

Southern Wakashan double reduplication*

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This paper examines the phenomenon of double reduplications in Southern Wakashan (SW), focussing on Tsishaath, supplemented by data from other varieties, and arguing that, while there exist constraints on multiple copies appearing at one level of the grammar, these constraints do not prevent the manifestation of multiple copies arising from separate stem-level and word-level reduplicative requirements. While several reduplication-triggering morphemes may appear on a form at the stem-level, they result in only a single copy surfacing. However, after bracket erasure, it is possible for a second copy to arise, the result of subsequent, word-level reduplicative processes. This set of facts argues for a stem- vs. word-level distinction in the morphology of SW, along the lines of Lexical Morphology (e.g., Kiparsky 1982, 1985, Mohanan 1982, 1986) or stratal Optimality Theory (e.g., Bermúdez-Otero 1999, 2003, Kiparsky 2000, 2003).

1 Introduction

Reduplication in its various forms has been the topic of much discussion in the linguistic literature. For Kyuquot, the most northerly variety of SW, Rose (1981) has discussed the typologically uncommon phenomenon of suffixes which appear to require concomitant reduplication of the base and the possibility of several such suffix-triggers co-occurring in a single form. Stonham (1994) has discussed the existence of similar reduplicative processes in Ditidaht, the most southerly variety on Vancouver Island, from a theoretical perspective, arguing for a constraint-based approach to the phenomenon.

In Tsishaath, a central variety of SW, one issue that arises in this context is the appearance of multiple reduplication-requiring suffixes, which combine to realise the final outcome. The result is always a single copy that reflects the features required by all of the suffixes that appear. Furthermore, neither a

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strictly affixational account nor a rule-based account explain this behaviour, whereas on a constraint-based approach this is what is expected, given that all that is required is that the base reflect the exigencies of the suffix which is attached to it.

2 Background

In spite of the statements above arguing for a constraint-based approach to multiple reduplication-triggering suffixes, multiple reduplicative copies do, in fact, appear on the surface, and we must provide some explanation of why this is possible. The phenomenon of multiple copies in Nuuchahnulth was first noted by Morris Swadesh in an unpublished manuscript (Swadesh 1937) in which he argues for the existence of variable-length vowels in roots as well as in the suffix system. Since variable-length vowels can only be established by their special behaviour outside the first foot of the word, it is necessary to place the suspect vowel outside the first foot. With suffixes, this is straightforward, but with roots the only way to accomplish this is by having two copies of the root precede it in order to force the issue. This is Swadesh's strategy and he provides a number of examples of doubly-reduplicated roots with variable-length vowels.

This phenomenon of double reduplication will be the main focus of this paper. I will not discuss in detail the basics of SW reduplication, referring the reader to the many other treatments of the subject, e.g. Sapir & Swadesh (1939), Rose (1981), Stonham (1994), etc. and will focus specifically on the issue of multiple reduplicative morphemes co-occurring within a single word and the outcome of such co-occurrences. For this reason, the qualitative variation of different prosodic forms of the copy and base will be downplayed in favour of a focus on the number of copies surfacing. All copies will be described simply as DUP, irrespective of the specific exigencies of the template.

Thus, the primary concentration here will be on a specific class of reduplicative patterns in this language and their implications for current theories of morphology. The next section will outline the various types of reduplication that will concern us.

3 Reduplicative Patterns

Reduplication occurs at all levels of the grammar, derivation, aspect and inflection, and there are a number of different prosodic templates employed. In this section, I will present some of the different types of reduplication, referring the reader to other treatments for more detailed discussion.¹ Note that this is not intended to be an exhaustive itemisation of all possible reduplicative patterns, but simply a sampling of the different types of reduplication occurring at different levels of the grammar.

¹ See, for example, Sapir & Swadesh (1939), Rose (1981), Stonham (1994), (1999), Davidson (2002).

3.1 Pluralisation

Pluralisation may be indicated by reduplication, although this is only one of a number of possible realisations of the plural.² This is represented as in (1) below.

