Pluractionality in Mayan

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1. INTRODUCTION

The term "pluractional" originates in Newman 1980 to describe a particular class of derived verb stems in Chadic languages that had up until that point been called "intensive". The descriptive intuition that underlies their renaming is that these stems uniformly denote plural actions. For instance, reduplicating the initial syllable of the Hausa verb *nèemí* 'seek' generates a new stem *nàn-nèemí* meaning 'to seek all over' or 'to seek a lot' (Newman 2012: ex.1b). Under both translations, though, it is clear that the verb stem no longer denotes simple atomic events of seeking. While invented for Chadic languages, Newman's notion of pluractionality has proved to be fruitful. Pluractional derivations have subsequently come to be found across the world's languages, though perhaps especially so in the indigenous languages of Africa and the Americas (Mithun 1988; Wood 2007). One of the primary goals of this chapter is to show that Mayan languages are no exception, and that some are, in fact, particularly rich in pluractional morphology.

The chapter is organized around two case studies that explore the pluractional systems of two distantly related Mayan languages, Kaqchikel and Tseltal. Both languages have a variety of pluractional derivations, which will allow us to see the typological breadth of pluractionality in Mayan. The Kaqchikel case study focuses on the well-known distinction between event-internal and event-external pluractionality. The Tseltal case study focuses on a second locus of variation in pluractional meaning that partially crosscuts the event-internal / event-external distinction, namely how the plurality of events is structured in time. Finally, Mayan pluractionality raises a series of questions, both about Mayan languages and pluractionality more generally. The final section considers these questions and suggests areas for future research.

2. BRIEF TYPOLOGICAL BACKGROUND

The definition of pluractionality merely requires that pluractional verbs denote plural events. Nothing is said about the number of events that constitute that plurality, their relationships to one another in time and space, their participants, or whether they sum to an event that has an identity greater than the sum of its parts. Previous typological surveys, most prominently Wood 2007 and Cusic 1981, have shown that there are pluractionals that denote events that vary along all of these dimensions, and more importantly, that the variation is not random. Instead, pluractionals fall into common types, which cluster depending on the properties of the event pluralities that they denote. The most salient split, and the one that will most concern us in §3, is the contrast between event-internal and event-external pluractionality. Intuitively, event-internal pluractionals denote plural events that have the character of a single event. It is as if the repetitions that compose the plurality take place internal to an event that is conceived of as a single happening. In contrast, event-external pluractionals denote plural events whose repetitions are more easily individuable as separate happenings. The difference is perhaps best illustrated with an example, like the Yurok pluractional affixes in (1) – (2), which have traditionally been called the repetitive and the iterative (Garrett 2001).

YUROK (Wood 2007:153, ex. 11)

(1) **Tekw**tek'weses ku popsew!

REP.cut.IMP DET bread
'Slice up the bread!'

YUROK (Wood 2007:147, ex. 5c)

(2) Kipun kw**eg**eskwes-ek
winter have.a.cold.ITR-1SG
'In the winter time I have a cold.'

The repetitive, shown in (1), instantiates event-internal pluractionality, while the iterative in (2) is an event-external pluractional derivation. The event described in (1) necessarily involves the repetitions of a plurality of subphases of an event. That is, producing bread that is sliced necessitates cutting the bread multiple times, and each cutting event is clearly a subphase of the slicing event they sum to. While English has a single lexical item "slice (up)", which denotes events of plural character, Yurok derives a verb of similar meaning from one meaning "to cut" using an event-internal pluractional affix. In contrast, the event-external pluractional event described in (2) clearly presents a plurality of events that happen independently. They occur in different times and places, and do not, as subphases do, sum to a new event of singular character. A large body of crosslinguistic work on the contrast between pluractional verbs that appear more like (1) and those that appear more like (2) has produced a list of parameters that situate a given pluractional on the event-internal / event-external continuum following Wood 2007:87.

(3) THE EVENT-INTERNAL / EXTERNAL CONTINUUM

a. ASPECTUAL SELECTION
Event-internal pluractionals are preferentially formed from verb stems that would otherwise be semelfactives or achievements. Event-external pluractionals are aspectually promiscuous and can be formed from verbs stems that belong to a variety of aktionsart-classes.

b. CONTIGUITY
The repetitions that form an event-internal pluractional event are preferentially contiguous in time and space. In contrast, event-external pluractionals do not place strict requirements on the temporal or spatial distance between the events that compose the plural events they denote.

c. GENERICITY
This feature is closely related to the previous one, though they do not completely overlap. The generalization is that event-internal pluractionals never allow habitual readings, while event-external pluractionals often do.

d. CARDINALITY
Pluractional verbs denote plural events. This general requirement takes no stand on the number of events that compose the plurality. The event-internal / event-external distinction makes the plurality requirement precise. In particular, event-internal pluractionals generally require plural events with large cardinalities, while event-external pluractionals can often be satisfied by events of simple plurality, i.e., two or more events.

e. SHARED TELOS
Event-internal pluractional verbs usually require that all of the events in the plurality share the same theme argument or progress toward a shared goal or result. In contrast, event-external pluractionals do not have this requirement.

f. BASE-PREDICATE ENTAILMENTS
A sentence with an event-internal pluractional often fails to entail a minimally different sentence without the pluractional morphology. In contrast, event-external pluractional sentences often entail a corresponding sentence without the pluractional morphology.

