Limited by Number of Morphemes, not Copied Segments: Multiple Reduplication and Triplication in St'át'imcets

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1 Introduction

Multiple reduplication refers to the combination of two (or more) types of reduplication in a single word. The presence of multiple reduplication entails the existence of at least two reduplicative morphemes in a language; however, having two reduplicative morphemes does not entail the grammaticality of multiple reduplication. Zimmermann (2021b) proposes a typology of MR with three patterns: faithful, subtracting, and avoidance. When a single language shows a combination of avoidance with another one of these strategies, the language has *variable* multiple reduplication (Mellesmoen & Urbanczyk, 2021a).

As languages with variable multiple reduplication allow certain combinations of reduplicative morphemes while avoiding others, they provide insight into the phonological underpinnings of avoidance patterns and limitations related to the realization of reduplicative morphemes. Variable multiple reduplication raises the following question: how does the phonological grammar determine which combinations of reduplicative morphemes are impossible (or possible) within a given language?

In this paper, I present a Stratal OT analysis of multiple reduplication in St'át'imcets, a language with variable multiple reduplication, showing that only one type of reduplication may be realized at any given stratum. Multiple reduplication must be restricted by number of morphemes. Approaches that limit the number of segments, including Zimmermann (2021b) and Mellesmoen & Urbanczyk (2021b), are not sufficient for St'át'imcets.

2 Salish Reduplication and St'át'imcets

St'át'imcets (Lillooet) is an Interior Salish language spoken in British Columbia, Canada; it is comparatively well-documented and one of the few Salish languages where fieldwork is currently possible. All data in this paper comes from unpublished fieldwork or materials published by those who conducted primary fieldwork. Fieldwork data is indicated by speaker initials; data from other sources is given with an in-text citation. Fieldwork for St'átimcets was conducted by Henry Davis; ʔayʔaǰuθəm (Comox-Sliammon) examples in Section 5 come from my own fieldwork. Data follows North American Phonetic Alphabet conventions with one exception: I follow other work on St'átimcets and use /s/ and /c/ for the sounds realized as [š] and [č].

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3 Part I: (Variable) Multiple Reduplication in St'át'imcets

With respect to the architecture of the phonological grammar, I follow Mellesmoen & Urbanczyk (2021a) and Davis & Mellesmoen (2023) and adopt Stratal Optimality Theory (Kiparsky, 2015; Bermúdez-Otero, 2017), though I use numbered levels in lieu of named domains.

I adopt a Generalized Nonlinear Affixation (GNLA) approach to reduplication following the work of Svenonius & Bye (2012), Bermúdez-Otero (2012), and Zimmermann (2017), among others. In GNLA, reduplication is fission; it is a repair that can associate prosodic affixes with segmental content. I also assume Moraic Theory (Hayes, 1989): codas are moraic and schwa is epenthetic and non-moraic in St'át'imcets (see Matthewson, 1994; Caldecott, 2009).

There are seven types of reduplication in St'át'imcets, which include two types of C_1C_2 reduplication (plural and property-denoting), three types of C_1 reduplication (diminutive, pluractional, and initial), a type of C_2 reduplication (change-of-state), and triplication (iterative). I adopt the analysis of St'át'imcets reduplication in Mellesmoen (in prep), which is summarized in Table 1.

Stratum	**Inventory**		
Level 1	INIT C_1 σ	**PL C_1C_2** $\sigma_{N+\mu}$	PDEN C_1C_2 $\sigma_{N+\mu}$
Level 2	**DIM C_1** $\mu^{[stress]}$ [c.g]	PL C_1 μ [c.g]	**COS C_2** σ
Level 3	ITER C_2[2] Ft		

Table 1: Reduplicative Morphemes in St'át'imcets

In order to examine multiple reduplication patterns, I focus on the most productive types of reduplication in St'át'imcets, which are marked in bold; these include plural C_1C_2 reduplication, diminutive C_1 reduplication, and change-of-state C_2 reduplication.[1] Plural C_1C_2 reduplication is shown in (1). Two consonants are copied with an intervening epenthetic [ə]. The fissioned consonants are the first two consonants of the root.

(1) Plural C_1C_2 Reduplication
   a. ʔəs-**təɬ**∼táɬ-ləx (cf. *ʔəstáɬləx* 'standing up')
      STAT-PL∼stand-AUT
      'standing up (pl.)'
   b. **qʷəl̓**∼qʷal̓út (cf. *qʷal̓út* 'speak')
      PL∼talk
      'speak (pl.)'

