Multiple reduplication as non-segmental affixation: a case study from Lushootseed

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Workshop Replicative processes in language
One view at reduplication: the RED-morpheme
(McCarthy and Prince, 1993, 1995)

(1)

<table>
<thead>
<tr>
<th>RED - badu</th>
<th>Afx≤σ</th>
<th>NoCoda</th>
<th>Max-BR</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. badu-badu</td>
<td>⋆!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. bad-badu</td>
<td></td>
<td>⋆!</td>
<td>⋆</td>
</tr>
<tr>
<td>c. ba-badu</td>
<td></td>
<td></td>
<td>⋆</td>
</tr>
</tbody>
</table>
Another view at reduplication: non-segmental affixes  
(Saba Kirchner, 2007; Bermúdez-Otero, 2012; Bye and Svenonius, 2012)

(2)

<table>
<thead>
<tr>
<th>a.</th>
<th>b.</th>
<th>c.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

Copying of underlying material as one phonological strategy to fill otherwise empty affixal nodes with material  
(=Theory of Minimal Reduplication, Saba Kirchner, 2007, 2010)
reduplication is the consequence of non-segmental affixation:

- multiple reduplication in Lushootseed follows in such a purely phonological account vs. alternatives based on constraints specified for reduplicative morphemes
- the typology of multiple reduplication follows straightforwardly in a phonological HG account to reduplication
Double reduplication in Lushootseed
Double reduplication in Lushootseed

Lushootseed reduplication

Coast Salishan language

(Dryer and Haspelmath, 2013)

- empirical base is mainly Urbanczyk (2001), based on Bates et al. (1994)
- theoretical accounts in Broseloe (1983); Bates (1986); Urbanczyk (1999, 2001); Fitzpatrick and Nevins (2004); Fitzpatrick (2006), and Inkelas (to appear)
Distributive: /CVC/-reduplication

(3)

júbil ‘die, starve’  júbjubil ‘they are starving’  U:221

\(\text{gwēdīl} \) ‘sit down’  \(\text{gwdgwdīl} \) ‘sitting all about’  U:212

bēdāʔ ‘child’  bēdbēdāʔ ‘children’  U:209

pāstēd ‘white person’  paspastēd ‘many white folk’  U:215

s-tf’ást ‘branch’  s-tf’astf’ast ‘branches’  U:211

\(\text{tfēgwis} \) ‘wife’  \(\text{tfēgtfēgwis} \) ‘seeking a woman to marry’  U:211

\(\text{lm} \) marks plurals, repeated or frequent actions, and distributives

\(\text{lp} \) prefixed /CVC/-reduplicant
**Diminutive I: /CV/-reduplication**

(4)

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Reduplicated Form</th>
<th>Meaning</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>χáhəb</td>
<td>‘cry’</td>
<td>χάχαhəb</td>
<td>‘an infant crying’</td>
<td>U:205</td>
</tr>
<tr>
<td>s-túbə</td>
<td>‘man’</td>
<td>s-tútubə</td>
<td>‘boy’</td>
<td>U:204</td>
</tr>
<tr>
<td>júbil</td>
<td>‘die, starve’</td>
<td>jújəbil</td>
<td>‘small animal dies’</td>
<td>U:207</td>
</tr>
<tr>
<td>s-túlək</td>
<td>‘river’</td>
<td>s-tútələk</td>
<td>‘creek’</td>
<td>U:204</td>
</tr>
<tr>
<td>pástəd</td>
<td>‘white person’</td>
<td>pápståd</td>
<td>‘white child’</td>
<td>U:199</td>
</tr>
</tbody>
</table>

- prefixed /CV/-reduplicant with main stress
- often accompanied by weakening/deletion of the stem vowel
## Diminutive II: Fixed segmentism