- | | | |
|--------|---------------------------|---------------------------|
| (1) a. | ʔeʔiičim | 'old people' |
| | DUP- ʔiičim ³ | PL- old person |
| b. | taataayi | 'older brothers, seniors' |
| | DUP- taayii | PL- older brother |
| c. | ħaaħaak"ahak?i | 'his slaves' |
| | DUP- ħaaħaak"ahī -'ak -?i | PL- slave -POSS -DEF |

In addition to plain pluralisation, reduplication may be used to mark a distributive form of reduplication as discussed in the next section.

3.2 Distributive

The distributive implies *both* a notion of plurality and that of randomness or being scattered about. It is often translated as 'here and there' or 'all about'. It is represented by the reduplication of the initial CV(V) of the root. With respect to the distributive plural, Rose (1981) observes:

Distributive (CV#) reduplication has two main meanings, plurality and spatial distribution, which can, but need not, coexist in a given stem. It denotes plurality for entities which are clearly distributed within some domain of nature, e.g. a forest, beach, or sea, or some other domain such as kinship.

Examples of this morpheme include:

- | | | | |
|--------|--------------------------|---|------------------------------|
| (2) a. | ʔuuʔuuucsūλwe?in | miłsyi | 'each took along his spear.' |
| | DUP- ʔu -iics-awil-wε?in | DISTRIB- REF -take...along-MOM-3.QT spear | |
| b. | ħuħupqimħayiħat | | 'he gave a dollar to each.' |
| | DUP- ħup -qimħ -ayiħ -at | DISTRIB- one -classifier-give...-PASS | |

² In addition to reduplication, the plural may be marked by infixation, suffixation, a combination of these, or may be unmarked.

³ All examples, unless otherwise noted, are from Sapir's Tsishaath fieldnotes (Sapir ms.) and are organized in the following format: the first line represents the utterance with periods showing the morpheme breakdown, the second line provides glosses for each morpheme, and the third line gives a loose translation. Non-transparent abbreviations include: [R] reduplication-trigger, DEF definite, DISTRIB distributive reduplication, DUP reduplication, DUR durative aspect, GRAD gradative aspect, INC inceptive aspect, INTER interrogative mood, ITER iterative aspect, LOC locative base, MOM momentaneous aspect, NOW contemporaneous marker, PL plural, QT quotative, REF referential base, REL relative, REP repetitive aspect, SUF suffix-triggered reduplication.

- c. ?a?ala?piwi?maa?a?alauxsi 'mine were to be in pairs in the house'
 DUP- ?a?la -?piwi? -'it -maa?a?la -uk -si' DISTRIB- two -classifier-in house
 -intend to... -POSS -1s.ABS

These two patterns of reduplication indicating some form of pluralisation, may both be described as inflectional, as are the other non-reduplicative means to indicating pluralisation.

3.3 Repetitive

The repetitive or continuative aspect (REP) is realised by the full reduplication of the root, accompanied by lengthening of the vowels of both copy and base and attachment of the durative (imperfective) aspect marking suffix -*(y)a*. This may be described as full syllable reduplication, since all verbal roots involved are of only a single syllable. Examples of the usage of this pattern follow.

It should be noted here that there is a further modification in this pattern just in case the root to which the pattern is applied consists of a single, open syllable, such as *k'í- 'file'*. In such a case, a /ʌ/ is attached to the end of the copy, as shown in the example below.

- (4) a. kʷiilkʷiiya weɬčup ‘...while (you keep on) filing so as to lull me to sleep.’
 DUP-λ- kʷi - (y)ḁ weɬč - u'p REP- file -DUR sleep -MC

b. qiičiλ tiiλtiiya ‘he was rubbing for a long time’
 qii -čiλ DUP-λ- ti - (y)ḁ long time -MOM REP- rub -DUR

c. suuλsuuya ‘holding’
 DUP-λ- suu - (y)ḁ REP- hold -DUR

It should be noted that λ -insertion is a property of this specific aspectual category. This point will be relevant later in the discussion.

3.4 Iterative

The iterative aspect involves full-root reduplication with the affixation of the suffix -*s*. The length of the root vowel is copied in the reduplicative

⁴ The absence of length here is due to the moraic nature of coda nasals (see Stonham 1999).

vowel. Examples of this aspectual marker include the following (from Rose 1981: 277):⁵

- | | | |
|--------|-----------|--|
| (5) a. | xʷakxʷakš | 'it expanded every now and then' |
| b. | ȳimhýimhš | 'he became embarrassed every now and then' |
| c. | málmálačš | 'It became cold every now and then' |

When the iterativity is progressive or habitual the copy and the base are both lengthened, as in the examples in (6).

