HOW TO DISTRIBUTE EVENTS: ʔayʔaǰuθəm PLURACTIONALS

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Introduction

Pluractionality is used cross-linguistically to mark event plurality, where events may be distributed across time, space, or participants (e.g. Lasersohn 1995). Pluractionality is broadly categorized into event-external and event-internal pluractionality. Event-external pluractionality encodes a plurality of distinct events, while event-internal pluractionality encodes a plurality of subevents which are grouped into a single larger event (e.g. Cusic 1981, Lasersohn 1995, Wood 2007). Pluractionality is distinct from verbal marking indicating plural participants; a plurality of individuals can be involved in a single event,

and a single individual can be involved in a plurality of events. In this paper, we focus on two types of plural marking on verbs in ʔayʔaǰuθəm (Comox-Sliammon, ISO: coo), arguing that one marks event-external pluractionality, while the other marks plural agreement.

ʔayʔaǰuθəm is a critically endangered Central Salish language traditionally spoken in the Tla'amin, Homalco, Klahoose, and K'ómoks First Nations communities in British Columbia. There are approximately 47 fluent native speakers (FPCC 2018). The data in this paper all come from original fieldwork conducted between 2015 and 2019 in the Tla'amin First Nation, Homalco First Nation, and with elders living in Vancouver, unless otherwise indicated. We use a range of methodologies, including providing consultants with a context and then asking for the translation of an English sentence, constructing ʔayʔaǰuθəm sentences and asking whether they are grammatical and appropriate with respect to the given contexts (using a combination of pictures and storyboards), and documenting forms volunteered spontaneously in conversation or in the context of an ongoing dictionary project.[2]

In this study, we determine the semantic contribution of C_1C_2 reduplication to the verb and how it is distinct from the -Vg- affix, which also marks plurality (building on previous descriptions in Watanabe 2003).[3] We argue that C_1C_2 reduplication on verbs marks a plurality of events, while the -Vg- affix marks plural participants. We further argue that C_1C_2 reduplication encodes event-external pluractionality, creating a plurality of events distributed through time and space. Our findings have implications for the cross-linguistic investigation of the typology of pluractionality, since we show that (a) a

requirement for non-overlap in “time-or-space” (Lasersohn 1995:252) is not restrictive enough to account for the interpretation of pluractionals in ʔayʔaǰuθəm, which require distribution in ‘time-*and*-space’, and (b) having multiple participants is not sufficient for a predicate to have C_1C_2 pluractional marking, though the events of a pluractional may be distributed over participants (contrasting with Lasersohn’s 1995 analysis of Klamath pluractionals, as well as Wood’s 2007 analysis of Chechen and Yurok pluractionals). C_1C_2 reduplication in ʔayʔaǰuθəm therefore requires a more restrictive formal analysis along several dimensions than those proposed for event-external pluractionals in other languages.

2. Plural marking in ʔayʔaǰuθəm

There are many different ways to mark plurality on verbs in ʔayʔaǰuθəm, including both non-concatenative and concatenative morphological processes. While we only focus on C_1C_2 reduplication and the -Vg- affix in the present paper, plurality can also be expressed on verbs through ablaut, a -V_1- reduplicative infix, and a -C_1- reduplicative infix which occurs with stative predicates (Blake 2000, Watanabe 2003, Mellesmoen 2020, Mellesmoen, Davis, & Matthewson 2020). Each of these plural markers represents a distinct morphological process with its own semantic contribution.

Despite the wealth of plural morphology, the most pervasive type of plural marking in ʔayʔaǰuθəm is C_1C_2 reduplication. The reduplicant is a prefixed copy of the

initial C_1C_2 sequence of the root, typically with an epenthetic schwa between the copied consonants, as shown in (1) and (2).

(1) a. ʔɛmɛn
ʔimin
door/path
'door, path'

b. **ʔəm**ʔɛmɛn
ʔəm~ʔimin
C_1C_2.PL~door/path
'doors, paths'

(2) a. ʔɛmaš
ʔimaš
walk
'to walk'

b. **ʔəm**ʔɛmaš
ʔəm~ʔimaš
C_1C_2.PL~walk
'walking around'

C_1C_2 reduplication applies cross-categorially and indicates a plurality of entities when applied to nouns, as in (1). When applied to verbs, as in (2), C_1C_2 reduplication has been

reported to express a range of plural meanings. Watanabe (2003: 373) states that C_1C_2 reduplication can indicate the plurality of the absolutive argument or the time and place where the event occurs, but not the plurality of a subject of a transitive verb. In order to indicate the plural subject of a transitive verb, he notes that speakers must use a different means of marking plurality, such as the -Vg- affix.

The -Vg- plural affix, where the letter V is used to represent a vowel of varying quality (see Watanabe 2003:471), only occurs with verbs.[4] This affix marks plural arguments and can indicate plurality of the subject or object of a transitive verb, depending on its position relative to a transitivizer suffix (Watanabe 2003:474). For example, the plural affix follows the transitivizer suffix in (3a) when marking a plural subject. In (3b), it occurs as an infix to the root and marks a plural object.[5]

(3) a. tayqat**eg**əs θuk^{w}načtən.[6]
tayq–at–**ig**–as θək^{w}načtən
move–CTR–**PL**–ERG chair
'They moved the chair.'

b. tatay**ɛw**qatəs tə θuk^{w}θuk^{w}načtən.
ta~tay<**iw**>q–at–as tə=θək^{w}~θək^{w}načtən
IPFV~move<**PL**>-CTR–3ERG DET=C_1C_2.PL~chair
'She is moving the chairs.' EP

The alternation between /g/ in (3a) and /w/ in (3b) is a phonologically regular process in ʔayʔaǰuθəm sensitive to syllabification: /g/ alternates with /w/ when in coda position. A parallel alternation is observed with /j̃/, which is /y/ in coda position. (See Blake (1992) and Mellesmoen (2018) for further details about this alternation).

When the affix occurs with an intransitive verb, it marks a plural subject. The position of the affix relative to other suffixes is variable on intransitive predicates, with no obvious effect on interpretation (also noted in Watanabe 2003:472–3). This is shown in (4), which demonstrates that the -Vg- affix may occur before (4a) or after (4b) the middle suffix with no difference in meaning.

(4) a. ʔuk̓ʷ k̓ʷik̓ʷt̓ᶿ**eg**ɛm
ʔəwk̓ʷ k̓ʷi<k̓ʷ>t̓ᶿ–**ig**–im
all jump<PL>-**PL**–MD
'They all jump.'

b. ʔuk̓ʷ k̓ʷik̓ʷt̓ᶿɛm**ɛw**
ʔəwk̓ʷ k̓ʷi<k̓ʷ>t̓ᶿ–im–**iw**
all jump<PL>-MD–**PL**
'They all jump.' FL

Watanabe's (2003) description suggests partial overlap between the meaning of C_1C_2 reduplication (on verbs) and the -Vg- affix, raising the question of the extent to which these morphemes express distinct meaning. For Upriver Halkomelem (another Central

Salish language), Thompson (2009) argues that all plural verbal morphology is associated with a single plural interpretation. He concludes that C_1C_2 reduplication, a plural infix, and an ablaut process are all allomorphs of the same morpheme in Upriver Halkomelem and may express a range of plural interpretations, including plurality of either events or participants. He further argues that these plural markers in Upriver Halkomelem can be used to mark distribution of events in either space or time.

In contrast to Thompson's (2009) treatment of plurals in Upriver Halkomelem, Kinkade (1995) describes a number of plural markers in Upper Chehalis that are associated with different interpretations. Most strikingly, C_1C_2 reduplication is restricted to marking distributed events, meaning that other morphology must be used to mark plural participants and nominal plurals. This provides a clear argument against allomorphy for the Upper Chehalis plural markers; there must be several distinct plural morphemes in Upper Chehalis.

Bar-el (2008), focusing on a single type of plural marking in Sḵwx̱wú7mesh (another Central Salish language), provides an analysis of C_1C_2 reduplication on verbs where the plural interpretation is quite restricted, resembling Kinkade's (1995) description of C_1C_2 reduplication in Upper Chehalis, rather than Thompson's (2009) analysis of C_1C_2 reduplication in Upriver Halkomelem. She argues that C_1C_2 reduplication on verbs in Sḵwx̱wú7mesh marks event plurality and cannot be satisfied by plural participants alone. She also argues that events are necessarily individuated through temporal distribution when C_1C_2 reduplication is used.[7]

In this paper we will argue that C_1C_2 reduplication and the -Vg- affix in ʔayʔaǰuθəm have specialized semantic functions and cannot be analyzed as allomorphs of the same plural morpheme. This contrasts with the 'single morpheme with many allomorphs' analysis Thompson (2009) pursues in Upriver Halkomelem. We will also argue that C_1C_2 reduplication requires a plurality of distributed events, as Kinkade (1995) and Bar-el (2008) argue for C_1C_2 reduplication in Upper Chehalis and Sḵwx̱wú7mesh, respectively, though the distributional requirements vary between the languages.

