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

Jochen Trommer
jtrommer@uni-leipzig.de

Department of Linguistics
University of Leipzig

LAGB - September 18 2015

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

Intr. Nom.

	sg	pl
1	a-	ro-
2	re-	pe-
3	o-	

1 ≻ 2 ≻ 3

Intr. Abs.

	sg	pl
1	ʃe-	ore-
2	ne-	pene-
3	i-	

Transitive

Abs.

Nom.

	1sg	1pl	2sg	2pl	3
1sg			ro-	po-	a-
1pl					ro-
2sg	ʃe-	ore-			re-
2pl					pe-
3			ne-	pene-	o-

Featural Affixation: The Dinka Benefactive (Andersen 1995a)

a.	tèːŋ	⇒	tə̀ːŋ	'dust:B'	**L ⇒ F (HL)**
b.	lèːr	⇒	lə̀ːr	'roll:B'	
c.	téːm	⇒	tə́ːm	'cut:CP'	**H ⇒ H**
d.	wéc	⇒	wə́ːc	'kick:CP'	

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

a.

Root tone:	*/L/*	*/M/*	*/L/*	*/M/*	*/L/*	*/M/*
Perf./Prog.	H-M	M-M	L-M	M-M	H-M	M-M
Habitual	L-L	M-L	L-L	M-L	H-M	M-M
Irrealis	L-L	M-L	L-L	M-L	L-L	M-L

b.

Root tone:	*/L/*	*/M/*	*/L/*	*/M/*	*/L/*	*/M/*
Perf./Prog.	H-M	M-M	L-M	M-M	H-M	M-M
Habitual	L-L	M-L	L-L	M-L	H-M	M-M
Irrealis	L-L	M-L				

c.

Root tone:	*/L/*	*/M/*	*/L/*	*/M/*	*/L/*	*/M/*
Perf./Prog.	H-M	M-M	L-M	M-M	H-M	M-M
Habitual	L-L	M-L	L-L	M-L		
Irrealis	L-L	M-L				

d.

Root tone:	*/L/*	*/M/*	*/L/*	*/M/*	*/L/*	*/M/*
Perf./Prog.	H-M	M-M	L-M	M-M	H-M	M-M
Habitual	L-L	M-L				
Irrealis	L-L	M-L				

Irrealis ≻ Negative ≻ Habitual ≻ Other
L-L/M-L H-M/M-M L-L/M-L

Segmental+Tonal Blocking (Jumjum Agreement)

1sg	wɛ́ɛg-ʌ̀
2sg	wɛ́ɛg-ʌ́
3sg	wɛ̀ɛk
1di	wéek-ì
1pi	wèek-ìn
1pe	wɛ́ɛg-ɔ̀n
2pl	wɛ́ɛg-ɛ̀
3pl	wɛ̀g-ɔ̀k

S \ O	1sg	2sg	3	1di	1pi	1pe	2pl
1sg	—	-ɛ̀ní	-ʌ̀	—	—	—	-ɛ́
2sg	-já	—	-ʌ́	—	—	-jɔ́n	—
3sg	-à	-ɛ̀y	-ɛ́	-í	-ín	-ɔ́n	-ɛ́
1di	—	—	-ì	—	—	—	—
1pi	—	—	-ìn	—	—	—	—
1pe	—	-gì	-ɔ̀n	—	—	—	-gɛ́
2pl	-à	—	-ɛ̀	—	—	-ɔ̀n	—
3pl	-gà	-gì	-gʌ̀	-gí	-gín	-gɔ́n	-gɛ́

(Andersen 2004)