- | | | |
|--------|------------|---|
| (6) a. | ɻuučqɻuučq | 'it's getting foggy again and again' |
| b. | XiihXiih | 'it repeatedly reddens' |
| c. | miitxmiitx | 'he turned repeatedly' (Rose 1981: 277) |

The previous two sections have presented cases of aspectual reduplication, which are found to occur together with derivational morphemes in SW. The following section presents the final category, that of derivational reduplication, a concomitant of the attachment of certain derivational morphemes.

3.5 Affix-triggered reduplication

A certain subset of the derivational suffixes require reduplication of some portion of the root, in various forms. We can isolate approximately forty reduplicative suffixes of this class, exemplified as in (7) below.

- | | | |
|--------|----------------------------|--|
| (7) a. | ńańhaačiihšił | 'she watched him' |
| | DUP- hač -'iħ -šił | SUF- see -look for...[R] -MOM ⁶ |
| b. | kuukuhinqił | 'with a hole in the side' |
| | DUP- kuħ -inqił | SUF - hollow -at the ribs [RL] |
| c. | ?a?aaqiyukħak | 'why are you crying?' |
| | DUP- ?aqi -ayuk -ħačk | SUF - what? -cry for...[R+L] -2s.INTER |
| d. | ?ic?inksawí?aλ | 'be blinded by fire' |
| | DUP- -c- ?ink -sawił -'aλ | SUF- fire -in the eyes [MC][Rc+L] -NOW |
| e. | haachaώacsuptaał?aλ | 'they competed in eating' |
| | DUP- -c- haώa -supťaał-'aλ | SUF- eat -compete in...[RLc] -NOW |

⁵ There are further complications here depending on the prosodic structure of the root, but these are not relevant to the point at hand.

⁶ Note that [R], [RL], [R+L], [RL+L], [RLc], [Rc+L], all indicate different patterns of reduplication, where [L] stands for length, the [+] separates copy from root, and [c] indicates a fixed /c/ segmentism. Stonham (1994) proposes an operation of unification to account for the results of various combinations of such suffixes in Ditidaht.

However one wishes to look at the occurrence of this reduplication, it seems impossible to deny the relationship between a subset of derivational suffixes and reduplication in this context.

This concludes our brief overview of the types of reduplication that are found to occur in Tsishaath, and SW in general. In the following section we will examine what happens when our final category, affix-triggered reduplication, involves more than one such suffix.

4 Multiple triggers of reduplication

In this section we will examine what happens when more than one trigger for reduplication appears in a form. This is illustrated by the following examples, where more than one of these reduplication-triggering suffixes occurs. The examples in (8) are from Rose (1981).

- | | | |
|--------|--|--|
| (8) a. | XuuXuuk ^a nłap
DUP- Xuk -a ⁿ luł -apa | 'his legs are really big'
broad -at leg [R+L] -really [RL+L] |
| b. | puucpuumalṣułap
DUP- pumał -(c)suł -apa | 'he has really itchy eyes'
itchy -at the eye[RC+L] -very [RL+L] |
| c. | rhaarhaałʔasap
DUP- rhał -'as -apa | 'he has really cold wrists'
cold -at the wrist[RL] -really [RL+L] |
| d. | rhaarhaałyimłap
DUP- rhał -yimł -apa | 'he's really cold in the shoulders'
cold -at shoulder [R] -really [RL+L] |
| e. | hiihinʔasčpayk
DUP- hin -'as -čap -ayuk | 'he was crying due to his sore wrist'
there -at wrist[RL] -sore in[R] -cry due to |

Notice that in these patterns, where there is co-occurrence of these reduplication-triggering suffixes, there is only one copy but other effects such as vowel length may also appear, according to the patterns of the suffixes. Furthermore, the effects on the final form are those required by all the suffixes with the exception that only a single copy occurs.