Before concluding this section, we note that despite the wealth of pluralizing morphology, plural marking is not obligatory for the plural interpretation of either nominal or verbal predicates. Nouns without overt plural morphology may be interpreted as denoting a single entity or plural entities. For instance, in (5) the noun *θukʷnačtən* /θəkʷnačtən/ 'chair' is preceded by the (plural) number *saʔa* /saʔa/ 'two', but no plural morphology is present on the noun (it is not reduplicated).

(5) qʷoqʷolsxʷəs saʔa θukʷnačtən.
qʷə~qʷəl–sxʷ–as saʔa θəkʷnačtən
IPFV~come–CAUS–3ERG two chair
'She's bringing two chairs.' MV

Compare this to *θukʷθukʷnačtən* /θəkʷθəkʷnačtən/ 'chairs' in (3b) which has C_1C_2 plural reduplication. Similarly, both the non-reduplicated form *mɛmaẇ* /mimaẇ/ 'cat' in

(6a) and the reduplicated form *məmmɛmaẇ* /məmmimaẇ/ in (6b) were volunteered by the same speaker to describe the same picture of two cats.

(6) a. *Context: Describing a picture of two cats sitting on a chair.*

saʔa	mɛmaẇ	kʷa:náč	θukʷnačtən.	
saʔa	mimaẇ	kʷanáč	θəkʷnačtən	
two	cat	sit\STAT	chair	
‘Two cats are sitting on the chair.’				PD

b. *Context: Describing a picture of two cats sitting on a chair.*

saʔa	**məm**mɛmaẇ	kʷa:náč	θukʷnačtən.	
saʔa	**məm**~mimaẇ	kʷanáč	θəkʷnačtən	
two	**C_1C_2.PL**~cat	sit\STAT	chair	
‘Two cats are sitting on the chair.’				PD

Plural marking on verbs is similarly optional. Verbs unmarked for plurality may similarly involve a single event or multiple events. The sentences in (7a) and (7b) were both volunteered to describe the same picture involving a repeated closing action, but the verb *təqt* /təqt/ ‘close something’ is only marked as plural in (7b).[8]

(7) a. *Context: Picture of a girl in the middle of closing a series of doors.*

ʔuk̓ʷ tətqtəs ʔɛmɛn.

ʔəwk̓ʷ tə~tq–t–as ʔimin

all IPFV~close–CTR–3ERG door

'She's closing all the doors.' JF

b. **təq**təqtəs ʔəmʔɛmɛn.

təq~təq–t–as ʔəm~ʔimin

C_1C_2.PL~close–CTR–3ERG C_1C_2.PL~door

'She's closing the doors.' JF

3. C_1C_2 pluractionals

In this section, we discuss the semantic contribution of C_1C_2 plural reduplication in the verbal domain. We show that C_1C_2 reduplication encodes plural events, rather than marking plural participants (though in some cases the events may be distributed across plural participants). In Section 3.1, we show that having plural participants is not sufficient for the felicitous use of C_1C_2 plural reduplication if events are not distributed. In section 3.2, we show that the distribution of plural events must be both spatial and temporal, rendering a quite restricted context for the felicitous use of C_1C_2 reduplication. Then, in Section 3.3, we discuss instances of C_1C_2 reduplication with a full vowel in the reduplicant, arguing that they have the same pluractional semantics as C_1C_2 reduplicated forms with a schwa. Following this, we argue in Section 3.4 that C_1C_2 pluractionals can

be categorized as event-external pluractionals under a range of diagnostic criteria. Section 3.5 provides a formal analysis of C_1C_2 plural reduplication, and Section 3.6 discusses the semantic contribution of the -Vg- affix and establishes how it is distinct from C_1C_2 plural reduplication.

3.1 Plural events vs. plural participants

C_1C_2 reduplication on verbs encodes plural events, not plural participants, though plural participants may be involved. This can be seen in (8) where C_1C_2 plural reduplication is used in contexts where neither the subject nor the object is plural, but there is spatial and temporal distribution of events.

(8) a. hoč **ʔəm**ʔɛmaš sk^{w}ĭǰoł.
hu=č **ʔəm**~ʔimaš sk^{w}əǰuł
go=1SG.SBJ **C_1C_2.PL**~walk morning
'I went walking about this morning.' JF

b. payɛ **ǰəθ**ǰuθotəs qɛχəs.
paya**ʔ** **ǰəθ**~ǰuθ–ut–as qiχ–as
always **C_1C_2.PL**~push–CTR–3ERG younger.sibling-3POSS
'He's always pushing his younger sibling around.' EP

Further, plural participants alone are not sufficient when using C_1C_2 reduplication if the events are not distributed over space and time. C_1C_2 reduplication is acceptable in (9) in a context where there are multiple locking events, but (10a) shows that it is not acceptable if there is only a single locking event, even if multiple doors are involved. Instead, a form without C_1C_2 reduplication must be used, such as the one with imperfective C_1 reduplication in (10b).

(9) *Context: It's taking me a bit of time to get out of the house and ready to leave. You ask me what I am doing. I tell you:*

laklɪklɛtč tə ʔəmʔɛmɛn

lak~ləkl–it=č tə=ʔəm~ʔimin

C_1C_2.PL~lock–CTR=1SG.SBJ DET=PL~door

'I'm locking the doors.' EP, BW

(10) *Context: I press the button on my keys to lock all the doors of my car and I tell you:*

a.# **lak**lɪklɛtč tə ʔəmʔɛmɛn

lək~ləkl–it=č tə=ʔəm~ʔimin

C_1C_2.PL~lock–CTR=1SG.SBJ DET=PL~door

'I'm locking the doors.' EP, BW

b. lɪlkɛlɛtč tətθ ʔatnopɛl.

lə~lkəl–it=č tə=tθ=ʔatnupil

IPFV~lock–CTR=1SG.SBJ DET=1SG.POSS=car

'I'm locking my car.' BW

Similar to the examples in (9–10), (11a) shows that C_1C_2 reduplication is acceptable where there are multiple buying events, but (11b) shows that it is not acceptable in a context where there is a single buying event involving multiple things (as the absolutive argument); the correct form is (11c), without C_1C_2 reduplication on the verb.

(11) a. *Context: Picture of someone going from store to store, picking up food, tools, home supplies..*

ʔuḵʷ tam **yəq**yəqtəs θuxʷɛns yɛq̓ɛtsxʷəs.

ʔəwḵʷ tam **yəq**~yəq-t-as θəxʷins yəq̓-it-sxʷ-as

all thing **C_1C_2.PL**~buy–CTR–3ERG be.how use-STAT-CAUS-3ERG

'He bought everything he needs.' EP

b. *Context: Picture of someone at the cashier of a one-stop shop like Costco buying all kinds of things.*

ʔuḵʷ tam **yəq**yəqtəs θuxʷɛns yɛq̓ɛtsxʷəs.

ʔəwḵʷ tam **yəq**~yəq-t-as θəxʷins yəq̓-it-sxʷ-as

all thing **C_1C_2.PL**~buy–CTR–3ERG be.how use-STAT-CAUS-3ERG

'He bought everything he needs.' EP

c. *Context: Same as (11b).*

ʔuk̓^{w} tam yəqtəs θux^{w}ɛns yɛq̓ɛtsx^{w}əs.

ʔəwk̓^{w} tam yəq-t-as θəx^{w}ins yəq̓-it-sx^{w}-as

all thing buy–CTR–3ERG be.how use-STAT-CAUS-3ERG

'He bought everything he needs.' EP

Intransitive verbs with C_1C_2 reduplication have the same requirement for the event to be distributed, as shown in (12). If walking is spatio-temporally distributed, C_1C_2 reduplication is acceptable, as was shown in (8a). In contrast, the example in (12) involves walking from a defined point A to point B and C_1C_2 reduplication is not acceptable, even though the subject is plural. The imperfective form in (12b) is used instead.