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>a.</td>
<td>gʷəd-il</td>
<td>‘sit’</td>
</tr>
<tr>
<td></td>
<td>bədáʔ</td>
<td>‘child’</td>
</tr>
<tr>
<td></td>
<td>tələw-il</td>
<td>‘run’</td>
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<tr>
<td></td>
<td>tsəláts</td>
<td>‘five’</td>
</tr>
<tr>
<td>b.</td>
<td>tf”tl’aʔ</td>
<td>‘rock’</td>
</tr>
<tr>
<td></td>
<td>tf”say’</td>
<td>‘spear’</td>
</tr>
<tr>
<td></td>
<td>ts’kʷúsəd</td>
<td>‘walking stick’</td>
</tr>
<tr>
<td></td>
<td>qʷláyʔ</td>
<td>‘log’</td>
</tr>
</tbody>
</table>

◆ phonologically predictable allomorphy: /Ci/ instead of /CV/ for stems starting with /Cə/ or /CC/ (Bates, 1986)
**Distributive vs. Diminutives: Cluster**

(6) **Diminutive Reduplication for cluster-initial verbs**

\[
\begin{align*}
\text{tʃ’} \text{say’} & \quad \text{‘spear’} & \text{tʃ’} \text{itʃ’} \text{say’} & \quad \text{‘toy spear’} & \quad \text{U1:194} \\
\text{ts’k} \text{w} \text{úsed} & \quad \text{‘walking stick’} & \text{ts’its’k} \text{w} \text{úsed} & \quad \text{‘little walking stick’} & \quad \text{U1:193}
\end{align*}
\]

*only the initial /C/ is copied: */tʃsi-tʃ’say’/

(7) **Distributive Reduplication for cluster-initial verbs**

\[
\begin{align*}
\text{q} \text{w} \text{ℓ} \text{áy’} & \quad \text{‘log’} & \text{q} \text{w} \text{ℓ} \text{q} \text{w} \text{ℓ} \text{áy’} & \quad \text{‘logs’} & \quad \text{U1:217} \\
\text{tʃ’tl’á’} & \quad \text{‘rock’} & \text{tʃ’tl’tʃ’tl’á’} & \quad \text{‘rocks scattered about’} & \quad \text{U1:211}
\end{align*}
\]

*both initial /C/’s are copied: *q\text{w}ℓ\text{ay}-q\text{w}ℓ\text{ay’}
### Summary of the empirical facts so far

**Diminutive**

- prefixed CV-reduplicant
- /Ci/ if base is #CC or #Cə
- only the initial C is copied in #CC-contexts (+/i/)

**Distributive**

- prefixed CVC-reduplicant
- initial CC but no V is copied in #CC-contexts
Multiple Reduplication: \textbf{DIM} \gg \textbf{DIST}

\begin{itemize}
\item \textbf{CV} – CVC – stem
\item \textbf{Ci} – CVC – stem
\end{itemize}

(8)

\begin{tabular}{llll}
\textbf{bədáʔ} & ‘child’ & \textbf{bíbədbədaʔ} & ‘dolls, litter’ \\
\textbf{s- }qʷəbáy & ‘dog’ & \textbf{qʷi}qʷəbqʷəbáyʔ-\textit{cut} & ‘make self (sound) like a dog’ \\
\textbf{ləx} & ‘light’ & \textbf{líləxləx- }\textit{jad} & ‘flashlight’ \\
\end{tabular}

\textit{(lit: ‘little flashing light’)}
Multiple Reduplication: \textsc{Dist} \gg \textsc{Dim}

(9)

\begin{tabular}{llll}
\text{bødáʔ} & ‘child’ & \text{bíbibødáʔ} & ‘small children’ \quad U:225 \\
\text{pástəʔ} & ‘white person’ & \text{pápapstəʔ} & ‘many white children’ \quad U:U226 \\
\text{tf’tl’aʔ} & ‘rock’ & \text{tf’tf’ tf’tl’aʔ} & ‘gravel’ \quad U:U226 \\
\text{ləg wəb} & ‘youth’ & \text{lilil’g wəb} & ‘little fellows’ \quad U:U226 \\
\text{píspis} & ‘cat’ & \text{pípip ispis} & ‘kittens’ \quad U:226 \\
\text{g̊ədil} & ‘sit’ & \text{g̊’ig’ig’ədil} & ‘children sitting’ \quad B8:326 \\
\end{tabular}

