Weight vs. weight, tone vs. tone: Affix blocking in featural affixation systems

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Featural Affixation: The Dinka Benefactive (Andersen 1995a)

a. \( \text{tè}:\text{t} \Rightarrow \text{tè}:\text{t} \) ‘dust:B’  \( \text{L} \Rightarrow \text{F} \) (HL)

b. \( \text{lè}:\text{r} \Rightarrow \text{lè}:\text{r} \) ‘roll:B’

c. \( \text{tè}:\text{m} \Rightarrow \text{tè}:\text{m} \) ‘cut:CP’  \( \text{H} \Rightarrow \text{H} \)

d. \( \text{wè}:\text{c} \Rightarrow \text{wè}:\text{c} \) ‘kick:CP’

Nonsegmental Blocking in Leggbó (Hyman 2013:332-333)

Irrealis ≻ Negative ≻ Habitual ≻ Other

L-L/M-L  H-M/M-M  L-L/M-L

Blocking in Segmental Affixation: Guaraní (Gregores & Suárez 1967)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-</td>
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<td>o-</td>
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<table>
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Transitive Abs.

Nom.

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Segmental+Tonal Blocking (Jumjum Agreement)

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<td>-</td>
<td>-jáñ</td>
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<tr>
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<td>-èγ</td>
<td>-è</td>
<td>-í</td>
<td>-íñ</td>
<td>-è</td>
<td></td>
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<tr>
<td>1di</td>
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<td>-</td>
<td>-ì</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>1pi wèek-i</td>
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</tr>
<tr>
<td>1pe wèek-in</td>
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<td>-gá</td>
<td>-gí</td>
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<td>-gá</td>
<td>-gè</td>
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</tbody>
</table>

Jumjum Tone Agreement

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<th>1DI</th>
<th>1PI</th>
<th>1PE</th>
<th>2PL</th>
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<td>- (H)</td>
<td>H</td>
<td>-L</td>
<td>-</td>
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<td>H</td>
<td>H</td>
<td>-</td>
<td>-</td>
<td>H</td>
<td>-</td>
</tr>
<tr>
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<td>L</td>
<td>L</td>
<td>H</td>
<td>L-</td>
<td>H</td>
<td>L-</td>
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<tr>
<td>1DI</td>
<td>-</td>
<td>-</td>
<td>H</td>
<td>-L</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>H</td>
<td>-L</td>
<td>-</td>
<td>-</td>
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<td>1PE</td>
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<td>H</td>
<td>-L</td>
<td>-</td>
<td>-</td>
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<td>L</td>
<td>-</td>
<td>-</td>
<td>H</td>
<td>-L</td>
</tr>
<tr>
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<td>L</td>
<td>H</td>
<td>L</td>
<td>H</td>
<td>L</td>
</tr>
</tbody>
</table>

Complex Nonsegmental Affixation (Dinka Centripetal)

1. **Lengthening** (Andersen 1995b:9,28)
   a. wèc ⇒ wèc ‘kick:CP’ V ⇒ V:
   b. tèŋ ⇒ tèŋ ‘dust:CP’ V ⇒ V:
2. **L-Tone Shift** (Andersen 1995b:9,28-29)
   a. tèŋ ⇒ tèŋ ‘dust:CP’ L ⇒ L
   b. tè:m ⇒ tè:m ‘cut:CP’ H ⇒ L
3. **Breathy Shift** (Andersen 1995b:9,10,28,35-36)
   a. bòk ⇒ bòk ‘throw:CP’ V ⇒ V
   b. pìk ⇒ pìk ‘push:CP’ V ⇒ V

Complex Nonsegmental Affixation (Dinka NTS)

4. **Lengthening** (Andersen 1995b:18,28)
   a. wèc ⇒ wèc ‘kick:NTS’ V ⇒ V:
   b. tèŋ ⇒ tèŋ ‘dust:NTS’ V ⇒ V:
5. **Shift to H-Tone** (Andersen 1995b:9,28-29)
   a. tè:m ⇒ tè:m ‘cut:NTS’ H ⇒ H
   b. tèŋ ⇒ tèŋ ‘cut:NTS’ L ⇒ H
6. **No Breathy Shift** (Andersen 1995b:18,28,35-36)
   a. pìk ⇒ pìk ‘push:NTS’ V ⇒ V
   b. wèc ⇒ wèc ‘kick:NTS’ V ⇒ V