(Davis & Mellesmoen, 2023:29)

Diminutive C_1 reduplication is shown in (2). The consonant before the stressed vowel is copied and positioned after the stressed vowel. The stressed vowel is replaced by an epenthetic [ə].

(2) Diminutive C_1 Reduplication
   a. s-pəq-ṁə́<**ṁ**>x (cf. *spəqṁíx* 'swan')
      NMLZ-white-excess⟨DIM⟩
      'little swan'
   b. tə́<**t**>p-ən̓ (cf. *túpun̓* 'punch someone')
      punch⟨DIM⟩-DIR
      'punch someone lightly'

(Davis & Mellesmoen, 2023:13–14)

[1] Triplication (ITER) will be discussed in Section 4.

Change-of-state C_2 reduplication copies the consonant after the stressed vowel, as shown in (3). Schwa is epenthesized between the two identical consonants.

(3) Change-of-State C_2 Reduplication
   a. x̣zúm∼**əm** (cf. *x̣zum* 'big')
      big∼COS
      'get bigger'
   b. nús∼**əs** (root: *nus-* 'damp')
      damp∼COS
      'get damp'

(Davis & Mellesmoen, 2023:30)

3.1 *Attested and Ungrammatical Multiple Reduplication Patterns* Attested combinations include plural C_1C_2 and diminutive C_1 reduplication, as well as plural C_1C_2 and change-of-state C_2 reduplication; these are shown in (4) and (5), respectively.[2]

(4) Plural C_1C_2 and Diminutive C_1 Reduplication
   a. **x̓ək**∼x̓ə́<**x̓**>k=kaɬ (cf. *x̓ak* 'go along')
      PL∼go.along<DIM>=1PL.SUBJ
      'We went along a little ways' (CA)
   b. **q^{w}ə̓l**∼q^{w}al̓ə́<**l̓**>t (cf. *q^{w}al̓út* 'speak')
      PL∼speak<DIM>
      'have a conversation' (CA)

(5) Plural C_1C_2 and Change-of-State C_2 Reduplication
   a. **cək^{w}**∼ck^{w}-án<**n**>aʔ=ɬkan (cf. *cək^{w}* 'get pulled')
      PL∼pull-ear<COS>=1SG.SUBJ
      'Both my ears got pulled.' (CA)
   b. **x̓əp**∼x̓úp∼**əp** (cf. *x̓up* 'get twisted')
      PL∼twist<COS>
      'twist or warp (pl.)' (Davis et al., in prep)

The combination of diminutive C_1 and change-of-state C_2 reduplication is ungrammatical, as demonstrated by the negative data given in (6).

(6) Diminutive C_1 and Change-of-State C_2 Reduplication
   a. *mə́<**m**>l∼**əl̓** (cf. *múl∼əl* 'get inundated')
      flood<DIM>∼COS
      Intended: 'It got a little bit flooded.' (CA)
   b. *x̣zə́<**z**>m∼**əm̓** (cf. *x̣zum* 'big')
      big<DIM>∼COS
      Intended: 'it got a little bit bigger' (CA)

St'át'imcets has variable multiple reduplication, as summarized in Table 2. Plural C_1C_2 reduplication occurs at the first stratum, while diminutive C_1 and change-of-state C_2 reduplication occur at the second. Faithful multiple reduplication is therefore attested for both combinations that involve a Level 1 and a Level 2 morpheme; however, avoidance of multiple reduplication is observed when the reduplicative morphemes are at the same stratum.

[2] The [ə] associated with C_2 reduplication is omitted in (5a); this is a regular pattern that is also observed outside of multiple reduplication.

		Level 1	Level 2	
		PL	DIM	COS
Level 1	PL		✓	✓
Level 2	DIM			×
	COS			

Table 2: Multiple Reduplication in St'át'imcets

3.2 *Analysis: Multiple Reduplication is Limited by Morphological Affiliation* I propose that multiple reduplication is limited by morphological affiliation. Specifically, only one prosodic affix may be realized per stratum. As all reduplicative morphemes in St'át'imcets affix prosodic units, it follows that only one reduplicative morpheme can be realized per stratum. Attested multiple reduplication must involve reduplication at different strata (cf. Mellesmoen & Urbanczyk 2021).