(12) *Context: We are walking from the lodge to the gym for a gathering.*

a. # **ʔəm**ʔɛmaššt θo k^{w} gym

ʔəm~ʔimaš=št θu k^{w}=gym

C_1C_2.PL~walk go DET=gy

'We're walking to the gym.'

b. ʔɛʔɛmaššt θo k^{w} gym

ʔi~ʔimaš=št θu k^{w}=gym

IPFV~walk=1PL.SBJ go DET=gym

'We're walking to the gym' BW

From the data in this section, it is clear that C_1C_2 reduplication does not mark the presence of plural participants. It is felicitous with singular participants and furthermore can be infelicitous in cases where there are plural participants. The infelicitous cases with plural participants examined in this section seem to be ruled out because the presence of plural participants is not sufficient for the event to be interpreted as plural. However, there is another potential source of infelicity: it is possible that there are multiple events involved but the presence of multiple participants alone does not allow events to distribute in the manner required by C_1C_2 reduplication. In the following section, we examine this issue in more detail, investigating the distributional requirements for events encoded by C_1C_2 reduplication.

3.2 Spatial and temporal distribution

Cross-linguistically, distribution of events can be divided into three types: (1) distribution over atoms of a plural participant, (2) distribution in time, and (3) distribution in space (Lasersohn 1995). In this section, we argue that events must be distributed in both space and time for felicitous use of C_1C_2 verbal reduplication in ʔayʔaǰuθəm,[9] and that distribution of events over plural participants is not sufficient.

Firstly, temporal distribution alone is not sufficient for felicitous use of C_1C_2 verbal reduplication if there is no spatial distribution. In (13a), for instance, the context

specifies that same window is repeatedly closed, and C_1C_2 reduplication is therefore infelicitous. The acceptable form, given in (13b), has imperfective reduplication instead.

(13) *Context: Gloria keeps opening the window, but I find it too cold so I keep closing it.*

a. #	**təq**təqtč	tə məmḵeyustən.		
	təq~təq–t=č	tə=məmḵiyustən		
	C_1C_2.PL~close–CTR=1SG.SBJ	DET=window		
	‘I repeatedly closed the window.’			
b.	ǰɛqač gut	tətqt	tə məmḵeyustən.	
	ǰaqaʔ=č=gut	tə~tq–t	tə=məmḵiyustən	
	EXCLAM=1SG.SBJ=DPRT+EXCL	IPFV~close–CTR	DET=window	
	‘I’m forever closing that window.’		EP	

Similarly to (13), the example in (14) demonstrates that C_1C_2 reduplication on a verb is felicitous where a child repeatedly feels a birthday present all over while trying to guess what is inside, but not for a cat that repeatedly taps water with its paw, thereby distributing the plural event over time but not over space, since the touching is brief and limited to a single spot.

(14) a. *Context: A child is given a birthday gift, but not allowed to open it yet, so he feels it all over to try to guess what's inside.*

payɛ **qəp**qəptəs

payaʔ **qəp**~qəp–t–as

always **C_1C_2.PL**~touch–CTR–3ERG

'He's always touching/feeling it.' JF

b. *Context: Your cat is curious about water and always touches it when you fill up his bowl with fresh water. However, he only ever just barely touches it, because he doesn't like to get wet.*

i. # payɛ **qəp**qəptəs qayɛ.

paya**ʔ** **qəp**~qəp–t–as qa**y̓**a

always **C_1C_2.PL**~touch–CTR–3ERG water

'He always touches the water.' JF

ii. payɛ qəqptəs qayɛ.

paya**ʔ** qə~qp–t–as qa**y̓**a

always IPFV~touch–CTR–ERG water

'He always touches the water.' JF

Secondly, spatial distribution alone is not sufficient if there is no temporal distribution. For (15b), where multiple car lights come on simultaneously, the form with C_1C_2 reduplication is unacceptable, but in (15a) where lights are coming on 'here and there' throughout a city, it is acceptable. Note that *ti q^{w}o$\dot{l}$* gets a 'starting to' interpretation

in (15a) where the events are ongoing, but it is also perfectly compatible with completed punctual events as in (15c). The infelicity of (15b), then, is not due to the presence of *ti qʷol̓*, but the lack of temporal distribution for the events.[10]

(15) a. *Context: You have a view of a city as it gets dark and you see lights gradually coming on here and there.*

ti qʷol̓ **χʷo**ʔ**χ**ʷoʔ tə Powell River.

ti qʷəl̓ **x̱ʷəẃ**~x̱ʷəẃ tə=Powell River

CLDEM come **C_1C_2.PL**~turn.on DET=Powell River

'Powell River is starting to light up.'

b. *Context: I turn on my car and all my lights come on.*

ti qʷol̓ **χʷo**ʔ**χ**ʷoʔ tətθ car

ti qʷəl̓ **x̱ʷəẃ**~x̱ʷəẃ tə=tθ=car

CLDEM come **C_1C_2.PL**~turn.on DET=1SG.POSS=car

'My car lit up.'

c. ti qʷol̓ təs

ti qʷəl̓ təs

CLDEM come arrive

'He arrived.' EP

Similarly, C_1C_2 reduplication is unacceptable where a bunch of students jump at the same time (so that the event is distributed in space and across participants, but not temporally

distributed), but fine where a single child is jumping about (and the event is spatially and temporally distributed). This is shown in (16).

(16) *Context: A bunch of students jumping for a graduation photo. Everyone jumps at the same time, just once.*

a. ʔuk̓ʷ k̓ʷit̓ᶿɛmɛw.
ʔəwk̓ʷ k̓ʷit̓ᶿ–im–iw
all jump–MD–PL
'They all jumped.'

b. # **k̓ʷat̓ᶿ**k̓ʷit̓ᶿɛm.
k̓ʷat̓ᶿ~k̓ʷit̓ᶿ–im
C_1C_2.PL~jump–MD
(n.b. ok when describing an excited child jumping about the room) PD

Examples (15) and (16) also serve to illustrate that distribution over plural participants is not sufficient for C_1C_2 reduplication to be felicitous, since both the (a) and (b) examples involve plural participants, but only the (a) examples, where events are distributed in both time and space, are felicitous with C_1C_2 reduplication. Of course, distribution in space and distribution over participants is tightly linked, since participants cannot generally co-occur at the same spatial coordinates. However, we have also seen that there are felicitous examples with only singular participants, but no felicitous examples where there is no spatial distribution. We therefore propose that C_1C_2

reduplication requires distribution of events across time and space, but does not require distribution over plural participants, though distribution in space may involve plural participants.

3.3 C_1aC_2 vs. $C_1əC_2$ Reduplication

While the majority of C_1C_2 reduplicated forms given throughout this paper have an epenthetic /ə/ in the reduplicant, there are several forms with /a/ instead. In this section, we explore whether these forms should be treated separately and conclude that they involve the same C_1C_2 pluractional reduplication process (which has the same semantic contribution). For some of these cases, we suggest that C_1C_2 pluractional reduplication may be accompanied by an additional ablaut process, while in others the presence of a full vowel may represent a lexicalized exception.

Forms with a full vowel in the reduplicant show the same requirement for spatial and temporal distribution as forms with schwa in the reduplicant. For instance, (17a) is not felicitous in a context where a chair is moved in a direct line from one location to another; it is only felicitous when a chair is being pushed to multiple different places. Similarly, *k'ʷaṯ'ᶿk'ʷiṯ'ᶿim* in (17b) is felicitous for someone jumping from place to place, but not for a bunch of people jumping together. It is also not used for someone jumping up and down in one spot; plurality in this context is instead marked with a reduplicated C_1 infix, as shown in (17c).

(17) a. ✓ *Context: Gloria is pushing the chair around the room.*

\# *Context: Gloria is pushing the chair from here to there (locations in the room pointed out).*

taytayqatəm Gloria tə θuk^{w}načtən.

tay~tayq–at–əm Gloria tə=θəkwnačtən

C$_1$C$_2$.PL~move–CTR–PASS Gloria DET=chair

'Gloria keeps moving the chair around.' JF

b. ✓ *Context: Someone jumping from rock to rock across a river.*

\# *Context: A bunch of students jumping for a graduation photo. Everyone jumps at the same time, just once.*

k̓^{w}aṯ̓^{θ}k̓^{w}iṯ^{θ}ɛm.

k̓^{w}aṯ̓^{θ}~k̓^{w}iṯ^{θ}–im

C$_1$C$_2$.PL ~jump–MD

'He/she is jumping.' EP

c. *Context: Someone is jumping up and down in one spot.*

k̓^{w}i**k̓^{w}**ṯ^{θ}ɛm

k̓^{w}i<**k̓^{w}**>ṯ^{θ}–im

jump<**PL**>–MD

'He/she is jumping up and down.' EP

For some forms, such as those in (18) and (19), either /a/ or /ə/ may occur in the C_1C_2 reduplicant.