While a given pluractional might not pattern in every way like a canonical event-internal or event-external pluractional, typological work has shown that pluractionals cluster around these two poles. Given the prominent place that the event-internal / event-external distinction has played in the previous literature, the following case studies will be organized around this core contrast, allowing Mayan pluractionality to be placed in its crosslinguistic context. First, I will show that Kaqchikel has two pluractionals that differ precisely along the criteria detailed above. Then, turning to Tseltal, I will discuss variation across three different event-internal pluractionals in that language with respect to the temporal profile of the plural events they denote. Importantly, this kind of variation within a category of pluractionality is also attested in other languages with rich pluractional systems.

3. KAQCHIKEL CASE STUDY: THE INTERNAL / EXTERNAL DISTINCTION

Pluractionality is a category that has not been traditionally talked about in grammars of Mayan languages, though this is changing in more recent work (e.g., Polian 2013:349-360). We are thus in the same situation as Newman in his classic work on Hausa. Following his lead, I will identify pluractional verb stems as those which, in contrast to their underived forms, cannot describe single-event scenarios. While candidate pluractionals can be identified with this notional criterion, they are confirmed as such through truth-value judgments in a context. For instance, after touching a cup only once, speakers of Kaqchikel judge example (4) to be false and example (5) to be true, a difference that can only be attributed to the suffix *-la'*, which can therefore be called a pluractional affix (see Henderson 2014 for an analysis of *-la'*). Note that I call the morphology that derives pluractional verbs "pluractional affixes" or "pluractional morphology", and retain the word "pluractional" to refer to (classes of) verb stems that have the relevant semantic properties.

KAQCHIKEL
(4) X-Ø-in-chap-**ala'** ri xara.
CP-B3SG-A1SG-handle-la' DET cup
'I touched the cup all over.' {ELIC}

KAQCHIKEL
(5) X-Ø-in-chap ri xara.
CP-B3SG-A1SG-handle DET cup
'I touched the cup.' {ELIC}

This section focuses on the two pluractional affixes in Kaqchikel discussed in Henderson 2012. It will be shown that one is an event-internal pluractional, while the other is an event-external pluractional, demonstrating that even within a single Mayan language we can find the two core types of pluractionality. The first kind of pluractional is illustrated by the attested near-minimal pair in (6). Morphologically, the pluractional verb stem is formed by reduplicating the verb root's initial consonant (C1) along with /a'/. Note that a copied vowel comes along with a copied consonant in example (6a). This vowel is not written in the glosses because one finds attested examples without this vowel, which is mostly likely present for purely phonological reasons.

KAQCHIKEL (Cojtí, Chacach, & Cali 1998:58)

(6) a. Ri ajch'olöy wakx, n-Ø-u-chuq'-ij ru-qül ri wakx
the butcher cow ICP-B3SG-A3SG-pierce-SS A3SG-neck the cow
r-ichin ni-Ø-käm.
A3SG-reason ICP-B3SG-die
'The cow-butcher pierces the cow's neck to kill it.'

b. Ri ajch'olonel n-Ø-u-chuq'-**ucha'** ru-qül ri mama' wakx
the butcher ICP-B3SG-A3SG-pierce-**C1a'** A3SG-neck the big cow
'The butcher keeps stabbing at the big cow's neck.'

Example (6a), which does not have pluractional morphology, can be used to faithfully describe a scenario in which the butcher kills the cow with a single piercing. In contrast, example (6b) cannot describe a scenario with a single blow. The pluractional affix derives a verbal stem that can only be satisfied by events of repeatedly stabbing the cow. Henderson 2012 shows that -C1*a'* derives event-internal pluractionals according to the crosslinguistically established criteria.

First, as expected of event-internal pluractional morphology, -C*a'* preferentially derives pluractional stems from semelfactive verbs. This is illustrated in (7) – (9).

KAQCHIKEL

(7) X-Ø-u-k'oj-**ok'a'** ru-chi' ri jay.
CP-B3SG-A3SG-knock-**C1a'** A3SG-mouth the house
'He kept knocking at the door.' {ELIC}

KAQCHIKEL (Cojtí, Chacach, & Cali 1998:371)

(8) Jun xti moy r-onojel q'ij n-Ø-u-tzin-**itza'** ri ru-q'ojon
a little blind A3SG-all day ICP-B3SG-A3SG-sound(music)-**C1a'** the A3SG-guitar
pa k'ayb'äl.
PREP market
'A blind person strums his guitar all day in the market.'