(Andersen 2004)
Basic Claims of this Talk

- Featural affix blocking (in Dinka) is phonological
- The only necessary reference to morphological information are morphological colors (boundaries) and strata
- Featural affixes at different autosegmental tiers interact independently

Dinka

- Western Nilotic language of the Dinka-Nuer sub-branch
- spoken by more than 2.000.000 speakers in Southern Sudan
- Rich non-concatenative morphology crowded on monosyllabic stems (tone, vowel quality, segmental features of Cs, length)
- All data in this talk from the detailed paper by Anderson (1985)
Dinka Phonology

- Complex two-tone system (systematically neglected here)
- Three-way vowel-length contrast: V, Vː, Vːː
- Canonical shape of lexical roots: (C)VC
  Canonical shape of suffixes: -(C)V or subsegmental
**Intro**

**Theoretical Assumptions**

<table>
<thead>
<tr>
<th>Morphological association relations</th>
<th>Epenthetic association relations</th>
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</thead>
<tbody>
<tr>
<td>phonetically visible:</td>
<td>phonetically invisible:</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

**Representation of Association**  
(Zimmermann & Trommer 2011)

**Axiom of Phonetic Visibility**  
(Zimmermann & Trommer 2011)

A phonological node is visible to phonetics if and only if it is dominated by the designated ancestor node of the structure through an uninterrupted path of phonetic association lines.

**The Cloning Hypothesis**

Every markedness constraint exists in 2 incarnations:

- The **general clone** refers to all structure in I

- The **phonetic clone** refers only to structure in P

(cf. Doubling in Correspondence Theory, McCarthy & Prince 1995)

**The Morphology-Syntax Interface**

**The Concatenativist Hypothesis**

Morphological Exponence = Concatenation + Phonological Alternations

**The Color Map Hypothesis**:

Morphological color is the only morphological information visible to phonological constraints.
The Color Map Hypothesis

Representation of the Benefactive Affix

\[ \text{Benefactive} \leftrightarrow H^- \oplus \mu^- \oplus -\mu \oplus \ldots \]
Dinka Length Morphology

Central Phenomena:
- Morphologically distinctive additive and templatic lengthening
- Blocking of cumulative lengthening

Analysis (Trommer 2011)
- Additive lengthening is mora suffixation (-µ)
- Templatic lengthening is mora circumfixation (µ- -µ)
- Cumulative lengthening is blocked by a constraint against morphophonological complexity

Additive Lengthening in the 3SG (Andersen 1995:16,28)

\[ V \Rightarrow V: \]
\[ V: \Rightarrow V:: \]

a. \( wèc \Rightarrow wèc \) ‘kick:3SG’  
\( tèŋ \Rightarrow tèŋ \) ‘dust:3SG’

b. \( lèr \Rightarrow lè:r \) ‘roll:3SG’  
\( mìt \Rightarrow mì:t \) ‘pull:3SG’

Additive Lengthening in the Centrifugal (Andersen 1995:16,28)

\[ V \Rightarrow V: \]
\[ V: \Rightarrow V:: \]

a. \( wèc \Rightarrow wèc \) ‘kick:CF’  
\( tèŋ \Rightarrow tèŋ \) ‘dust:CF’

b. \( lèr \Rightarrow lè:r \) ‘roll:CF’  
\( mìt \Rightarrow mì:t \) ‘pull:CF’

Morphological Exponents

a. 3SG \( \leftrightarrow -µ \)

b. Centrifugal \( \leftrightarrow -µ \)
**Primitive Constraints on Autosegmental Association**

- a. Assign * to every mora which does not dominate at least 1 segmental root node in I
- b. Assign * to every mora which is not dominated by at least 1 σ-node in I

**Faithfulness Constraints on Autosegmental Association**

- a. Assign * to every pair of nodes which is associated in M but is not associated in P
- b. Assign * to every pair of nodes which is associated in P but is not associated in M

**1µ-Suffixation to 1µ-Base (Centrifugal)**

<table>
<thead>
<tr>
<th>Input: = b.</th>
<th>σ</th>
<th>μ</th>
<th>μ</th>
<th>DEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. V</td>
<td>σ</td>
<td>μ</td>
<td>-μ</td>
<td>**</td>
</tr>
<tr>
<td>b. V</td>
<td>σ</td>
<td>μ</td>
<td>-μ</td>
<td>!</td>
</tr>
</tbody>
</table>