(18) a. **k̓ʷʊn**k̓ʷʊnt

k̓ʷən~k̓ʷən–t

C₁C₂.PL~see–CTR

‘to look s.t. over’

b. **k̓ʷan**k̓ʷʊnt

k̓ʷ<a>n~k̓ʷən–t

C₁C₂.PL<ABL>~see–CTR

‘to be looking s.t. over’

(19) a. **t̓ᶿʊkʷ**t̓ᶿʊkʷt

t̓ᶿəkʷ~t̓ᶿəkʷ–t

C₁C₂.PL~wipe–CTR

‘to wipe things down’

b. **t̓ᶿakʷ**t̓ᶿʊkʷt

t̓ᶿ<a>kʷ~t̓ʷəkʷ–t

C₁C₂.PL<ABL>~wipe–CTR

‘to be wiping things down’ EP

While each form involves a spatio-temporally distributed action, there is a semantic distinction between the two forms.

Research investigating this semantic difference is still preliminary, but we note that the forms with ablaut were volunteered in a situation where the action described was

happening at the time of utterance, whereas the forms without ablaut were used for contexts such as completed actions and imperatives. For instance, (20) describes an ongoing action and ablaut is used.[11]

(20) *Context: Someone is looking over a newspaper or document.*

kʼʷ**a**nkʼʷʊntəs	tə pipa.	
kʼʷ<**a**>n~kʼʷən–t–as	tə=pipa	
C_1C_2.PL<**ABL**>~see–CTR–3ERG	DET=paper	
'He's looking over the paper.'		EP

In contrast, (21) describes a completed event and the form without ablaut is used.

(21) *Context: Someone went to check out a boat or car that is for sale.*

ho kʼʷa	kʼʷʊnkʼʷʊntəsoł.	
hu=kʼʷa	kʼʷən~kʼʷən–t–as–uł	
go=RPT	C_1C_2.PL~see–CTR–PST	
'He went to look it over.'		EP

Similarly, the form without ablaut is used for the imperative in (22).

(22) *Context: I hand Freddie the paper, telling him to read it.*

kʼʷʊnkʼʷʊnt ga	tɛʔɛ.	
kʼʷən~kʼʷən–t=ga	tiʔi	
C_1C_2.PL~see–CTR=PRT	DEM	
‘Look this over.’		EP

It is worth noting that all of the forms which have an alternation between a full vowel and schwa in the reduplicant involve weak roots (roots with a schwa vowel). This type of alternation is not, to our knowledge, found for forms with a full vowel in the root.[12] Thus, while a full vowel in the reduplicant of weak roots is the result of an ablaut process with an additional semantic function, forms with a full vowel in the root and the reduplicant do not appear to involve the same process and may involve a lexicalized pattern. Crucially, while the origins of a full vowel in the reduplicant for certain C_1C_2 reduplicated verbal forms are not well understood, the reduplication itself has the same semantic contribution in these forms as in the forms with a schwa in the reduplicant, indicating that these should be treated under the same formal analysis. We therefore propose that the full vowel forms have undergone the same C_1C_2 reduplicative process as the ones with /ə/, and that the presence of a full vowel represents either a secondary process that is separate from pluractional reduplication or a lexicalized exception.

3.4 External vs. internal pluractionality

Cross-linguistically, the distinction between event-internal and event-external pluractionality has been identified as a central parameter in the typology of pluractional marking (e.g. Cusic 1981, Wood 2007, Henderson 2017). The examples in (23) from Yup'ik are instances of event-internal pluractionality, which involves plural subevents that make up a larger single event. In this case, there are multiple small tearing or brushing (against) subevents which are encompassed in a whole 'tearing up' or 'strumming' event.

(23) Yup'ik: Event-internal plurality

a. alleg– 'to tear' allguraa 'he is tearing it up'

b. kaleg– 'to brush against' kalguraa 'he is strumming it'

(Wood 2007:74)

The examples in (24) from Yurok demonstrate event-external pluractionality, which involves plural events that are not grouped. In this case, eating events are distributed over multiple occasions, giving the verb a habitual interpretation (24a), and ringing events are distributed across time rather than being grouped within a single interval (24b).

(24) Yurok: Event-external plurality

a. n**eg**ep–ek' nepuy

eat.ITR–1SG salmon

'I eat salmon all the time.'

b. kich t**eg**in

PERF ring.ITR

'The bell is ringing every now and then.' (Wood 2007:146–7)

It can be difficult to determine when multiple events are to be viewed as subevents of single larger event or as distinct events. Based on a survey of 43 languages, Wood (2007) proposes a number of characteristics that typically differ between event-internal and event-external pluractionality:

1) While event-internal pluractionals tend to involve events that are closely spaced in time, the events of an event-external pluractional may be spaced out in time and can occur over multiple occasions.

2) While event-internal pluractionals tend to involve a high number of repetitions, event-external pluractionals may involve as few as two repetitions.

3) Event-internal pluractionals are often restricted to occurring only with semelfactives and achievements, while event-external pluractionals are less selective in which lexical aspectual classes they can occur with.

4) Event-internal pluractionals often involve actions that are typically or inherently repeated, whereas the same trend is not found with event-external pluractionals.

5) The events of an event-internal pluractional tend to have a common goal or completion, while the same is not necessarily true of event-external pluractionals.

6) Event-internal pluractionals tend to involve a singular or grouped non-agentive argument, whereas this is not true of event-external pluractionals.

The diagnostics listed above appear to indicate that the semantics of event-internal pluractionals are more restrictive than the semantics of event-external pluractionals. Event-internal pluractionals are nevertheless not intended to be understood as a subtype of event-external pluractionals. Rather, event-external and event-internal pluractionals are analyzed as having different structures of plurality. Specifically, Wood (2007) proposes that event-internal pluractionals involve grouping subevents into a single larger atomic event (analogous to group nouns like *committee*, which have a plurality of members but are singular), while event-external pluractionals involve a plurality of events that are not grouped. In fact, event-external pluractionals tend to involve individuation of events through specific distributional requirements, so their semantics are also restrictive, but in a different manner. The characteristics typical of the different types of pluractionality therefore reflect the different types of plurality involved.

Below, we discuss how C_1C_2 reduplicated predicates behave with respect to each of Wood's characteristics. Based on these diagnostics and the temporal-spatial distribution requirements discussed above, we propose that C_1C_2 reduplication creates a plurality of events that are distributed, not grouped, and therefore that C_1C_2 reduplication marks event-external pluractionality.

According to Wood's first diagnostic, the subevents of an event-internal pluractional are grouped into a single larger event which tends to take place on a single occasion. In contrast, distribution over multiple occasions is typical of event-external pluractionals. C_1C_2 reduplication in ʔayʔaǰuθəm must involve events that are distributed in time (see section 3.2) and can involve events that are distributed over multiple occasions (25a–c).

(25) a. *Context: Describing someone who's always giving rides to people.*

payɛ ʔot **χəpχ**əpi Freddie.

paya=ʔut **χ̣əp**~χ̣əpəy Freddie

always=EXCL **C_1C_2.PL**~return Freddie

'Freddie's always back and forth.' EP

b. *Context: Talking about a soccer team...*

payɛ **ƛ̓ax^{w}**ƛ̓ox^{w}ɛtəm.

paya**ʔ** **ƛ̓<a>x^{w}**~ƛ̓əx^{w}–it–əm

always **C_1C_2.PL<ABL>**~win–CTR–PASS

'They're always getting beaten.' EP

c. payɛč ʔot **łaq̓**łaq̓əm nəgi.

paya**ʔ**=č=ʔut **łəq̓**~łaq̓–əm nəgi

always=1SG.SBJ=EXCL **C_1C_2.PL**~wait–MD 2SG.SBJ

'I'm always waiting for you.' EP

With respect to Wood's first diagnostic, then, C_1C_2 reduplication behaves as a marker of event-external pluractionality.[13]

According to Wood's second diagnostic, event-internal pluractionals involve high numbers of repetitions, while event-external pluractionals may involve as few as two repetitions. While C_1C_2 reduplication often signals numerous repetitions, it is also felicitous in situations where as few as two repetitions are involved, as in (26).