\textbf{CV – CV – stem} \\
\textbf{Ci – Ci – stem}
Multiple Reduplication: Dist \gg \textbf{Dim}

\begin{align*}
\text{CV} & \ - \ \text{CV} \ - \ \text{stem} \\
\text{Ci} & \ - \ \text{Ci} \ - \ \text{stem} \\
\text{bi} & \ - \ \text{bi} \ - \ \b\text{da}? \\
\end{align*}

vs. \textit{distributive reduplicants in all other contexts}:

1. Why is the distributive only /CV/, not /CVC/?
   
   */\text{bid}-\text{bi}-\text{b}\text{eda}?/ \text{ or */bib}-\text{bi}-\text{b}\text{eda}?/

2. Why is the vowel in the distributive /i/?
   
   */\text{b}\text{e}-\text{bi}-\text{b}\text{eda}?/
2. Why is the vowel in the distributive /i/?

→ The distributive ‘sees’ adjacent (copied) morphemes as its base? (Broselow, 1983)

→ Claim here: /i/ is phonologically expected for coda-less copied σ
1. Why is the distributive only /CV/, not /CVC/?

→ Each reduplicative affix = one cycle; reduplication copies only phonemic material uniquely contained in the cycle adjacent to the affix (Broselow, 1983)

→ Claim here: there is no need to copy a coda, only a following C: and this is indeed present
Summary of the empirical facts

**Diminutive**
- prefixed CV-reduplicant
- /Ci/ if base is #CC or #Cə
- only the initial C is copied in #CC-contexts (+/i/)
- cooccur in both orders: **DIST)**DIM and **DIM)**DIST

**Distributive**
- prefixed CVC-reduplicant
- initial CC but no V is copied in #CC-contexts
- /CV/ if directly followed by a diminutive and /Ci/ if directly followed by a diminutive /Ci/
Harmonic Grammar

- constraints are weighted, not ranked (Smolensky and Legendre, 2006; Legendre et al., 1990)
- predicts gang-effects
  (e.g. violating less important Cons2+Cons3 is worse than only violating more important Cons1)

(10)

<table>
<thead>
<tr>
<th>W=</th>
<th>Cons1</th>
<th>Cons2</th>
<th>Cons3</th>
<th>H=</th>
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<tr>
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<td>d.</td>
<td>Cand4</td>
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</table>

(Weights in all following tableaux are tested with OTHelp (Staubs et al., 2010))
Basic mechanism: Fission to fill non-segmental affixes

(11) \textbf{INTS}
Assign a violation for every segment in the input that corresponds to more than one output segment.

\textbf{LIN S}
Assign a violation for every pair of output segments $O_1$ and $O_2$ that correspond to input segments $I_1$ and $I_2$ iff $O_2$ precedes $O_1$ but $I_2$ follows $I_1$.

\textbf{HAVE S}
Assign $\ast$ for every $\mu$ dominating no segment.

