patient, $kui^1-čʔe^2 pi^1nta^1$ ‘he painted’ < Sp. ‘pintar’; $si^2-tʔa^2=na^1 re^1ga^1$ ‘we (EXCL) will irrigate’ < Sp. ‘regar’. S³O-inflected $tũ^1-$ appears in some loan verbs with a human patient undergoing the action of the verb, as in $tũ^1-na^3 yu^1da^1$ ‘I get help’ < Sp. ‘ayudar’; $tũ^1-ʔa^2 ma^2nte^2ne^1$ ‘you are supported’ < Sp. ‘mantenerse’. The possibility of inserting suffixes and enclitics between the auxiliary and the verb distin-

²⁰ The phoneme $ʔ$ in a consonant cluster is generally omitted when immediately followed by a morpheme with an initial $ʔ$ or a consonant cluster with $ʔ$.

guishes the auxiliaries from the prefixes.

The other causative prefix, $tʔe^3-$, derives verbs that refer to a positional change of a direct object. Some examples are $tʔe^3-ma^3ʔ$ ‘to hide’ and $tʔe^3-ndu^2$ ‘to expose to the sun’. The derived verb encodes the person of the subject, which is prototypically a human agent, using S- or SO³-inflection. The patient of the derived verb is prototypically non-human. The prefix $tʔe^3-$ is not overtly related to an independent verb with a comparable meaning. The second component may be an adjective, as for example in $tʔe^3-ndu^2a^2$ ‘to straighten’ based on the adjective ndu^2a^2 ‘(to be) straight’. However, more often the second component is not found in isolation but always with a prefix, as, for example, with anticausative ti^2- (see §4.6) or with the intransitivizer $ta^2kʔe^2-$.²¹ Whereas $tʔe^3-$ is used in verbs that denote a positional change of an object, the prefix $ta^2kʔe^2-$ occurs in verbs that denote a change in the physical or mental attitude of the subject. In most cases, the second component is an independent adjective, or an element that is not used in isolation; some examples are given in (25).

(25)

$ta^2kʔe^2-xie^1ʔe^2$ (R)	‘to become furious’	$xie^1ʔe^2$ (R)	‘(to be)furious’
$ta^2kʔe^2-ma^1$ (S)	‘to hide oneself’	$tʔe^3-ma^3ʔ$ (S)	‘to hide (tr.)’
$ta^2kʔe^2-nda^1$ (S)	‘to be attentive’	$tʔe^3-nda^3ʔ$ (S)	‘to guard’

The derived verbs encode subject or subject plus object according to the inherent inflectional features of the second component; the prefix encodes the person of the subject by tone substitution, and number by suppletive plural forms based on $tʔe^2xu^1-$ as exemplified in (26) by the forms of the S/SO verb $ta^2kʔe^2-su^1ʃi^2$ ‘to be thankful’:

(26)	$ta^2kʔe^2-su^1ʃi^2-ʔ^2$	‘he/she thanks him/her’
	$tʔe^1xu^3-su^1ʃi^2-ʔa^3=na^1$	‘we (EXCL) thank him/her’

²¹ The causative prefixes $čʔe^2-$ and $tʔe^3-$ are lexicalized in a number of verbs, as in the verbs $čʔe^2khi^2$ ‘to sell’ and $te^3nʔa^3$ ‘to buy’. Since the Spaniards introduced the market mechanism of buying and selling in replacement of the traditional exchange of products, the historical composition of both verbs is rather transparent. The first verb, $čʔe^2khi^2$ ‘to sell’, contains the causative prefix $čʔe^2-$ followed by the neutral form of the verb thi^2 ‘to go’, so the verb means literally ‘to make go’. The second verb, $te^3nʔa^3$ ‘to buy’, is composed of the causative prefix $tʔe^3-$ and the noun $nʔa^3$ meaning ‘farm, possession’, which directs to an original meaning ‘to put into possession’.

Since *taʔkʔe²-* appears in a relatively small number of intransitive verbs, its productivity seems to be limited in the Metzontla dialect.