In addition to cases of the co-occurrence of two or more reduplication-triggering suffixes resulting in only a single copy, it is also possible to find cases of reduplication-triggers co-occurring with aspectual reduplication, as in (9) below.

- | | | | | |
|-----|--|---|---|------------------------|
| (9) | k ^a iiłk ^a iyaqh ^a ł
CVŁdup- k ^a i -iyaqh ^a
REP/SUF- file -sing...song [R] -NOW | -'ał
-a ⁿ -a ⁿ | čiimaak ^a i
mussel shell knife -DEF | -ʔi
-a ⁿ |
|-----|--|---|---|------------------------|
- 'as he sang, he kept on filing with his mussel-shell knife.'

It is important to note that the only way to confirm from the surface shape that repetitive aspect reduplication has occurred in this example is from the fact that the root consists of a single, open syllable, and therefore requires

the insertion of /λ/, as discussed in section 3.3.⁷ The reduplication-triggering status of -iyaqh ‘sing ... song’ is readily established by data such as the following:

- | | | |
|--------|--|--------------------------------------|
| (10)a. | ?u?uyaqh | ‘they sing songs’ |
| | DUP- ?u -iyaqh | SUF- REF -sing...song[R] |
| b. | ?a?aaλp̥iyyaqh | ‘they sang two songs’ |
| | DUP- ?aλ -p̥i ^Y -iyaqh | SUF- two -classifier -sing...song[R] |
| c. | q ^W aq ^W am̥iyaqh?aaλqun | ‘we sing all these songs’ |
| d. | ?u?uyaqhλaa ?ah | ‘they also sang this’ |

Rule-based accounts associating a suffix directly with the reduplication seriously overgenerate forms and conceal the nature of the operations involved, accounts which treat reduplication as a morpheme lose the relationship between copy and suffix, and treatments which consider reduplication to be simply affixation have no answer for the failure of the suffixes to require multiple copies when the environment for it exists.

The conclusion to be drawn from the above facts is that reduplication must be treated as a constraint on stem shape in SW. Regardless of the number of suffixes requiring reduplication that are attached, a single copy satisfies the requirement. Furthermore, it should be noted at this point that all of the morphemes which require this concomitant reduplication may be demonstrated to be stem-level, either derivational or aspectual (Stonham 2003).

5 Double reduplication

The previous section has demonstrated that no matter how many reduplication-triggering suffixes occur in a stem, there will only be one copy on the surface, thereby supporting a constraint-based approach to the phenomenon. Such an account would predict that a single copy at most would occur on a word, no matter how many demands for reduplication are placed on the form.

While in general this is true, in what follows we shall see that this is, in fact, not always the case. Examine the data below:

- (11)a. q^Waq^Waq^Wam̥asči ḥaawiiḥaλ ‘half of the young men to a side’
 DUP- DUP- q^Waa -ma^W -a^Wsči ḥaawiiḥaλ
 DISTRIB- SUF- thus-as far as...-in one group [R] young men

⁷ A further important point to note here is that bracket erasure must occur no earlier than the end of the stem level, given that the rule inserting /λ/ must have access to the information that the root consists of one open syllable, which is not the case at the end of the stem level, thus:

vs. [[DUP- [k^Wi] -iyaqh]_{STEM}]_{WORD} -aλ_{WORD}
 vs. [[DUP- [qaqh] -a]_{STEM}]_{WORD} ‘killing’
 DUP- qaḥ -(y)a^W REP- kill -DUR
 ⇒ qaahqaaha NOT: *qaalqaaha

- b. *ÿayáyaqhiʔi* ‘the long-limbed ones’
 DUP- DUP- *ÿa*ʔ *q* *-hi* *-ʔi* PL-SUF- long -at the limbs[R+L]-DEF
- c. *?aʔaʔaλqimʔhtimyitʔinh* *taanaa* ‘each with two dollars on his feet’
 DUP- DUP- *?a*λ *-qim* *t* -(q)hta *-mał* *-i* *t* *-inh* *taanaa*
 DISTRIB- SUF- two -classifier-on foot[R]-move about-on floor-PL dollar
- d. *?uʔuʔutah* ‘whalers’
 DUP- DUP- *?u* *-atah* PL- SUF- REF -go after...[R]
- e. *kʷakʷakʷaλiih* ‘sea-otter hunters’
 DUP- DUP- *kʷa*λ *-iih* PL- SUF- sea-otter -look for...[R]

The above are some examples of double reduplications found in Sapir's Tsishaath texts (Sapir ms.). Note that in each case there is a reduplication-triggering suffix and either a plural or distributive morpheme associated with the form.

