Transitivity in Zenzontepec Chatino

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1 Introduction

Most verbs in Zapotecan languages exist in pairs (Kaufman, 1987) where often one verb of the pair is intransitive and the other transitive. This report will present primary data from Zenzontepec Chatino (ZEN), a Zapotecan language, that illustrates the various formal ways in which the members of these verb pairs are related. The majority of verb pairs are causative because the causative verb of a pair is formally derived from the inchoative form (Haspelmath, 1993). I call this set of verb pairs Pattern 1. Pattern 2, the next most common alternation pattern, contains equipollent pairs. These pairs, like the formally causative type, have an inchoative/causative semantic relationship, but both verbs are formally derived from a basic root of unclear valency. The third formal type of verb alternation is what I call Pattern 3, where a more-Transitive verb stem is morphologically basic, and a less-Transitive stem is derived from it. This final type is not common. The notion of Transitivity as a cross-linguistic phenomenon that is manifested in many parts of grammar as put forth by Hopper & Thompson (1980) offers a way to unify the various formal patterns found in the system of ZEN Chatino verb pairs. The factors most relevant in the system are (a) number of core arguments (Patterns 1 and 2) and (b) degree of agentivity or volitionality of the subject (some verbs of Pattern 3).

Semantically, the primary relationship between ZEN verb pairs is inchoative/causative. Chiercha (1989) and Levin & Rappaport Hovav (1995) have analyzed verbs that participate in the causative/inchoative alternation as being semantically underlyingly causative, regardless of the direction of for-
mal derivation. The arguments for such an analysis are that even in inchoative constructions, reference can be made to a causing event by one of the following means: oblique agent arguments, instrument oblique arguments requiring unexpressed agents, or purpose clauses that refer to a causing event. Also, parallels with reflexivization (Levin & Rappaport Hovav, 1995; Koontz-Garboden, 2008) have been used to motivate a causative semantics for inchoatives. Although more finely controlled diagnostics need to be (and will be) run on the ZEN data, the preliminary evidence suggests that ZEN verbs that participate in the inchoative/causative alternation have roots that are lexicalized as inchoatives. Furthermore, some verbs that have been claimed to not participate in the inchoative/causative alternation at all because they require agents, such as ‘cut’ and ‘write’, appear to alternate in ZEN. If future work can prove that the alternation in these verbs is in fact inchoative/causative, then the ZEN data will demand a reconsideration of our understanding of verb root lexicalization patterns in general.

Some verbs in ZEN do not alternate in pairs, and these verbs correspond to what Levin & Rappaport Hovav (1995) call the proto-typical unergative verbs, intransitive verbs whose sole core argument is more agent-like than patient-like. They predict that these verbs should not participate in the alternations. As predicted, these verbs do not alternate in ZEN, but the aspect marking of these verbs is clearly transitive in the completive aspect and ambiguous with respect to transitivity in the other, non-telic, aspects: potential, progressive and habitual. The notion of Transitivity of Hopper & Thompson (1980) is again useful for describing the ZEN data because in their system, actions that are carried out to completion are higher in Transitivity than atelic actions.

Section 2 will summarize previous work on Transitivity of verbs in other varieties of Chatino and the related Zapotec languages. Section 3 gives a description of the data used in this study. Section 4 presents the different formal patterns of verb pairs in ZEN Chatino and the preliminary analysis of the semantics that is behind these patterns. Section 5 presents the verbs that do not alternate in pairs and how the high-Transitive/low-Transitive alternation is perhaps split among the verbal aspects of those verbs. The overall picture that emerges from this study is that the formal manifestations of Transitivity in ZEN are systematic and largely semantically motivated. There is a language-wide system of higher versus lower Transitivity that is based on the number of core arguments participating in an event, the degree of agentivity of the actor participant, and whether or not the action is seen as
being completed or not. The lexicalization patterns in ZEN are typologically odd in some respects and merit further investigation.

2 Previous Work

2.1 Verb pairs in Chatino

There are three sources of descriptive work that discuss transitivity in Chatino verbs (Pride & Pride, 2004; Rasch, 2002; Cruz et al., 2008), but there is no extant work in this area in the Chatino of Zenzontepec. In the grammatical sketch in their dictionary of Panixtlahuaca Chatino, Pride & Pride (2004) say that there are three voices in which verbs occur: active, passive, and causative. They state that verbs often exist in pairs, one being in the active voice and the other being either in a causative or passive voice derived from the active. Some active verbs are transitive, some are intransitive, and others have both a transitive and an intransitive form. The Prides offer many verb pairs, but the only generalizations they make about the derivational relationship between verbs of a pair is that passives often begin with ka- or ty-, and causatives begin with the prefixes x(i)- or ji- (Pride & Pride, 2004).

Rasch (2002) describes two types of causative formation for Yaitepec Chatino. The first contains a derivational morpheme with the form xi-, x- or s-. The other is a complex construction using the verb -7ni, ‘make, do’. The latter strategy occurs as well in ZEN as a fairly productive periphrastic causative in which the verb -7ne, ‘to do, make’ is the first element in a compound whose postpound is a noun, adjective or another verb. These are outside the scope of the current paper, which seeks to tie formal Transitivity to lexicalization patterns in verb roots. The derivational causatives that Rasch mentions have an agent-like subject, and the verbs that they are derived from have a patient-like subject. The derived causative pattern is limited to a specific set of verbs. Verbs that do not have derived causatives either take the -7ni periphrastic causative formation or have no partner verb.

As in Panixtlahuaca (Pride & Pride, 2004), many Yaitepec intransitive verbs begin with a consonant /ty/ that corresponds to an /s/ in the causative verb (Rasch, 2002, 157–58).

Cruz et al. (2008) present examples of verb pairs in San Juan Quiahije Chatino where one is transitive and the other intransitive. They state that the morphology is irregular and that it is not clear whether the semantic
relationship between the verbs of the pairs is causative/anticausative or active/passive. The ZEN data presented in this paper suggests that this is likely due to the fact that both alternations are present in the system. Like Panixtlahuaca and Yaitepec, San Juan Quiahije has a causative formed by adding $x$- to an intransitive root. Other verb pairs include several types of equipollent pairs, suppletive pairs, labile pairs, and isolate verbs (without a pair).

The Chatino shallow language family has at least four distinct language areas: Zenzontepec, Tataltepec, Nopala and Central Chatino\(^1\). The three varieties described above all belong to the Central Chatino group and share a relatively shallow time depth of divergence. These varieties have undergone varying degrees of monosyllabification of historically disyllabic roots, with Quiahije being the most innovative and monosyllabic, and Panixtlahuaca the most conservative and disyllabic of the three. These varieties all share the characteristic of having a maximum of two syllables in single-root (non-compound) verbs inflected for aspect. Therefore, even in the relatively conservative Panixtlahuaca, any vowels of aspect prefixes and derivational prefixes have been lost. This is not the case in Zenzontepec, which conserves disyllabic roots, and single-root verbs can have more than two syllables when inflected for aspect\(^2\).

Examples (1) and (2) below illustrate that Zenzontepec is not only conservative phonologically with respect to roots, but it is conservative morphologically, because it has not suffered pre-tonic vowel loss. Two verbs inflected in the four principal aspects are shown to have three syllables in ZEN, and they are contrasted with the cognates from Panixtlahuaca Chatino (PAN), which are maximally disyllabic after inflection.

\(^1\)Ongoing work in the Chatino Language Documentation Project at the University of Texas at Austin is progressing towards a finer internal classification of Chatino languages.