**1µ-Suffixation to 2µ-Base (Centrifugal)**

<table>
<thead>
<tr>
<th>Input: = b.</th>
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<th>μ</th>
<th>μ</th>
<th>DEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. V</td>
<td>σ</td>
<td>μ</td>
<td>μ</td>
<td>!</td>
</tr>
<tr>
<td>b. V</td>
<td>σ</td>
<td>μ</td>
<td>μ</td>
<td>!</td>
</tr>
</tbody>
</table>
Additive 2-µ-Lengthening in the Causative/Frequentative

\[ V \Rightarrow V:: \]

a. bôk \( \Rightarrow \) bôːk 'throw:FQ'

b. dêk \( \Rightarrow \) dêːk 'drink:CAUS'

(Andersen 1995:37-38)

2µ-Suffixation to 1µ-Base (Causative)

Prediction: Cumulative Lengthening by Suffixation

\[ V \Rightarrow V:: \]

a. wèc \( + \) µ CF \( + \) µ 3SG \( \Rightarrow \) wèːc (*wèːc) 'kick:3SG:CF'

b. lèːr \( + \) µ CF \( + \) µ 3SG \( \Rightarrow \) lèːːr (*lèːːr) 'roll:3SG:CF'

(V::)

(Andersen 1995:16,28)

Blocking of Cumulative Lengthening (Centrifugal + 3SG)

\[ V \Rightarrow V:: \]

a. wèc \( + \) µ CF \( + \) µ 3SG \( \Rightarrow \) wèːc (*wèːc) 'kick:3SG:CF'

b. lèːr \( + \) µ CF \( + \) µ 3SG \( \Rightarrow \) lèːːr (*lèːːr) 'roll:3SG:CF'

(V::)

(Andersen 1995:16,28)
### Constraints on Moraic Binarity

a. $*V^{3\mu}$ Assign $*$ to every V-node which is dominated by more than two moras in I

b. $*\sigma^{3\mu}$ Assign $*$ to every $\sigma$-node which dominates more than two moras in I

### Blocking of Cumulative Lengthening

#### (Centrifugal + 3SG)

<table>
<thead>
<tr>
<th>Input: $= c.$</th>
<th>$*V^{3\sigma}$</th>
<th>$*\sigma^{3\sigma}$</th>
<th>$\sigma \uparrow \mu$</th>
<th>$\mu \downarrow$</th>
<th>DEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. $\sigma$</td>
<td>$\downarrow \mu$</td>
<td>$\downarrow \mu$</td>
<td></td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>b. $\sigma$</td>
<td>$\downarrow \mu$</td>
<td>$\downarrow \mu$</td>
<td>$\downarrow \mu$</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>c. $V$</td>
<td>$\uparrow \mu$</td>
<td></td>
<td></td>
<td>**</td>
<td></td>
</tr>
</tbody>
</table>

### Constraints on Chromatic Binarity

a. $*V^{3\sigma}$ Assign $*$ to every V which is dominated by (moras of) more than two colors in I

b. $*\sigma^{3\sigma}$ Assign $*$ to every $\sigma$-node which dominates (moras of) more than two colors in I

### Templatic Lengthening
Templatic Lengthening in the Benefactive (Andersen 1995:16,28)

V ⇒ V:

a. wéc ⇒ wéːc 'kick:BEN'
   tèːj ⇒ tēːj 'dust:BEN'

V: ⇒ V:

b. lèːr ⇒ lēːr *lēː:r 'roll:BEN'
   mìːt ⇒ mǐːt *mǐː:t 'pull:BEN'

Moraic Representation of the Benefactive Exponent

BEN ↔ µ- -µ

Chromatic µ-Contiguity

□Contiguity<sub>µ</sub>:
Assign * to every triple of µ-nodes (M<sub>1</sub>,M<sub>2</sub>,M<sub>3</sub>) such that:
(i) M<sub>1</sub> ≺ M<sub>2</sub> ≺ M<sub>3</sub> and
(ii) Color(M<sub>1</sub>) = Color(M<sub>3</sub>) ≠ Color(M<sub>2</sub>) in P

(cf. Landman 2003 on Chromatic Contiguity for Segments)
Overwriting by Circumfixation (Benefactive)