I implement my analysis with the constraint MORPHEME-AFFILIATION, defined in (7), which is violated when segments associated with a given morpheme in the input are associated with prosodic units in the output that have a different morphological affiliation (i.e., occur at a different stratum). Specifically, the grammar will tolerate segments associated with prosodic units that have one (and only one) morphological affiliation that differs from the segment's own.

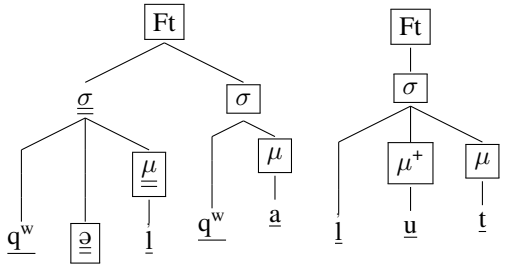
(7) MORPHEME-AFFILIATION (MAFFIL):
For any three output segments S (S_1, S_2, S_3) that belong to the same morpheme M_a, if S_1 is associated with a prosodic unit belonging to M_a and S_2 is associated with a prosodic unit belonging to some other morpheme M_b, then S_3 must be associated with a prosodic unit belonging to either M_a or M_b. Assign a violation mark for any three segments where all three segments belong to the same morpheme and each segment is associated with a prosodic unit belonging to a different morpheme (*S_1-M_a, S_2-M_b, S_3-M_c).

In the following diagrams, I use underlining in lieu of indices to reflect morphological affiliation. The number of times a segment or prosodic unit is underlined differentiates content belonging to different morphemes. For example, the double underline in (8) marks phonological content associated with the plural morpheme, while the single underline marks the root. Boxes mark epenthetic content, which take on the affiliation of the unit that immediately dominates them. Prosodic units and segments with no underlining have no affiliation at this stratum.

(8) Derivation of *qʷəl̓qʷal̓út* 'speak (pl.)' (cf. *qʷal̓út* 'speak') - Level 1

a. Level 1 Input: $\underline{\underline{\sigma_{\mu}}}$ + $\underline{\text{qal̓ut}}$

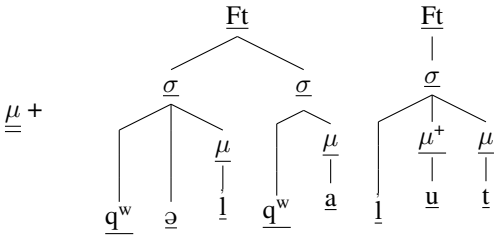
b. Level 1 Output:



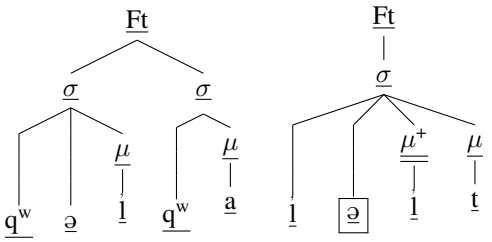
The Level 1 output shown in (8b) is part of the input to Level 2 in (9a), where the diminutive mora is parsed into the prosodic word to derive the form *qʷəl̓qʷal̓ə́l̓t* 'to have a conversation'. All parsed content in the output of Level 1 will always have the same affiliation in the input to Level 2, as indicated by the single underline in (9). The diminutive morpheme is marked with a double underline.

(9) Derivation of *qʷəl̓qʷal̓ə́l̓t* 'have a conversation' (cf. qʷal̓út 'speak') - Level 2

a. Level 2 Input:



b. Level 2 Output:

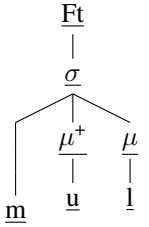


The word *qʷəl̓qʷal̓ól̓t* 'have a conversation' does not violate MORPHEME-AFFILIATION because reduplication happens at two different strata. Segmental content in the input is only ever associated with prosodic content from one other morpheme at each stratum.

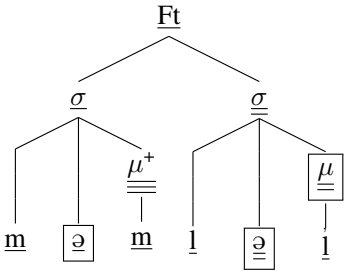
The ungrammatical combination of change-of-state C_2 and diminutive C_1 reduplication has segments with the same morphological affiliation (marked with a single underline) associated with prosodic units with two different affiliations (marked with double and triple underlining). The ungrammatical form **mə́ml̓əl̓* in (10b) violates MORPHEME-AFFILIATION.