Jumjum Tone Agreement

	1SG	2SG	3	1DI	1PI	1PE	2PL
1SG	–	**H- -L** (H)	**H- L-**	–	–	–	**H- L- H**
2SG	**H- H-**	–	**H- H-**	–	–	**H- H-**	–
3SG	**L-**	**L-**	**H**	**L- -H**	**L- -H**	**L- -H**	**L- -H**
1DI	–	–	**H- L-**	–	–	–	–
1PI	–	–	**H- L-**	–	–	–	–
1PE	–	**H- L-**	**H- L-**	–	–	–	**H- L- H**
2PL	**H- L-** L	–	**H- L-**	–	–	**H- L- -L**	–
3PL	**H- L-**	**H- L-**	**H- L-**	**H- L- -H**	**H- L- -H**	**H- L- -H**	**H- L- -H**

Complex Nonsegmental Affixation (Dinka Centripetal)

(1) **Lengthening** (Andersen 1995b:9,28)

a.	wèc	⇒	wɛ̀ːc	'kick:CP'	**V ⇒ V:**
	tèŋ	⇒	tɛ̀ːŋ	'dust:CP'	
b.	lèːr	⇒	lɛ̀ːːr	'roll:CP'	**V: ⇒ V::**
	mìːt	⇒	mɪ̀ːːt	'pull:CP'	

(2) **L-Tone Shift** (Andersen 1995b:9,28-29)

a.	tèːŋ	⇒	tɛ̀ːŋ	'dust:CP'	**L ⇒ L**
b.	téːːm	⇒	tɛ̀ːːm	'cut:CP'	**H ⇒ L**

(3) **Breathy Shift** (Andersen 1995b:9,10,28,35-36)

a.	bò̤k	⇒	bò̤ːk	'throw:CP'	**V̤ ⇒ V̤**
	pì̤k	⇒	pì̤ːk	'push:CP'	
b.	wèc	⇒	wɛ̀ːc	'kick:CP'	**V̰ ⇒ V̤**
	mìːt	⇒	mɪ̀ːːt	'pull:CP'	

Complex Nonsegmental Affixation (Dinka NTS)

(4) **Lengthening** (Andersen 1995b:18,28)

a.	wèc	⇒	wéːc	'kick:NTS'	**V ⇒ V:**
	tèŋ	⇒	téːŋ	'dust:NTS'	
b.	lèːr	⇒	léːːr	'roll:NTS'	**V: ⇒ V::**
	mìːt	⇒	míːːt	'pull:NTS'	

(5) **Shift to H-Tone** (Andersen 1995b:9,28-29)

a.	téːːm	⇒	téːːm	'cut:NTS'	**H ⇒ H**
b.	tèːŋ	⇒	téːŋ	'dust:NTS'	**L ⇒ H**

(6) **No Breathy Shift** (Andersen 1995b:18,28,35-36)

a.	pì̤k	⇒	pí̤ːk	'push:NTS'	**V̤ ⇒ V̤**
b.	wèc	⇒	wéːc	'kick:NTS'	**V̰ ⇒ V̰**
	mìːt	⇒	míːːt	'pull:NTS'	

Basic Claims of this Talk

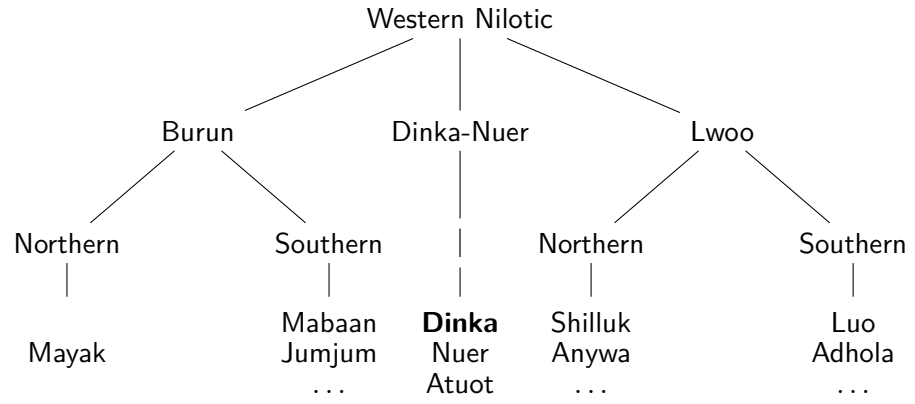
- Featural affix blocking (in Dinka) is phonological
- The only necessary reference to morphological information are morphological colors (boundaries) and strata
- Featural affixes at different autosegmental tiers interact independently