(12)

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<th>$d_3$</th>
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<td>$\mu$</td>
<td>$\mu$</td>
<td>$b_1$</td>
<td>$a_2$</td>
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</tbody>
</table>
Basic mechanism: Underspecified root nodes and feature fission

(13) a. Affixation of a radically underspecified segment (McCarthy, 1988)

\[
\begin{align*}
&[\text{Cor}_1] \downarrow [-\text{cnt}_1] \quad [\text{Dor}_2] \downarrow [+\text{cnt}_2] \quad [\text{Lab}_3] \downarrow [-\text{cnt}_3] \quad [\text{Cor}_4] \downarrow [+\text{cnt}_4] \\
&[\text{-cns}_5] + [\text{-sn}_1] \quad [+\text{cns}_1] \quad [\text{-cns}_2] \quad [\text{+cns}_3] \quad [\text{-cns}_4] \quad [\text{+cns}_4] \\
&\text{t} \quad \text{u} \quad \text{b} \quad \text{s}
\end{align*}
\]

b. Featural fission to provide missing features

\[
\begin{align*}
&[\text{Dor}_2] \downarrow [+\text{cnt}_2] \quad [\text{Cor}_1] \downarrow [-\text{cnt}_1] \quad [\text{Dor}_2] \downarrow [+\text{cnt}_2] \quad [\text{Lab}_3] \downarrow [-\text{cnt}_3] \quad [\text{Cor}_4] \downarrow [+\text{cnt}_4] \\
&[\text{+sn}_2] \quad [\text{-sn}_1] \quad [+\text{cns}_1] \quad [\text{-cns}_2] \quad [\text{+cns}_3] \quad [\text{-cns}_4] \quad [\text{+cns}_4] \\
&\text{u} \quad \text{t} \quad \text{u} \quad \text{b} \quad \text{s}
\end{align*}
\]

(14) Abbreviated:

\[
\begin{align*}
\text{V} + \text{C} & \quad \text{V} \quad \text{C} \quad \text{V} \quad \text{C} \quad \text{C} \quad \text{C} \quad \text{V} \quad \text{C} \quad \text{V} \quad \text{C} \quad \text{C} \quad \text{V} \quad \text{C} \quad \text{V} \quad \text{C} \quad \text{V} \quad \text{C} \quad \text{C} \quad \text{C}
\end{align*}
\]
Representations for the copying-triggering morphemes

(15) $\text{DIM} \leftrightarrow \text{v}$

(16) $\text{DIST} \leftrightarrow \text{©} \text{©}$
Basic constraints

(17)  

a. MAX[cns]
Assign a violation for every [±cons] feature in the input without an output correspondent.

b. HAV[so]
Assign a violation for every segment without a specification for [±son].

c. DEP[so]
Assign a violation for every [±son] feature in the output without an input correspondent.

d. INT[so]
Assign a violation for every [±son] feature in the input that corresponds to more than one output correspondent.

e. LIN[so]
Assign a violation for every pair of output features [±son] O₁ and O₂ that correspond to input features [±son] I₁ and I₂ iff O₂ precedes O₁ but I₂ follows I₁.

((17-b-e): placeholders for numerous constraints on all feature dimensions but [±cons])
## Simple **DIMINUTIVE** reduplication

(18)

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<tr>
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<td>C</td>
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<td>C</td>
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<table>
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### Simple Distributive reduplication I

(19)

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<td>d₃</td>
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<td>ϵ₂</td>
<td>d₃</td>
<td>a₄</td>
<td>?₅</td>
<td></td>
<td></td>
<td></td>
<td>-3</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>10</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Morph-contiguous copying

- morpheme contiguity constraint (20) (Landman, 2002)
- contra Struijke (2000): *not* existential but demands CONTIGUITY for every single output instance

→ prefers full morpheme copying

(20) $\text{MCNT}$

Given two output elements $O_1$ and $O_2$ corresponding to input elements $I_1$ and $I_2$ that belong to the same morpheme and $I_1$ directly precedes $I_2$: Assign * for every $O_1$ that is not directly followed by $O_2$ and for every $O_2$ that is not directly preceded by $O_1$. 
## Simple **Distributive** reduplication II

- /\textit{V}/ between two copied /\textit{C}/’s copied as well to avoid \textit{MCnt}-violations
- whole morpheme copying avoids all \textit{MCnt}-violations but induces too many \textit{LIN[so]} and \textit{INT[so]}-violations