\(^2\)The one variety of Central Chatino that preserves pre-stem (aspect) vowels in verbs is San Marcos Zacatepec. This variety is being documented by Stéphanie Villard and will further our understanding of verb pairs in the Chatino family when more data is processed.
The degree of conservatism in Zenzontepec Chatino therefore offers hope for uncovering some systematicity in the morphology and semantics of its verb pairs, and this may shed light on the systems of other varieties in which syllable loss has obscured the patterns.

### 2.2 Verb pairs in Zapotec

The conservatism of ZEN allows for comparison with Zapotec. Zapotec is coordinate with Chatino in the Zapotecan language family of the Otomangean stock, and as in Chatino there are varieties of Zapotec, such as Coateco, that have lost both unstressed root vowels and prefix/proclitic vowels (Beam de Azcona, 2004), and varieties on the other end of the spectrum that conserve both, such as Chichicapan (Smith Stark, 2002) and Juchiteco (Pickett, 1965; Kaufman, 1995).

Kaufman (1987) has reconstructed for Proto-Zapotec the following preverbal morphemes, among others, that have to do with transitivity and/or valence:

(3) Some Proto-Zapotec transitivity/valence markers (Kaufman, 1987)

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3In ZEN, there are three levels of tone: $\check{v} = \text{High}$, $\acute{v} = \text{Low}$, and unmarked is Mid. In PAN and other Central varieties, there are four or five levels: the smaller the number, the higher the tone.
The reconstructed *o(k)- causative morpheme is cognate with the u-causative morpheme used to form the transitive verbs of the ZEN pairs that I call the u-causatives (see 4.1.1). The *o(s)se- causative of Proto-Zapotec is cognate with the ZEN causative marker in the -u-t- and -u-s- derivations in Pattern 2 (see 4.2.1 and 4.2.2). Finally, the *i- intransitive marker of Proto-Zapotec is cognate with the ZEN intransitive marker y- that is found throughout Patterns 2 and 3 of the ZEN verb pairs.

The Zapotecan language family has existed in the heart of the state of Oaxaca for a long time. The estimated time depth of the split between Zapotec and Chatino is 2,500 years (Kaufman, 1987, p.118). Since many Zapotecan (Zapotec and Chatino) languages have undergone significant restructuring due to non-tonic vowel loss, the original morphological patterns that related transitive and intransitive verb pairs have been obscured in those languages, at times leaving only sparse remnants (San Juan Quiahije Chatino). This makes it harder to connect morphological patterns to the semantics of the verb classes that have those patterns within those varieties. Also, within individual languages, analogy and leveling have led to the loss of some of the derivational patterns relating verbs of pairs, with a corresponding expansion of other patterns, for example the u-causative alternation in ZEN. Therefore, a comparative look at conservative varieties of Zapotec and Chatino offers the best hope of understanding the historical system in the deep language family, and, I would argue, the synchronic systems of at least those most conservative languages. This then sheds some light on some of the perplexing patterns found in less conservative varieties. For example, in light of the ZEN data that this paper later presents and the connections it shows to Zapotec, I suggest that the s- allomorph of the derivational causative in Yaitepec Chatino (Rasch, 2002) is the reflex of the Proto-Zapotecan derivational causative morpheme *o(s)se- and cognate to the -u-s- marker of ZEN. The xi- ‘allomorph’ of Yaitepec and other Central Chatino varieties is found largely on verbs that are cognate with ZEN verbs whose causative semantics is encoded by the u- causative prefix. This morpheme, which has cognates in conservative Zapotec varieties, is a non-tonic vowel that would have been deleted in Yaitepec, Panixtlahuaca and Quiahije Chatino, wiping out the non-tonal part of the contrast between the causative verb and its inchoative
partner. The *xi*- causative then developed from grammaticalization as an auxiliary of the verb meaning ‘to turn’ *voltear* (Rasch, p.c. and H. Cruz p.c.), which grammaticalized further to prefixhood. With all of this said, it is now time to turn to the verb pair data of ZEN.

### 3 Notes on the Data

The data considered in this study are drawn from a working lexical database of verbs gathered primarily through elicitation with Tranquilino Cavero Ramírez, a native speaker of Zenzontepec Chatino and farmer from the village of San Pedro del Río in the municipality of Santa Cruz Zenzontepec, Oaxaca, Mexico. I carried out this work under the auspices of the Project for the Documentation of the Languages of Mesoamerica (PDLMA) in Catemaco, Veracruz in the summer of 2007, and on a short field trip to San Pedro in January of 2008 under the auspices of the Chatino Language Documentation Project based at the University of Texas at Austin. The main stimulus for elicitation was the database begun by Carleton (2000) on the PDLMA in 1995, 1997 and 2000. Any data directly taken from Carleton’s work will be identified as such, and all else is from my work with señor Cavero.

There are several reasons why a large amount of elicited data was needed for a typological study such as this. First of all, in order to determine what the underlying form of a verb stem is, its form in all four of the principal aspects: potential *Pot*, progressive *Prog*, habitual *Hab*, and completive *Comp*, must be recorded. There is considerable allomorphy in the aspectual prefixes, and the prefixes and verb stems undergo morphophonological processes, such as the deletion of a prefix vowel or stem vowel in hiatus, or the fusion of a prefix stop consonant with a stem-initial glide into an affricate. Furthermore, the derivational morphology that expresses transitivity occurs between the simplex verb stem and the aspect markers, so this morphology may also be obscured by morphophonological processes. Only by having all four forms of a verb does one get a window into what the underlying verb base is. Finally, in order to best understand how Transitivity is lexicalized in ZEN, the largest possible dataset should be used.

The verb database contains about 820 lexical items inflected (when possible) in each of the four principal aspects. However, the study here will be limited primarily to verb pairs that contain single roots. This narrows the data set down considerably because ZEN, and Zapotecan languages in gen-
eral, have relatively few roots. A large portion of the lexicon is made up of compounds and complex, idiomatic lexemes, as shown in examples (4)-(7).

(4) \textit{nte-tá-riké}
    \begin{itemize}
    \item \textsc{prog}-give-heart
    \item ‘s/he is thinking’
    \end{itemize}

(5) \textit{k-e-sa7á-tya7á}
    \begin{itemize}
    \item \textsc{pot}-go.down-be.stuck-brother
    \item ‘they are going to collide’
    \end{itemize}

(6) \textit{nk-a-juti-tya}
    \begin{itemize}
    \item \textsc{comp}-become-father-water
    \item ‘he was made a godfather’
    \end{itemize}

(7) \textit{k-u-takwá-xi7}
    \begin{itemize}
    \item \textsc{pot-caus}-sit-side
    \item ‘s/he is going to hug him/her’
    \end{itemize}

By focusing on the verbs made up of single roots, the relative prominences of the various lexicalization patterns of Transitivity are not skewed due to the fact that certain verbs are more productive as heads of compounds. Also, this reduces the number of verbs in the study to a manageable, although still extensive, amount.