<table>
<thead>
<tr>
<th>Input: = c.</th>
<th>CONT</th>
<th>σ</th>
<th>μ</th>
<th>DEP</th>
<th>MAX</th>
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</thead>
<tbody>
<tr>
<td>= c.</td>
<td>CONT</td>
<td>σ</td>
<td>μ</td>
<td>DEP</td>
<td>MAX</td>
</tr>
<tr>
<td>= c.</td>
<td>CONT</td>
<td>σ</td>
<td>μ</td>
<td>DEP</td>
<td>MAX</td>
</tr>
<tr>
<td>= c.</td>
<td>CONT</td>
<td>σ</td>
<td>μ</td>
<td>DEP</td>
<td>MAX</td>
</tr>
</tbody>
</table>

Benefactive 3SG Forms (Andersen 1995:16, 28)

a. tèŋ ⇒ tè:ŋ 'dust:BEN'
tèŋ ⇒ tè:ŋ 'dust:3SG'
tèŋ ⇒ tè:ŋ *tè::ŋ 'dust:BEN:3SG'
b. mít ⇒ mǐːt 'pull:BEN'
mít ⇒ mǐːt 'pull:3SG'
mít ⇒ mǐːt *mǐ::t 'pull:BEN:3SG'
### Verbal Tone in Dinka

<table>
<thead>
<tr>
<th></th>
<th>CVC/H</th>
<th></th>
<th>CVC/L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ø B CP BAP AP</td>
<td>Ø B CP BAP AP</td>
<td></td>
</tr>
<tr>
<td>FIN</td>
<td>L H L F F</td>
<td>FIN</td>
<td>L F L F F</td>
</tr>
<tr>
<td>1/3S</td>
<td>L H L F F</td>
<td>1/3S</td>
<td>L F L F F</td>
</tr>
<tr>
<td>PL</td>
<td>H H L F F</td>
<td>PL</td>
<td>H F L F F</td>
</tr>
<tr>
<td>NF</td>
<td>F H L F L</td>
<td>NF</td>
<td>L F L F F</td>
</tr>
<tr>
<td>NTS</td>
<td>H H H H H</td>
<td>NTS</td>
<td>H H H H H</td>
</tr>
<tr>
<td>CT</td>
<td>F F F F F</td>
<td>CT</td>
<td>F F F F F</td>
</tr>
<tr>
<td>PAS</td>
<td>H F F F F</td>
<td>PAS</td>
<td>H F F F F</td>
</tr>
<tr>
<td>2SG</td>
<td>L L H L L</td>
<td>2SG</td>
<td>L L H L L</td>
</tr>
</tbody>
</table>

#### Observations
- No paradigm cell consistently shows the underlying form of a verb.
- Tonal affixation is either fully replacive or additive.
- Tonal affixes don’t cumulate: Every verb expones maximally 1 τ-affix.
- Three morphophonological types of affixes:
  - Outer Inflection: blocks all other tonal inflection
  - Derivational affixes: block inner inflection
  - Inner Inflection: Only emerges in verbs with no other tonal morphology.

#### Analysis
- Stratal OT: Derivation and Inner Inflection are Stem-Level. Outer Inflection is Word-Level.
- Blocking between Stem-Level tones works simultaneously and in parallel to μ-blocking in length affixation.
- Stem-Level Tone overwrites lexical tone. Word-Level tone overwrites Stem-Level tone.
Stem-Level Tone (Andersen 1995a, Trommer 2011)

<table>
<thead>
<tr>
<th></th>
<th>CVC/H</th>
<th></th>
<th>CVC/L</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>FIN</td>
<td>L H L F</td>
<td>FIN</td>
<td>L F L F</td>
<td></td>
</tr>
<tr>
<td>1/3S</td>
<td>L H L F</td>
<td>1/3S</td>
<td>L F L F</td>
<td></td>
</tr>
<tr>
<td>PL</td>
<td>H H L F</td>
<td>PL</td>
<td>H F L F</td>
<td></td>
</tr>
<tr>
<td>NF</td>
<td>F H L F</td>
<td>NF</td>
<td>L F L F</td>
<td></td>
</tr>
</tbody>
</table>