(26) *Context: There's just two doors to outside, the front door and the back door. It's getting hot and I tell you:*

ho ga **gəq̓**gəq̓šɛwum. hɛhɛw k̓^{w}asmot.

hu=ga **gəq̓**~gəq̓-šaw-əm hihiw k̓^{w}as-mut

go=DPRT **C_1C_2.PL**~open-door-MD really hot-INT

'Go open the doors. It's really hot.' EP

This behavior is consistent with the characteristics of event-external pluractionals, but not event-internal pluractionals.

In her third diagnostic, Wood observes that event-internal pluractionals tend to be limited with respect to which lexical aspectual classes they can occur with, typically occurring only with achievements and semelfactives, whereas event-external pluractionals have a less restricted distribution. In order to evaluate how C_1C_2 reduplication fares with respect to this diagnostic, we need criteria to determine lexical aspectual classes. While more fine-grained lexical aspectual distinctions have not been fully established, telicity is fairly well understood. For instance, (a) telicity can be tested using the adverb *χʷoχʷ* /χ̣ʷuχ̣ʷ/ 'for a long time'. Telic predicates are incompatible with *χʷoχʷ* /χ̣ʷuχ̣ʷ/ as a pre-verbal auxiliary, while atelic predicates are compatible with it. For instance, perfective bare roots such as *c̓̌ɛχ* /c̓̌əχ̣/ 'get cooked' in (27a), are telic, entailing culmination (27b).

(27) a. ti c̓̌ɛχ tə t̓ɛns.
ti c̓̌əχ̣ tə=t̓in-s
CLDEM get.cooked DET=bbq'd.fish-3POSS
'Her barbecued fish is cooked.' EP

b. *Context: I had my dinner in the oven for as long as the instructions said, but when I check it, it is only half-cooked. My oven seems to be a bit unreliable these days.*

* čɛχ ʔi xʷaʔ čɛməs čɛχ.

čəx̣ ʔi xʷaʔ čam̓=as čəx̣

get.cooked CONJ NEG QUEX=3SJBV get.cooked

*'It cooked, but it wouldn't cook.' BW

These telic bare roots are incompatible with the auxiliary *χʷoχʷ* /x̣ʷux̣ʷ/ (28).[14]

(28) *Context: Telling you about a Thanksgiving turkey mishap.*

* χʷoχʷmot čɛχ.

x̣ʷux̣ʷ-mut čəx̣

long.time-INT get.cooked

'It cooked for a long time.' EP

Predicates transitivized with the noncontrol transitivizer (29a) are also telic, entailing culmination (Watanabe 2003:205) (29b).

(29) a. *Context: I had a big turkey for thanksgiving and I cooked it for a long time until it was finally done.*

kʷu ċ̣ɛχʊxʷən tᶿ məǰɛθ.

kʷa ċ̣əχ̣-əxʷ-an tᶿ=məǰəθ

CLDEM get.cooked-NCTR-1S.ERG 1S.POSS=meat

'I have cooked my meat.' BW

b. *Context: I had my dinner in the oven for as long as the instructions said, but when I check it, it is only half-cooked. My oven seems to be a bit unreliable these days.*

* ċ̣ɛχʊxʷč ʔi xʷaʔ čɛməs ċ̣ɛχ.

ċ̣əχ̣-əxʷ=č ʔiy xʷaʔ čaṁ=as ċ̣əχ̣

get.cooked-NCTR=1S.SBJ CONJ NEG QUEX=3SJBV get.cooked

'I cooked it but it wouldn't cook.' BW

Predicates transitivized with the noncontrol transitivizer are likewise incompatible with the auxiliary *χʷoχʷ* /χ̣ʷuχ̣ʷ/, as shown in (30).[15]

(30) *Context: Discussing a thanksgiving turkey mishap.*

* hɛhɛwč χʷoχʷmot ċ̣ɛχʊxʷ šɛ čiknɛs.

hihiw=č χ̣ʷuχ̣ʷ -mut ċ̣əχ̣-əxʷ šə=čiknis

really=1S.SJB long.time-INT get.cooked-NCTR DET=chicken

'I cooked the turkey for a long time.' BW

In contrast, there is a class of derived unergative activity predicates that are atelic and compatible with the auxiliary *χʷoχʷ* /x̣ʷux̣ʷ/. These tend to be affixed with the middle suffix *-əm* /-əm/, the active intransitive suffix *-ʔəm* /-ʔəm/, or the intransitive *-Vš* /-Vš/ suffix, as for *ʔɛmaš* /ʔimaš/ in (31) (see Watanabe 2003:185–200 for further discussion).

(31)

χʷoχʷmotč	ʔɛmaš	sǰɛsoɬ.	
x̣ʷux̣ʷ-mut=č	ʔim-aš	sǰasuɬ	
long.time-INT=1S.SBJ	step-INTR	yesterday	
‘I walked a long time yesterday.’			BW

Predicates transitivized with the control transitivizer also do not entail culmination, though they imply it (Davis 1978, Watanabe 2003 for ʔayʔaǰuθəm, Bar-el, Davis, & Matthewson 2005 for St’át’imcets (Lillooet) and Sḵwx̱wú7mesh (Squamish), Kiyota 2008 for SENĆOŦEN (Saanich, Northern Straits)); the lack of culmination entailment is illustrated in (32a). These predicates are also compatible with the auxiliary *χʷoχʷ* /x̣ʷux̣ʷ, as shown in (32b).

(32) a. *Context: I had my dinner in the oven for as long as the instructions said, but when I check it, it is only half-cooked. My oven seems to be a bit unreliable these days.*

č̓ɛχətč	ʔi	xʷaʔ	čɛməs	č̓ɛχ.	
č̓əχ̣-at=č	ʔiy	xʷaʔ	čaṁ=as	č̓əχ̣	
get.cooked-CTR=1S.SBJ	CONJ	NEG	QUEX=3SBJV	get.cooked	

*‘I cooked it, but it still wasn’t cooked.’ BW

b. *Context: Discussing a thanksgiving turkey mishap.*

hɛhɛwč	χʷoχʷmot	c̓ɛχət	šɛ čɪknɛs.	
hihiw=č	χ̣ʷuχ̣ʷ-mut	č̓aχ̣-at	šə=čiknis	
really=1S.SBJ	long.time-INT	cook-CTR	DET=chicken	

‘I really cooked the turkey for a long time.’ BW

Having established that eventive bare roots and noncontrol transitives are telic, and that derived unergatives and control transitives are atelic, we can examine whether the distribution of C_1C_2 reduplication is restricted with respect to the telicity of the predicate. We find that C_1C_2 reduplication occurs with both telic and atelic predicates. It occurs with eventive bare roots (33a) and predicates transitivized with the noncontrol transitivizer (33b–c), which are telic.

(33) a. **gəq̓**gəq̇ tə ʔɛmɛn.

gəq̓~gəq̇ tə=ʔimin

C$_1$C$_2$.PL~open DET=door

‘Open all the doors.’ EP

b. *Context: Narrating a story based off a series of pictures showing a child running around a house and bumping into a table.*

payɛ **q^{w}aq̓^{w}**q^{w}aq̇^{w}ʊx^{w}əs ʔuk̓^{w} tamas

paya ʔ **q^w<a>q̓^{w}**~q^{w}əʔq̇^{w}–**əx^w**–as ʔəwk̓^{w} tam=as

always **C$_1$C$_2$.PL<ABL>**~bump–**NCTR**–3ERG all thing=3CNJ

‘He’s always bumping into everything.’ EP, FL

c. *Context: Describing child on Easter morning ...*

k̓^{w}ʊnk̓^{w}ʊnʊx^{w}əs tə χ^{w}aχ^{w}ɛt.

k̓^{w}ən~k̓^{w}ən–əx^w–as tə=x̣^{w}ax̣^{w}it

C$_1$C$_2$.PL~see–NCTR–3ERG DET=egg

‘She found (chocolate) eggs all over.’ PD

It also occurs with atelic predicates, such as unergative activities (34) and with predicates transitivized with the control transitivizer (35) ((34b) is repeated from (17b) above).

(34) a. *Context: Someone is going around half dancing.*

čɛɬčiɬɛm.

čəɬ~čiɬ–im

C₁C₂.PL~dance–MD

'He/she is dancing around.' EP

b. *Context: Someone jumping from rock to rock across a river.*

k̓ʷaṯ'θk̓ʷiṯ'θɛm.

k̓ʷ<a>ṯ'θ~k̓ʷiṯ'θ–im

C₁C₂.PL<ABL>~jump–MD

'He/she is jumping.' EP

(35) a. ʔuk̓ʷ **təq**təqtən, məmk̓eystən hega ʔɛmɛn.