Haspelmath (1993) comments that although Nedjalkov (1969) looked at 60 languages, his study was limited in only considering four inchoative/causative verb pairs for each language: ‘laugh’, ‘boil’, ‘burn’ and ‘break’. Haspelmath’s own study is based on 31 verb pairs in 21 languages, and he suggests that considering more verbs is more revealing for placing the languages in a typology. The more data the better, so this treatment of ZEN Chatino will include 69 verb sets, most of which are pairs of verbs, in accordance with the single root restriction described above. It is particularly important to have a large sample of verbs because some of the derivational processes found in the ZEN verb pairs are relatively uncommon and could be missed or underrepresented in a small sample.
4 Zenzontepec Chatino Verb Pairs

4.1 Inchoative/causative pairs

According to Haspelmath (1993), inchoative/causative verb alternations are a common pattern found across languages, but the direction of the derivation is not universal. For example, he gives examples of how Russian is a language that almost entirely lexicalizes verbs as causative, and their anti-causative counterparts are formally derived from them. Mongolian is near the other extreme, with the majority of verbs lexicalized as inchoatives that have causatives derived from them. Zenzontepec Chatino is near the Mongolian end of the spectrum: the majority of verb roots are inchoative, and their causatives are formally derived.

4.1.1 Pattern 1a: u-causative pairs

The majority of verb pairs in ZEN Chatino are pairs of inchoative/causative verbs. Many of these pairs are those whose transitive verb is what I call an u-causative. The roots in these verb pairs are consonant initial, intransitive, and have an inchoative reading that means ‘to become X’. These roots are simplex (roots not further decomposable) that serve as the stems of the intransitive verbs of the pairs. As regards aspect morphology, these verbs belong to class B\(^4\). A transitive verb is derived from these roots by adding a causativizing prefix -u-, and the derived verb jumps to class A\(^5\). Below are aspect paradigms that illustrate an intransitive verb -ki7i, ‘to get toasted’, and its derived u-causative counterpart.

\[\begin{align*}
-ki7i, \text{‘to get toasted’} \\
\text{POT} & \quad \text{ki-ki7i} \quad \text{‘it will get toasted’} \\
\text{PROG} & \quad \text{nle-ki7i} \quad \text{‘it is toasting’} \\
\text{HAB} & \quad \text{nti-ki7i} \quad \text{‘it gets toasted’} \\
\text{COMP} & \quad \text{nku-ki7i} \quad \text{‘it got toasted’}
\end{align*}\]

\(^4\)According to Kaufman (1987), Zapotecan languages historically have four classes of verbs based on their selection of aspect marker allomorphs. In Chatino, there are three main verb classes, each with some subdivisions (Campbell, 2007).

\(^5\)See appendix A for the chart summarizing the verb classes based on aspect markers.

\(^6\)The forms are given with 3rd person subject, and if applicable, 3rd person object, which are both unmarked.
The following examples show the causative verb above in (9) in context with lexical arguments (from Carleton (2000)).

(10) $Nka$-ki7i $Pedro$ kwena7 kuwe7 to $ni7i$ (Carleton, 2000)
    COMP-toast Pedro meat pig RN house
    ‘Pedro roasted the pork at home’

(11) $Nka$-ki7i $Juan$ ji7i kwela (Carleton, 2000)
    COMP-toast Juan RN fish
    ‘Juan roasted the fish’

(12) $Pedro$ nka-ki7i kwetu (Carleton, 2000)
    Pedro COMP-toast chicken
    ‘Pedro grilled the chicken’

The three cases above are proto-typical transitive constructions, with an agent toaster and patient toastee. The examples below in (13) and (14) illustrate the use of the less-Transitive verb of the pair. Note that in the first example, the subject kwela, ‘fish’ follows the verb, true to the basic VSO word order of the language. The reading here is that Juan is a possessor of the fish, and not a causer of the fish’s roasting. If he were the causer, Juan would immediately follow the verb, and he would not be preceded by the relational noun ji7i. If we were to change the completive marker to nka-, this would force the unlikely (transitive) reading that the fish roasted Juan!

(13) $Nku$-ki7i kwela ji7i $Juan$ (Carleton, 2000)
    COMP-toast fish RN Juan
    ‘Juan’s fish toasted’

(14) kwetu nku-ki7i (Carleton, 2000)
    chicken COMP-toast
    ‘roasted chicken’
In (14) the completive form of the verb is used as an attributive adjective modifying the noun ‘chicken’. Attributive adjectives like roasted in roasted chicken give information that describes what the chicken is like at the time of utterance, regardless of how it got that way. In English at least, it is impossible to make reference to a causer that brought about the state denoted by the adjective, even in an oblique.

(15) *[the roasted chicken by John]NP was delicious

This needs to be explored more in ZEN, but the use of the completive form of the inchoative verb for ‘roast’ as an adjective suggests that there is no unexpressed causing event at a deeper level of the semantics of the root.

A list of the verb pairs in the *u-causative* derivational pattern is found below.
**Pattern 1a, u-causative pairs**

1. -jlya ‘to get dirty/muddy’ -u-jlya ‘to make X dirty’
2. -kachi7 ‘to get buried’ -u-kachi7 ‘to bury X’
3. -ki7 ‘to open (door)’ -u-ki7 ‘to open X’
4. -kit7 ‘to get snapped’ -u-kit7 ‘to snap X’
5. -ki7i ‘to get toasted’ -u-ki7i ‘to toast X’
6. -la7a ‘to get broken up, smashed’ -u-la7a ‘to break up or smash X’
7. -laa ‘to get free, escape’ -u-laa ‘to untie or set X free’
8. -li7i ‘to get lost’ -u-li7i ‘to lack X’
9. -linto ‘to rot or waste away’ -u-linto ‘to waste or ruin X’
10. -lòo ‘to get taken out, removed’ -u-lòo ‘to take X out’
11. -lit7 ‘to sink’ -u-lit7 ‘to sink X’
12. -sana ‘to break open’ -u-sana ‘to break X open’
13. -so-sá ‘to be laid down flat’ -u-so-sá ‘to put X down flat’
14. -sukwá ‘to be sprayed, spread’ -u-sukwá ‘to spray or spread X’
15. -suwe7 ‘to get scraped or made fine’ -u-suwe7 ‘to scrape or make X fine’
16. -tajá ‘to get holes’ -u-tajá ‘to put holes in X’
17. -sú ‘to be taken off’ -u-sú ‘to take off X’
18. -t-aké ‘to burn’ -u-t-aké ‘to burn X’
19. -tetzá ‘to be divided up’ -u-tetzá ‘to divide up X’
20. -teč7 ‘to get shaved, whiddled’ -u-teč7 ‘to shave X’
21. -tikg7 ‘to swing’ -u-tikg7 ‘to swing X’
22. -wii ‘to be cleaned’ -u-wii ‘to clean X’
23. -xeč ‘to be squeezed’ -u-xeč ‘to squeeze X’
24. -jmí ‘to grow’ -u-jmí ‘to lengthen X’
25. -jmýá ‘to be built’, ‘to quake’ -u-jmýá ‘to build X’
26. -ká7a ‘to be kept out (denied)’ -u-ká7a ‘to deny or reject X’
27. -lajá ‘to get cleaned out’ -u-lajá ‘to clean X out’
28. -lakwa ‘to be counted’ -u-lakwa ‘to count X’
29. -lákwa ‘to get swept’ -u-lákwa ‘to sweep out X’
30. -lù ‘to get dug’ -u-lù ‘to dig X’
31. -nakwá ‘to get blessed’ -u-nakwá ‘to bless X’
32. -sá7a ‘to be written’ -u-sá7a ‘to write X’
33. -xu7ú ‘to be cut’ -u-xu7ú ‘to cut X’

Many of the verbs in the u-causative pairs are easy to fathom as being more basically inchoative, such as ‘sink’, ‘become clean’, ‘become dirty’ or ‘to burn’, among others. The verbs numbered 1-24 above are like this. Some of that subset of verbs are slightly more naturally causative, such as ‘to break’. Similarly, in English the verb break can be causative or inchoative:

(17) a. John broke the window
    b. The window broke
There are several verbs in the *u-causative* class in ZEN that correspond to the English verb ‘to break’ or other verbs such as ‘smash’, ‘rip’, or ‘burst’. Majid et al. (2007) have recently discussed how the domain of cutting and breaking events is organized differently across languages. The data below will show how the use of these verbs is divided up semantically in ZEN. The data were recorded using short video clips of people performing cutting and breaking actions on varying types of objects in various ways\(^7\).

\[(18)\] **u-causative** breaking verbs in ZEN
- **-u-kiṭê7** to snap a small stick in half
  - to break a chocolate bar in half by hand
- **-u-la7a** to smash a flower pot with a hammer
- **-u-sù** to pull off a piece of a banana peel with metal tongs
  - to tear out a sheet of paper
  - to cut off the top of a banana with scissors so it falls
- **-u-lùo** to cut piece(s) off, 2 pieces of cardboard off with a kitchen knife
  - to take a piece of bread off by ripping
  - to cut green onions into two by pulling across a stationary knife
  - to chop a string into two pieces with hammer and chisel

Being part of the *u-causative* pattern of verb pairs, all of these verbs are derived causatives that contain roots that are morphologically unmarked in their inchoative form. On the other hand, the verbs in the list of *u-causative* pairs numbered 25-33 are harder to imagine as referring to events that do not have at least a latent agent causer at some level of the grammar. It is commonly noted that the semantics of *cutting* verbs is different from that of *breaking* verbs (Haspelmath, 1993; Levin & Rappaport Hovav, 1995; Majid et al., 2007) because *cutting* verbs require agents, as shown by the lack of a grammatical inchoative of ‘to cut’ in English:

\[(19)\] a. John cut the log
b. *The log cut

Levin & Rappaport Hovav (1995, p.89) state that the verb ‘to cut’ has only transitive uses, and they include the verb ‘to write’ in that assertion: another verb in the *u-causative* class of ZEN Chatino (verb 32 above in (16)).

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\(^7\)The video clips are similar to but not the same as the stimuli used in the Majid et al. (2007) study. Roberto Zavala gave me the videos that I used, and these may have been an earlier version of the others.
Haspelmath (1993) goes so far as to claim that the verb ‘cut’ never occurs in causative/inchoative alternations. The ZEN verb numbered 33 in the \textit{u-causative} pair list above is the verb meaning ‘to cut’. It is conjugated as follows:

(20) \textit{-xu7\'u}, ‘to be cut’
- POT \textit{ki-xu7\'u} ‘it will be cut’
- PROG \textit{nte-xu7\'u} ‘it is being cut’
- HAB \textit{nti-xu7\'u} ‘it gets cut’
- COMP \textit{nk\text{-}xu7\'u} ‘it got cut’

(21) \textit{-u-xu7\'u}, ‘to cut x’
- POT \textit{k-u-xu7\'u} ‘s/he will cut it’
- PROG \textit{nte-xu7\'u} ‘s/he is cutting it’
- HAB \textit{nt-u-xu7\'u} ‘s/he cuts it’
- COMP \textit{n\text{-}ka-xu7\'u} ‘s/he cut it’

The following sentence provides an example of the transitive, \textit{u-causative} verb \textit{-u-xu7\'u}, ‘to cut’, with agent and patient arguments and an oblique instrument NP introduced by the relational noun \textit{lo7o}.

(22) \textit{ch\'u7 k\text{-}na7\'a n\text{-}ka-xu7\'u \text{-}cut.3s s\text{-}ate \text{-}branch \text{-}yak\'a \text{-}lo7o \text{-}kuchilu}
\text{person woman COMP-cut.3s branch DET tree with knife}
‘the woman cut the tree branch (off) with a knife’

The different readings given by the less-Transitive and more-Transitive verbs for ‘cut’ are shown below, the first being the less-Transitive and the second being the causative with agent subject \textit{the man}.

(23) \textit{N\text{-}ku-xu7\'u-\text{-}kweku7 juy\text{y}} (Carleton, 2000)
\text{COMP-be.cut-pieces rope}
‘The rope (was) cut into pieces’

(24) \textit{N\text{-}ka-xu7\'u-\text{-}kweku7 ki\text{-}tyu juy\text{y}} (Carleton, 2000)
\text{COMP-cut-pieces man rope}
‘The man cut the rope into pieces’
If there is no hidden unexpressed causing event in the less-Transitive verb, ZEN appears to be unusual in having a verb meaning ‘to cut’ that is lexicalized as an inchoative. As further evidence for cutting being the correct translation of the concept, the following scenarios from the cutting and breaking videos elicited the transitive verb -u-xu7ú:

(25) -u-xu7ú!, ‘to cut X’
   to cut paper in half with scissors
   to cut a loaf of bread with a knife in a back and forth manner
   to cut paper by pulling it up along the blade of a knife lying down
   to cut a pie with a chard from a broken flower pot
   to cut an egg in several slices at once with a wire slicer
   to cut a thin branch from a tree with a kitchen knife
   to cut cardboard into pieces with a kitchen knife
   to cut some fabric in half with scissors
   to cut a small branch from a tree by sawing with an ax
   to cut a string in two by hitting it with a hammer and chisel
   to cut a string held by someone else by pushing a knife down on it

Several sources in the literature (Levin & Rappaport Hovav, 1995; Davis & Demerdache, 2000; Koontz-Garboden, 2008), building on Chiercha (1989) argue for an analysis of inchoative verbs being semantically causative regardless of their syntactic behavior. There are two main arguments for this analysis. First, often with intransitive inchoative verbs it is possible to make reference to the causing event by adding an oblique instrumental argument that refers to it.

(26) The window broke with the force of the hammer... (wielded by X)

The second argument is that reflexivization and inchoatives are formally identical in some languages (Chiercha, 1989, cited in Davis & Demerdache (2000)). Therefore, since reflexives are causatives whose agent and patient are equivalent, it follows that inchoatives that are formally the same are also semantically causative. Koontz-Garboden (2008) argues that Spanish reflexives and inchoatives are one and the same: if the subject is volitional, you get a reflexive reading, and if the agent is not volitional, such as in the door opened, an inchoative reading arises, but there is still an Effector or non-agent causer encoded in the semantics. Davis & Demerdache (2000) offer an analysis that treats inchoatives as semantically causative in the Salishan language Stát’imcets. However, in Zenzontepec Chatino, agentive reflexives

15
are not formally the same as inchoatives, because it is the causative, or more
Transitive verb of a pair, that is used in reflexives.

(27) Jgu7 kiyu nte-rá-ju lo7o ya lati ji7i nkwitza
    PRON3PL male PROG-hit-3PL RN CL.wood thin RN child
    ‘The men are hitting the child with a stick’ (Carleton, 2000)

(28) Nka-ra lakwi7
    COMP-hit the same
    ‘He hit himself’ (Carleton, 2000)

(29) Nka-rá
    COMP-hit
    ‘he hit it’

In the reflexive example in (28), we know the verb is the causative because
it takes the class A completive marker nka-. If it were the inchoative verb,
the completive marker would be nku-, and the verb would be nku-ra. One
of the reasons that reflexives are like causatives in ZEN is that they require
volitional action on the part of the agent. In Zapotecan languages (Kaufman,
p.c.) including ZEN, there is a more-active/less-active distinction that relates
verbs within some pairs, and this is woven in with the causative/inchoative
semantic alternation in the overall system of Transitivity of the languages.
This will be discussed more when the verb pairs of Pattern 3 are discussed
(see 4.3).