Dinka

Dinka

- Western Nilotic language of the Dinka-Nuer sub-branch
- spoken by more than 2.00.000.000 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)

Western Nilotic Languages



Dinka

Dinka Phonology

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

Theoretical Assumptions

Theoretical Assumptions

- **Stratal OT:** Stem-Level, and Word-Level Evaluations feed each other serially. Different levels have potentially different optimality-theoretic constraint rankings
- **Colored Containment:** (van Oostendorp 2006)
  Underlying material (i.e. nodes and association lines) is never literally deleted, but retained in the output, and marked as phonetically invisible.
- **Doubling:** (cf. Doubling in Correspondence Theory, McCarthy & Prince 1995)
  All markedness constraints are assumed to exist in two versions, one referring only to phonetically visible material, and one to all material in a given structure.

Representation of Association (Zimmermann & Trommer 2011)

Morphological association relations		Epenthetic association relations
phonetically visible:	phonetically invisible:	phonetically visible:
X | Y	X ≠ Y	X ⋮ Y

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)

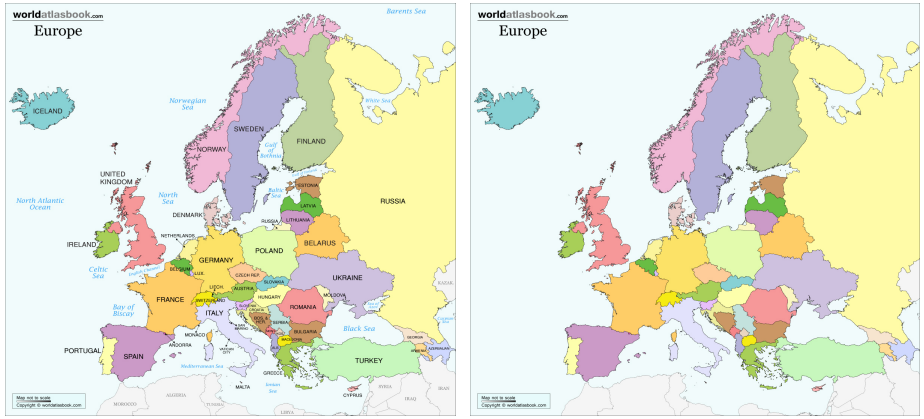
The Morphology-Syntax Interface

The Concatenativist Hypothesis
Morphological Exponence = Concatenation + Phonological Alternations

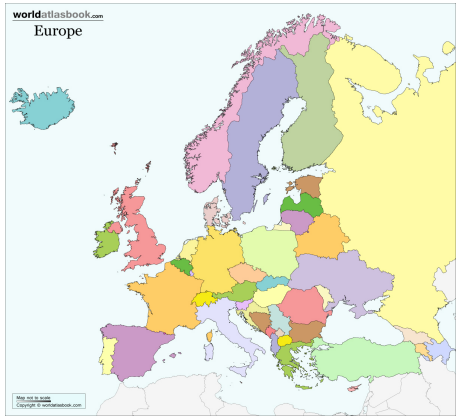
The Color Map Hypothesis:

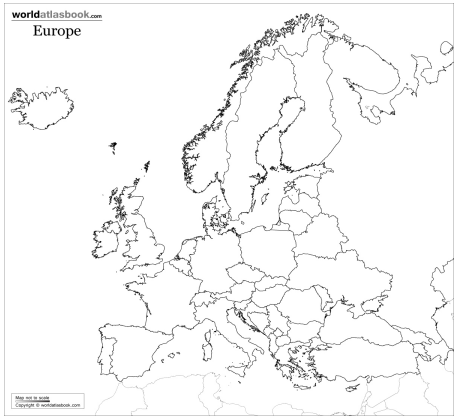
Morphological color is the only morphological information visible to phonological constraints

