One is ok but two is too much: Avoidance of multiple reduplication

Eva Zimmermann
Leipzig University
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Frankfurt
‘Markedness: Perspectives in Morphology and Phonology’
Avoidance of multiple reduplication

 Phonological markedness?
 Too much material?, Too much identical material? …

 Morphological markedness?
 Too much marked exponence type? …
the avoidance of multiple reduplication is the avoidance of too many unfaithful phonological repair operations possible in a purely phonological account to reduplication based on the affixation of empty prosodic nodes argument against employing a concept of ‘marked exponentence’ type or alternatives based on phonological markedness that have problems predicting the ‘typology’ of multiple reduplication

- surfacing of multiple reduplicants
- avoidance of multiple reduplicants
- the superset effect of the surviving reduplicant
- (partial) blocking of reduplication for pseudoreduplicated stems
1. A typology of multiple reduplication

2. A PA account of multiple reduplication
   2.1 Background: Prosodic Affixation
   2.2 Avoidance of multiple reduplicants: PA account
   2.3 The superset effect: PA account
   2.4 Pseudoreduplicated stems: PA account
   2.5 Summary of the PA account

3. Alternatives based on markedness
   3.1 Morphological Markedness
   3.2 Phonological Markedness

4. Summary and conclusion
A typology of multiple reduplication
Multiple reduplication

- the presence of two different reduplicative morphemes in one word
- not the repetition of one reduplicative morpheme as, for example, reinforcement of continuity in (1)

(1) Pingelapese continuity (*Rehg, 1981, 11*)

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>pei</td>
<td>‘float’</td>
</tr>
<tr>
<td>pei∼pei</td>
<td>‘floating’</td>
</tr>
<tr>
<td>pei∼pei∼pei</td>
<td>‘still floating’</td>
</tr>
<tr>
<td>pa</td>
<td>‘weave’</td>
</tr>
<tr>
<td>pah∼pa</td>
<td>‘weaving’</td>
</tr>
<tr>
<td>pah∼pah∼pa</td>
<td>‘still weaving’</td>
</tr>
<tr>
<td>meir</td>
<td>‘sleep’</td>
</tr>
<tr>
<td>mei∼meir</td>
<td>‘sleeping’</td>
</tr>
<tr>
<td>mei∼mei∼meir</td>
<td>‘still sleeping’</td>
</tr>
</tbody>
</table>
(2) **Multiple reduplication in Thompson (Shaw, 2005, 162)**

a. sí ∼ sil’

\underline{Dim}-calico

‘a little piece of calico’

b. sil ∼ síl

\underline{Distr}-calico

‘patches of calico’

c. sil ∼ sí ∼ sil’

\underline{Dim-Distr}-calico

‘small patches of calico’
Multiple reduplication

Lillooet employs full reduplication (3-a) (+predictable vowel reduction in non-stressed position) and infixing C-reduplication (3-b); both can cooccur (3-c)

(3) Multiple reduplication in Lillooet (van Eijk, 1997, 56+57)

a. a. s- yap  
   ‘tree’
   s- yap~yap  
   ‘trees’

b. pálaʔ  
   ‘person’
   p~p~laʔ  
   ‘one person’

c. ciqʷ  
   ‘red’
   c̥kʷ~c̥c~c~kʷ  
   ‘little red ones’
Multiple reduplication

Monosyllabic prefixing reduplication /Ca:-/ (except base starts with /e/, then /Ce:-/) and bisyllabic prefixing reduplication can co-occur (5)

(4) *Reduplication in Fox* (*Dahlstrom, 1997, 206*)

<table>
<thead>
<tr>
<th>CONTINUATIVE</th>
<th>ITERATIVE</th>
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<tr>
<td>nowi:-wa</td>
<td>‘he goes out’</td>
</tr>
<tr>
<td>wa:pam-e:wa</td>
<td>‘he looks at him’</td>
</tr>
<tr>
<td>nepe:-wa</td>
<td>‘he sleeps’</td>
</tr>
</tbody>
</table>

(5) *Multiple Reduplication* (*Dahlstrom, 1997, 207+218*)

wa:wi:~wa:~wi:tamaw-e:wa ‘he keeps telling him over and over’
nenje:~nje:~nje:maso-wa ‘he keeps standing’
## Multiple reduplication: Examples