4.1.2 Pattern 1b: \textit{a/u vowel alternating pairs}

The next set of verbs, the \textit{a/u} alternating pairs, are also inchoative/causative
alternations. However, unlike in the \textit{u-causative} pairs, whose inchoative is
a consonant initial, simplex root, in this pattern the inchoative verb begins
in \textit{a} and the causative begins in \textit{u}. Although this \textit{u} could historically come
from the same source as the one in the \textit{u-causatives}, the aspect marking is
so different that they are better treated as a formally separate class from the
\textit{u-causatives}, as can be seen below in (30) and (31). The intransitive verbs
in this pattern belong to class Ca and the causatives (barring one exception)
belong to class C2.
(30) -aké7, ‘to get cooked’
-aké7, ‘to get cooked’
-aké7, ‘it will get cooked’
-aké7, ‘it is cooking’
-aké7, ‘it gets cooked’
-aké7, ‘it got cooked’

(31) -uké7, ‘to cook X’
-uké7, ‘s/he will cook it’
-uké7, ‘s/he is cooking it’
-uké7, ‘s/he cooks it’
-uké7, ‘s/he cooked it’

The following sentence illustrates the use of the less-Transitive, or inchoative verb of the pair:

(32) k-ake7 nta7q ji7i María (Carleton, 2000)

María’s corn is going to cook’

The semantics of these verbs does not appear to be different from that of the \textit{u-causative} pairs. However, in (2.) for the verbs -atzu/-utzu, there are two sets of glosses, one being a ‘burst’/‘burst X’ inchoative/causative alternation, and the other being a less-/more-active alternation ‘shoot unintentionally’/‘shoot intentionally’. The further phonological disimilarity be-
tween -aja, ‘to die’, and -ujwi, ‘to kill’ is explainable through regular sound changes.

4.2 Pattern 2: equipollent pairs

In the u-causatives in Pattern 1a, and maybe in the a/u pairs in Pattern 1b, the basic verb root can be directly inflected for aspect, yielding an inchoative, intransitive verb whose causative partner is derived from the intransitive stem by the addition of an u. This type of alternation fits the definition of formal causatives as defined by Haspelmath (1993). As Haspelmath points out, some languages have verb pairs that are equipollent, or in other words, both the inchoative and the causative verb of a pair are derived from a root that does not exist without one of the derivational morphemes. The ZEN verb pairs in Pattern 2 are morphologically equipollent, and therefore it is not possible or necessary to stipulate a formal underlying valency of the simplex root. There are several sub-groups in Pattern 2. Pattern 2a are pairs where the inchoative verb is derived by the addition of the prefix -y- to the root, and the causative is derived by adding -u-t-. Pattern 2b differs in that there is an s where there was a t in the causative of Pattern 2a. Finally, Pattern 2c is like 2b, but in addition to the derivational markers -y-/u-s, there is also a stem vowel alternation, whereby the stem begins in a for the inchoative verb and e for the causative.

4.2.1 Pattern 2a: derivations with -y/-u-t-

In these verb pairs, intransitive, mostly inchoative, verb stems are derived by adding the prefix y- to the roots. The transitive verb stem of the pair is formed by adding a t to the root, and a causative u- is then prefixed to that. A pair of these verbs in each of the four aspects is shown below in (34) and (35).

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8There was a sound change where /j/ → jw / u ... . The jw then became a consonant cluster. Later, there was a change whereby vowels across glottals /j/ and /7/, but not clusters, necessarily became identical. The verb root that Kaufman (1993) reconstructs as *atti, ‘to die’ for Proto-Zapoteco became *-aji at some point in Chatino and later -aja in ZEN due to the vowel identity across glottals restriction.
(34) -y-ako7, ‘to get closed’

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<tbody>
<tr>
<td>POT</td>
<td>ch-ako7</td>
<td>‘it will get closed’</td>
</tr>
<tr>
<td>PROG</td>
<td>nte-y-ako7</td>
<td>‘it is getting closed’</td>
</tr>
<tr>
<td>HAB</td>
<td>n-ch-ako7</td>
<td>‘it gets closed’</td>
</tr>
<tr>
<td>COMP</td>
<td>nk-yakq7</td>
<td>‘it got closed’</td>
</tr>
</tbody>
</table>

(35) -u-t-ako7, ‘to close X’

<p>| | | |</p>
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</thead>
<tbody>
<tr>
<td>POT</td>
<td>k-u-t-ako7</td>
<td>‘s/he will close it’</td>
</tr>
<tr>
<td>PROG</td>
<td>nte-t-ako7</td>
<td>‘s/he is closing it’</td>
</tr>
<tr>
<td>HAB</td>
<td>nt-u-t-ako7</td>
<td>‘s/he closes it’</td>
</tr>
<tr>
<td>COMP</td>
<td>nka-t-ako7</td>
<td>‘s/he closed it’</td>
</tr>
</tbody>
</table>

In (36) below, the verb pairs of the y-/u-t- derivational pattern are listed.

The marker for the causative may be a single morpheme -ut-. However, since the u resembles the causative marker, I treat it as such, and I treat it as a separate morpheme from the t-, which I call a transitivizer. Kaufman (1987) reconstructs a causative morpheme for Proto-Zapotec, *o(s)se-. Since /s/ and /ss/ of Proto-Zapotecan become /t/ in Chatino, I treat the -u-t-causative marking as the direct reflex of *o(s)se-.

(36) Pattern 2a, -y/-u-t- equipollent pairs

1. -y-ako7 ‘to get closed’ -u-t-ako7 ‘to close X’
2. -y-akê ‘to burn’ -u-t-akê ‘to burn X’
3. -y-ala7 ‘to be woven’ -u-t-alâ7 ‘to weave X’
4. -y-anô ‘to remain’ -u-t-anô ‘to leave X’

4.2.2 Pattern 2b: derivations with -y/-u-s-

Some verb pairs differ slightly from those above by having an s- transitivizing prefix, instead of a t on the causative verb. These also take the causative u-.

(37) Pattern 2b, -y/-u-s- equipollent pairs

1. -y-áta ‘to be broken into pieces’ -u-s-áta ‘to break X into pieces’
2. -y-atê ‘to enter’ -u-s-atê ‘to put X in something’
3. -y-ati7 ‘to come untied’ -u-s-ati7 ‘to untie or set X free’
4. -y-a7we ‘to be ripped (in half?)’ -u-s-a7we ‘to tear X in half’
5. -y-uwe7 ‘to level out’ -u-s-uwe7 ‘to smooth X out’
4.2.3 Pattern 2c: -y-/u-s- + stem V alternation

As (38) below illustrates, there are a couple of verbs that additionally have an initial stem-vowel alternation, in which the intransitive stem has the expected a but the transitive root has an e. There are only two verbs in this sub-pattern. These verbs are likewise inchoative/causative, and at this point there is no clear semantic significance to the stem vowel alternation that separates these verbs from those without the vowel alternation.