(10) Ungrammatical form: **mə́ml̓əl̓* (cf. múl̓əl 'get inundated')

a. *Level 2 Input:* μ + σ +



b. *(Ungrammatical) Level 2 Output:*



The limitation on multiple reduplication at the same stratum means MORPHEME-AFFILIATION is ranked higher than constraints that pertain to filling floating prosodic units (i.e., *FLOAT) or realizing morphemes (i.e., REALIZEMORPHEME). I provide an analysis that accounts for the fact that forms with multiple reduplication at the same stratum are avoided by using a "null" or "gap" candidate, represented by ⊙ (McCarthy & Wolf, 2007:1). The ranking of a constraint MPARSE, defined in (11), sets a "harmony threshold" (Legendre et al., 1998:8). Any constraint ranked above MPARSE will never be violated: ⊙ will always be preferable. Paradigmatic gaps thus occur when GEN can produce no possible candidate that will fares better than the null parse ⊙.

(11) MPARSE: Given a candidate (o, <i>, <o>, ℜ), if ℜ is not a total bijective function from <i> to <o>, assign a violation mark. (McCarthy & Wolf, 2007:14)

MORPHEME-AFFILIATION must be ranked above MPARSE to predict the null candidate will be selected over one with multiple reduplication (at a given stratum). This is shown in (12). The morpheme-based approach correctly predicts which combinations are impossible.

(12)

/μ + σ + múl/	MAFFIL	MPARSE
☞ a. ⊙		*
b. məmlə̀l	*!	

3.3 *Alternative Analysis: Fission-Based Limits and Multiple Reduplication* Previous analyses of multiple reduplication have accounted for avoidance of multiple reduplication by limiting fission through proposing a restriction on GEN that only allows for 1:2 mappings between input and output (Mellesmoen & Urbanczyk, 2021b), or by using INTEGRITY to limit the overall number of copied segments (Zimmermann, 2021b).

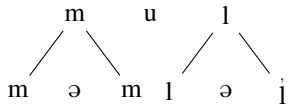
Mellesmoen & Urbanczyk (2021b) propose the Binarity restriction in (13), which limits GEN to generating candidates with a maximally binary mapping between the input and the output (e.g., excluding 1:3 mappings/triplication at the same stratum). This means multiple reduplication is permitted when the reduplication occurs at different strata, but GEN is not able to generate forms with multiple reduplication at the same stratum. Forms with a 1:3 mapping are not possible candidates, and therefore will not be considered under EVAL.

(13) Binarity Restriction on GEN: an element in the input can correspond to a maximum of two output elements.

(Mellesmoen & Urbanczyk, 2021b:176)

The Binarity restriction cannot explain variable multiple reduplication in St'át'imcets. As shown in (14), the ungrammatical combination of C_1 and C_2 reduplication yields two 1:2 mappings.

(14) Ungrammatical Combination: **mə́mlə̀l* (cf. múlə̀l 'get inundated')



The ungrammatical form cannot be ruled out by the Binarity restriction because it does not yield a 1:3 input-output mapping.

Zimmermann (2021b) proposes a different fission-based analysis that uses the INTEGRITY constraint INT_S to limit multiple reduplication; INT_S is defined in (15).

(15) INT_S: Assign * to every pair of output segments that correspond to the same input segment. (Zimmermann, 2021a:14)

INT_S evaluates pairs of output segments and assigns a violation mark if they correspond to the same input segment. Table 3 shows INT_S violations for the ungrammatical form **mə́mlə̀l* with C_1 and C_2 reduplication. The numbers in the left column count the number of INT_S violations (= 2 instances of a 1-to-2 input-output mapping): different types of dot are used to distinguish violations involving fission of different input segments (e.g., pairs involving /m/ are ○ and those involving /l/ are ●).

	m_1	ə	m_1	l_2	ə	l_2
1	○		○			
2				●		●

Table 3: Int_S Violations for Ungrammatical Multiple Reduplication

The ungrammatical combination incurs two violations of INT_S in Table 3; plural C_1C_2 reduplication incurs the same number of violations in single reduplication, as shown in Table 4. A fission-based approach is therefore unable to explain why C_1C_2 reduplication is tolerated, while a combination of diminutive/plural C_1 plus change-of-state C_2 reduplication is rejected.