Bases with double reduplications appear to arise only in the context where there is a mixture of derivational or aspectual reduplication combined with inflectional reduplication, such as the plural or distributive. This suggests an explanation for the appearance of double reduplication, which will be explored in the next section.

6 A stratal model of Southern Wakashan reduplication

Stonham (2003) provides a number of criteria for distinguishing between stem-level and word-level morphology in Nuuchahnulth. Criteria include both phonological (domain of application of glottalisation and lenition, stress assignment, etc.) and morphological (bound vs. free stems, etc.).

One of the crucial aspects of this analysis for the present paper is the assignment of types of reduplication to different levels in the grammar. For instance, all suffix-triggered and aspectual reduplication, as discussed in sections 3.3-5, belongs to stem-level morphology. On the other hand, plural and distributive plural patterns of reduplication (sections 3.1-2) belong with other types of inflectional morphemes at the word level. The table below, adapted from Stonham (2003), presents some of the morphological and phonological properties that distinguish the two levels.

	Morphology	Phonology
Stem-level	Bound roots Derivational/aspectual suffixes Affix-triggered Reduplication Aspectual Reduplication	Stress Assignment ? Deletion Glottalization 1
Word-level	Free roots and stems Distributive Reduplication Plural Reduplication	Delabialization $\lambda \rightarrow ?$ Glottalization 2

Given this distinction between levels in the morphology, and the principle of Bracket Erasure, which removes information about the internal structure of a form from the previous stratum, one might expect that it might be possible to apply various rules to the output of stratum one which result in reduplicated forms in stratum two. A further prediction of such an operation is that the outermost reduplicative copy will be based on the output of the stem-level and will not be sensitive to the form of the root, unlike certain stem-level operations which appear to create a copy of the full root, as discussed in section 3.4. Note that any operation sensitive to the structure of the root must have access to the internal bracketing available on the stem-level, before bracket erasure obscures the structure. This prediction appears to be correct.

(12)a. (=5a)	$[x^{\text{a}}k]_{\text{ROOT}}$ [DUP- $[x^{\text{a}}k]$ -š] $[x^{\text{a}}k- [x^{\text{a}}k]$ -š] $[x^{\text{a}}akx^{\text{a}}ak\check{s}]_{\text{STEM}}$	Non-derived Root Stem-level affixation Stem-level Reduplication Bracket Erasure
	— $[x^{\text{a}}akx^{\text{a}}ak\check{s}]_{\text{WORD}}$ * $x^{\text{a}}ak\check{s}x^{\text{a}}ak\check{s}$	Word-level morphology Bracket Erasure
b. (=5b)	$[\check{yim}\check{h}]_{\text{ROOT}}$ [DUP- $[\check{yim}\check{h}]$ -š] $[\check{yim}\check{h}- [\check{yim}\check{h}]$ -š] $[\check{yim}\check{h}\check{yim}\check{h}\check{s}]_{\text{STEM}}$	Non-derived Root Stem-level affixation Stem-level Reduplication Bracket Erasure
	— $[\check{yim}\check{h}\check{yim}\check{h}\check{s}]_{\text{WORD}}$ * $\check{yim}\check{h}\check{s}\check{yim}\check{h}\check{s}$	Word-level morphology Bracket Erasure

In addition, two stem-level triggers for reduplication, within a constraint-based approach to reduplication, predicts that there will still only be one copy on the surface, as shown in (13).

(13)(=8c)	$[\check{ma}\check{t}]_{\text{ROOT}}$ [DUP- $[\check{ma}\check{t}]$ -as] -apa] ↑ $[\check{maa}- [\check{maa}\check{t}]$ -as] -apa] $[\check{maa}\check{maa}\check{t}\check{?asapa}]_{\text{STEM}}$	Non-derived Root Stem-level affixation ← Constraint unifying copies Stem-level Reduplication and Lengthening Bracket Erasure
	— $[\check{maa}\check{maa}\check{t}\check{?asapa}]_{\text{WORD}}$ * $\check{maa}\check{maa}\check{maa}\check{t}\check{?asapa}$	Word-level morphology and phonology Bracket Erasure

Similarly, the output of stem-level reduplication will then be available for word-level reduplication.