<table>
<thead>
<tr>
<th>Language</th>
<th>Family</th>
<th>Subfamily</th>
<th>Reference</th>
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</thead>
<tbody>
<tr>
<td><strong>Fox</strong></td>
<td>Algic</td>
<td>Algonquian</td>
<td>(Dahlstrom, 1997)</td>
</tr>
<tr>
<td><strong>Sikaiana</strong></td>
<td>Austronesian</td>
<td>Malayo-Polynesian</td>
<td>(Donner, 2012)</td>
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<td><strong>Tagalog</strong></td>
<td>Austronesian</td>
<td>Malayo-Polynesian</td>
<td>(Blake, 1917)</td>
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<td><strong>Papapana</strong></td>
<td>Austronesian</td>
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<td>(Smith, 2016)</td>
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<tr>
<td><strong>Klamath</strong></td>
<td>Klamath-Modoc</td>
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<td>(Barker, 1964; Zoll, 2002)</td>
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<td><strong>Colville</strong></td>
<td>Salishan</td>
<td>Interior Salish</td>
<td>(Andersen, 1996)</td>
</tr>
<tr>
<td><strong>Lillooet</strong></td>
<td>Salishan</td>
<td>Interior Salish</td>
<td>(van Eijk, 1997)</td>
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<td><strong>Shuswap</strong></td>
<td>Salishan</td>
<td>Interior Salish</td>
<td>(Kuipers, 1974)</td>
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<td><strong>Spokane</strong></td>
<td>Salishan</td>
<td>Interior Salish</td>
<td>(Bates and Carlson, 1998)</td>
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<td><strong>Thompson</strong></td>
<td>Salishan</td>
<td>Interior Salish</td>
<td>(Thompson and Thompson, 1992)</td>
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<tr>
<td><strong>Lushootseed</strong></td>
<td>Salishan</td>
<td>Central Salish</td>
<td>(Urbanczyk, 2001)</td>
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<tr>
<td><strong>Sliammon</strong></td>
<td>Salishan</td>
<td>Central Salish</td>
<td>(Watanabe, 1994)</td>
</tr>
<tr>
<td><strong>Kyuquot</strong></td>
<td>Wakashan</td>
<td>S. Wakashan</td>
<td>(Rose, 1981)</td>
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<tr>
<td><strong>Makah</strong></td>
<td>Wakashan</td>
<td>S. Wakashan</td>
<td>(Davidson, 2002)</td>
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<tr>
<td><strong>Ditidaht</strong></td>
<td>Wakashan</td>
<td>S. Wakashan</td>
<td>(Stonham, 1994)</td>
</tr>
<tr>
<td><strong>Tsishaath</strong></td>
<td>Wakashan</td>
<td>S. Wakashan</td>
<td>(Stonham, 2004)</td>
</tr>
</tbody>
</table>

(*Both avoidance and surfacing of multiple reduplicants: inflection vs. derivation*)
The avoidance of multiple reduplicants

The focus are patterns of multiple reduplication where more than one reduplicative morpheme is present but only one reduplicant surfaces:

1. Avoidance of multiple reduplicants
2. The shape of the one surviving reduplicant
3. The effect of pseudoreduceduplicated stems
A typology of multiple reduplication

Ahousaht (Southern Wakashan) (Kim, 2003a,b, 2008)

Some meanings are expressed by reduplication alone (6-a), e.g. PL
many suffixes trigger prefixing reduplication (=underlined) (6-b)

(6) a. maḥtiː ‘house’
    ma̱̱maḥtiː ‘houses’ (PL-maḥtiː)
    naʔa ‘to hear’
    na̱̱naʔa ‘to understand’ (DER-naʔa)

b. mi̱̱mi̱̱k’uk?icuːʃ
    mi̱̱k’uk?-iʃuːʃ
    same-to.resemble-2PL.IND
    ‘both of you look alike’

(Kim, 2003b, 136+138)
two reduplicative morphemes in a word = **a single reduplicant**

(7) a. \(na \sim na?ak’uk?iʃ\)  
\(/_DÆR-/na?a-k’uk-?iʃ\)  
\(/DÆR-/to.hear-to.resemble-3Sg.IND\)  
‘s/he seems to be knowledgeable’

b. \(t’u \sim t’uc’iːh\)  
\(/_PΛ-/t’uc’(up)-?iːh\)  
\(/PΛ-/sea.urchin-to.gather/fish\)  
‘gathering more than one sea urchin’

(Kim, 2003b, 138)
A typology of multiple reduplication

Kyuquot/Tsishaath (Southern Wakashan) (Rose, 1981; Stonham, 2004)

two reduplicative morphemes in a word = a single reduplicant (8-b)

(8)

a. tłuk-’as  tłu:~tłuk’w as
   mitx w-ʃi(tł)-apa  mi:~mi:tʃiʃtłap
   ʔu-hw’ał-apa  ʔu:~ʔu:hw’ałap
   ‘He has wide wrists’
   ‘He turned too much’
   ‘He used it too much’

b. m’ał-’as-apa  m’a:~m’a:ʃ?asap
   tł’uk-a:ʃn’uł-apa  tł’u:~tł’u:k’w an’łap
   mitx w-’as-st’ał  mi:~mi:tʃw’isst’ał
   ‘He has really cold wrists’
   ‘His legs are really big’
   ‘He has really itchy eyes’
   ‘They were twisting each others wrists’

(Rose, 1981)
Southern Wakashan: The superset effect for the survivor

- different shapes for the reduplicants:
  - V of reduplicant is long (RL)
  - V of stem is long (R+L)
  - fixed segment in the reduplicant (RC)
  - maximal initial syllable copied (Max)
  - ...