A periphrastic causative construction is used when the causee fulfills the action volitionally or with a certain degree of control. The verb *čʔe²* ‘to make’ functions as the auxiliary encoding the SO relationship between the human agent (the causer) and the human patient (the causee). The main verb encodes the causee as subject and generally expresses future tense. The neutral tense form is not applied in the periphrastic construction. Co-referential pronouns and plural enclitics follow the auxiliary as well as the main verb in agreement with the argument structure of the clause.

- (27) a. *si²-ta²-ʔa³=ša¹* *cʔa³čʔe²=ša¹*
 FUT-make-1>3=CO FUT.leave.3=CO
 ‘I will make him (boy) leave’
- b. *si²-ta²-ʔa³=na¹=ša¹* *cʔa³čʔe²=ša¹*
 FUT-make-1>3=EXCL=CO FUT.leave.3=CO
 ‘We (EXCL) will make him (boy) leave’
- c. *si²-ta²-ʔa³=ša¹* *cʔa³čʔe²=na²=ša¹*
 FUT-make-1>3=CO FUT.leave.3=PL.3=CO
 ‘I will make them (boys) leave’.

The first occurrence of the co-referential pronoun *ša¹* (boy) in the three examples relates to the person of the patient (the causee), the second one to the same person, which is now the agent of the action expressed by the verb ‘to leave’.

The semantic difference between the morphological and the periphrastic causatives resides in the control or volition of the causee, which is absent in the morphologically derived causatives and present in the periphrastic construction.

4.5 Agentless passive

Transitive S-inflected *t*-verbs prototypically refer to an action with a human agent and a non-human patient. These verbs derive agentless passives using the prefix *š-* which replaces the tense marker. Although the identity of the agent is known or supposed, the agent is suppressed or defocused, which results in an intransitive predicate with a subject in the semantic role of patient that corresponds to the underlying direct object. The explicit mention of the agent should require the use of an active verb form. Like the impersonal verbs, the agentless verbs have only the third person form. However, they differ in the category of the agent, which is non-human in the impersonal

verbs but which is presumed to be human in the agentless passives.²²

The agentless verbs behave in terms of time reference like non-*t*-verbs, i.e. past tense can only be encoded by the raising of a mid or low tone and future tense by the optional use of the future prefix *su*³-, the phonologically conditioned alternant of *cu*³-, as shown in (28a-b).

- (28) a. *tʔu¹ nu³a³* 'he/she grinds the corn'
 ʂʔu¹ nu³a³ 'the corn is/was ground'
 (*su*³-)*ʂʔu¹ nu³a³* 'the corn will be ground'
 b. *tha³ngi¹ʂi² ʂa³ʔ* 'he/she starts the work'
 ʂa²ngi¹ʂi² ʂa³ʔ 'the work is (has been) started'
 ʂa¹ngi¹ʂi² ʂa³ʔ 'the work was started'
 (*su*³-)*ʂa²ngi¹ʂi² ʂa³ʔ* 'the work will be started'

Instead of using the *ʂ*- prefix, SO-verbs use the first person inclusive form to direct the attention away from a specific agent, as shown in (29).

- (29) *tʔ¹ ʂi³Ni¹ na³ tʔ²ʔ²ʂi¹-ʔa²=ni²*
 this word FOC PRES.understand.3-NEG =INCL
 'We do not understand this word. (This word is not understandable).'

The state resulting from a transitive action is expressed using the passive perfective prefix *si*¹- before the agentless verb, forming a participle with a passive meaning, as in (30a-b).

- (30) a. *si¹-ʂʔu¹ nu³a³* 'the corn has been ground'
 b. *si¹-ʂa²ngi¹ʂi² ʂa³ʔ* 'the work has been started'

A number of impersonal and reflexive verbs have *ʂ*- in initial position that cannot be replaced by tense markers. Some of these verbs can be made transitive using the causative prefix *ʂʔe*²-; see examples in (31).

²² The frequent use of impersonal, agentless and lexically passive verbs is a characteristic of Popoloc discourse expressing a culturally defined tendency to avoid as much as possible the direct reference to the agent of the action (see also Bartholomew, Kalstrom & Austin 1991).