	$q^w{}_1$	ə	$\dot{l}_2$	$q^w{}_1$	a	$\dot{l}_2$	u	t
1	○			○				
2			●			●		

Table 4: Int_S Violations for Single Reduplication (Plural)

Neither of the fission-based approaches to multiple reduplication can predict both attested and unattested patterns. Therefore, multiple reduplication in St'át'imcets must be limited by number of prosodic affixes per stratum, rather than number of fissioned segments.

4 Triplication in St'át'imcets

St'át'imcets has iterative "triplication", which has not been analyzed in previous work, though it has been described and discussed in descriptive work (e.g., Van Eijk, 1997). Words with triplication are associated with semelfactive events (i.e., events with a short duration that are often repeated), which often involve sensory information related to sight (flashing lights) or sound (noises).

The morpheme-based and fission-based analyses discussed in Section 3 make different predictions regarding triplication. The fission-based approaches cannot differentiate between single and multiple reduplication, which predicts that triplication must be subject to any restrictions on multiple reduplication. In contrast, the morpheme-based analysis proposed in this paper only limits multiple reduplication; triplication involves a single morpheme and therefore cannot violate MORPHEME-AFFILIATION.

4.1 *$C_2{}^2$ Triplication Pattern* There are two copies of the second consonant of the root in triplication, which resembles two instances of C_2 reduplication.[3] While each copy is preceded by a vowel, it may be a vowel of the same quality as the stressed one, as shown in (16a), which is unlike C_2 reduplication. Words with triplication may also surface with [ə] as the first vowel and [a] as the second, as shown in (16b–d). The [ə] is epenthetic, while the source of the [a] is unclear.[4]

(16) a. ṗl<iχ̣^{w}iχ̣^{w}>íχ̣^{w}
overflow<ITER>
'(keep) boiling over'

b. ɬ<ələl>íl
sprinkle<ITER>
'to keep sprinkling'

c. χ̣<əmam>ɔ́m
fast<ITER>
'to hurry up'

d. ʕ^w<əl̓al̓>ɔ́l̓
get.lit<ITER>
'bubbles come up when s.o. dives'

(Van Eijk, 1997:56,57,59)

Words with triplication are also notable for their prosody: they show invariable word-final stress, which is not sensitive to vowel weight.

[3] There is an additional triplication pattern that appears to involve two instances of C_1C_2 reduplication. I focus on the $C_2{}^2$ pattern because it requires a phonological explanation and therefore provides the strongest test case; the $C_1C_2{}^2$ pattern allows other analyses, such as morphological doubling of a root (see, e.g., Inkelas, 2008).

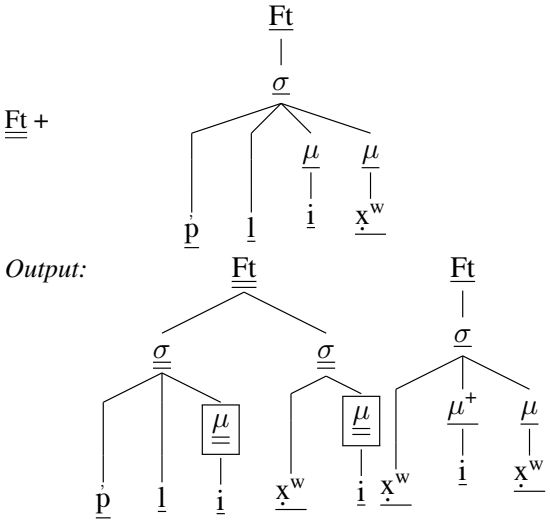
[4] It is possible that [a] comes from a process of ablaut. I have not been able to identify any phonological factors that condition or distinguish between the two vowel patterns. The vowel patterns are further complicated by variation.

4.2 *Analysis: Morpheme-Based Limits and Triplication* I analyze triplication as a single reduplicative morpheme that affixes a foot. While I leave the question open as to whether this foot has further specification (e.g., two syllables or a fixed /a/), the phonological grammar of the language prefers binary feet (see, e.g., Roberts, 1993); constraints pertaining to prosodic structure rule out potential candidates that avoid triplication by building monosyllabic foot that is filled by fission of a single consonant.