ʔəwk̓ʷ **təq**~təq–**t**–an məmk̓iyustən higa ʔimin

all **C₁C₂.PL**~close–**CTR**–1SG.ERG window CONJ door

'I closed everything, the windows and the doors.' JF

b. *Context: Someone went to check out a boat or car that is for sale.*

ho k̓ʷa **k̓ʷʊn**k̓ʷʊntəsoɬ.

hu=k̓ʷa **k̓ʷən**~k̓ʷən–t–as–uɬ

go=RPT **C₁C₂.PL**~see–CTR–3ERG-PST

'He went to look it over.' EP

781 As can be seen from the examples above, C_1C_2 reduplication is not restricted with respect
782 to telicity. It also occurs with a wide range of predicates, not just those which involve
783 punctual or repeated punctual events (achievements and semelfactives). With respect to
784 eventive stems, then, C_1C_2 reduplication behaves as an event-external pluractional and
785 does not appear to be restricted with respect to which lexical aspectual classes it is
786 compatible with.

787 C_1C_2 reduplication is infrequent with stative stems. It occurs with a few underived
788 states, but the semantic contribution is variable, and seemingly lexicalized. In some cases,
789 it results in a plural participant reading (36a), while in others the reduplication has a
790 contribution which is clearly not plural, although it is difficult to characterize (36b).
791 Derived states are pluralized by -C_1- infixation (36c) (analyzed as C_1V_1 reduplication in
792 Watanabe 2003:376–384; see Mellesmoen & Huijsmans 2019a for further discussion),
793 and do not occur with C_1C_2 reduplication.
794
795 (36) a. **tih**tih
796 **tih**~tih
797 **C_1C_2.PL**~big
798 'big things' FL
799 b. **pəq**pəq
800 **pəq**~pəq
801 **C_1C_2**~white
802 'all white, very white, white-ish, white (pl.)' WJF/MV

c. ṫaṫpét

ṫa<ṫ>p-ít

get.beached<**PL**>-STAT

‘multiple things beached’ EP, FL

The limited occurrence of C_1C_2 reduplication with stative predicates can be understood as a restriction to pluralizing events rather than states. Overall, then, we conclude that the distribution of C_1C_2 reduplication with respect to aspectual properties of the stem is typical of an event-external pluractional marker.

Predicates like *knocking*, *shivering*, and *nibbling* involve multiple sub-events that are typically or inherently repeated. According to Wood’s fourth diagnostic, predicates involving typical or inherent repetition are typically associated with event-internal pluractionality, while event-external pluractionality is often found with predicates that do not involve typical or inherent repetition. C_1C_2 reduplication often pluralizes events that are not typically or inherently repeated, such as closing doors or windows (e.g. 7b), bumping into things (33b), buying things (11a), or something turning on (15). According to Wood’s fourth diagnostic, then, C_1C_2 reduplication behaves as a marker of event-external pluractionality.

According to Wood’s fifth diagnostic, subevents of event-internal pluractionals are typically oriented towards a common goal, whereas the events of an event-external pluractional need not be. The plural events signaled by C_1C_2 reduplication do not have to have a common goal or completion. For instance (25a), repeated here as (37a), involves

multiple trips with different goals. Similarly, (33b), repeated here as (37b), does not involve goal-oriented behavior but rather suggests multiple bumping events that are accidental. Again, C_1C_2 reduplication behaves as expected for an event-external, but not event-internal, pluractional.

(37) a. *Context: Describing someone who's always giving rides to people.*

payɛ ʔot **χəpχ**əpi Freddie.

paya**ʔ**=ʔut **x̣əp**~x̣əpəy Freddie

always=EXCL **C_1C_2.PL**~return Freddie

'Freddie's always back and forth.' EP

b. *Context: Narrating a story based off a series of pictures showing a child running around a house and bumping into a table.*

payɛ **q^wa$\dot{q}^w$**q^wa$\dot{q}^w$ʊx^wəs ʔu$\dot{k}^w$ taməs.

paya**ʔ** **q^w<a>$\dot{q}^w$**~q^wəʔ$\dot{q}^w$–əx^w–as ʔəw$\dot{k}^w$ tam=as

always **C_1C_2.PL<ABL>~**bump–NCTR–3ERG all thing=3CNJ

'He's always bumping into everything.' EP, FL

Wood's sixth diagnostic is that event-internal pluractionals are typically associated with a single (or grouped) absolutive argument. We have seen, however, that the plural events signaled by a predicate with C_1C_2 reduplication do not need to involve a single or grouped absolutive argument. For instance, (37b) involves someone bumping into different, unspecified objects. Similarly, the books in (15) must be distributed across

847 different stores, rather than being bought as a set or group. Given the requirement that
848 C_1C_2 reduplication involves distribution of events in time and space, it is not surprising
849 that the absolutive argument is not typically singular or grouped, since a singular or
850 grouped entity would typically exist in a single location and be simultaneously affected
851 by any action. According to this final diagnostic, therefore, C_1C_2 reduplicated predicates
852 exhibit behavior typical of event-external, rather than event-internal, pluractionality.
853 With respect to all the diagnostics proposed by Wood (2007), predicates with
854 C_1C_2 reduplication exhibit behavior typical of event-external pluractionals. Elsewhere
855 (Mellesmoen & Huijsmans 2019b), we argue that their behavior contrasts with predicates
856 marked by an ablaut process that contributes event-internal pluractionality.[16] Given the
857 results of these diagnostics, we analyze C_1C_2 reduplication as event-external
858 pluractionality and propose a formal analysis in the following section.
859
860 3.5 Formal analysis of C_1C_2 reduplication
861
862 Our findings are consistent with the formal analysis proposed by Lasersohn (1995) for
863 verbs encoding event-external pluractionality with spatio-temporal distribution of events.
864 However, since both temporal and spatial distribution are necessary for ʔayʔaǰuθəm verbs
865 with C_1C_2 reduplication, we make this restriction explicit in the formalism (Lasersohn's
866 1995:252 denotation is intended to capture events 'distributed in time-*or*-space'). The
867 formula in (38) requires that a verb with pluractional marking (PA) involves a set of

868 events of the type denoted by the verb V with a cardinality greater than *n* that overlap in
869 neither the temporal τ or spatial σ dimension.
870
871 (38) V-PA(X) ⇔ ∀ e,e' ∈ X[V(e) & V(e') & ¬ [σ(e) ° σ(e')] & ¬ [τ(e) ° τ(e')]] &
872 card(X) ≥ n
873
874 As mentioned in the introduction, previous analyses of event-external
875 pluractionality, such as Lasersohn's (1995) analysis of Klamath pluractionals and Wood's
876 (2007) analysis of Yurok and Chechen pluractionals, allow for events to be pluralized
877 through distribution over participants. However, we have seen that distribution over
878 participants is neither necessary nor sufficient for use of the C_1C_2 reduplication in
879 ʔayʔaǰuθəm. Rather, distribution over participants can be seen as the outcome of
880 requiring the events to be distributed in space and time (one cannot close the same door
881 multiple times and have the closing events distributed in space, for instance (13)). In
882 proposing that the pluractional requires a specific spatio-temporal configuration of
883 events, our analysis is similar to Henderson's (2012) analysis of event-external
884 pluractionals in Kaqchikel, which involve a plurality events individuated through
885 temporal distribution regardless of the number of participants involved.
886 A welcome result of adopting the denotation in (38) is that the different readings
887 that arise with different types of predicates fall out naturally. Where the predicate does
888 not have an endpoint, as in (39) the subevents of the pluractional can be adjacent,

interpreted as a continuous larger event made up of adjacent spatio-temporally distributed events.