- (31)
- | | | | |
|--|-------------------|--|--------------------|
| <i>šu'te²</i> (S ³) | 'it boils' | <i>čʔe²-šu'te²</i> (S) | 'to boil (tr.)' |
| <i>ša³še'¹ši²</i> (R) | 'to wake up' | <i>čʔe²-ša³še'¹ši²</i> (S) | 'to wake up (tr.)' |
| <i>šaa'¹gũ³</i> (R) | 'to get a fright' | <i>čʔe²-šaa'¹gũ³</i> (S/SO) | 'to frighten sb' |

4.6 Anticausative

A number of the verbs with initial *ti²-* have an anticausative meaning, expressing a spontaneous action or process, not caused by a human being (the door closes, it moves, it stretches, etc.). These verbs are in fact impersonal reflexives, with a subject in the semantic role of a non-human agent/patient (the door closes itself, etc.). Like the other impersonal verbs, they seem to coincide in their argument structure with the agentless passives discussed in the preceding section. However, apart from the difference in morphological structure, they differ in the passive/active role assigned to the subject. The subject of the agentless passive is a passive patient since a (suppressed) human agent carries out the action. The subject of the anticausative is active since the action takes place without the intervention of a human agent.

Several anticausative verbs replace their prefix with a causative, thus forming transitive verbs; some examples are given in (32).

- (32)
- | | | | |
|--|--------------------------------|--|--------------|
| <i>ti²-xa²-</i> (S ³ O ³) | 'it closes (by itself)' | <i>tʔe³-xa²-</i> (SO ³) | 'to close' |
| <i>ti²-ki²a³ʔ</i> (S ³) | 'it throws itself off' | <i>tʔe³-ki²a³ʔ</i> (S) | 'to throw' |
| <i>ti²-thia³ngʔ¹</i> (S ³) | 'it hangs (by itself)' | <i>tʔe³-thia³ngʔ¹</i> (S) | 'to hang up' |
| <i>ti²-ngi¹thē³</i> (S ³ /R) | 'it rocks/
to rock oneself' | <i>čʔe²-ngi¹thē³</i> (S) | 'to rock' |
| <i>ti²-tha¹nia²-</i> (S ³ O) | 'to forget' | <i>čʔe²-tha¹nia²</i> (S) | 'to lose' |

The first verb in (32), with the S³O³ form, encodes an impersonal object, like its transitive counterpart. The last anticausative verb given in (32), *ti²-tha¹nia²-*, encodes a human object, which is the patient who undergoes the anticausative action of the verb ('to forget' or 'to get lost to a person'). The prefix *ti²-* is optionally added to some agentless passive forms, as shown in (33).

- (33) *ti²-ša²kua³ ~ ša²kua³* 'it is supplied'
ti²-ši²khã² ~ ši²khã² 'it is mixed'
ti²-ši³ngi¹Nu¹ 'they are in a row' *thi³ngi¹Nu¹* 'to put in a row'

The first two forms in (33) appear in a text about the manufacture of pots where they have a clear agentless meaning and not an anticausative one, i.e. it is understood that an agent executes the action. The fact that related *t*-verbs are lacking signals that these *š*- forms are fully lexicalized and that the prefix is added in order to emphasize that the agent is not in focus. In the last verb in (33), the use of the prefix *ti*²- seems to be redundant since a related *t*-verb is available, which may signal that this agentless passive form is still in the process of becoming lexicalized.

The prefix *ti*²- appears only in a small number of impersonal verbs, which indicates that its productivity as an anticausative is very limited or even non-existent in present-day Metzontla speech. With the exception of the verbs mentioned in (33), the second component of the *ti*²- verbs is not found independently.

A similar prefix *ti*²-, but with a meaning that is not anticausative, appears in some S-verbs and in a single R-verb, as shown in (34). The second component of these verbs is not found as a free form.