(21)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>[b_1 ; \varnothing_2 ; d_3 ; a_4 ; ?_5]</th>
<th>\textit{MCnt}</th>
<th>\textit{Dep} [\textit{so}]</th>
<th>\textit{Lin} [\textit{so}]</th>
<th>\textit{Int} [\textit{so}]</th>
<th>\textit{H}=</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="emoji" alt="" /></td>
<td></td>
<td>[c ; c] + [c ; v] [c ; v] [c ; v] [c]</td>
<td>13</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>---</td>
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<tr>
<td>d.</td>
<td></td>
<td>[b_1 ; \varnothing_2 ; d_3 ; b_1 ; \varnothing_2 ; d_3 ; a_4 ; ?_5]</td>
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<td></td>
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<tr>
<td>e.</td>
<td></td>
<td>[b_1 ; d_3 ; b_1 ; \varnothing_2 ; d_3 ; a_4 ; ?_5]</td>
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<td>-2</td>
<td>-2</td>
<td>-49</td>
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<tr>
<td>f.</td>
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<td>[b_1 ; \varnothing_2 ; d_3 ; a_4 ; ?_5 ; b_1 ; \varnothing_2 ; d_3 ; a_4 ; ?_5]</td>
<td>-10</td>
<td>-5</td>
<td>-45</td>
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<td></td>
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</tbody>
</table>
Asymmetry 1: /CV/ vs. /Ci/ in the **Diminutive**

- the /i/ is analysed as default segmentism to avoid:
  - a marked syllable containing only a /ə/ and no coda (22)
  - a non-local copy across a consonant cluster (s.below)

(Urbanczyk, 2001)

(22) *PLσμ

Assign a violation mark for every μ that only dominates placeless segments.
(similar to *Pl-lessσ (Kurisu, 2001; Urbanczyk, 1998))

implies: all rhyme elements are dominated by a μ (=shared μ’s, (Hayes, 1989; Sprouse, 1996; Bermúdez-Otero, 2001)) and glottal segments are place-less
Asymmetry 1: Default segmentism in the **DIMINUTIVE** for #Cə

(23)

<table>
<thead>
<tr>
<th></th>
<th>b₁</th>
<th>ə₂</th>
<th>d₃</th>
<th>a₄</th>
<th>ʔ₅</th>
<th>MCNT</th>
<th>*PLsµ</th>
<th>Dep [so]</th>
<th>Int [so]</th>
<th>H=</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>-2</td>
<td>-2</td>
<td>-1</td>
<td>-35</td>
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<tr>
<td>b</td>
<td></td>
<td>i</td>
<td></td>
<td></td>
<td></td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-34</td>
</tr>
</tbody>
</table>

(No repair for underlying place-less rhymes: higher-ranked faithfulness constraints against insertion of place for underlying segments)
Asymmetry 1: No default segmentism in the **Distributive**

(24)

<table>
<thead>
<tr>
<th></th>
<th>MCNT</th>
<th>*PLsμ</th>
<th>Dep</th>
<th>Int</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
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<td>-1</td>
<td>-3</td>
<td>-2</td>
<td>-61</td>
</tr>
</tbody>
</table>

- realization of /i/ results in a discontiguous copy violating MCNT
- in fact: there is no need to avoid a copied /ə/ since *PLsμ is never violated if a non-glottal coda is copied as well
Asymmetry 2: Default segmentism in the Dim for #CC

(25)

<table>
<thead>
<tr>
<th></th>
<th>MCnt</th>
<th>Dep</th>
<th>Lin</th>
<th>Int</th>
<th>H=</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>+</td>
<td>q₁</td>
<td>q₂</td>
<td>a₃</td>
<td>y₄</td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td>q₁</td>
<td>q₂</td>
<td>a₃</td>
<td>q₁</td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td>q₁</td>
<td>a₃</td>
<td>q₁</td>
<td>q₂</td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td>q₁</td>
<td>i</td>
<td>q₁</td>
<td>q₂</td>
</tr>
</tbody>
</table>