(38) Pattern 2c, -y-/u-s- equipollent pairs with stem vowel alternation

1. -y-ane ‘to be watered (seeds)’ -u-s-ene ‘to water X’
2. -y-alú ‘to be spilled’ -u-s-elú ‘to pour out X’

(39) itya nju ntukwá nto ya mesà nkay-úkwá ne7 nyate water REL sitting face wood table COMP-grab.3s DET person [nk-y-alú ji7i] COMP-(ACT-)-spill PRON
‘the person grabbed the water sitting on the table and it spilled’

(40) ni7 kí7yu nka-s-elú ità nte7 nane7 wòtè person man COMP-TR-spill water here stomach can ntukwa ya7a7 be located hand of.3s
‘the man poured the water out of the can that was in his hand’

The examples above in (39) and (40) illustrate the semantic difference between the verbs of the ‘be spilled’/‘spill’ pair. In the former, the event of spilling is a non-intended result of the other event in which the person intentionally grabbed a cup of water. There are two clauses in (39). The evidence for the boundary between the clauses is in the intonation. In ZEN Chatino, sentences have an intonational downdrift in which the pitch gets lower and narrower towards the end of clauses, especially long ones. Lexical tone is preserved, but the range is narrowed and lower in the compressed tail-end of a sentence. The beginning of a following clause will jump back up to the normal pitch range. This is what happens at the beginning of the second clause in (39), leaving it with only one argument, the zero-marked 3rd person singular subject ‘the water’. The latter example, in (40) is a transitive event in which an agent volitionally pours water out of a can.
4.2.4 Irregular equipollent pairs

Several equipollent pairs do not fit nicely into one of the formal patterns presented above.

(41) Other equipollent pairs

1. -y-akγ7 ‘to be tied up’ -u-x-ikγ7 ‘to tie up X’
2. -y-åtzù ‘to come apart at the seams’ -t-itziù ‘to unstitch X’
3. -wiči ‘to dry’, ‘to dry up’ -u-xiči ‘to dry X’, ‘to put X out in the sun’
4. -t-åa7 ‘to split or tear’ -u-så7 ‘to split or tear X’
5. -y-alá ‘to melt’, ‘to dissolve’ -i-t-ålá ‘to melt or dissolve X’
6. -lakwi ‘to run or flow’, ‘to roll’ -e-lakwi ‘to set X rolling or flowing’
7. -katzo ‘to get heated up’ -e-katzo ‘to heat X up’

The verbs above in (41) all fit the dominant inchoative/causative semantic pattern found in the language. Some of the verb pairs above show formal derivational patterns that look much like one or another of the broader patterns already discussed and could be included in those groups as irregular tokens. For example, pair 1 resembles the -y/-u-s- derivation but with the s palatalized, and 2 and 5 look a bit like the -y/-u-t- derivation.

4.3 Pattern 3: -y/-0- transitive roots

These verb pairs are unique in that they include some of the few verbs in the language whose basic root is lexically transitive. They are morphologically simplest in their transitive form, which are vowel-initial roots to which a y- is added to derive an intransitive or less active verb. The paradigms in (42) and (43) demonstrate what less active means. In (42) the verb means ‘to sell without wanting to’, and in the latter the verb means ‘to sell’ in the normal sense in which the seller desires to make the sale.

(42) -y-ujwi7, ‘to sell X without wanting to’

<table>
<thead>
<tr>
<th>Verb Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>POT</td>
<td>ch-ujwi7</td>
</tr>
<tr>
<td>PROG</td>
<td>nte-ch-ujwi7</td>
</tr>
<tr>
<td>HAB</td>
<td>n-ch-ujwi7</td>
</tr>
<tr>
<td>COMP</td>
<td>nk-y-ujwi7</td>
</tr>
</tbody>
</table>
Both verbs are syntactically transitive in having two arguments, a subject
seller and object thing sold. However, it is the verb without the intransitive
\( y \) prefix which is more semantically Transitive in the sense of Hopper
& Thompson (1980) because it involves more volitionality, or intention, of
the agent. Below, in the set of verb pairs of the \(-y/-0\) alternation, there
are a few verbs (1-3) with this alternation of degree of agentivity. There are
a few verbs in this pattern (4-5) that are like the more common semantic
inchoative/causative alternation in which the inchoative has one argument
and the causative two.

(44) Pattern 3, \(-y/-0\) pairs

1. \(-y-ujwi7\) ‘to sell X without wanting to’ \(ujwi7\) ‘to sell X’
2. \(-y-aja\) ‘to find X’, ‘to appear’ \(aja\) ‘to get X’
3. \(-y-ukw\u00b4\) ‘to receive’ \(ukw\u00b4\) ‘to grab X’
4. \(-y-ak\u00b4u\) ‘to get eaten’ \(ak\u00b4u\) ‘to eat X’
5. \(-y-as\u00b4\) ‘to be paid’ \(is\u00b4\) ‘to pay X’
6. \(-y-akw\u00b4e\) ‘to rise or boil up’ \(akwe\) ‘to vomit’

Looking at 3 above in (44), receiving is in a sense the same event as
grabbing hold of, i.e. taking possession, but does not require any intentionality
on the part of the subject. The semantics of this verb pair is like that of the
‘sell without wanting’/‘sell intentionally’ pair. The second verb pair in the list
above \(-y-aja/-aja\) has two uses for the less Transitive verb, one meaning ‘to
find X’, or in other words ‘to get X without trying’, a two participant inactive
event. The other meaning is ‘to appear’, which is syntactically intransitive.
The more Transitive verb of the pair in either case means ‘to get X’, with
some degree of effort or desire put forth by the subject. Following Kaufman
(1987) for Zapotec, these verb pairs that alternate semantically based on the
degree of the agent’s intention or volitionality will be called \(ACT-/ACT+\)
pairs. This fits in with the notion of Transitivity put forth by Hopper &
Thompson (1980) whereby increased agentivity is a manifestation of higher
Transitivity.

There are a few other verb pairs that fit this morphological pattern, such as those in numbers 4 and 5 in (44), but instead of being ACT-/ACT+, they are unaccusative vs. transitive, or inchoative/causative. The examples in (45) and (46) illustrate the transitive/unaccusative alternation.

(45) $ki$-$ya`a$ $k$-$ak`u$ $cha`ja$
    POT-come POT-eat.2s tortilla
    ‘come and eat some tortillas!’ el brujo

(46) $nk$-$y$-$aku$ $jo`7o$
    COMP-intr-eat sacred thing
    ‘the sun was eclipsed’

There is no way to insert an agent in the intransitive structure in (46). To express the idea of a solar eclipse, one says that the sun was eaten. One can ask: ¿Quién lo comió?, ‘Who ate it?’ The reply is another question: ¿Quién sabe?, ‘Who knows?’.

The verb pair in 6 in (44) above shows that a formally related verb pair, -y-$ak`w`e$/-$ak`we$ has lost some of the semantic correlation between the verbs. The less Transitive verb of the pair means ‘to rise’ or ‘go up’, such as a liquid does when boiling, and the more Transitive verb means ‘to throw up’, or ‘to vomit’, which is syntactically intransitive but formally Transitive. The latter looks similar to a verb that Kaufman (1993) reconstructs as *akkwi, ‘to go up’ for Proto-Zapotecan. This would be ‘go up’ in the ACT+ sense. There is another verb he reconstructs, *ya$7kkwi$ that seems to be its partner. Given the way the semantics of verbs in the -y/-0- alternation work in ZEN, the latter verb here, with the y- prefix is possibly the ACT- verb of the pair historically. Semantic shift has therefore in some cases had an effect on the way the verbs of pairs are semantically related in ZEN.