(39) a. hoθo kʷa **ʔəm**ʔɛmaš tawən.
hu~θu=kʷa **ʔəm**~ʔimaš tawən
IPFV~go=PRT **C_1C_2.PL**~walk town
'They're walking around town.' FL/EP

b. papkʷátołč čɛṅo.
pa<p>kʷ–át–uł=č čaṅu
observe<PL>–CTR<STAT>–PST=1SG.SBJ dog
ʔaq̓ʔaq̓atəs məmmɛmaẇ ʔasq̓
ʔəq̓~ʔaq̓–at–as məm~mimaẇ ʔasq̓
C_1C_2.PL~chase–CTR–3ERG C_1C_2.PL~cat outside
'I was watching the dog. He chased the cats all over the yard.' JF

This is expected since (38) is agnostic with respect to temporal spacing between events. In fact, C_1C_2 plural reduplication of atelic predicates like *ʔimaš* 'walk' is compatible with a variety of contexts, which involve adjacent or nonadjacent walking events, as in (40).[17]

(40) a. *Context: We have a usual route for a Sunday afternoon walk. We don't stop along the way, we just walk the route. On Sunday evening, describing our activities of the day to someone, I say:*

hošt **ʔəm**ʔɛmašoɬ.

hu=št **ʔəm**~ʔimaš–uɬ

go=1PL.SBJ **C_1C_2.PL**~walk–PST

'We went walking about.' BW

b. *Context: I was walking around doing errands. I walked to the grocery store, walked somewhere to get lunch, and then walked to Canadian Tire to get something else.*

tihmotč **ʔəm**ʔɛmaš t̓$^{\theta}$ok̓^{w}.

tih–mut=č **ʔəm**~ʔimaš t̓$^{\theta}$uk̓^{w}

big–INT=1SG.SBJ **C_1C_2.PL**~walk day

'I walked a lot today.' JF

Telic predicates, such as predicates marked with the non-control transitive suffix (see section 3.4 above), are more clearly distributed, regardless of whether subevents are adjacent (41) ((41b) is repeated from (33c), above).

(41) a. kʷa ʔuk̓ʷ hoy **nakʷ**nokʷʊxʷəs.

kʷa=ʔəwk̓ʷ huy **n<a>kʷ**~nəkʷ–əxʷ–as

CL.DEM=all finish **C_1C_2.PL<ABL>**~put.up–NCTR–3ERG

'He finished putting them all up (fence posts or poles).' JF

b. *Context: Describing child on Easter morning ...*

k̓ʷʊnk̓ʷʊnʊxʷəs tə χʷaχʷɛt.

k̓ʷən~k̓ʷən-əxʷ-as tə=x̣ʷax̣ʷit

C_1C_2.PL~see–NCTR–3ERG DET=egg

'She found (chocolate) eggs all over.' PD

Crucially, the C_1C_2 plural reduplicative process has a consistent interpretation (indicating plural events distributed in time and space) with all eventive predicates, motivating a unified analysis. Faced with a similar range of interpretations for pluractionals in Chechen, Wood (2007:246–7) argues that pluractionals with the same type of pluractional marking may express event-internal or event-external pluractionality: the events of a pluractional activity can be grouped into a single larger event forming an event-internal pluractional, while the same morphology can also express event-external pluractionality with predicates of other lexical aspectual classes, and even with activities when the events are distributed across occasions. However, we have seen that the event-external denotation given in (38) can capture the full range of readings that arise with C_1C_2 reduplication in ʔayʔaǰuθəm. Given the consistent contribution of the C_1C_2 plural reduplicative process and its behavior as an event-external with respect to Wood's

diagnostics, we take it to be preferable to analyze all cases as involving the same event-external denotation.

4. The -Vg- affix

One of the goals of this paper was to discern whether different ʔayʔajǔθəm plural morphemes are better categorized as multiple allomorphs of the same plural morpheme, as Thompson (2009) argued for Upriver Halkomelem, or a collection of morphemes with distinct semantic contributions, as Kinkade (1995) described for Upper Chehalis. We return here to this issue here, comparing the function of the -Vg- affix to the description of C_1C_2 reduplication in Section 3. The forms in (42) show the difference between the -Vg- affix and C_1C_2 reduplication on the verb *čiɬim* 'dance'. The C_1C_2 reduplicated form does not require plural participants and can be used felicitously if there is spatio-temporal distribution. In contrast, the form with the affix in (42a) is only accepted with a plural argument.

(42) a. čiɬɛm**ɛw**.
čiɬ–im–**iw**
dance–MD–**PL**
'They dance.'

b. **čɛɬ**čiɬɛm.

čəɬ~čiɬim

C_1C_2.PL~dance–MD

'She is dancing here and there.' EP

Similarly, the form in (43) with the -Vg- affix infixed into the root *tayq-* 'to move' is rejected if both the subject and the object are singular (43b),[18] but acceptable with a plural object (43a). In contrast, a C_1C_2 reduplicated form is accepted in contexts where the arguments are interpreted as singular (43c), provided that the event is spatio-temporally distributed.

(43) a. tatay**ɛw**qatəs tə θuk^{w}θuk^{w}načtən.

ta~tay<**iw**>q–at–as tə=θək^w~θək^{w}načtən

IPFV~move<**PL**>–CTR–3ERG DET=C_1C_2.PL~chair

'She's moving chairs.'

b. # tatay**ɛw**qatəs tə θuk^{w}načtən.

ta~tay<**iw**>q–at–as tə=θək^{w}načtən

IPFV~move<**PL**>–CTR–3ERG DET=chair

'She's moving a/the chair.'

c. **tay**tayqatəs tə θuk^{w}načtən.

tay~tayq–at–as tə=θək^{w}načtən

C$_1$C$_2$.PL~move–CTR–3ERG DET=chair

'She's moving a/the chair around.' EP

Moreover, forms with the -Vg- affix do not require spatial and temporal distribution of events, as shown in (44a) (repeated from (16a)), and are compatible with stative predicates, as in (44b).

(44) a. *Context: A bunch of students jumping for a graduation photo. Everyone jumps at the same time, just once.*

ʔuk̓^{w} k̓^{w}it̓^{θ}ɛm**ɛw**.

ʔəwk̓^{w} k̓^{w}it̓^{θ}–im–**iw**

all jump–MD–**PL**

'They all jumped.' PD

b. ʔuk̓^{w} k̓^{w}a nɛʔ**əw** k^{w} šɛʔt.

ʔəwk̓^{w}=k̓^{w}a niʔ–**əw** k^{w}=šəʔt

all=RPT be.there–**PL** DET=up

'Everyone is upstairs.' FL

As mentioned in section 2, the plural affix can mark plurality of the subject of a transitive predicate. The form with the plural suffix following the control transitive

requires a plural agent, as shown in (45). This is another point of contrast with C_1C_2 reduplication which never requires a plural agent of a transitive predicate (though distribution of events through space can necessitate a plural object in some cases).

(45) *Context: Talking about our consultant's cats...*

payɛ	məmk^{w}t**eg**əs	ǰɛnx^{w}.
paya**ʔ**	mə∼mk^{w}–t–**ig**–as	ǰanx^{w}
always	IPFV∼eat–CTR–**PL**–3ERG	fish

'They're always eating fish.' JF

A final argument for the distinct functions of the plural affix and C_1C_2 reduplication comes from the data in (46), where both plural markers occur in the same word. Their ability to co-occur suggests that the two markers are different morphemes. The interpretation of (46) can be analyzed as a combination of argument plurality and spatio-temporal distribution, where the affix corresponds to the plural subjects of the intransitive verbs and the C_1C_2 reduplicant marks the event distribution.

(46) a. *Context: There's a bunch of kids playing tag.*

ǰɛl̓ǰɪl̓**ɛw**	tə čičuy̓.
ǰəl̓∼ǰəl̓–**əw**	tə=čəyčuy̓
C_1C_2.PL∼run–**PL**	DET=PL∼child

'The children are running about.' KG, EP

b. *Context: There's a family group out for a walk.*

ʔəmʔɛmašɛ**w**.

ʔəm~ʔimaš–**əw**

C_1C_2.PL~walk–PL

'They are walking about.' BW

5. Conclusion

We conclude that C_1C_2 reduplication encodes event-external pluractionality, requiring both spatial and temporal distribution of events to be felicitously used. The -Vg- affix has a distinct contribution, marking plural arguments. Our findings contrast with Thompson's (2009) description of C_1C_2 plurals in Upriver Halkomelem, where he argues that C_1C_2 reduplication can mark plural participants, plural actions distributed in time, or plural actions distributed in time and space, but resembles Kinkade's (1995) and Bar-el's (2008) claims concerning C_1C_2 reduplication in Upper Chehalis and Sḵwx̱wú7mesh, respectively. Our analysis has implications for the typology of pluractionals, since we show both that distribution over participants is not sufficient for an event to count as pluractional and that non-overlap in 'time-or-space' is not restrictive enough for spatio-temporal distribution of events in ʔayʔaǰuθəm. Since our findings require a more restrictive denotation than that proposed in Lasersohn (1995), this investigation illustrates how semantic fieldwork complements typological work in uncovering the organization of meaning in natural language.