KAQCHIKEL

(9) X-Ø-u-t'in-**it'a'** ri kem.
CP-B3SG-A3SG-hammer(weft)-**C1a'** the weaving
'He kept hammering the weft of the weaving.' {ELIC}

Previous authors, noting that semelfactive predicates in English have uncoerced repetitive atelic uses, have drawn attention to the fact that atelic events are inherently repeatable (Rothstein

2004). This repetition is exactly what -C1*a'* requires. Verbs of other aktionsart classes denote events that differ in one of three ways: (i) they can be temporally extended, like activities, (ii) they can have linguistically relevant result states, like achievements, or (iii) they can be temporally extended and have result states, like accomplishments. For non-semelfactive predicates, -C1*a'* requires aspectual coercion. This establishes its preference for targeting semelfactive verbs, as a purported event-internal pluractional should. For instance, with achievement verbs, like those in (10) – (11), the events fail to naturally culminate, allowing for repetition.

KAQCHIKEL
(10) X-Ø-in-ch'ar-**ach'a'** ri tros.
CP-B3SG-A1SG-split-**C1a'** the stump
'I kept chopping at the stump.' {ELIC}
SPEAKER COMMENT: It's like if your axe is really dull.

KAQCHIKEL
(11) X-Ø-u-yuch'-**uya'** ri su't.
CP-B3SG-A3SG-fold-**C1a'** the wrap
'She kept folding over the wrap.' {ELIC}
SPEAKER COMMENT: Like if you can't get it lined up even.

To demonstrate that -C1*a'* bans culminations, note that when the base predicate is an achievement, as in (12) – (13), a pluractional sentence fails to entail its non-pluractional counterpart. This follows naturally if the second clauses in (12) – (13) denote events that culminate, while the pluractional verbs in the first clauses have been coerced into semelfactives, which denote non-culminating events. The failure of entailment is explicitly contrasted with examples like (14), where the base stem *k'oj* 'knock' is also semelfactive.

KAQCHIKEL
(12) X-Ø-in-ch'ar-**ach'a'** ri tros, po man x-Ø-ch'ar ta.
CP-B3SG-A1SG-split-**C1a'** the stump, but NEG CP-B3SG-split.PAS IRR
'I kept chopping at the stump, but it didn't split.' {ELIC}

KAQCHIKEL
(13) X-Ø-u-tzuy-**utza'**, po man x-Ø-tzuy-e' ta.
CP-B3SG-A3SG-sit-**C1a'**, but NEG CP-B3SG-sit-INTR IRR
'She kept sitting up and down on it, but she didn't sit.' {ELIC}

KAQCHIKEL
(14) #X-Ø-u-k'oj-**ok'a'** ru-chi ri jay, po man
CP-B3SG-A3SG-knock-**C1a'** A3SG-mouth the building, but NEG
x-Ø-u-k'oj-ij ta.
CP-B3SG-A3SG-knock-**C1a'** IRR
#'She kept knocking on the door, but she didn't knock on it.' {ELIC}

Note that examples (12) – (13) not only show that -C1*a'* preferentially targets semelfactives, but that C1*a'*-derived verb stems also behave like event-internal pluractionals relative to the final criterion, namely sentences with event-internal pluractional verbs do not necessarily entail

minimally different non-pluractional sentences.

Activities similarly require coercion. In particular, while such predicates can usually describe events that take place over extended stretches of time and space, -C1*a'* requires the repetition of the shortest events that might fall in the denotation of the underived verbal predicate.

KAQCHIKEL
(15) X-Ø-u-sir-**isa'** ri koloch'.
CP-B3SG-A3SG-roll-**C1a'** the ball
'He kept rolling the ball (back and forth in place).' {ELIC}

KAQCHIKEL
(16) X-Ø-u-chok-**ocha'** ri ch'ich'.
CP-B3SG-A3SG-push-**C1a'** ri car
'He kept pushing on the car.' {ELIC}
SPEAKER COMMENT: It's like it's stuck and keeps rocking back into place.

Finally, accomplishments verbs, like *b'än* 'build' or *tz'ib'aj* 'write', are usually only infelicitously derived by -C1*a'*. This is expected if –C1*a'* derives event-internal pluractionals. Event-internal pluractionals are often built on semelfactives crosslinguistically, but accomplishments have a lexical semantics that is the most radically different from semelfactives. If any verbs should resist coercion, it would be these.

C1*a'*-derived verbs also pattern with event-internal pluractionals crosslinguistically by denoting events whose atomic parts are nearly contiguous in both time and space. The following examples illustrate this point in a controlled manner, but even the naturally occurring examples in (6b) and (8) describe scenarios that could only involve contiguous repetitions.

KAQCHIKEL
(17) Suppose Juan knocks on the door once every 10 seconds for 10 minutes.
#A Xwan x-Ø-u-k'oj-**ok'a'** ru-chi' ri jay.
CLF Juan CP-B3SG-A3SG-knock-**C1a'** A3SG-mouth the door
'Juan kept knocking at the door.' {ELIC}
SPEAKER COMMENT: No, it has to be continuous [seguido].