MORPHEME-AFFILIATION does not rule out triplication, as demonstrated with the word *ṗlix*^{w}*ix*^{w}*íx*^{w} 'keep overflowing' in (17). While the triplicated word has three consonants that correspond to the same input segment, all segments are associated with prosodic units that share their morpheme affiliation (denoted by a single underline) or that of a single other morpheme (denoted by a double underline).

(17) Derivation of *ṗliẋ*^{w}*iẋ*^{w}*íẋ*^{w} '(keep) boiling over'

a. *Input:*



Triplication does not violate MORPHEME-AFFILIATION because it involves a single morpheme; triplication would only be ruled out if it involved two separate morphemes at the same stratum.

4.3 *Triplication: Single or Multiple Reduplication?* An alternative analysis to positing a single reduplicative morpheme would be to propose that triplication involves multiple reduplication (two instances of C_2 reduplication). Multiple reduplication can be ruled out because if these forms involved the addition of the same reduplicative morpheme twice, this should be reflected in the meaning. For example, when applying C_2 reduplication to a form already marked with C_2 reduplication, compositional semantics would predict change-of-state semantics applied to a change of state. This is not the case: triplication reduplication is associated with repetition of a semelfactive event, not a change of state.

An additional piece of evidence against triplication involving two instances of C_2 reduplication is seen in (18), which shows a word with both triplication and change-of-state C_2 reduplication. The regular C_2 reduplication process copies the /l̓/, rather than the /xʷ/ copied in triplication. Further, change-of-state C_2 reduplication is positioned relative to the position of stress assigned at the first stratum (Level 1), which is be the first vowel in (18). The copied consonant and position of the copied segments are not consistent with a multiple reduplication analysis.

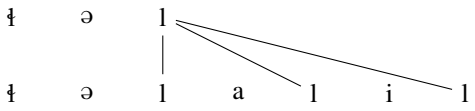
(18) qəl̓<l̓><əxʷəxʷ>ə́xʷ (root: *qlx*^{w}- 'hurry')
hurry<COS><ITER>
'when you rush to get things done in time' (Davis et al., in prep)

4.4 *Alternative: Fission-Based Limits and Triplication* Approaches that propose limitations on fission are unable to distinguish between single and multiple reduplication. In other words, any limitation imposed by the phonological grammar on multiple reduplication must also apply to triplication.

The Binarity restriction proposed by Mellesmoen & Urbanczyk (2021b) is not able to differentiate between single reduplication resulting in a 1:3 mapping, as seen in triplication, and multiple reduplication

resulting in a 1:3 mapping. Restricting GEN means that the attested form with triplication in (19) will never be considered, which means that triplication should never be possible; this is at odds with the empirical data. Multiple reduplication cannot be explained by a restriction on GEN.

(19) Impossible 1:3 mapping for *ɬəlalíl* 'to keep sprinkling'



The INT_S approach proposed by Zimmermann (2021b) does not outright exclude attested forms; however, it provides no explanation for why C_1 and C_2 reduplication are incompatible in multiple reduplication, while triplication is perfectly fine. As shown in Table 5, triplication incur three violations of INT_S.

	ɬ	ə	l_1	a	l_1	í	l_1
1			○		○		
2					○		○
3			○				○

Table 5: Violations of INT_S

Recall from Section 3.3 that the ungrammatical combination of C_1 and C_2 reduplication only yields two violations of INT_S; this approach therefore does not provide an explanation for why forms with multiple reduplication with fewer violations are worse than attested forms with triplication. The attested triplication patterns are therefore not predicted by either of the fission-based alternatives.

5 Discussion

Only morpheme-based restrictions on multiple reduplication can distinguish between attested triplication and ungrammatical multiple reduplication patterns in St'át'imcets. However, MORPHEME-AFFILIATION makes predictions about what types of multiple reduplication might be possible across languages.

Given that MORPHEME-AFFILIATION makes reference to prosodic units, a prediction of this analysis is that two types of reduplication can co-occur at the same stratum if at least one is triggered by a fixed segment affix. This prediction is borne out by cross-Salish data. ʔayʔaǰuθəm (Comox-Sliammon) diminutive reduplication has two allomorphs that trigger C_1 reduplication: an affixed μ and a fixed segment /i/. Multiple reduplication should be possible at a single stratum if the fixed segment allomorph of the diminutive is selected. The forms in (20) show that this prediction holds: the /i/ allomorph of the diminutive can be combined with property-denoting C_1C_2 reduplication at Level 1.