(9) Kyuoqot reduplication

satʃ'k-'imɬ sa~satʃ'k'imɬ ‘His ears are pointed’
ṭluk-'as tɬuː~tɬukˈwəs ‘He has wide wrists’
mitxʷ-ʃi(tɬ)-apa miː~miːtxʃiɬap ‘He turned too much’

(Rose, 1981)

(10) Tsishaath reduplication

PL-m’inuːq-’aqtɬ m’it~m’inuʃaqtɬ ‘the disease-throwers’
ʃi’mh-ʃ j’imh~ʃi’mhʃ ‘he became embarrassed every now and then’

(Stonham, 2004)
A typology of multiple reduplication

Southern Wakashan: The superset effect for the survivor

‘the effects on the final form are those that are required by all the triggers, with the proviso that only a single copy occurs’ (Stonham, 2004, 137)

multiple reduplicant avoidance = surfacing reduplicant has the maximal shape that combines the shape requirements of both reduplicative morphemes

(11)

a. tļ’uk-a:n’uɬ-apə R+L & RL+L tļ’uː-tļ’uːkʷan’ɬap RL+L
b. m’aɬ-’as-apa RL & RL+L m’aː-m’aːɬʔasap RL+L
c. pumaɬ-suɬ-apa Rc+L & RL+L puːc-puːmaɬ-suɬ-ap RLc+L
d. hin-’as-tʃ’ap-ajuk RL & R hiː~hinʔastʃpajk RL

(Stonham, 2004, 137)

(Caveat: apparent counterexamples in Kyuquot; all involve the same RcL suffix.)
**pseudoreduplication** (=apparent reduplication but ‘base’ never surfaces on its own; found in many loans) blocks reduplication (12-b-d)

(12) a. *Pseudore duplicated stems*

- *kakaw’in* ‘killer whale’
- *pi:spiʃ* ‘cat’
- *mu:smuːs* ‘cow’
- *maːmaːti* ‘bird’

(Kim, 2003b, 137)

b. *Added suffixes: /k’uk-ʔiʃ/ ‘to.resemble-3SG.IND’*

- *kakaw’ink’ukʔiʃ* ‘It looks like a killer whale’
  *ka∼kakaw’ink’ukʔiʃ*
- *pi:spiʃk’ukʔiʃ* ‘It looks like a cat’
  *pi∼pi:spiʃk’ukʔiʃ*
- *maːmaːti k’ukʔiʃ* ‘It looks like a bird’
  *ma∼ma:maati*

(Kim, 2003b, 138)
asymmetry for pseudoreplicated stems: some do not block reduplication (13-a), others do (13-b)

(13) Pseudoreplicated stems

a. muːsmus muːsmus
   muːsmus-ataχ μuː~μuːsmusataχ
   ‘cow’
   ‘hunting cows’

b. kakaw’ad kakaw’ad
   kakaw’ad-ataχ kakaw’adataχ
   *ka~kakaw’adataχ
   ‘killer whale’
   ‘hunting killer whale’
   ‘hunting killer whale’
   (Stonham, 2003, 248+247)
A typology of multiple reduplication

Manam (Malayo-Polynesian) (Buckley, 1997; Lichtenberk, 1983)

- if the base already ends in two identical syllables (=pseudoreduplication), the usually φ-sized reduplicant is only one syllable (15) (similar pattern in Samoan (de Lacy, 1999; Nevins, 2012))

(14) a. φ-reduplication

<table>
<thead>
<tr>
<th>base</th>
<th>reduplication</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>laba</td>
<td>laba~laba</td>
<td>‘older person’</td>
</tr>
<tr>
<td>salaga</td>
<td>salaga~laga</td>
<td>‘long’ Sc</td>
</tr>
<tr>
<td>sapara</td>
<td>sapara~para</td>
<td>‘having branches’</td>
</tr>
<tr>
<td>?ulan</td>
<td>?ulan~laŋ</td>
<td>‘desirable’</td>
</tr>
</tbody>
</table>

(Lichtenberk, 1983, 599-602)

- b. σ-reduplication if stem ends in identical syllables

<table>
<thead>
<tr>
<th>base</th>
<th>reduplication</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ragogo</td>
<td>ragogo~go</td>
<td>‘warm’</td>
</tr>
<tr>
<td>?o?o</td>
<td>?o?o~?o</td>
<td>‘many, much’</td>
</tr>
<tr>
<td>rere</td>
<td>rere~re</td>
<td>‘like’</td>
</tr>
<tr>
<td>lele</td>
<td>lele~le</td>
<td>‘look for’</td>
</tr>
</tbody>
</table>

(Lichtenberk, 1983, 599-602)
### Multiple reduplication patterns: Summary of empirical facts

(15)

<table>
<thead>
<tr>
<th></th>
<th>Multiple reduplicants</th>
<th>Pseudoreduplication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thompson</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Ahousaht</td>
<td>N</td>
<td>blocks red.</td>
</tr>
<tr>
<td>Kyuquot*</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Ditidaht*</td>
<td>N</td>
<td>blocks red. sometimes</td>
</tr>
<tr>
<td>Manam</td>
<td>–</td>
<td>triggers different red.-size</td>
</tr>
</tbody>
</table>

S. Wakashan multiple reduplicant avoidance: A **superset effect** for the one surfacing reduplicant

(*Not in all contexts: Multiple reduplication surfaces if derivational/inflectional reduplicative morphemes are combined (Stonham, 1994, 2004, 2007))
A PA account of multiple reduplication
Background: Prosodic Affixation
Reduplication and prosodic affixation (=PA)
(Marantz, 1982; Saba Kirchner, 2010, 2013a,b; Pulleyblank, 2009; McCarthy et al., 2010; Bye and Svenonius, 2012; Bermúdez-Otero, 2012)

reduplicative morpheme = a segmentally empty prosodic affix that is filled with ‘copied’ elements of the base it is added to