KAQCHIKEL
(18) Suppose Juan has a rash on his arm and every once in awhile it itches so he scratches it.
#A Xwan x-Ø-u-roch-**ora'** r-aq'a.
CLF Juan CP-B3SG-A3SG-scratch-**C1a'** A3SG-hand
'Juan kept scratching his arm.' {ELIC}
SPEAKER COMMENT: No, it would be like this [scratches vigorously back and forth on her arm].

KAQCHIKEL
(19) Suppose you see Juan every day and he gives you a dirty look.
#A Xwan x-i-ru-tz'et-**etz'a'**.
CLF Juan CP-B1SG-A3SG-look.at-**C1a'**
'Juan keeps looking at me. {ELIC}

SPEAKER COMMENT: No, it would have to be like this speaker turns his head a bit and shoots a glance over and over].

The contexts in (17) – (19) set up scenarios where the amount of time between events, the downtime, varies. In particular, we look at downtimes ranging from 10 seconds to days. Speakers' comments make it clear that -C1*a'* cannot be used, especially when they act out contrary scenarios in which -C1*a'* would be appropriate. They always use rapid, almost frantic, contiguous repetitions. It should not be surprising then that verbs derived by -C1*a'*, like event-internal pluractionals more generally, do not have habitual readings either.

The fourth property of event-internal pluractionals is that they denote events with large cardinalities. Examples (20) – (22), show that C1*a'*-derived predicates, as expected, require many repetitions.

KAQCHIKEL

(20) Suppose Juan looks over at you twice.
#A Xwan x-i-ru-tz'et-**etz'a'**.
CLF Juan CP-B1SG-A3SG-look.at-**C1a'**
'Juan keeps looking at me.' {ELIC}

KAQCHIKEL

(21) Suppose Juan taps the table 4 or 5 times.
#A Xwan x-Ø-u-chap-**acha'** ri ch'atäl.
CLF Juan CP-B3SG-A3SG-handle-**C1a'** the table
'Juan keeps touching the table.' {ELIC}

KAQCHIKEL

(22) Suppose Juan taps the table 15 or 20 times.
A Xwan x-Ø-u-chap-**acha'** ri ch'atäl.
CLF Juan CP-B3SG-A3SG-handle-**C1a'** the table
'Juan keeps touching the table.' {ELIC}

Finally, it is possible to show that the event-pluralities denoted by C1*a'*-derived verb stems require a shared arguments, and thus behave like event-internal pluractional verbs in accordance with property (3e). In particular, it is impossible to distribute parts of one of these events over parts of a participant. For instance, example (23) has no reading where each of the individuals in the denotation of the plural subject participates in a single pluractional subevent. The most salient reading of (23) has each of the people repeatedly glancing at me. Similarly, example (24) cannot be use to characterize the presented scenario. Instead, its most natural reading is one in which each of the wraps participates in its own pluractional event, namely one in which the subject rapidly touches it.

KAQCHIKEL

(23) Suppose there is a large group of people across the street and they each turn and glance at me once.
#X-i-ki-tz'et-**etz'a'**.
CP-B1SG-A3PL-look.at-**C1a'**
'They kept glancing at me.' {ELIC}

KAQCHIKEL

(23) Suppose there is large number of wraps on the table and someone touches each of them once in rapid succession.
#X-e-ru-chap-**acha'** ri su't.
CP-B3PL-A3SG-handle-**C1a'** the wrap
'He kept touching the wraps.' {ELIC}

By resisting the distribution of pluractional subevents over different participants, C1*a'*-derived stems clearly behave like event-internal pluractionals crosslinguistically, which usually denote plural events that must have a shared object or progress toward the same goal. For instance, we can think of the pluractional verb stem in (23) as characterizing a complex event in which the agent shoots many little glances at a theme. Crucially, the theme and the agent must be the same across each of those events, which gives the pluractional event the character of a single event. The same is true for (23), which shows that a plural event satisfying the verb stem must have the same theme, and so once again has the character of a single event.

The previous data establish that -C1*a'* derives canonical event-internal pluractional verbs, possessing all of the relevant properties. Turning now to the pluractional derivation exemplified in (25), we find a Kaqchikel event-external pluractional derivation contrasting with -C1*a'* with respect to most of the previous properties. Example (25) shows that this pluractional stem is derived by the suffix *-löj*. It is pluractional because while the positional root *ch'ot* is deals with semantic notions of individuated objects falling, like teeth or grains, the pluractional form requires this process to happen repeatedly, which is captured in the translation by the verb scatter. The goal now is to show that *löj*-pluractionals are event-external pluractionals. Note that, once again, I will not be representing copy vowels in the gloss, like the second vowel in *-ch'otolöj*, because one can find many examples in which no such vowel is present.

KAQCHIKEL (Cojtí, Chacach, & Cali 1998:76)

(25) La jun wakx ni-Ø-ch'ot-**olöj** kan r-achäq pa b'ë y.
that one cow ICP-B3SG-A3SG-fall.grains-**löj** DIR A3SG-feces PREP street
'That cow is scattering its feces in the street.'