(14)(=11e)	$[k^{\alpha}a\lambda]_{\text{ROOT}}$	Non-derived Root
	$[\text{DUP- } [k^{\alpha}a\lambda] - iih]$	Stem-level affixation
	$[k^{\alpha}a- [k^{\alpha}a\lambda] - iih]$	Stem-level Reduplication
	$[k^{\alpha}a k^{\alpha}a\lambda iih]_{\text{STEM}}$	Bracket Erasure
	$[\text{DUP- } [k^{\alpha}ak^{\alpha}a\lambda iih]]$	Word-level affixation
	$[k^{\alpha}a- [k^{\alpha}ak^{\alpha}a\lambda iih]]$	Word-level reduplication
	$[k^{\alpha}ak^{\alpha}a k^{\alpha}a\lambda iih]_{\text{WORD}}$	Bracket Erasure

Thus, a distinction between stem- and word-level morphology, in conjunction with a principle of bracket erasure at the end of each level and a constraint-based approach to copying, will allow us to explain both the absence of double reduplications due to two stem-level reduplication processes and the appearance of double reduplication across two levels.

7 Variation in Southern Wakashan

The topic of double reduplication in SW does not end here. The data involving double reduplication so far in this paper are drawn from the Tsishaath dialect as spoken in the early part of the 20th century (Sapir ms.). In these texts multiple reduplications are naturally rare, since the confluence of requirements for their appearance are fairly exclusive, but there are upwards of 50 instances, involving a number of different roots and reduplication-triggering suffixes. The existence of the phenomenon seems beyond question.

Various authors writing on different varieties of SW have noted differences in the reduplicative patterns found to arise. In what follows we will examine the variation in reduplicative patterns in these.

7.1 Kyuquot

Rose (1981), with reference to the Kyuquot variety, notes that:

There is only one pair of reduplicative morphemes which can be present at once in a surface stem, the CV# distributive and the CVC# iterative.

- (15) mimiitxmitx⁸ 'they were turning repeatedly here and there'
 DUP- DUP- mitx^a-(y)a DISTRIB- ITER- turn -GRAD [L] -DUR

Thus, multiple reduplications may occur in Kyuquot, but Rose notes that they do not involve reduplication-triggering suffixes. However, as noted above, aspect marking is a property of stem-level morphology in Nuuchahnulth. The analysis of such forms proceeds in the following fashion, analogous to the example in (14) above.

⁸ Phonologically, there are several additional processes operating in this case, including the reduction of the aspectual lengthening of the root vowel, indicating that the lengthening appears to have effect only in the first or second syllable, reminiscent of the restrictions on variable-length vowels. We will not be able to pursue this issue here.

(16)	$[mitx^"]_{\text{ROOT}}$	Non-derived Root
	$[\text{DUP-} [mitx^"] \text{ -}(y)a]$	Stem-level affixation
	$[\text{mitx}^" \cdot [\text{mitx}^"] \text{ -}(y)a]$	Stem-level Reduplication–Iterative Aspect
	$[\text{miitxmitxa}]_{\text{STEM}}$	Bracket Erasure
	$[\text{DUP-} [\text{miitxmitxa}]_{\text{STEM}}]$	Word-level affixation
	$[\text{mi-} [\text{miitxmitxa}]]$	Word-level reduplication–Distributive Plural
	$[\text{mimiitxmitx}]_{\text{WORD}}$	Bracket Erasure and Phonological rules

Thus, the possibility of double reduplications in Kyuquot still involves distinctions between stem-level and word-level morphology.

7.2 Ditidaht

Stonham (1994) notes that double reduplication also occurs in Ditidaht. When this occurs, it involves a mixture of stem-level reduplication with inflectional reduplication. Example (17) below illustrates the process.