/i/ insertion since vowel copying results in a discontiguous copy:
→ a gang effect: Lin[so] and Int[so] together against Dep[so]
Asymmetry 2: Cluster copying in \textbf{DIST}

(26)

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|}
\hline
\text{MCNT} & \text{Dep} & \text{Lin} & \text{Int} & \text{H} \\
\hline
13 & 10 & 4 & 1 & -19 \\
\hline
-1 & -1 & -1 & -2 & -29 \\
\hline
-1 & -3 & -3 & -3 & -28 \\
\hline
-3 & -1 & -1 & -2 & -55 \\
\hline
\end{tabular}
\end{table}

\begin{itemize}
\item no V position needs to be filled to begin with: two C’s can be copied without creating a discontiguous copy
\end{itemize}
Analysis: Interim summary

**Diminutive**

- Fission of a V to fill [V] and of a C to create an onset (cf. Bates and Carlson (1998) on Spokane)
- /i/-epenthesis to avoid an open /ɔ/-σ
- /i/-epenthesis to avoid a discontiguous copy for #CC-bases

**Diminutive**

- Fission of C’s to fill [C]’s and of intervening V to avoid a discontiguous copy
- no /i/-epenthesis: no *PLs-μ-violation if coda-copying
- no /i/-epenthesis: two initial C’s copied without creating a discontiguous copy
## Multiple reduplication: \( \text{DIM} \gg \text{DIST} \)

(27)

<table>
<thead>
<tr>
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<th>a.</th>
<th>b.</th>
<th>c.</th>
<th>d.</th>
<th>e.</th>
</tr>
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<td>( b_1 ) ( \varphi_2 ) ( b_1 ) ( d_3 ) ( b_1 ) ( \varphi_2 ) ( d_3 ) ( a_4 ) ( ?_5 )</td>
<td>( b_1 ) ( \varphi_2 ) ( b_1 ) ( b_1 ) ( \varphi_2 ) ( d_3 ) ( a_4 ) ( ?_5 )</td>
<td>( b_1 ) ( \varphi_2 ) ( b_1 ) ( \varphi_2 ) ( d_3 ) ( a_4 ) ( ?_5 )</td>
<td>( b_1 ) ( i ) ( b_1 ) ( \varphi_2 ) ( d_3 ) ( b_1 ) ( \varphi_2 ) ( d_3 ) ( a_4 ) ( ?_5 )</td>
<td>( b_1 ) ( i ) ( b_1 ) ( i ) ( d_3 ) ( b_1 ) ( \varphi_2 ) ( d_3 ) ( a_4 ) ( ?_5 )</td>
</tr>
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<td></td>
<td>( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{C} )</td>
<td>( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{C} ) ( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{V} ) ( \text{C} )</td>
<td>( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{C} ) ( \text{C} ) ( \text{C} )</td>
<td>( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{C} ) ( \text{C} ) ( \text{C} )</td>
<td>( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{C} ) ( \text{V} ) ( \text{C} ) ( \text{C} ) ( \text{C} ) ( \text{C} )</td>
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<td>( \text{D}_{\text{EP}} ) 10</td>
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<td>( \text{D}_{\text{EP}} ) 10</td>
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<td></td>
<td>( \text{L}_{\text{IN}} ) 10</td>
<td>( \text{L}_{\text{IN}} ) 10</td>
<td>( \text{L}_{\text{IN}} ) 10</td>
<td>( \text{L}_{\text{IN}} ) 10</td>
<td>( \text{L}_{\text{IN}} ) 10</td>
</tr>
<tr>
<td>H=</td>
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<td>-2</td>
<td>-3</td>
<td>-2</td>
</tr>
<tr>
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<td>-2</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>-4</td>
<td>-3</td>
<td>-5</td>
<td>-3</td>
<td>-2</td>
</tr>
<tr>
<td></td>
<td>-81</td>
<td>-63</td>
<td>-69</td>
<td>-61</td>
<td>-92</td>
</tr>
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</table>
Multiple reduplication: **DIST** >> **DIM**