First, like event-external pluractionals crosslinguistically, *-löj* can target predicates of all eventive aktionsart classes. In example (26) it targets an activity, in example (27) it targets an achievement, and in example (32) it targets an accomplishment. These were the kind of verb stems that -C1*a'* could not derive without coercion, but we see not such coercion with *-löj.* Only stative predicates are ungrammatical with *-löj*, which makes sense if they do not denote events, and thus a fortiori cannot denote plural events.

Examples (26) – (28) provides further evidence that *-löj* is an event-external pluractional. Like similar morphemes crosslinguistically, the amount of downtime between repeated events is variable and can be quite large. We also see that, unlike -C1*a'*, pluractionals derived by *-löj* can have habitual readings.

KAQCHIKEL

(26) X-i-b'iyin-**ilöj**.
CP-B1SG-walk-**löj**

'I kept having to walk.' {ELIC}
SPEAKER COMMENT: Like if you have fields all over the place and you had to do work at every one.

KAQCHIKEL
(27) (Ojër kan) x-i-ch'ar-**alöj**.
(before) CP-B1SG-split.wood-**löj**
'I used to split wood.' {ELIC}
SPEAKER COMMENT: like as a profession

KAQCHIKEL
(28) (Ojër) x-Ø-b'ixan-**ilöj**.
(before) CP-B3SG-sing-**löj**
'He used to sing.' {ELIC}
SPEAKER COMMENT: like in a choir

Incompletive *löj*-marked verbs have similar readings, and not surprisingly, these readings are more salient than with verbs in completive aspect.

KAQCHIKEL
(29) La achin la' n-Ø-xub'an-**alöj**.
that man there ICP-B3SG-whistle-**löj**
'That man is always whistling.' {ELIC}

KAQCHIKEL
(30) La jun achin la' n-Ø-chan-**alöj** pa r-ochoch.
that a man there ICP-B3SG-naked-**löj** PREP A3SG-house
'That man is always naked around his house.' {ELIC}
SPEAKER COMMENT: Like a neighbor who is always working naked in his patio and he doesn't realize you can see him.

Finally, pluractionals derived by *-löj* exhibit the property of event-external pluractionality characterized by (3e). The plural events they denote need not share a object or progress toward a shared goal. The naturally occurring example in (31) illustrates the point. The stem *-ajmajlöj* is clearly interpreted distributively, but no one person participates in a plural event. The same is true in examples (32) – (34). None of the houses in (32) have to be built more than once. The same could be said for eggs and takings in (33) and people and deaths in (34). What these examples show is that the pluractional event can be split into parts and distributed over different participants, which is exactly what is impossible with C1*a'*-derived pluractionals.

KAQCHIKEL (Hendrick Krueger 1986:152, ex. 205)
(31) Y-e'-ajmaj-**löj**.
ICP-B3PL-flee-**löj**
'They go fleeing, one after another.'

KAQCHIKEL
(32) X-Ø-b'an-**alöj** ri jäy.
CP-B3SG-do.PAS-**löj** the house

'The houses were built over time.' {ELIC}

KAQCHIKEL
(33) X-Ø-tz'am-**alöj** ri säqmolo'.
CP-B3SG-take.PAS-**löj** the eggs
'The eggs were taken over time.' {ELIC}
SPEAKER COMMENT: It's like you're selling eggs at the market and they were sold a few at a time all afternoon until gone.

KAQCHIKEL
(34) X-e-kam-**alöj**.
CP-B3PL-die-**löj**
'They died over time.' {ELIC}
SPEAKER COMMENT: Could be used to describe how people die during a plague.

It is clear that *löj*-derived pluractionals contrast with C1*a'*-derived pluractionals on almost all of the properties discussed. It only fails on one, namely the cardinality constraint. While event-external pluractionals crosslinguistically can be predicated of events with high cardinality, it is often the case that they accept plural events of low cardinality. This is not the case for *-löj*. For instance, speakers reject example like (33) in situations where only two or three eggs were taken. While partially overlapping with event-internal pluractionals in this way, *-löj* is still identifiable as an event-external pluractional derivation. Its semantic properties cluster around that of that cross-linguistically stable type.

This section has provided a detailed description of the semantics of two different pluractionals in Kaqchikel, illustrating that the language instantiates the two cross-linguistically common types of pluractionality. While the survey thus reveals some of the observed variation in Mayan pluractionality, Kaqchikel actually has many additional pluractional affixes, like the distributive event-external distributive marker *-la'* discussed in Henderson 2012, 2014, and mostly saliently, those like (35) – (36) which derive verb stems from ideophonic roots. In example (35) the reduplication of the root's rhyme derives a pluractional intransitive verb from the ideophonic root *b'ït'*. In example (36), reduplication of the root-initial consonant supports the affixation of *-öt*, deriving a pluractional intransitive verb from the ideophonic root *qitz'*.