- not substantially different from segmental affixes: they simply lack segmental content
- a purely phonological account since no reduplication-specific mechanism or entities like RED or Faith_{BR} (McCarthy and Prince, 1995, and subsequent work)
- strong argument for such an approach: phonologically predictable allomorphy between reduplication and other non-concatenative strategies like vowel lengthening
copying is a general phonological repair, modeled as segmental **fission** violating (16-a) (Spaelti, 1997; Struijke, 2000; Gafos, 2003; Nelson, 2003)

that the otherwise prosodic node is filled with segmental material is ensured by constraints ensuring proper prosodic parsing (16-b)

alternative strategies to realize the prosodic affix: for example epenthesis, penalized by **Dep-S** (16-c)

\[(16)\]

a. **Int-S**: Assign * to every pair of output segments that correspond to the same input segment.

b. **μ>S**: Assign * to every μ not dominating a segment.

c. **Dep-S**: Assign * to every output-segment without an input correspondent.
### Copying as fission: The basic mechanism

(17)

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<td>s₁ i₂ l’₃</td>
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<thead>
<tr>
<th>μ&gt;S</th>
<th>DEP-S</th>
<th>* V</th>
<th>INT-S</th>
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a. *!

b. *!*

c. *

d. **

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Background assumptions

- **morphological colours** (=morphological affiliation) allows the phonology to identify whether material is epenthetic (=colourless) and whether two elements belong to the same or different morphemes (van Oostendorp, 2003, 2008, 2007; Revithiadou, 2007; Trommer, 2011; Trommer and Zimmermann, 2014; Zimmermann, 2017)

- the phonology is able to differentiate **stem- and affix**-material – this does not imply reference to specific morpho-syntactic features; only a difference in ‘morpheme status’ (Urbanczyk, 2011; Trommer, 2010)

- the stem is **fully prosodified** at the point where affixes are added: a stratal model (Kiparsky, 2011; Bermúdez-Otero, in preparation) with an evaluation prior to concatenation (Trommer, 2011) (but this primarily facilitates the presentation: can be reimplemented without strata)
Avoidance of multiple reduplicants: PA account
multiple reduplication is avoided to minimize violations of \textsc{INT-S} (in spirit similar to an account based on unified indexation (Buckley, 1997; Rose, 1997))

two possible repairs:

1. **coalescence of prosodic nodes on the same tier**, under violation of \textsc{Uniformity} (Saba Kirchner, 2010, 65)

\[ \text{Unf-\mu: Assign * for every output-\mu corresponding to more than one input-\mu.} \]

2. **prosodic affixes on different tiers dominate each other**, under violation of \textsc{DepAL(X-Y)}_A, e.g. (19)

\[ \text{Dep(\sigma-\mu)}_A: \text{Assign * for every colourless association line between a \sigma and a \mu if one is affix-material.} \]
Ahousaht: Multiple reduplication avoidance and coalescence

(20)

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<tr>
<td>μ₁</td>
<td>μ₂</td>
<td>μ₃</td>
<td>μ₄</td>
<td>μₛ</td>
<td>DEP-S</td>
<td>UNF-μₛ</td>
<td>INT-S</td>
</tr>
<tr>
<td>n₁ a₂ ṙ₃ a₄</td>
<td></td>
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<td></td>
<td>μₛ</td>
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</tbody>
</table>

a. μ₁ | μ₂ | μ₃ | μ₄ | μₛ | DEP-S | UNF-μₛ | INT-S | UNF-μₛ
| n₁ a₂ ṙ₃ a₄ | | | | μₛ | | | | ***!*

b. μ₁,₂ | μ₃ | μ₄ | μₛ | DEP-S | UNF-μₛ | INT-S | UNF-μₛ
| n₁ a₂ n₁ a₂ ṙ₃ a₄ | | | | μₛ | | | | ** *

c. μ₁,₂,₃ | μ₄ | μₛ | DEP-S | UNF-μₛ | INT-S | UNF-μₛ
| n₁ a₂ ṙ₃ a₄ | | | | μₛ | | | | *!

込 overapplication of coalescence (21-c) excluded by UNF-μₛ penalizing fusion of stem-μ’s
Thompson: No coalescence and multiple reduplicants

reranking of \textsc{Unf-μ}: Multiple reduplication surfaces

(21)

<table>
<thead>
<tr>
<th>(\mu_1)</th>
<th>(\mu_2)</th>
<th>(\mu_3)</th>
<th>(\mu_4)</th>
<th>(\mu_5)</th>
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<tbody>
<tr>
<td>(s_1)</td>
<td>(i_2)</td>
<td>(l'_3)</td>
<td></td>
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<tr>
<td>(\mu^S)\</td>
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<th>(\mu_1)</th>
<th>(\mu_2)</th>
<th>(\mu_3)</th>
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<th>(\mu_5)</th>
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<th>(\mu_1)</th>
<th>(\mu_2)</th>
<th>(\mu_3)</th>
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<td>(s_1)</td>
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<tr>
<td>(\mu^S)\</td>
<td></td>
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</tr>
</tbody>
</table>

a. \(*!**\)

b. \(*****\)

c. \(*!***\)
Kyuquot: Multiple reduplication avoidance and prosodic integration

(22)