(28)

<table>
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<tr>
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<th>b₁</th>
<th>俸₂</th>
<th>d₃</th>
<th>a₄</th>
<th>?₅</th>
<th>MCNT</th>
<th>*PLs₁</th>
<th>Dep</th>
<th>Lin</th>
<th>Int</th>
<th>H=</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>b₁</td>
<td>俸₂</td>
<td>d₃</td>
<td>俸₂</td>
<td>d₃</td>
<td>a₄</td>
<td>-5</td>
<td>-2</td>
<td>-4</td>
<td>-3</td>
<td>-104</td>
</tr>
<tr>
<td>b</td>
<td>俸₂</td>
<td>d₃</td>
<td>俸₂</td>
<td>b₁</td>
<td>俸₂</td>
<td>d₃</td>
<td>a₄</td>
<td>-3</td>
<td>-5</td>
<td>-3</td>
<td>-92</td>
</tr>
<tr>
<td>c</td>
<td>b₁</td>
<td>俸₂</td>
<td>i</td>
<td>d₃</td>
<td>i</td>
<td>b₁</td>
<td>俸₂</td>
<td>d₃</td>
<td>a₄</td>
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<td>b₁</td>
<td>i</td>
<td>b₁</td>
<td>i</td>
<td>b₁</td>
<td>俸₂</td>
<td>d₃</td>
<td>a₄</td>
<td>-2</td>
<td>-1</td>
<td>-57</td>
</tr>
</tbody>
</table>
**Dist ≫ Dim: Analysis**

*Why is the distributive only /CV/, not /CVC/? (*/*bib-bi-bədaʔ*/*)*

1. the second ɔ of the distributive morpheme already provides an onset for the ʊ diminutive morpheme

→ *not absence of expected coda-copying but absence of phonologically predictable onset copying*

*Why is the vowel in the distributive /i/? (*/*bə-bi-bədaʔ*/*)*

2. since the distributive is coda-less, epenthetic-/i/ avoids a µ only dominating place-less segments

→ *not copying of the adjacent /i/ in the diminutive but phonologically predictable epenthesis*
An alternative account to Lushootseed: RED

Urbanczyk (1999, 2001)

- different RED-morphemes, each with its own correspondence relation
  \((\text{MAX-DIST} \gg \text{NoCODA} \gg \text{MAX-DIM})\)
- ‘a matter of some delicacy to determine what portion of the output functions as the base for each morpheme’ (Urbanczyk, 1999, 518)