Additive Tone: Benefactive

\[(7)\] Lexical H

\[\text{Input: } = b. \hspace{1cm} \text{Max } | \hspace{1cm} \text{Dep} |\]
\[
\begin{array}{c|c|c|c}
\sigma & \uparrow & \tau & \text{max} \\
\hline
H & H & * & \ast \\
\end{array}
\]

\[\text{Input: } = b. \hspace{1cm} \text{Max } | \hspace{1cm} \text{Dep} |\]
\[
\begin{array}{c|c|c|c}
\sigma & \uparrow & \tau & \text{max} \\
\hline
H & L & * & \ast \\
\end{array}
\]

Overwriting Tone: 3SG

\[\text{Input: } = c. \hspace{1cm} \text{Max } | \hspace{1cm} \text{Dep} |\]
\[
\begin{array}{c|c|c|c}
\sigma & \uparrow & \tau & \text{max} \\
\hline
L & H & * & \ast \\
\end{array}
\]

Stem-Level: Blocking of Double Affixation

\[\text{Input: } = c. \hspace{1cm} \text{Max } | \hspace{1cm} \text{Dep} |\]
\[
\begin{array}{c|c|c|c}
\sigma & \uparrow & \tau & \text{max} \\
\hline
L & H & H & * \\
\end{array}
\]

L- ↔ 3SG \hspace{1cm} H- ↔ BEN
Stem-Level: Derivation Blocks Inner Inflection

<table>
<thead>
<tr>
<th>Input:  = c.</th>
<th>NoSkip</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>L H H</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>a. σ</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>b. H</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>c. H</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

NoSkip: Assign * to every unassociated tone which intervenes between two tones associated to the same TBU

Word-Level: Outer Inflection Overwrites Derivation

<table>
<thead>
<tr>
<th>BEN</th>
<th>2SG</th>
<th>BEN:2SG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem Level</td>
<td>H</td>
<td>–</td>
</tr>
<tr>
<td>Word Level</td>
<td>–</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>L</td>
</tr>
</tbody>
</table>

Intermediate Summary of the Analysis

- Blocking either by phonological competition at the Stem Level or by Overwriting at the Word Level
- Competition is resolved by purely phonological factors (and morphological colors/boundaries)
- ⇒ predicts that blocking at different phonological tiers is independent of blocking at other tiers
Alternatives

**Morphological Competition and Resolution** (Hyman 2013)

Irrealis $\succ$ Negative $\succ$ Habitual $\succ$ Other
L-L/M-L H-M/M-M L-L/M-L

**Problem:** Crossover Exponence and Blocking

---

**Alternatives**

**Crossover Exponence in Dinka** (Andersen 1995a, Trommer 2011)

<table>
<thead>
<tr>
<th>Inflectional Category</th>
<th>Derivational Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple</td>
<td>CP</td>
</tr>
<tr>
<td></td>
<td>CF</td>
</tr>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>BAP</td>
</tr>
</tbody>
</table>

- **a. CVC/H**
  - FIN: L L L F
  - 1/3S: L H L F
  - PL: H H L F
  - NF: F H L F

- **b. CVC/L**
  - FIN: L F L F
  - 1/3S: L F L F
  - PL: H F L F
  - NF: L F L F

**Segmental vs. Tonal Affixes**

---

**Crossover Blocking in Dinka** (Andersen 1995a, Trommer 2011)

<table>
<thead>
<tr>
<th>Inflectional Category</th>
<th>Derivational Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ø</td>
</tr>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>BAP</td>
</tr>
<tr>
<td></td>
<td>AP</td>
</tr>
</tbody>
</table>

- **a. CVC/H**
  - NTS: +µ +µ +µ +µ
  - CT: +µ +µ +µ +µ
  - 2SG: +µ +µ +µ +µ

- **b. CVC/L**
  - NTS: H H H H
  - CT: F F F F
  - 2SG: L L L L

**Tonal vs. Length Affixation**

---
**Arbitrary Rule Blocks** (Anderson 1992, Stump 2001)

(1) \( \mu - \mu \leftrightarrow \text{BEN} \)
(2) \(-\mu \leftrightarrow \text{CT}\)

(1) \(H- -L \leftrightarrow \text{CT}\)
(2) \(H- \leftrightarrow \text{BEN}\)