(simplified structure only showing the stem and the PA triggering reduplication)
A PA account of multiple reduplication

Avoidance of multiple reduplicants: PA account

Fox: No prosodic integration and multiple reduplicants

(23)

(Simplification: fixed segment not accounted for)
The superset effect: PA account
The superset effect for the surviving reduplicant

follows since no strategy to avoid multiple reduplicants involves deletion of a prosodic affix
(else: a ranking paradox for single reduplication contexts)

= coalescence only for prosodic nodes on the same tier: identical ‘reduplication-requirements’ are summarized but none gets lost (24-a)

(24)  \textit{Coalescence in Ahousaht}
\[ \mu_1 \mu_2 \rightarrow \mu_{1,2} \]
\[ n_1 a_2 \]

= prosodic integration doesn’t alter the number of prosodic affixes (25-b)

(25)  \textit{Prosodic integration in Kyuquot}
\[ \sigma_1 \]
\[ \mu_1 \mu_2 \rightarrow \mu_{1,2} \]
\[ p_2 u_3 c_1 \]
Pseudoreplicated stems: PA account
Pseudore duplicated stems and reduplication

- pseudore duplicated stems have a special underlying representation: they contain affix prosody

- in reduplication contexts, this affix syllable is hence treated the same way as prosodic affix nodes:

1. It can undergo coalescence with a prosodic affix on the same tier (=reduplication avoidance in Ditidaht)

2. It can be integrated under affix prosody (=smaller reduplicant in Manam)

→ that pseudore duplicated portions have identical material may have a historical motivation (=former reduplicative affix) but is not part of the explanation
### Pseudoreplicated stems I: Coalescence in Ditidah

(26) **Affix prosody inside the stem: Reduplication avoidance**

```
\begin{align*}
\sigma_1 & \sigma_2 & \sigma_3 & \sigma_4 \\
\mu & \mu & \mu & \\
\text{k}_1 & \text{a}_2 & \text{k}_3 & \text{a}_4 \\ & \text{w}_5 & \text{a}_6 & \text{d}_7
\end{align*}
```

<table>
<thead>
<tr>
<th></th>
<th>(\sigma^S)</th>
<th>Dep-S</th>
<th>UNF-(\sigma)S</th>
<th>Int-S</th>
<th>UNF-(\sigma)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><em>!</em></td>
</tr>
</tbody>
</table>

|                  | \(\sigma_{1,2}\) & \(\sigma_3\) & \(\sigma_4\) |
|------------------|-------------------|-------------------|-------------------|
| b.               | \(\mu\)          & \(\mu\)          & \(\mu\)          |

Eva Zimmermann (Leipzig University)Avoidance of multiple reduplicationMarkedness
asymmetry for pseudoreplicated stems: they contain an affix syllable (27-b) or not (27-a) and hence block reduplication or not.

(27)

<table>
<thead>
<tr>
<th></th>
<th>a. ‘cow’</th>
<th>b. ‘killer whale’</th>
</tr>
</thead>
<tbody>
<tr>
<td>isolation</td>
<td>mu:smus</td>
<td>kakawad</td>
</tr>
<tr>
<td>+Lx.Sfx</td>
<td>*mu:smus-ata(\chi)</td>
<td>kakawad-ata(\chi)</td>
</tr>
<tr>
<td></td>
<td>mu-mu:smus-ata(\chi)</td>
<td>*ka-kakawad-ata(\chi)</td>
</tr>
<tr>
<td>Representations</td>
<td>[Diagram]</td>
<td>[Diagram]</td>
</tr>
</tbody>
</table>

Eva Zimmermann (Leipzig University)  
Avoidance of multiple reduplication  
Markedness
Pseudoreplicated stems I: Coalescence in Ditidaht

(28) **Only stem prosody: Reduplication surfaces**

<table>
<thead>
<tr>
<th></th>
<th>σ₁</th>
<th>σ₂</th>
<th>σ₃</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>m₁ u₂</strong></td>
<td><strong>s₃</strong></td>
<td><strong>m₄ u₅</strong></td>
<td><strong>s₆</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>σ&gt;S</th>
<th>DEP-S</th>
<th>UNF-σS</th>
<th>INT-S</th>
<th>UNF-σ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>****</td>
</tr>
<tr>
<td><strong>m₁ u₂</strong></td>
<td><strong>m₁ u₂</strong></td>
<td><strong>s₃</strong></td>
<td><strong>m₄ u₅</strong></td>
<td><strong>s₆</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>σ₁₂</th>
<th>σ₃</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>m₁ u₂</strong></td>
<td><strong>s₃</strong></td>
<td><strong>m₄ u₅</strong></td>
</tr>
</tbody>
</table>

<p>| | | | | | |</p>
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<thead>
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</table>