The Color Map Hypothesis



The Color Map Hypothesis





Representation of the Benefactive Affix

$$\text{Benefactive} \leftrightarrow \begin{matrix} \text{H-} \\ \oplus\ \mu\text{-}\ \oplus\ \text{-}\mu\ \oplus \\ [\cdot\cdot] \end{matrix}$$

Length

Dinka Length Morphology

Central Phenomena:

- Morphologically distinctive additive and templatic lengthening
- Blocking of cumulative lenghening

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	⇒	**Vː**	
a.	wèc	⇒	wèːc	‘kick:3SG’
	tèŋ	⇒	tèːŋ	‘dust:3SG’
	Vː	⇒	**Vːː**	
b.	lèːr	⇒	lè̤ːːr	‘roll:3SG’
	mìːt	⇒	mì̤ːːt	‘pull:3SG’

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

	V	⇒	**Vː**	
a.	wèc	⇒	wéːc	‘kick:CF’
	tèŋ	⇒	têːŋ	‘dust:CF’
	Vː	⇒	**Vːː**	
b.	lèːr	⇒	lê̤ːːr	‘roll:CF’
	mìːt	⇒	mî̤ːːt	‘pull:CF’

Morphological Exponents

a. 3SG ↔ -μ

b. Centrifugal ↔ -μ

Primitive Constraints on Autosegmental Association

a. $\begin{matrix}\mu\\ \downarrow\\ \bullet\end{matrix}$ Assign $*$ to every mora which does not dominate at least 1 segmental root node in I

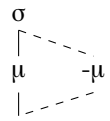
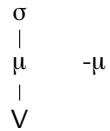
b. $\begin{matrix}\sigma\\ \uparrow\\ \mu\end{matrix}$ Assign $*$ to every mora which is not dominated by at least 1 σ-node in I

Faithfulness Constraints on Autosegmental Association

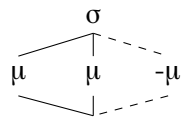
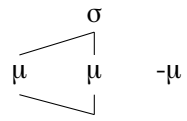
a. MAX | Assign $*$ to every pair of nodes which is associated in M but is not associated in P

b. DEP | Assign $*$ to every pair of nodes which is associated in P but is not associated in M

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

Input: = b.	σ ↑ μ	μ ↓ •	DEP |
☞ a. 			**
b. 	*!	*!	

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

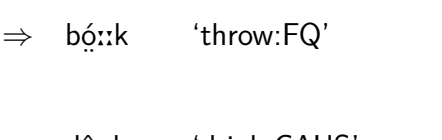
Input: = b.	σ ↑ μ	μ ↓ •	DEP |
☞ a. 			**
b. 	*!	*!	

Additive 2-μ-Lengthening in the Causative/Frequentative

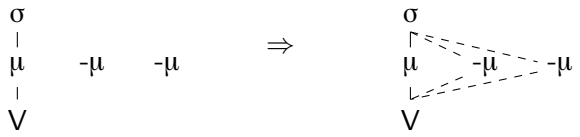
	V	⇒	**V:ː**	
a.	bɔ̰k	⇒	bɔ́ːːk	‘throw:FQ’
b.	dɛ̀k	⇒	dɛ̂ːːk	‘drink:CAUS’

(Andersen 1995:37-38)

2μ-Suffixation to 1μ-Base (Causative)

Input: = b.	σ ↑ μ	μ ↓ •	DEP |
☞ a. 			****
b.	*!*	*!*	

Prediction: Cumulative Lengthening by Suffixation



Blocking of Cumulative Lengthening (Centrifugal + 3SG)