KAQCHIKEL
(35) *b'ït'* 'the sound of cloth tearing'
Yalan ni-Ø-b'it'**it'** ri kej ch-u-xe' ri r-ejqa'n.
very ICP-B3SG-fart.repeatedly the horse PREP-A3SG-under the A3SG-burden
'The horse farted a lot under its burden.' {ELIC}

KAQCHIKEL (Cojtí, Chacach, & Cali 1998:250)
(36) *qitz'* 'squeak produced by chairs, beds, or loose cargo'
Ri ch'ich' ch'at yalan ni-qitz'**iqöt** taq y-a-wär
the metal bed very ICP-Ø-B3SG-squeak.repeatedly when ICP-B2SG-sleep
ch-u-wäch
PREP-A3SG-front
'The metal bed squeaks a lot when you sleep in it.'

While the semantic properties of these two derivations is currently unexplored, it is clear that there is a connection between pluractionals and ideophones. The next section, which focuses on Tseltal, explores this connection in more depth. In particular, Pérez González 2012 shows that expressive morphemes in Tseltal, many of which derive verb stems from ideophonic roots into, have pluractional semantics. These morphemes can thus be classified as pluractional affixes like those discussed in this section in Kaqchikel. Moreover, we will see that while many of these pluractional affixes are described as deriving event-internal pluractionals, the plural events they denote have different temporal profiles. While this kind of variation within a kind of pluractionality has not been documented for Kaqchikel, it is an attested feature of some languages with rich pluractional morphology.

3. TSELTAL CASE STUDY: STRUCTURING REPETITIONS IN TIME

The Kaqchikel case study has shown that Mayan languages instantiate the event-internal / event-external pluractional distinction. The goal of this section is to explore variation within these categories. For instance, two pluractionals that are grouped together under the previous section's diagnostics might still differ along other aspects of their meaning. Collins 2001 provides an example of this through his discussion of an event-internal pluractional in ǂHoan (Kx'a) that requires the distribution of the plurality of events over multiple spatial locations, which is not the case for event-internal pluractional discussed in Kaqchikel. Another common point of variation within a class of pluractionals concerns the temporal structure of the plural events they denote. For instance, Van Geenhoven 2004 discusses a series of pluractionals in Kalaallisut which do not differ with respect to the event-internal / event-external distinction, but instead each pluractional affix structures, in fine-grained ways, how the repeated events are situated in time. We see precisely this phenomenon in Tseltal.

First, though, I want to briefly illustrate the contrast between event-internal and event-external pluractionals in Tseltal. Pérez González 2012 describes five suffixes in Tseltal (i.e., -C1*on*, -*<j>awet*, -V*naj*, -*lajan*, and -*k*V*naj*) that derive expressive predicates, but which also clearly have pluractional semantics. Moreover, Pérez González 2012 describes a split among these pluractional derivations that corresponds to the event-internal / event-external distinction. For instance, -C1*on* is described as requiring the repetition of subevents of an event (which would correspond to subphases in the terminology used here), while -*<j>awet* involves repeated independent events. This corresponds to the distinction between event-internal and event-external pluractionality, which is reinforced in the following minimal pair.

TSELTAL (Pérez González 2012:217, ex.17)
(37) X-kot-**kon**-Ø=ix te alal=e
NT-on.fours-C1on-B3SG=already DET baby=ENC
'The baby already crawls.'

TSELTAL (Pérez González 2012:217, ex.18)
(38) X-ko**<j>**t-**awet**-Ø=ix te alal=e
NT-on.fours-**awet**-B3SG=already DET baby=ENC
'The baby already gets up and sits down.'

As Pérez González 2012 notes, in example (37) a sequence of events of getting onto all fours is summed and presented as single event, namely an event of crawling. In contrast, example (38)

presents each event of getting onto all fours as independent events which do not sum to something greater than its parts.

Additionally, the proposed event-internal pluractional -C1*on* contrasts with other pluractionals in Tseltal with respect to tests that distinguish the two varieties of pluractionality. For instance, Pérez González 2012 describes the events that satisfy C1*on*-marked predicates as occurring on a single occasion. In contrast, there are Tseltal pluractionals, like -V*lay*, described by Polian 2013:350-351, which allow the repetitions to take place across longer periods of time, during an evening or across multiple days.

TSELTAL (Polian 2013: 351, ex.10)
(39) Way-**ulay**-on s-jun-al ajk'bal.
sleep-**Vlay**-B1[CP] A3-one-ABST night
'I was sleeping and waking up all night.'

TSELTAL (Polian 2013: 350, ex.7)
(40) Jay-eb=kati k'aal ya x-jalaj-Ø aw-u'un ts'in te ya
how.many-NUM=ADMIR day INC INC-be.late-B3SG A2-RN well DET INC
a-ch'in-lo'-**ilay**-Ø?
A2-DIM-eat-**Vlay**-B3SG
'How many days will you go on eating it little by little.'

Some examples with -V*lay* even appear to have a habitual reading, which is a core property of event-external pluractionality.

TSELTAL (Polian 2013: 350, ex.6)
(41) Ya y-uts'in-**la**-on-ik.
INC A3-molestar-**Vlay**-B1-PL
'They bother me all the time.'

These observations support a contrast between event-internal and event-external pluractionals in Tseltal. The former, exemplified by -C1*on*, involve repetitions of subphases of a single event on a single occasion, while the latter, exemplified by -V*lay*, involves the repetition of independent events. Having illustrated an event-internal / event-external contrast in Tseltal, we can now focus on variation within these categories.