**Eva Zimmermann (Leipzig University)**

Avoidance of multiple reduplication

Markedness 39 / 76
Pseudoreplicated stems II: Prosodic integration in Manam

- an affixed empty foot triggers copying of a bimoraic portion since $\text{DEP}(\varphi-\sigma)_{A-S}$ penalizes integration of stem syllables into an affix-$\varphi$

- pseudoreplicated stems contain an affix-syllable in their representation: this affix-$\sigma$ can be dominated by the affix-$\varphi$ without violating $\text{DEP}(\varphi-\sigma)_{A-S}$ and fewer copying is necessary

- similar in logic to the account of Manam in Fitzpatrick and Nevins (2004): the pseudoreplicated stem already contains a ‘trigger’ for reduplication

(29)
Pseudoreplicated stems II: Prosodic integration in Manam

(30) Only stem prosody: $\varphi$-copying

\[
A\varphi \\
S \sigma \\
\mu \\
s_1 a_2 l_3 a_4 g_5 a_6
\]

\[
A\varphi \\
S \sigma \\
\mu \\
s_1 a_2 l_3 a_4 g_5 a_6
\]

a. $\varphi > \sigma$ FtBIN DEP($\varphi$-$\sigma$)A-S INT-S

b. $\varphi > \sigma$ FtBIN DEP($\varphi$-$\sigma$)A-S INT-S

Eva Zimmermann (Leipzig University) Avoidance of multiple reduplication Markedness 41 / 76
Pseudoreplicated stems II: Prosodic integration in Manam

(31) *Affix prosody inside stem: Copying of one σ avoidable*

\[
\begin{array}{c}
\text{a.} \\
A \varphi \\
S \sigma \\
\mu \\
r_1 a_2 g_3 o_4 g_5 o_6 \\
\end{array}
\]

\[
\begin{array}{c}
\text{b.} \\
A \varphi \\
S \sigma \\
\mu \\
r_1 a_2 g_3 o_4 g_5 o_6 g_5 o_6 \\
\end{array}
\]
(32) **Affix prosody inside stem: Copying of one σ avoidable, contd.**

\[\begin{array}{c}
\text{c.} \\
\text{d.}
\end{array}\]
Summary of the PA account
triggers for multiple reduplication avoidance: *faithfulness constraints* and preference to keep fission to a minimum

faithfulness constraints distinguish affix- and stem-material:
Prosodic integration and coalescence possible for affixes but not stems

pseudoreduplicated stems are *representationally different*:
straightforwardly predicts intra-language variation as in Ditidaht

<table>
<thead>
<tr>
<th>1. Avoidance of multiple reduplicants</th>
<th>Ahousaht (20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Coalescence</td>
<td>Kyuquot (22)</td>
</tr>
<tr>
<td>B. Prosodic integration</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. The Superset effect</th>
<th>(24)/(25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No deletion of prosodic affixes</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Pseudoreduced stems</th>
<th>Ditidaht (26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Coalescence: No reduplication</td>
<td>Manam (31)/(32)</td>
</tr>
<tr>
<td>B. Prosodic integration: Smaller reduplicant</td>
<td></td>
</tr>
</tbody>
</table>
Alternatives based on markedness
Background: Base-Reduplicant Correspondence Theory
(=BRCT; McCarthy and Prince, 1995, and subsequent work)

- phonologically empty RED is the trigger for reduplication: a BR-faithfulness relation between base and reduplicant is established
- crucial: every reduplicative morpheme establishes its own BR-relation

(34)

<table>
<thead>
<tr>
<th></th>
<th>( \text{Max-BR}_{\text{Dim}} )</th>
<th>( \ast \text{CODA} )</th>
<th>( \text{Max-BR}_{\text{Dis}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{RED}_{\text{Dis}} )-sil’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. sil</td>
<td></td>
<td>*</td>
<td>*<em>!</em></td>
</tr>
<tr>
<td>b. si∼sil’</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. sil∼sil’</td>
<td>**!</td>
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<tr>
<td>( \text{RED}_{\text{Dim}} )-sil’</td>
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</tr>
<tr>
<td>a. sil</td>
<td><em>!</em>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. si∼sil’</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>c. sil∼sil’</td>
<td>*</td>
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<td>**</td>
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</table>
Morphological Markedness
Avoidance of marked exponence: *DupDup

- multiple reduplication avoidance follows from a constraint *DupDup (or *REDRED) that ‘disallow[s] multiple copies’ (Stonham, 2004, 172)

- it is violated as soon as two reduplicants are in the output: it hence refers to the **exponence type that a phonological element represents**

- a complex constraint type that sees more than phonological structure (=the presence of a RED-morpheme in the input and the fact that phonological elements in the output represent this RED

- (Note: it can not simply refer to the presence of two different BR-faithfulness relations in the output: those are established as soon as RED is present in the input – non-realization of a reduplicant does not (in most standard BRCT implementations) avoid the BR-relation)
*DupDup and the avoidance of multiple reduplication: Ahousaht

(35)  No multiple reduplicants

<table>
<thead>
<tr>
<th>RED_{Der} - RED_{resbl} - na?a</th>
<th>RED_{DER} = \mu</th>
<th>*DupDup</th>
<th>RED_{RESBL} = \mu</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. na?a</td>
<td>*!</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. na~na?a</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>c. na<del>na</del>na~na?a</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