**Problem:** doesn’t capture the fact that:
- Tone blocks tone
- Length blocks length
- Affixes block affixes

**but** neither blocks necessarily the other ones

---

**Cyclic Overwriting:** Inkelas (2014) on Hausa

- Every affix induces a morphophonological cycle
  - Ventive: \(\text{LH } \text{fitá} \Rightarrow \text{H } \text{fit-ó}; \text{ ‘go out’}\)
  - Imperative: \(\text{H } \text{kwázná} \Rightarrow \text{LH } \text{kwázná}; \text{ ‘spend the night’}\)

- Outer construction (imperative) overwrites inner one (ventive):

---

**Problem I: Blocked Cumulative Lengthening**

<table>
<thead>
<tr>
<th>3SG</th>
<th>3SG:BEN</th>
<th>CF:3SG</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\mu)</td>
<td>(\mu)</td>
<td>(\mu)</td>
</tr>
<tr>
<td>(\mu)</td>
<td>(\mu)</td>
<td>(\mu)</td>
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<tr>
<td>(\mu)</td>
<td>(\mu)</td>
<td>(\mu)</td>
</tr>
<tr>
<td>(\mu)</td>
<td>(\mu)</td>
<td>(\mu)</td>
</tr>
</tbody>
</table>

Due to locality (‘Bracket Erasure’) a \(\mu\)-adding operation cannot distinguish a simplex from a derived \(\mu\ \mu\)-base

---

**Problem II: Blocking of two Additive Tones**

**Benefactive:** \(H-\)
- a. \(\text{tēn} \Rightarrow \text{tēn}; \text{ ‘dust:B’} \ L \Rightarrow \text{F}\)
- b. \(\text{wēc} \Rightarrow \text{wēc}; \text{ ‘kick:B’} \ H \Rightarrow \text{H}\)

**Nonfinite:** \(-L\)
- a. \(\text{tēn} \Rightarrow \text{tēn}; \text{ ‘dust:NF’} \ L \Rightarrow \text{L}\)
- b. \(\text{wēc} \Rightarrow \text{wēc}; \text{ ‘kick:NF’} \ H \Rightarrow \text{F}\)

**Benefactive Nonfinite:** \(H-\)
- a. \(\text{tēn} \Rightarrow \text{tēn}; \text{ ‘dust:B’} \ L \Rightarrow \text{F}\)
- b. \(\text{wēc} \Rightarrow \text{wēc}; \text{ ‘kick:B’} \ H \Rightarrow \text{H}\)
## Problem II: Blocking of two Additive Tones

<table>
<thead>
<tr>
<th>Variant 1:</th>
<th>Lexical Tone</th>
<th>L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefactive</td>
<td>H-L</td>
<td>H-H</td>
<td></td>
</tr>
<tr>
<td>Nonfinite</td>
<td>H-L-L</td>
<td>H-H-L</td>
<td></td>
</tr>
<tr>
<td>Output:</td>
<td>F</td>
<td>F°</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variant 2:</th>
<th>Lexical Tone</th>
<th>L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonfinite</td>
<td>L-L</td>
<td>H-L</td>
<td></td>
</tr>
<tr>
<td>Benefactive</td>
<td>H-L-L</td>
<td>H-H-L</td>
<td></td>
</tr>
<tr>
<td>Output:</td>
<td>F</td>
<td>F°</td>
<td></td>
</tr>
</tbody>
</table>

**Correct Output:** F H

---

### Abbreviations

- B,BEN: Benefactive
- CP: Centripetal
- CF: Centrifugal
- CT: Passive Circumstantial Topic
- FIN: Finite
- PAS: Passive
- NF: Nonfinite
- NTS: Non-Topic Subject

---

### Summary

- Featural Affix Blocking (in Dinka) is phonological
- The only necessary reference to morphological information are morphological colors (boundaries) and strata
- Featural affixes at different autosegmental tiers interact independently
- Phonological Exponents of the same morphosyntactic affix might behave differently wrt phonological strata

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### References

Overview

1. Intro
   - Dinka
   - Theoretical Assumptions

2. Length
   - Additive Lengthening
   - Additive 1µ-Lengthening
   - Additive 2µ-Lengthening
   - Blocking of Cumulative Lengthening
   - Templatic Lengthening
   - Simple Templatic Lengthening
   - Blocking of Cumulative Lengthening

3. Tone

4. Alternatives
   - Morphological Competition and Resolution
   - Arbitrary Rule Blocks
   - Cyclic Overwriting

5. Summary