	V			⇒	**V:ː**	(**V:ːː**)	
a.	wèc	+ μ CF	+ μ 3SG	⇒	wéːc	(*wéːːc)	‘kick:3SG:CF’
	tèŋ	+ μ CF	+ μ 3SG	⇒	têːŋ	(*têːːŋ)	‘dust:3SG:CF’
	V:ː			⇒	**V:ːː**	(**V:ːːː**)	
b.	lèːr	+ μ CF	+ μ 3SG	⇒	lə̂ːːr	(*lə̂ːːːr)	‘roll:3SG:CF’
	mìːt	+ μ CF	+ μ 3SG	⇒	mḭ̂ːːt	(*mḭ̂ːːːt)	‘pull:3SG:CF’

(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

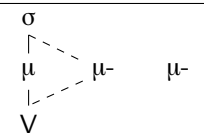
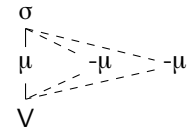
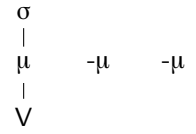
b. $*\sigma_{3\mu}$ Assign $*$ to every σ-node which dominates more than two moras in I

Constraints on Chromatic Binarity

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

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

Blocking of Cumulative Lengthening (Centrifugal + 3SG)

Input: = c.	$*V^{3\square}$	$*\sigma_{3\square}$	$\sigma \uparrow \mu$	$\mu \downarrow \bullet$	DEP |
☞ a. 					**
b. 	*!	*!		*	**
c. 			**!	**	

Templatic Lengthening

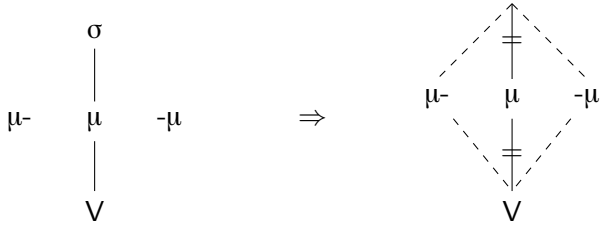
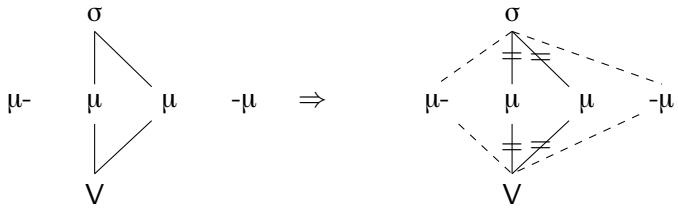
Templatic Lengthening in the Benefactive (Andersen 1995:16,28)

	V	⇒	**V:**		
a.	wéc	⇒	wé̤ːc		‘kick:BEN’
	tèŋ	⇒	tê̤ːŋ		‘dust:BEN’
	V:	⇒	**V:**		
b.	lèːr	⇒	lê̤ːr	*lê̤ːːr	‘roll:BEN’
	mìːt	⇒	mî̤ːt	*mî̤ːːt	‘pull:BEN’

Moraic Representation of the Benefactive Exponent

BEN ↔ μ- -μ

Templatic Lengthening as Templatic Overwriting

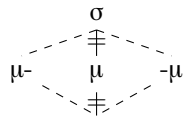
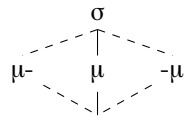
	Input:	**Output:**
1μ-Base		
2μ-Base		

Chromatic μ-Contiguity

□CONTIGUITY$_\mu$:
Assign $*$ to every triple of μ-nodes (M_1,M_2,M_3) such that:
(i) $M_1 \prec M_2 \prec M_3$ and
(ii) Color(M_1) = Color(M_3) ≠ Color(M_2) in P

(cf. Landman 2003 on Chromatic Contiguity for Segments)

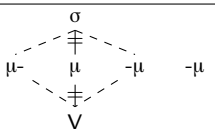
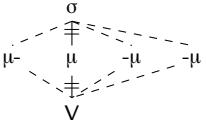
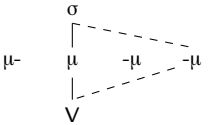
Overwriting by Circumfixation (Benefactive)

Input: = c.	□CONT$_\mu$	σ ↑ μ	μ ↓ •	DEP |	MAX |
☞ a. 			*	****	**
b. 	*!		**	**	
c. 		*!*	**		