→ *DupDup predicts that only a single reduplicant surfaces
*DupDup and the superset effect: Kyuquot

(36) **No multiple reduplicants, option 1**

<table>
<thead>
<tr>
<th>RED_really - RED_eye - puma\dagger</th>
<th>RED_EYE = μ/c/</th>
<th>*DupDup</th>
<th>RED_REALLY = μμ</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. puma\dagger</td>
<td>*!</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. puː～puc～puma\dagger</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. puː～puma\dagger</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>d. puc～puma\dagger</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>e. puːc～puma\dagger</td>
<td>*!</td>
<td></td>
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</tbody>
</table>

(37) **No multiple reduplicants, option 2**

<table>
<thead>
<tr>
<th>RED_really - RED_eye - puma\dagger</th>
<th>RED_REALLY = μμ</th>
<th>*DupDup</th>
<th>RED_EYE = μ/c/</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. puː～puma\dagger</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. puc～puma\dagger</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. puːc～puma\dagger</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>
a violation of *DupDup is avoided via non-realization of one of the reduplicants: Grammars can choose which one to realize but it is impossible to realize a superset of both

(Caveat 1: for ease of exposition, the fixed segment results from the templatic constraint: not a standard assumption)

(Caveat 2: prediction depends on how the shape of the reduplicant is determined: Generalized Template Theory (Urbanczyk, 2006; Downing, 2006) might make a different prediction?)
*DupDup and the superset effect: An alternative?

- the structure (38) where a part of the ‘reduplicant’ stands in two different BR-relations still does not solve the problem: the ‘coalescence’-reduplicant is not coextensive with two reduplication-requirements

(38)

- a non-standard conception of RED?
- some constraint must penalize it since multiple reduplication would otherwise be generally excluded – not a trivial constraint format

(39) *BR-parallel: Assign * for every pair of elements A and B that stand in a BR-correspondence relation \( \alpha \) and a BR-correspondence relation \( \beta \).
*DupDup and pseudorepduplicated stems: Ditidaht

- mirroring the analysis from above: A RED in the stem

(40) Internal RED

<table>
<thead>
<tr>
<th>RED\text{whale}-kaw’ad</th>
<th>RED\text{whale}=\mu</th>
<th>*\text{DupDup}</th>
<th>RED\text{hunt}=\mu</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. kaw’ad</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. ka~kaw’ad</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(41) Internal RED blocks reduplication

<table>
<thead>
<tr>
<th>RED\text{hunt}-RED\text{whale}-kaw’ad</th>
<th>RED\text{whale}=\mu</th>
<th>*\text{DupDup}</th>
<th>RED\text{hunt}=\mu</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. kaw’ad</td>
<td>*!</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. ka<del>ka</del>kaw’ad</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. ka~kaw’ad</td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

→ *\text{DupDup} predicts that pseudorepduplicated stems block reduplication if they contain RED
*DupDup and pseudoredunduplicated stems: Manam

(42) **Internal RED**

<table>
<thead>
<tr>
<th></th>
<th>rago-RED\textsubscript{warm}</th>
<th>RED\textsubscript{WARM}=\mu</th>
<th>*DupDup</th>
<th>RED\textsubscript{ADJ}=\emptyset</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>rago</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>rago∼go</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(43) **Internal RED unable to trigger smaller reduplicant**

<table>
<thead>
<tr>
<th></th>
<th>rago-RED\textsubscript{warm}-RED\textsubscript{Adj}</th>
<th>RED\textsubscript{WARM}=\mu</th>
<th>*DupDup</th>
<th>RED\textsubscript{ADJ}=\emptyset</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>rago</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>rago∼go</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>rago∼go∼go</td>
<td>*</td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>d.</td>
<td>rago∼go∼gogo</td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

→ a smaller reduplicant does not help avoid a violation of *DupDup
*DupDup and pseudoreplicated stems: Footnote to Manam

Cf. above: in the structure (45), the first reduplicated portion /go/ stands in a BR-relation with both reduplicants.

→ it does not solve the problem since *_DupDup_ should still be violated given that both reduplicants are still there, they only underwent coalescence.

(44)
**DUPDUP: Summary of predictions**

(45)

1. **Avoidance of multiple reduplicants**
   - Triggered by *DUPDUP*
   - Ahousaht (35)

2. **The Superset effect**
   - Only one reduplicant is realized
   - Kyuquot (36)/(37)

3. **Pseudoredduplication stems**
   - A. No reduplication: RED in the stem
     - Ditidaht (41)
   - B. Smaller reduplicant: still violates DUPDUP
     - Manam (43)
Phonological Markedness
Multiple reduplicants and phonological markedness

Multiple reduplication = Too much structure (de Lacy, 1999)

- avoidance of multiple full reduplicants increases violations of *STRU C
- coalescence (=only possible if the material is reduplicated and hence identical) helps avoiding such violations
- predicts that a reduplicant is smaller than expected but not easily extendable to the complete avoidance of multiple reduplication