- (34)
- | | | | |
|--|-------------------------|--|-----------------------------|
| <i>ti</i> ² - <i>nga</i> ² <i>xĩ</i> ³ (S) | ‘to come down, descend’ | <i>thi</i> ² - <i>nga</i> ² <i>xĩ</i> ³ (S) | ‘to bring down’ |
| <i>ti</i> ² - <i>se</i> ¹ (S) | ‘to bend, crouch down’ | | |
| <i>ti</i> ² - <i>khẽ</i> ³ (S) | ‘to borrow’ | <i>č</i> ² <i>ʔe</i> ² - <i>khẽ</i> ³ (S) | ‘to lend’ |
| <i>ti</i> ² - <i>ci</i> ¹ <i>nga</i> ³ (S) | ‘to fall down’ | <i>ta</i> ² <i>k</i> ² <i>ʔe</i> ² - <i>ci</i> ¹ <i>nga</i> ² (S) | ‘to lie down,
go to bed’ |
| <i>ti</i> ² - <i>k</i> ² <i>ʔ</i> ³ <i>tha</i> ² (R) | ‘to (get into) reach’ | | |

The meaning of the verbs containing the prefix *ti*²- includes the feature of a downward or a person-directed movement showing similarity with the approximative prefix *ti*³-, which is regularly followed by the neutral tense of the verb. See (35a-b).

- (35) a. *ti*³-*ke*³*n*²*ʔa*³ *ngu*² *nu*³*ʔ* (*te*³*n*²*ʔa*³ ‘to buy’)
- APR-NEU.buy.3 a rope
- ‘He comes to buy a rope.’
- b. *ti*³-*ki*²-*č*²*ʔe*²*khi*² *nu*²*ša*³*ʔ* (*č*²*ʔe*²*khi*² ‘to sell’)
- APR-NEU.sell.3 blanket
- ‘He comes to sell blankets.’

Two different prefixes might be distinguished on semantic grounds. First the anticausative and second the prefix that shows similarities with the approximative marker.

In a number of disyllabic intransitive verbs, a syllable *ti*²- forms part of the lexical entry and is not replaceable. These verbs derive transitives using the causative prefix *čʔe*²- followed by neutral tense, as in *ti*²*ca*¹ 'to cover' (intr.) and *čʔe*²-*ki*²*ca*¹ 'to cover (tr.)'.

5 Conclusions

In this article I focused on derivational processes that have a valency-increasing or -reducing effect. The productivity of some derivations, especially the comitative and the anticausative, is limited and seems to be decreasing. The observed mutual exclusion of the instrumental and comitative derivations suggests a possible constraint on the synchronic use of more than one derivative affix in a verb, a hypothesis that needs further investigation.

The type of derivation a verb applies depends greatly on semantic features, in the first place meaning and semantic transitivity. The human/ non-human parameter is a fundamental one. It distinguishes instrumental from comitative derivations. Since the comitative derivation is not found with SO-inflected verbs, a general constraint seems to be operative with regard to the encoding of more than two human arguments.

The human/non-human parameter operates together with control in the selection of causative constructions. Derived causatives are only used with a non-human causee or with a human causee without control over the action. When the causee has control, a periphrastic predicate is used.

The main difference between the anticausative and the agentless passive derivations resides in the agent/patient role of the subject and in human/non-human distinctions in the agent. The agentless passive is an impersonal verb because the human agent is suppressed; the anticausative verb is impersonal because the agent is non-human.

The valency of a verb is also increased by inflectional means in a subclass of S-verbs, the so-called 'labile' verbs. These verbs apply SO-inflection when a human patient is involved. In this case, the increased syntactic valency is directly reflected in the encoding of the object.

Other elements occur in transitive and in intransitive verbs that could be defined as derivational prefixes on the basis of formal characteristics (see Veerman-Leichsenring, 1991: 280ff. for examples). However, even in the few cases that such prefix-like elements can be substituted, they are no longer productive in the modern language. Most of them are lexicalized in new verb stems with the loss of their original syntactic value (de-grammaticalization) and of their meaning (semantic bleaching). Moreover, the derivational affixes that are discussed in this paper occur in verb stems that have become completely or at least partially lexicalized and consequently these

affixes can no longer be substituted or omitted. The agentless verbs that historically are clearly derived from transitive verbs which now require a transitivizing prefix in transitive predications, are a good example of the recurring layering of derivational processes in the evolution of Popoloc verbal morphology.

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