4.4 Summary of the verb pair data

The previous discussion has shown that the most predominant formal pattern in verb pairs in ZEN is a causative one, i.e. verbs are more basically inchoative, and caustatives are derived from them formally. This is the case in the u-causatives and perhaps the a/u stem-vowel alternation pairs. In pattern 2, the formal derivation of verb pairs is equipollent, that is, neither
form is clearly more morphologically simple. At this stage of the analysis, it seems that the primary lexicalization pattern of ZEN verbs is such that roots are inchoative. The lack of a formal similarity between inchoatives and reflexives and the fact that inchoative verbs in the completive aspect can act as attributive adjectives are the current evidence. More tests need to be done to definitively say that there is no causing event latent but unexpressed in the inchoative cases, as previously argued in the literature. Finally, there is another derivational pattern, one in which the more-Transitive verb of a pair is formally basic. The alternations in a subset of these pairs is one based on volitionality or degree of agentivity of the actor argument.

5 Transitivity and Aspect

The preceding sections have shown that the number of core arguments a verb requires and the degree of agentivity of the subject are both relevant for the system of more-Transitive/less-Transitive verb pairs in Zenzontepec Chatino. As Hopper & Thompson (1980) predict, the increased agentivity feature covaries with the feature of greater number of core arguments in the system - these features align with verbs formally marked as more Transitive. The evidence for this claim is in the verbs of Pattern 2 and Pattern 3, in which the unifying factor is that the less-Transitive verbs of pairs in both patterns are marked by the intransitivizer morpheme $y$-. According to Hopper and Thompson, aspect can have ramifications for Transitivity as well. In their model, actions that are conceived of as being carried out to completion are more likely to be formally marked as Transitive than actions that are in progress or irrealis. Tsunoda (1981) takes a cross-linguistic look at split case-marking systems, summarizing how, depending on the language, Ergative/Absolutive or Nominative/Accusative case marking on arguments of a verb are found where Transitivity is highest. He rolls many high-Transitivity features like those in Hopper and Thompson’s system into an Effectedness Condition that captures much of the variation across languages and unifies what had previously been seen as a difference between TAM-split and verb-split languages. Since Chatino has no case system, it makes no sense to talk about transitive case frames. However, the verb pair system functions in a parallel manner, so it does make sense to talk about transitive verb frames. More-Transitive verbs are selected based upon an interaction of how many participants an event has, the agentivity of the agent participant, and to a
certain extent, aspect.

In ZEN, there is a small but significant set of verbs that are peculiar in several ways. Unlike the data seen thus far, these verbs often lack a formally derived partner verb, and some of them function with either one or two core arguments. Interestingly, these verbs are marked for the potential, progressive and habitual aspects in a way that is ambiguously transitive or intransitive with the respective markers *ki-, nte-, nti-. These verb stems are consonant initial, just like the less-Transitive, inchoative verbs of the *u-causative pairs. However, they take the completer marker that is the most widespread for transitive and causative verbs, *nka-.

Although it is not the purpose of this study to present all of the details of aspect marking in ZEN, a few words about it are in order. An in-depth description of the topic can be found in Campbell (2007), and the table in Appendix A summarizes the verb classes and their aspect markers. As already described, the primary formal and semantic relation between verbs of a pair is inchoative/causative, and the most prevalent way that that opposition is derived is found in the *u-causative pairs. Aspect paradigms for a pair of verbs of this type are repeated here for convenience from (8) and (9).

(47)  *-ki7i, ‘to get toasted’

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<th>POT</th>
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<th>HAB</th>
<th>COMP</th>
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<tbody>
<tr>
<td>k</td>
<td>ki-ki7i</td>
<td>nte-ki7i</td>
<td>nti-ki7i</td>
<td>nku-ki7i</td>
</tr>
<tr>
<td>PROG</td>
<td>nte-ki7i</td>
<td>‘it is toasting’</td>
<td>‘it gets toasted’</td>
<td>‘it got toasted’</td>
</tr>
<tr>
<td>HAB</td>
<td>nti-ki7i</td>
<td>‘it gets toasted’</td>
<td>‘it got toasted’</td>
<td>‘it got toasted’</td>
</tr>
<tr>
<td>COMP</td>
<td>nku-ki7i</td>
<td>‘it got toasted’</td>
<td>‘it got toasted’</td>
<td>‘it got toasted’</td>
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</table>

(48)  *-u-ki7i, ‘to toast X’

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<th></th>
<th>POT</th>
<th>PROG</th>
<th>HAB</th>
<th>COMP</th>
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<tbody>
<tr>
<td>k</td>
<td>k-u-ki7i</td>
<td>nte-ki7i</td>
<td>nt-u-ki7i</td>
<td>nka-ki7i</td>
</tr>
<tr>
<td>PROG</td>
<td>nte-ki7i</td>
<td>‘s/he is toasting’</td>
<td>‘s/he toasts it’</td>
<td>‘s/he toasted it’</td>
</tr>
<tr>
<td>HAB</td>
<td>nt-u-ki7i</td>
<td>‘s/he toasts it’</td>
<td>‘s/he toasts it’</td>
<td>‘s/he toasts it’</td>
</tr>
<tr>
<td>COMP</td>
<td>nka-ki7i</td>
<td>‘s/he toasted it’</td>
<td>‘s/he toasted it’</td>
<td>‘s/he toasted it’</td>
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</table>

The underlying forms of the potential, progressive and habitual aspect markers of the causative verb are *ki-, nte- and nti- respectively. These are the same markers found in the inchoative verbs, so the relationship between Transitivity and those three aspect markers is ambiguous. The completer marker, however, is distinct: *nku- for inchoatives and *nka- for causatives. The following set of verbs belong to what I call the Ac sub-class of verbs, and they have the completer marker of causatives and the markers that
are ambiguous with respect to transitivity in the other aspects. Some are transitive, some intransitive, others can be either, and all of them lack a partner of more or less Transitivity.

(49) Labile pairs and verbs with no pair

1. -jnàʔ ‘to defecate’ intransitive
2. -jāʔ ‘to embroider X’ transitive
3. -jya ‘to play’ intrans.
4. -lalá ‘to deceive’ tr.
5. -lyà ‘to fart’ intrans.
6. -lyà ‘to water (plants)’ tr.
7. -lyà ‘to smell or sniff X’ tr.
8. -neq ‘to say X’, ‘to give a command’ tr.
9. -sesù ‘to turn over (X)’ tr./intr.
10. -soq ‘to fight’ intr.
11. -suuʔ ‘to urinate’ intr.
12. -xàʔa ‘to yell’ intr.
13. -xiti ‘to laugh’ intr.
14. -ʔnì ‘to beat or hit X’ tr.
15. -juʔu ‘to be embarrassed’ intr.

One thing that stands out among these verbs is that basic bodily functions are all encoded in this class, ‘urinate’, ‘smell’, ‘fart’, ‘defecate’, ‘laugh’, etc. Due to the completive marker, these verbs are either (a) formally transitive, or (b) they have a Transitivity split based on aspect, being formally more-Transitive when telic (completed) and less-Transitive when in non-telic aspects. The ambiguity of the marking in the non-telic aspects requires this idea to be left for further investigation. Comparative data may provide some clues. For example, Kaufman (1993) reconstructs the verb *o+ xiti, ‘to laugh’ for Proto-Zapotecan, clearly the etymon of ZEN -xiti, ‘to laugh’. The *o+ is a causative marker, and Kaufman notes that this verb is “formally transitive”. Except for the clearly transitive verbs like -ʔnì, ‘to beat X’ and -lalá, ‘to deceive X’, many of the verbs in (49) are intransitive in the unergative sense, having one actor participant.