Pérez González 2012 describes three suffixes, -C1*on*, -V*naj*, and -*lajan*, as all involving the repetitions of subevents, that is, as event-internal pluractionals. They differ, though, crucially, in the temporal structure of those repetitions. For instance, -C1*on*, which we have already encountered, only requires sequential repetitions.

TSELTAL (Pérez González 2012:219, ex.23)
(42) X-k'oj-**k'on**-Ø a x-koy-Ø ta s-ol.
NT-sound.obj.hitting-**C1on**-B3SG ICP ICP-arrive-B3SG PREP A3SG-head
'It went k'oj every little bit on his head.'

Pérez González 2012 shows that speakers judge (42) to be true in a situation where balls fall one

by one from a shelf on to an individual's head. Thus, each knocking sound is kept separate, but there are apparently few constraints placed on the amount of downtime in between knocks. In contrast, the minimally different example (43) shows that *-lajan* imposes different constraints on the downtime between repetitions.

TSELTAL (Pérez González 2012:219, ex.24)
(43) X-k'oj-**lajan**-Ø a x-koy-Ø ta s-ol.
NT-sound.obj.hitting-lajan-B3SG ICP ICP-arrive-B3SG PREP A3SG-head
'It went k'oj in a chaotic manner on his head.'

-lajan requires chaotic repetitions, which Pérez González 2012 describes as both rapid and without predictable amounts of downtime between each event in the event-plurality. For instance, speakers say that (43) would be better used to characterize a scenario in which many balls come steaming of a shelf in waves knocking someone in the head.

Finally, Pérez González 2012 describes a form of event-internal pluractionality that imposes more structure on the downtime between repetitions than either two of the previous pluractionals. Shown in (44), -V*naj*, actually requires periodic repetitions. That is, the amount of downtime between each event is fixed and equal.

TSELTAL (Pérez González 2012:222, ex.27)
(44) X-k'oj-**inaj**-Ø ta s-ol.
NT-sound.obj.hitting-inaj-B3SG PREP A3SG-head
'It sounded k'oj hitting his head.'

Supporting the requirement for periodicity is the fact that -V*naj* has an additional non-trivial visual component. When encountering an example like (44), speakers imagine the sound being produced by an oscillating object, for example, a ball that is bouncing up and down on a person's head at a constant rate. This example rounds out three subtypes of event-internal pluractionality in Tseltal, which differ in terms of how the downtime between repetitions is structured. The first affix, -C1*on* requires pauses, *-lajan* requires rapid aperiodic pauses, and -V*naj* requires periodic pauses. Tseltal, then, instantiates a kind of typologically attested variation within its event-internal pluractionals based on how the repeated events are spaced in time relative to each other.

Finally, the distinction between different types of verbal pluractionality-based structured down-time is actually recapitulated within Tseltal's system of ideophones. The core observation is that while the pluractional suffixes illustrated above apply to ideophonic roots, as well as verbal roots, ideophones can additionally undergo full reduplication, yielding a pluractional effect. Strikingly, the number of reduplications conditions the type of downtime required, allowing classes of reduplicated ideophones to be paired with classes of pluractional verb stems. The primary contrast is between ideophonic roots that have been reduplicated two times and those that have been reduplicated three times. Pérez González 2012 shows that when reduplicated twice, as in (45), the resulting stems have the same temporal profile as C1*on*-derived pluractionals. Here the speaker uses a twice-reduplicated ideophone *tat'umt'um* (which itself has a partially reduplicated base), to characterize an event that is otherwise described in the same clause by a C1*on*-derived pluractional verb. In particular, (45) describes a scenario where the wood is hit, generating a drum sound, repeatedly, but with pauses.

TSELTAL (Pérez González 2012:241, ex.60)

(45) Tat'umt'um-tat'umt'um x-i-Ø, s-tsan-tson-Ø.
drum.sound-RED NT-say-B3SG NT-wood.sound-EXP-B3SG
'The hits to the wood went tat'umt'um, tat'umt'um repeatedly.'

In contrast, when reduplicated three times, the result is an ideophone that has the temporal profile of a *lajan*-derived pluractional. In fact, the following naturally occurring example shows a speaker equating the *lajan*-pluractional with the triple-reduplicated ideophone.

TSELTAL (Pérez González 2012:243, ex.62)

(46) Ja'-Ø x-chak'-**lajan**-Ø te bay chak'-chak'-chak'
FOC-B3SG NT-sound.horse.hoves-**lajan**-B3SG DET where sound.metal-RED-RED
x-chi-Ø=e, ma-uk.
NT-say-B3SG=ENC NEG-IRR
'The trotting of horses sounds *chak* when it goes *chakchakchak*, right?'

Just as with -*lajan*, a triple-reduplicated ideophone requires repetitions that recur quickly and in a chaotic manner. The data in (45) – (46) reinforce the generalization that frequency is a category that is pervasively grammaticized in Tseltal pluractionality. Pluractional forms are found in both the verbal and ideophonic domains with different morphology, but with similar semantic effects, in particular, with respect to the temporal structure of the plural events they characterize.