Multiple reduplication = Too much identical structure

- a complex identity avoidance effect (Menn and McWhinney, 1984; Yip, 1998)
- a single repetition is tolerated but not more repetitions; termed 2xOCP_σ
  - conjoined OCP_σ&OCP_σ (Smolensky, 1995; Lubowicz, 2002, 2003)
  - a threshold effect in Harmonic Grammar (Legendre et al., 1990)
Identity Avoidance: Avoidance of multiple reduplication in Ahousaht

(46) **No multiple reduplicants**

<table>
<thead>
<tr>
<th>RED_{Der}-RED_{resbl}-na?a</th>
<th>RED_{DER}={\mu}</th>
<th>*2OCP_\sigma</th>
<th>RED_{RESBL}={\mu}</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. na?a</td>
<td>*!</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. na~na?a</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>c. na<del>na</del>na~na?a</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

→ *2OCP_\sigma predicts that **only a single reduplicant surfaces**
Identity Avoidance: The superset effect

- the problem discussed for *DUpDUp is actually identical for a solution based on *2OCP_σ: the possible repair in a BRCT account is again non-realization of one reduplicant – the superset effect is unexpected
(47)  *Pseudorepduplicated stem blocks reduplication*

<table>
<thead>
<tr>
<th>RED\textsubscript{hunt}-kakaw’ad</th>
<th>*2OCP\textsubscript{σ}</th>
<th>RED\textsubscript{HUNT}=\textmu</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ka~kakaw’ad</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>b. kakaw’ad</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

Whether the pseudorepduplicated stem is as in (47) or a complex structure /RED\textsubscript{hunt}-RED\textsubscript{whale}-kaw’ad/ does not matter: *2OCP\textsubscript{σ} predicts that the blocking of reduplication is the avoidance of too much identical material
Identity Avoidance: Pseudorepduplicated stems in Ditidaht

(48) *2OCPσ can not predict that the blocking of reduplication is a lexical property of some pseudorepduplicated stems

but Ditidaht showed an asymmetry: some pseudorepduplicated stems block reduplication (47), others not (48)
Identity Avoidance: Pseudoreduplicated stems in Manam

in contrast to *DUPDUP, an account based on the markedness of too many identical elements can in principle predict that a smaller reduplicant surfaces to avoid too many repetitions.

but for Manam, this solution needs to be based on *3OCP_σ
‘Assign * for four identical instances of identical syllables’ – a problematic instance of counting in grammar?
Identity Avoidance and pseudorereduplicated stems: Manam

(49) \textit{Internal RED unable to trigger smaller reduplicant}

<table>
<thead>
<tr>
<th>Internal RED</th>
<th>*3OCP_σ</th>
<th>RED_{ADJ} = \varnothing</th>
<th>Max-Br_{ADJ} = \varnothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ragogo</td>
<td></td>
<td>*</td>
<td>**<em>!</em></td>
</tr>
<tr>
<td>b. ragogo~go</td>
<td></td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>c. ragogo~gogo</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>
*3OCP_σ: Summary of predictions

(50)

1. **Avoidance of multiple reduplicants**
   - triggered by *2OCP_σ
   - Ahousaht (46)

2. **The Superset effect**
   - Only one reduplicant is realized
   - (cf. *DupDup)

3. **Pseudorepduplicated stems**
   - A. Surface ban: No lexical contrast possible
     - Ditidaht (47)&(48)
   - B. Smaller reduplicant avoids *3OCP_σ
     - Manam (49)
Summary and conclusion
### Summary: Predictions of the accounts

<table>
<thead>
<tr>
<th>Avoidance of multiple reduplicants</th>
<th>PA</th>
<th><em>DupDup</em></th>
<th><em>2/3xOCP</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudored. stems block reduplication</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
</tr>
<tr>
<td>Some pseudored. stems block reduplication</td>
<td>😊</td>
<td>😊</td>
<td>😞</td>
</tr>
<tr>
<td>Pseudored. stems trigger smaller reduplicant</td>
<td>😊</td>
<td>😞</td>
<td>😊</td>
</tr>
<tr>
<td>The superset effect of the survivor</td>
<td>😊</td>
<td>😞</td>
<td>😞</td>
</tr>
</tbody>
</table>
Summary: Predictions of the accounts

**the challenges of pseudoreplicated stems:**
- in Ditidaht, some block reduplication, others not: impossible if it is avoidance of too many identical material
- in Manam, a smaller reduplicant helps: impossible if it is avoidance of too many marked exponence types

**the challenge of the superset effect:** impossible in BRCT if the avoidance of multiple reduplication is the non-realization of one reduplicant
Summary: Main claim

- multiple reduplication avoidance is not the avoidance of a marked exponence type or as avoidance of a marked phonological configuration: it is the **avoidance of an unnecessary repair**

- an account that is **purely phonological** in that it does not require reduplication-specific machinery: Reduplicative morphemes simply lack segmental content

- this predicts the ‘**typology**’ of multiple reduplication avoidance discussed that is problematic for the alternatives
References


Saba Kirchner, Jesse (2010), Minimal Reduplication, PhD thesis, UC Santa Cruz.
Smolensky, Paul (1995), On the internal structure of the constraint component Con of UG. Talk handout, UCLA, 7 April.


Eva.Zimmermann@uni-leipzig.de