(17)	kakaka <small>ʷ</small> adatax	'hunting killer whales here and there'
	DUP- kawad -atax	DISTRIB- killer whale -hunt ...[R]

Again, this example may be explained by means of a two-level morphology, where bracket erasure obscures the earlier reduplication, allowing the application of a further copy at word-level, as demonstrated in (18).

(18)	$[\text{kawad}]_{\text{ROOT}}$	Non-derived Root
	$[\text{DUP-} [\text{kawad}] \text{ -atax}]$	Stem-level affixation
	$[\text{ka-} [\text{kawad}] \text{ -atax}]$	Stem-level Reduplication–Iterative Aspect
	$[\text{kakawaʷadatax}]_{\text{STEM}}$	Bracket Erasure
	$[\text{DUP-} [\text{kakawaʷadatax}]_{\text{STEM}}]$	Word-level affixation
	$[\text{ka-} [\text{kakawaʷadatax}]]$	Word-level reduplication–Distributive Plural
	$[\text{kakakaʷadatax}]_{\text{WORD}}$	Bracket Erasure

An interesting complexity in this particular case is the fact that the free form of 'killer whale' is *kakawad*, with reduplication.⁹ Nevertheless, the form for 'hunt killer whale' does not trigger a further reduplication, attesting to the morphological complexity of the word.

(19)	kakaka <small>ʷ</small> adatax	'hunting killer whale'
	* kakaka <small>ʷ</small> adatax	

Thus, *kakawad*, a native construction, is seen as an inherently reduplicated form, preventing the further reduplication at stem level, even though a further reduplication at word level is still possible. Contrast this with the word

⁹ The morphemes involved are: *ka-* 'object protrudes' and *-wad* [R] 'at the middle', referring to the upright dorsal fin of the killer whale. The Nuuchahnulth equivalent is *kakawin*.

muusmus ‘cow’, an indirect borrowing, possibly from Cree *mustus* via Chinook Jargon. The word for ‘cow’ is not a native Nootkan form and as such is *opaque* as far as this apparent reduplication is concerned. Therefore, there appears to be double reduplication even though, in fact, there is only one.

- (20) muumuusmusatax ‘hunting cows’

(21)

$[\text{muusmus}]_{\text{ROOT}}$ $[\text{DUP- } [\text{muusmus}] \text{-atax}]$ $[\text{muu- } [\text{muusmus}] \text{-atax}]$ $[\text{muumuusmusatax}]_{\text{STEM}}$	Non-derived Root Stem-level affixation Stem-level Reduplication–Iterative Aspect Bracket Erasure
—	Word-level affixation Bracket Erasure
	$[\text{muumuusmusatax}]_{\text{WORD}}$

The question of what form the distributive of this word might take will have to remain for further research.

From the discussion above, we may conclude that Ditidaht permits double reduplication only in those instances where the copies appear as the result of processes occurring at different levels of the grammar.

7.3 Makah

Davidson (2003) provides a description and an example (22) of double reduplication in Makah, the southernmost variety of the family.

Plural reduplication can co-occur with reduplication induced by affix-associated CV templates producing doubly reduplicated words. ... The Makah word is reduplicated according to the requirements of -wat [LR] 'friend of ...' and re-reduplicated to indicate simple plural.

(Davidson 2002: 211-212)

Makah appears to behave just as Tsishaath, Kyuquot, and Ditidaht do with respect to double reduplications, requiring that one copy arises from a reduplication-triggering suffix at the stem level and that the other arises from a plural morpheme at the word level. Bracket Erasure eliminates any indication of the application of reduplication on the stem level, allowing for a further copy at the word level.

- | | | |
|------|---|--------------------------|
| (23) | $[?u]_{\text{ROOT}}$ | Non-derived Root |
| | $[\text{DUP- } [?u] \text{ -wat}] \text{ -'ida}$ | Stem-level affixation |
| | $[\text{Ruu- } [?u] \text{ -wat}] \text{ -'ida}$ | Stem-level Reduplication |
| | $[\text{Ru}u\text{?uwa}'ida]_{\text{STEM}}$ | Bracket Erasure |

[DUP- [ʔuuʔuwaʃida] _{STEM}]	Word-level affixation
[ʔu- [ʔuuʔuwaʃida]]	Word-level reduplication
[ʔuʔuuʔuwaʃida] _{WORD}	Bracket Erasure

Up to this point, all the varieties, from the most northerly Kyuquot to the most southerly Makah, appear to behave in more or less the same way with respect to double reduplications, distinguishing between stem level and word level morphological operations.