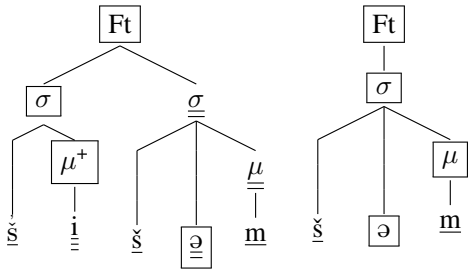
(20) a. xi∼xəɬ∼xəɬ (cf. *xəɬ* 'get angry')
DIM∼PDEN∼angry
'a little angry' (EP)

b. ši∼šəm∼šəm (cf. *kʷu šəm̓* 'It got dry.')
DIM∼PDEN∼dry
'a little dry' (EP)

The example in (21) shows that *šišəmšəm* does not violate MORPHEME-AFFILIATION because segments associated with the root in the input (marked with a single underline) are only associated with prosodic units associated with one other morpheme (property-denoting morpheme, marked with a double underline). Though the diminutive (marked with a triple underline) triggers reduplication to provide an onset, this onset is not associated with a prosodic unit belonging to a different morpheme.

(21) a. Input to Level 1:
i + $\sigma_{N+\mu}$ + šm

b. Output of Level 1:

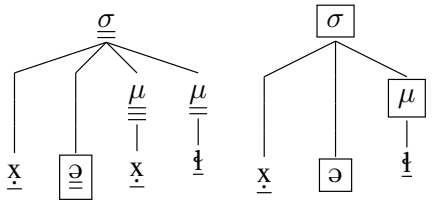


In (22), the prosodic affix μ is inserted, resulting in the unattested form **xəxɬxəɬ* 'a little angry'. This results in segmental content from the root (marked with a single underline) being associated with prosodic units from both the property-denoting and diminutive morphemes (marked with double and triple underlining, respectively), which violates MORPHEME-AFFILIATION.

(22) Unattested: μ Allomorph

a. Input to Level 1:
$\underline{\underline{\underline{\mu}}} + \underline{\underline{\underline{\sigma_{N+\mu}}}} + \underline{\underline{\underline{x\text{-}ɬ}}}$

b. Unattested Output:



The morpheme-based analysis proposed in this paper raises questions for other non-concatenative morphological processes. MORPHEME-AFFILIATION is specific to prosodic affixes, not reduplication. Given that MORPHEME-AFFILIATION refers prosodic units in the input, similar restrictions are predicted for other processes triggered by prosodic affixes, such as vowel lengthening. In other words, if there are languages that allow the combination of two prosodic affixes at the same stratum, this would mean that MORPHEME-AFFILIATION must be ranked lower than in Salish languages.

Co-occurrence restrictions are also documented with concatenative morphology as well: work on position classes shows that only morpheme can surface in a given position (see, e.g., Stump, 1992).[5] While MORPHEME-AFFILIATION does not rule out combinations of segmental affixes, it is possible that the approach developed in this paper could provide insight into position classes. Specifically, this analysis of multiple reduplication draws on prosodic structure and morpheme identity in the input; if prosodic structure is associated with the position class in the input, perhaps a constraint ¬MORPHEME-AFFILIATION could penalize a single *underlying* prosodic unit being associated with segments from two different morphemes in the output. I leave this as an area for future investigation.

6 Conclusion

St'át'imcets is a language with variable multiple reduplication: multiple reduplication is attested, but only when the two reduplicative morphemes are realized at different strata. Fission-based approaches, which consider the number of fissioned segments or the type of input-output mapping, cannot differentiate attested multiple reduplication patterns from ungrammatical ones. They further predict that attested triplication patterns should be either impossible or as bad as multiple reduplication. Restrictions on multiple reduplication must therefore be sensitive to the morphological affiliations of phonological content: only one prosodic affix is realized per stratum. Variable multiple reduplication therefore reflects how prosodic affixes are distributed across strata, such that gaps arise when two types of reduplication occur at the same stratum.

[5] Thank you to Bruce Hayes for bringing these patterns to my attention.

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