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Footnotes

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[2] For more on this type of semantic fieldwork methodology, see Matthewson (2004).

[3] We use the label C_1C_2 to refer to what has been described as "total", CəC, or CVC reduplication in the literature. The purpose of this is to abstract over morphophonological processes related to vowel quality. This type of reduplication will most often surface as a $C_1əC_2$ copy, where a schwa occurs between copied consonants, but in some cases the vowel may be /a/. See Section 3.3 for our arguments that $C_1əC_2$ and C_1aC_2 forms involve

the same reduplicative morpheme and thus should receive the same semantic analysis. For this reason, we do not propose separate underlying forms or reduplicative processes (cf. Watanabe 2003). We also use the label -Vg- for the plural affix, which is a departure from Watanabe's (2003:471) *-ʔVg-*. The glottal stop is never realized as [ʔ] in the surface form; it is instead associated with a variable glottalization process (cf. Watanabe 2003: 471).

[4] The -Vg- affix is not productive with nouns. Watanabe (2003:471,484) reports only two examples: qayɛwmɪxʷ /qaẏ<aw>mixʷ/ 'First Nations people' from qaymɪxʷ /qaymixʷ/ 'First Nations person' and χɛχɛwnɛq̇əm /x̣ix̣<iw>niq̇əm/ 'owls' from χɛχnɛq̇ /x̣ix̣niq̇/ 'owl'. Note that /g/ in this affix alternates with [w], as discussed below (3) in the main text.

[5] The abbreviations used in this paper are: 1 'first person', 3 'third person', ACT.INTR 'active intransitive', C 'consonant', CONJ 'conjunction', SUBJ 'subjunctive', CTR 'control transitive', DEM 'demonstrative', DET 'determiner', DPRT 'discourse particle', ERG 'ergative', EXCLAM 'exclamation operator', FUT 'future', INT 'intensifier', INTR 'intransitive', IPFV 'imperfective', MD 'middle', MOD 'modal', NMLZ 'nominalizer', NCTR 'non-control transitive', OBL 'oblique', PASS 'passive', PL 'plural', POSS 'possessive', PRT 'particle', PST 'past', SG 'singular', SBJ 'subject', STAT 'stative', and V 'vowel'. We use - to indicate morphological boundaries between concatenative morphology, ~ to indicate a reduplication boundary, <> for infixation, and + between two morphemes that contract in a way that is not consistent with regular phonological rules in the language. Speaker initials are provided beside the examples. The top line of each example is an orthographic

representation, the second line is a transcription using NAPA, the third line provides a gloss, and the fourth line a translation.

[6] For linguists familiar with Salish languages, the lack of determiners preceding arguments in examples such as (3a) may seem odd. In ʔayʔaǰuθəm, however, determiners are often elided in connected speech (noted previously by Kroeber 1991:91–92,171–2, Watanabe 2003:379, Huijsmans et al. 2018).

[7] Matthewson (2000) also states a requirement for a temporal distribution of events in her analysis of the distributive numeral *pelpála7* in St'át'imcets (a Northern Interior Salish language). However, this marker also requires distribution over atomic parts of a plural participant, giving 'one-at-a-time' readings (Matthewson 2000, see also Mellesmoen 2018 for an analysis of the cognate *paʔapyaʔ* in ʔayʔaǰuθəm).

[8] An observant reader may have noticed that that the control transitivizer has a different form in (7a–b) than in (3a) above. With weak roots (roots with a schwa), the control transitivizer has the form *–t*, as in (7a–b), while with strong roots (roots with /i/, /a/, or /u/) the same transitivizer has a link vowel V *(–Vt)* which is usually a copy of the root vowel, as in (3a–b). See Watanabe (2003:214–16) for a more thorough discussion of the different forms of the control transitivizer. While Watanabe (2003) glosses the link vowel as separate, we treat the link vowel as a part of the transitivizer suffix and do not place a morpheme break between them.

[9] A similar restriction may also be found in Hausa, where pluractionals cannot be interpreted as simple iteratives (Součková 2011).

[10] We also tested *χʷoʔχʷoʔ* /χ̣ʷəẇχ̣ʷəẇ/ ‘coming on here and there’ in a case where you see multiple streetlights coming on at once. In this scenario, *χʷoʔχʷoʔ* /χ̣ʷəẇχ̣ʷəẇ/ was originally rejected, as shown in (ia), and the form in (ib) was offered instead. However, in a later session, (ic) was accepted to describe this scenario. We think *ti qʷol* /ti qʷəl̓/ is probably contributing a ‘starting to’ reading here, as in (15a), rescuing the utterance since while the streetlights on this block may be synchronized, all the streetlights throughout the city or town are unlikely to come on at exactly the same moment in time. This leaves room for temporal distribution of the events and allows the example to be interpreted as felicitous.

(i) *Context: You’re on the street and all the streetlights come on at the same time.*

a. # kʷi ʔuk̓ʷ **χʷoʔ**χʷoʔ.
kʷi=ʔəwk̓ʷ **χ̣ʷəẇ**~χ̣ʷəẇ
CL.DEM=all **C_1C_2.PL**~turn.on
‘They all came on.’ EP

b. kʷi ʔuk̓ʷ χʷoʔ
kʷi=ʔəwk̓ʷ χ̣ʷəẇ
CL.DEM=all turn.on
‘They all came on.’ EP

c. ti qʷol **χʷoʔχʷoʔ** tə streetlights.

ti qʷəl̓ **x̣ʷəẃ**~x̣ʷəẃ tə=streetlights

CLDEM come **C_1C_2.PL**~turn.on DET=streetlights

'The streetlights are coming on.' EP

[11] An anonymous reviewer asks how the examples in (20)–(21) involve spatio-temporal distribution. We interpret the 'looking over' event as temporally and spatially distributed because 'looking over' involves investigating something from multiple angles, either by moving around the object (if it is large), or turning the object over (if it is small). This also takes time. Since the 'looking' is from multiple angles over time, it is temporally and spatially distributed.

[12] For example, the verbs in (14a–b) have /a/ in reduplicated form which does not alternate with a /ə/.

[13] Of course, we have also seen examples with C_1C_2 reduplication where the plural events are not separated by a temporal gap, as in (i). These examples still involve events that are distributed in space and time (see e.g. (6a) vs (9)), but the events happen to be temporally and spatially adjacent. We discuss these further in section 3.5 and show that they are compatible with an analysis of C_1C_2 reduplication as encoding event-external pluractionality.

(i) Context**:** *I walked around campus and back to my residence without stopping.*

ʔəmʔɛmašołč **ʔi** xʷač qəkʷʊmən.

ʔəm~ʔim-aš-uł=č ʔiy xʷaʔ=č qəkʷ-əm=an

C$_1$C$_2$.PL~walk-PST=1SG.SBJ CONJ NEG=1SB.SBJ stop-MD=1SB.CNJ

'I went for a walk and I didn't stop.' BW

[14] There is another construction involving *χʷoχʷ* /χ̣ʷuχ̣ʷ/ 'long time' that is compatible with telic predicates. In this structure, *χʷoχʷ* /χ̣ʷuχ̣ʷ/ is conjoined with the predicate using the *ʔi* /ʔiy/ 'and' and often the auxiliary *čɛʔɛt* /čaʔat/ 'then'. It is interpreted as 'it took a long time to X', where X stands for the contribution of the telic predicate. This is illustrated for čɛχ /čəχ̣/ in (i).

(i) *Context: Telling you about a Thanksgiving turkey mishap.*

χʷoχʷmot ʔi (čɛʔɛt) čɛχ.

χ̣ʷuχ̣ʷ-mut ʔiy (čaʔat) čəχ̣

long.time-INT CONJ then get.cooked

'It took a long time to cook.' EP

[15] There does not seem to be a separate ʔayʔajuθəm word for 'turkey', so the speaker uses *čɪknɛs* /čiknis/ which is a borrowing of English 'chicken'.

[16] It is not clear at this point whether the ablaut process that marks event-internal pluractionality is related to the ablaut process (described in this paper) that occurs within C_1C_2 reduplication.

[17] The difference between (34a) and (12a) is subtle but seems to have to do with the fact that the Sunday walk is not goal oriented and still involves walking 'here and there', even if there is a usual route, while walking to the gym is clearly an action that takes place directly between point A and point B.

[18] Note that it is presumably the singular interpretation of the object in (37b) that leads to infelicity of the form with the -Vg- affix, rather than the bare form of the object noun (without plural reduplication), since the bare form of the noun could be interpreted as plural, as discussed in section 2.