\(\Rightarrow\) the base is the string that is adjacent in the output

```
1 2 1 2 3 4 5 6 7
b i b i b o d a ?
 a a b c d e
```

```
A typology of multiple reduplication
No multiple reduplication in Nuuchahnulth

- two reduplication-triggering affixes in (29) =a single reduplicant (=a superset of all the effects demanded by the affixes, cf. D.Pulleyblank (yesterday) on the complex pattern!)

(29) a. tl’uk-an’uł-apa (Stonham, 2007, 120+121)
   broad-at.leg[R+L]-really[RL+L]
   ‘his legs are really big’
   tl’u:tl’u:kʷan’ułap

   b. m’a:`as-apa
   cold-at.the.wrist[RL]-really[RL+L]
   ‘he has really cold wrists’
   m’a:m’a:`asap

- multiple reduplication is avoided if both reduplication-triggering morphemes belong to the same level in various Southern Wakashan varieties (Stonham, 1994, 2004, 2007; Kim, 2003b,a)
(No) multiple reduplication in Ethio-Semitic (Rose, 1997)

Multiple reduplication:
- reduplication to fill consonantal templates
- frequentative is a reduplicative infix (cf. H.Sande yesterday!)

Tigrinya
= multiple reduplication to allow filling a template and expressing every morpheme

Chaha
= only multiple reduplication if it helps satisfying the template

Amharic
= no multiple reduplication
foot-based reduplication in Manam: *salaga-laga
if final two syllables of base are identical, reduplication is partial:
ragogo-go, *ragogo-gogo
analysis in Buckley (1997): RED is part of the lexical entry of those words and multiple reduplication is avoided
Absence of multiple reduplication under a RED-based account I

*RedRed, *DupDup

- ‘multiple copies are disallowed’ (Stonham, 2004, 172); ‘against multiple copies’ (Stonham, 2007, 127)

→ Identification of multiple copies requires reference to the morphological (input) structure
Absence of multiple reduplication under a RED-based account II

Unified indexation and BR-INTEGRITY

- in the presence of multiple RED-morphemes, only one instance of BR-indexes is present: BR-INTEGRITY penalizes segments with multiple BR-correspondents (Buckley, 1997; Rose, 1997)

1 2 1 1 2 3 4 5
b i b i b d a ?

How are different reduplicative morphemes distinguished? To, for example, determine their different shape?

To account for languages with/without multiple reduplication requires an additional MORPHEXPRESSION – but isn’t realization of a RED-morpheme already ensured by FAITH-BR?
A typology of multiple reduplication

The proposed system and multiple reduplication

A *base and two reduplication-triggering affixes:*

(30)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>MCnt</th>
<th>LinS</th>
<th>IntS</th>
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<td>μ</td>
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<tr>
<td>b.</td>
<td>μ</td>
<td>μ</td>
<td>μ</td>
<td>μ</td>
<td>b₁ a₂ b₁ a₂ d₃ u₄</td>
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The proposed system and multiple reduplication

Possible grammars:

(31)

Simple Reduplication and …

<p>| | | | | |</p>
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<tr>
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<td>μ</td>
<td>μ</td>
<td>μ</td>
</tr>
<tr>
<td>b₁</td>
<td>a₂</td>
<td>b₁</td>
<td>a₂</td>
<td>d₃</td>
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L1. No multiple reduplication

<p>| | | | | |</p>
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<tbody>
<tr>
<td>μ</td>
<td>μ</td>
<td>μ</td>
<td>μ</td>
<td>μ</td>
</tr>
<tr>
<td>b₁</td>
<td>a₂</td>
<td>b₁</td>
<td>a₂</td>
<td>d₃</td>
</tr>
<tr>
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<td>LinS</td>
<td>IntS</td>
<td>MCnt</td>
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<td>4</td>
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</table>

L2. Multiple Reduplication

<p>| | | | | |</p>
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<td>μ</td>
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<td>μ</td>
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<tr>
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<td>a₂</td>
<td>b₁</td>
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<td>IntS</td>
<td>MCnt</td>
<td>LinS</td>
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</table>
Conclusion
a phonological account based on **non-linear affixation and fission** to fill empty positions predicts the complex pattern of multiple reduplication in Lushootseed

→ no abstract RED-morpheme, morpheme-specific shape-requirements or different cycles are necessary

→ HG grammar correctly predicts ‘typology’ of (non)multiple reduplication as ‘threshold’ effects: **simple reduplication still surfaces but multiple reduplication is avoided** (=too many INTEG-violations)
References


Kim, Eun-Sook (2003b), Theoretical issues in Nuu-chah-nulth phonology and morphology (British Columbia), UMI, Ann Arbor, MI.


Saba Kirchner, Jesse (2010), Minimal Reduplication, PhD thesis, University of California at Santa Cruz. ROA 1078-0610.
Staubs, Robert, Michael Becker, Christopher Potts, Patrick Pratt, John McCarthy and Joe Pater (2010), ‘OT-Help 2.0. software package.’, Amherst, MA: University of Massachusetts.