To summarize, not only does Tseltal, like Kaqchikel, distinguish event-internal and event-external pluractionality, but the language has a variety of event-internal pluractionals. The variation we see across these pluractionals is similar to what is found in some other languages with rich pluractional systems, where two forms might require event-internal repetitions, but these repetitions must have different temporal profiles. Finally, while the pluractionals discussed in this section were selected because they illustrate an important kind of variation within the event-internal / event-external distinction, which has provided a framework for this chapter, as with Kaqchikel, there are other kind of pluractionals in Tseltal. Tseltal has multiple productive pluractionals derivations with distributive semantics (Polian 2013:353-360). For instance, -*tilay* affixes to both transitive and intransitive verbs. With transitive verbs like *il* 'see' in (47), it targets the object for a distributive interpretation. With intransitives, as in (48), there is distribution over an implicit spatial argument.

TSELTAL (Polian 2013: 354, ex.16)

(47) Ya jk-il-**tilay**-ex.
INC A1-ver-DISTR-B2PL
'I saw you all one by one'

TSELTAL (Polian 2013: 355, ex.23)

(48) Le ya x-'och-**tilay**-Ø te karo=e.
there INC INC-enter-DISTR-B3SG DET car=ENC
'The car entered that way (via multiple roads).'

Note that when the argument interpreted as singular in the second reading of (48), distribution takes place over parts of the singular argument. This is exactly the same as the reading we get in

(4) with a singular argument and the Kaqchikel pluractional *-la'*, which Henderson 2014 has argued is a distributive pluractional. While exploring distributive pluractionals across the Mayan family must wait for future work, this observation indicates that similarities in the pluractional systems of Mayan languages may extend beyond the categories I have focused on here, namely the event-internal / event-external distinction.

4. CONCLUSIONS

Pluractionality in Mayan languages is currently under-documented. Even when a stem can be identified as a pluractional, there usually is not enough data to place it within its broader typological context. The goal for this chapter, then, was get an initial view of pluractionality in Mayan by examining pluractionals in two distantly related Mayan languages for which more extensive data exists.

One primary conclusion is that some Mayan languages are rich in pluractional derivations, and that this property is not restricted to one branch of the family. In a survey of 47 languages (which happened not to include any Mayan languages), Wood 2007 found that only 6 had more than two pluractional derivations. Strikingly, both Kaqchikel and Tseltal fit into the category of languages where pluractionality is highly coded, having many more than three such derivations. This is not true in every language in the family, though. For instance, England 1983:107 reports only one verbal derivation in Mam that could be treated as a marker of verbal plurality, namely the repetitive *-najee'*. While not all Mayan have rich pluractional morphology, the fact that some do makes Mayan languages a good testing ground for the study of pluractionality itself. The reason is that when analyzing crosslinguistic variation in pluractional semantics, it is often difficult to match up categories and run semantic tests across languages. With Mayan languages, though, this problem can be mitigated since one finds closely related languages with large numbers of pluractional derivations. This makes it is possible to look at variation in pluractional semantics across a single language or a group of closely related languages. This is what has been done in this chapter as a kind of proof of concept. What was found is that Mayan languages instantiate types of pluractionality familiar from typological work. Kaqchikel clearly exhibits a split between event-internal and event-external pluractionality. Furthermore, within those categories we also find the kinds of variation we expect. Tseltal, for instance, has a large number of event-internal pluractionals that differ in terms of how the downtime between repetitions is structured. In this way, Tseltal is similar to previously analyzed languages like Kalaallisut (Van Geenhoven 2004).

Finally, while the focus of this chapter has been to place Mayan pluractionality in its crosslinguistic context, Mayan languages have a great deal to give back to the understanding of pluractionality in general. A persistent question in the literature is whether pluractionality is related to other categories. Is it a kind of aspect? Is it a species of plurality akin to that which we find in the nominal domain? Mayan languages provide a unique perspective on these questions that has not yet been fully explored. In particular, the discussion of pluractionality in Tseltal shows its close connection to ideophone roots. Not only is there specialized reduplicative morphology for deriving pluractional ideophones, but its semantic properties can be correlated with those of bona fide verbal pluractionals. Similarly, the Kaqchikel examples in (43) – (44) belie a close connection between pluractionality and ideophones. This means that any theory of pluractionality will be constrained by facts about ideophones because it must be general enough to make sense of both pluractional verbs and pluractionality ideophones. For instance, if one

thinks that pluractionality is a species of aspect, it must make sense to talk about aspect in the ideophone domain, and any resulting theory would need to explain why we observe pluractional aspect in ideophones but maybe not other kinds of aspect. Similarly, if one believes pluractionality is a kind of plural reference to events, it must make sense to talk about ideophones as being event-denoting in some way. Exploring this connection between pluractionality and ideophones in more detail, both more widely across the Mayan family and other languages, should be a major avenue for future work.

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