7.4 Ahousaht

Our final variety of SW for examination is Ahousaht, a Central variety. Kim (2003) observes that, in fact, none of the double reduplications discussed for Tsishaath or the other varieties are possible in Ahousaht and it would appear that there are no contexts where double reduplication is found to occur.

This presents an interesting contrast to the other SW varieties under discussion and must be accounted for. Note that the previous analyses all depended on a two-level grammar in order to explain the occurrence of two copies. One possibility with respect to the Ahousaht case is that, due to language change in progress, there has been a levelling of the grammar, resulting in a single stratum for all morphology. In addition to the absence of double reduplication, there appear to be other differences between Ahousaht and the other varieties of SW. For instance, the glottalisation of nasals, which is a property of stem-level morphology in both Kyuquot and Tsishaath, is at best lexicalised in Ahousaht. Furthermore, the bound vs. free root allomorph distinction, one of the arguments for stratal segregation proposed in Stonham (2003), appears to be absent or, at most, vestigial in Ahousaht (Kim 2003).

Similar cases of such levelling in other languages have been noted and this is highly suggestive.¹⁰ Bermúdez-Otero (in prep.) cites the case of Kaska, discussed by Kaisse (1993), in which a lexical rule of intervocalic /s/ deletion has expanded its domain, resulting in a much wider field of application. This is attributed to the movement of the rule to the word-level. Bermúdez-Otero & Hogg (2003) further observe that a similar movement has occurred in Old English and suggest that if, as a result of a historical change, a phonological process previously associated with a stem-level operation is lost altogether, either of two things will happen: (1) the morphological operation associated with it may become unproductive, with the constructions in which it appears becoming lexicalized or (2) it may be moved back into the word level, becoming fully regularised. This would appear to be the case in Ahousaht.¹¹

Obviously, more work is needed to determine whether such a monostral analysis of Ahousaht is consistent with the other tests for stratal member-

¹⁰ Thanks to Ricardo Bermúdez-Otero for pointing out this research.

¹¹ An alternative solution might be that there have been further restrictions imposed on the grammar of Ahousaht which conspire to eliminate the environments for double reduplications. One possibility is that bracket erasure only occurs at the end of the lexicon rather than at the end of each level, allowing the existence of the copy to be observed throughout the grammar. Theoretically, this seems rather less desirable.

ship, but given the geographically widespread nature of the level distinctions in SW, it seems reasonable to conclude that Ahousaht is the innovator in this case.

Alternatively, given the observations for Kyuquot made above, we might expect that there have been further restrictions imposed on the grammar of Ahousaht which conspire to eliminate the environments for double reduplications. One possibility is that bracket erasure only occurs at the end of the lexicon rather than at the end of each level, allowing the existence of the copy to be observed throughout the grammar.

7.5 Further Research

It should be quite clear from the above that a more detailed survey of other varieties of SW is called for so that we can determine the extent of double reduplication across the family. Questions of interactions of different reduplicative patterns, level distinctions, and the assignment of particular phenomena to specific strata all enter the picture, as does the question of whether or not a specific variety has more than one level.

At the same time, it is important to see how far the Ahousaht innovation, if this is the case, has spread and whether there are further consequences of the levelling of the grammar, both within Ahousaht and beyond.

8 Conclusions

While there appear to be possible dialectal exceptions to the presence of double reduplications in SW, for the majority of cases there is clear evidence attesting to their existence. The most straightforward explanation for the existence of the phenomenon is the separation of stem- and word-level morphological layers, with bracket erasure eliminating information about prior applications of copying. On the other hand, the most straightforward account of the *absence* of double reduplication is the loss of a stem/word level distinction, as suggested by the case of Ahousaht. In this latter case, it would appear that there has been a levelling of the grammar, resulting in the blocking of double reduplications.

Nonetheless, the overwhelming evidence is that this is the exception rather than the rule and that a stratal separation exists and accounts for the occurrence of double reduplication in most varieties of SW.

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