I use the terminology used by Levin & Rappaport Hovav (1995), where unergative means those intransitive verbs whose subject is more agent-like than the patient-like subjects of inchoatives. Since the inchoative (unac-
cusative) verbs participate in the inchoative/ causative alternation, Levin and Rappaport Hovav argue that prototypical inchoatives are semantically dyadic, having two arguments, with the agent role not present in the syntax. On the other hand, unergative verbs (at least in some Indo-European languages) do not have causative alternants, and they treat these as semantically monadic (single argument). The ZEN verbs above in (49) include some prototypical unergatives like ‘play’ and ‘laugh’, and as Levin & Rappaport Hovav (1995) predict, they do not alternate. In ZEN terms, they do not have a partner verb. Although it would be incorrect to assert that these verbs are necessarily dyadic, because of their more-Transitive aspect marking, it is fair to say that they are on the more-Transitive side of things formally. This likely has to do with the influence of agentivity being relevant in the structure of the verb system in ZEN. In fact, one could conceive of these verbs as having unexpressed objects in there Logical Form. Such as ‘s/he laughed (a laugh)’, ‘s/he urinated (some urine)’ or ‘s/he played (a playing)’.

6 Conclusion

The system of verb pairs in ZEN Chatino is largely one of inchoative/ causative alternations. However, there are a few pairs that are related semantically by one being more active than the other, or in other words, involving more agentivity on the part of the agent. Other verbs do not have alternating pairs, and these include some typically unergative intransitive verbs. The different derivational patterns that relate verb pairs or lack thereof are summarized in the table below.

<table>
<thead>
<tr>
<th>Semantics</th>
<th>Derivation</th>
<th>less trans</th>
<th>more trans</th>
<th># items</th>
</tr>
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<tbody>
<tr>
<td>Inchoative Causative</td>
<td>u-causative</td>
<td>0-</td>
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<tr>
<td></td>
<td>a /u stems</td>
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<td>u-stem</td>
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<tr>
<td></td>
<td>equipolent</td>
<td>y-</td>
<td>u-t-</td>
<td>4</td>
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<td></td>
<td>equipolent</td>
<td>y-</td>
<td>u-s-</td>
<td>5</td>
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<td></td>
<td>equi + V alt</td>
<td>y-</td>
<td>u-s- + Vchange</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>(lex caus) -y-/-0- anticaus</td>
<td>y-</td>
<td>0-</td>
<td>3</td>
</tr>
<tr>
<td>ACT-/ACT+</td>
<td>-y-/-0-</td>
<td>y-</td>
<td>0-</td>
<td>3</td>
</tr>
<tr>
<td>Unergative</td>
<td>labile/no pair</td>
<td>–</td>
<td>–</td>
<td>15</td>
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</table>
A great majority, 51 of the 69, of the sets of verbs are semantically inchoative/causeative alternations, although there are several formal strategies for encoding the alternation. A slim minority, 3 pairs found in Pattern 3, are semantically ACT-/ACT+ verb pairs, and a significant but small set of isolated verbs do not alternate in pairs and are largely unergative.

The fact that many inchoatives or transitive verbs are morphologically less marked than causeative or transitive verbs suggests that those roots may be lexicalized as inchoative. This includes some verbs whose actions are more commonly conceived of as being transitive, such as ‘break’, ‘close’, ‘bury’, etc. Furthermore, even verbs such as ‘write’ and ‘cut’, those concepts often argued to require an external agent argument, are encoded in the basic inchoative root. A common argument for treating inchoative verbs as lexically causative is based on drawing parallels with reflexives. If reflexives are viewed as causatives that have been reduced from two participants to one by making the internal and external argument equivalent, they can still be viewed as causative semantically. In addition to that, many languages formally mark reflexives and inchoatives the same. As Koontz-Garboden (2008) points out, reflexives arise when the agent/patient sole argument is volitional, and inchoative readings surface with non-volitional arguments. Inchoatives, like reflexives, are underlyingly semantically causative, so the argument goes.

However, reflexive verbs in ZEN are formally the same as causatives and not inchoatives. This may be because the system is sensitive to agent volitionality in the way Transitivity is encoded, as shown by the few ACT-/ACT+ verb pairs. These pairs demonstrate this where both verbs of a pair are syntactically transitive (having two core arguments), but the more-Transitive verb is the one with the more active agent. This fits well with the multifaceted definition of Transitivity as laid out in Hopper & Thompson (1980) in which increased agent volitionality is predicted to be on the same side of the higher/lower Transitivity system as syntactic transitivity (number of core arguments). The independent formal evidence to this divison in ZEN is the fact that in both Patterns 2 and 3, the less-Transitive verbs are marked the same, with the prefix $y$-. This morpheme unites the inchoatives of Pattern 2 with the un-actives of Pattern 3.

Not only are many of the verbs that denote breaking events morphologically and semantically more basic in the inchoative form, ZEN Chatino appears to be unusual in encoding verbs like ‘cut’ and ‘write’ as inchoative. Further research is needed to determine that these verbs are indeed inchoative, for example the application of the purpose clause and por si solo...
diagnostics for causatives and inchoatives as laid out by Koontz-Garboden (2008). In some languages, like English, inchoative forms do not exist for verbs like this that “require” agents. However, what is it about these verbs that makes them require agents? Is it the fact that cutting and writing are usually done with volitional control over some instrument, such as a knife or a pen, and that control must be exerted by an agent? Why can we say I broke the window, the window broke and I cut the paper, but not *the paper cut? Perhaps it is a matter of being able to break the window directly with a part of my body, such as my hand, and not needing an instrument. This does not succeed in distinguishing cutting from breaking, because I can cut paper with my fingernail or perhaps with my teeth. To suggest that verbs like ‘cut’ never have inchoative forms (Haspelmath, 1993) seems an overstatement, and the data from ZEN presented here deserve a closer look.

The lexicalization of Transitivity in ZEN verbs is also sensitive to aspect. There is a specific class of verbs, the Ac verbs, that are mixed with respect to syntactic transitivity. These verbs do not have alternating pairs, and many of them are semantically unergative. In the completive aspect, an aspect that necessarily encodes telicity, these verbs are formally transitive. In the non-telic aspects, potential, progressive and habitual, their transitivity is formally ambiguous. This covariance of syntactic transitivity with agentivity of the agent and telic aspect fits the broader notion of semantic Transitivity put forth by Hopper & Thompson (1980) and Tsunoda (1981).

**Appendix A**

**Verb Classes of ZEN Chatino Based on Aspect Marking**

<table>
<thead>
<tr>
<th>Class</th>
<th>Class A</th>
<th>Class B</th>
<th>Class C</th>
</tr>
</thead>
<tbody>
<tr>
<td>subclass</td>
<td>Au / Ac</td>
<td>A2</td>
<td>Bc</td>
</tr>
<tr>
<td>POT</td>
<td>ki-</td>
<td>ki-</td>
<td>[lam]</td>
</tr>
<tr>
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<td>nk-</td>
<td>nkwi-</td>
<td>nku-</td>
</tr>
<tr>
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<td>nte-</td>
<td>nte-</td>
<td>nte-</td>
</tr>
<tr>
<td>HAB</td>
<td>nti-</td>
<td>nti-</td>
<td>n + [lam]</td>
</tr>
<tr>
<td></td>
<td>tr/tr-intr</td>
<td>tr-intr</td>
<td>intr</td>
</tr>
</tbody>
</table>

*lam = laminalization of stem-initial consonant*
References