Templatic Lengthening Blocks Additive Lengthening: Benefactive 3SG Forms (Andersen 1995:16,28)

a.	tèŋ	⇒	tə̂ːŋ		‘dust:BEN’
	tèŋ	⇒	tèːŋ		‘dust:3SG’
	tèŋ	⇒	tə̂ːŋ	*tə̂ːːŋ	‘dust:BEN:3SG’
b.	mìːt	⇒	mə̂ːt		‘pull:BEN’
	mìːt	⇒	mə́ːːt		‘pull:3SG’
	mìːt	⇒	mə̂ːt	*mə̂ːːt	‘pull:BEN:3SG’

Templatic Lengthening Blocks Additive Lengthening (Benefactive = μ- -μ) (3SG = -μ)

Input: = c.	*V$^{3\square}$	*σ$_{3\square}$	□CONT$_\mu$	σ ↑ μ	μ ↓ •	DEP |	MAX |
☞ a. 				*	*	** **	**
b. 	*!	*!				****	**
c. 				**!	**	* *	

Tone

Verbal Tone in Dinka

a.	CVC/H				
	Ø	**B**	**CP**	**BAP**	**AP**
FIN	L	H	L	F	F
1/3S	L	H	L	F	F
PL	H	H	L	F	F
NF	F	H	L	F	L
NTS	H	H	H	H	H
CT	F	F	F	F	F
PAS	H	F	F	F	F
2SG	L	L	H	L	L

b.	CVC/L				
	Ø	**B**	**CP**	**BAP**	**AP**
FIN	L	F	L	F	F
1/3S	L	F	L	F	F
PL	H	F	L	F	F
NF	L	F	L	F	F
NTS	H	H	H	H	H
CT	F	F	F	F	F
PAS	H	F	F	F	F
2SG	L	L	H	L	L

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

Tonal Affix Types

Derivation

Inner Inflection

	Ø	**B**	**CP**	**BAP**	**AP**
FIN	L	H	L	F	F
1/3S	L	H	L	F	F
PL	H	H	L	F	F
NF	F	H	L	F	L

Outer Inflection

NTS	H	H	H	H	H
CT	F	F	F	F	F
PAS	H	F	F	F	F
2SG	L	L	H	L	L

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)

a.	CVC/H			
	Ø	**B**	**CP**	**BAP**
FIN	L	H	L	F
1/3S	L	H	L	F
PL	H	H	L	F
NF	F	H	L	F

b.	CVC/L			
	Ø	**B**	**CP**	**BAP**
FIN	L	F	L	F
1/3S	L	F	L	F
PL	H	F	L	F
NF	L	F	L	F

Additive Tone: Benefactive

(7) **Lexical H**

Input: = b.	*R	σ ↑ τ	Max |	Dep |
☞ a. H H | σ				*
b. H H | σ		*!	*	

(8) **Lexical L**

Input: = b.	*R	σ ↑ τ	Max |	Dep |
☞ a. H L | σ				
b. H L | σ		*!	*	

Overwriting Tone: 3SG

Input: = c.	*R	σ ↑ τ	Max |
☞ a. L H ═ σ		**	*
b. L H | σ	*!		*
c. L H | σ		***!*	

Stem-Level: Blocking of Double Affixation

Input: = c.	*$\sigma_{3\square}$	σ ↑ τ	Max |
☞ a. L H H ═ σ		*	*
b. L H H ═ σ	*!	*	*
c. L H H | σ		**!	

L- ↔ 3SG **H-** ↔ BEN

Stem-Level: Derivation Blocks Inner Inflection

Input: = c.	NoSkip	σ ↑ τ	Max |
☞ a. L H H, σ		*	*
b. L H H, σ	*!	*	*
c. L H H, σ		**!	

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

Derivation Blocks Inner Inflection

Input: = d.	$*\sigma_{3\square}$	$*\underline{R}$	σ ↑ [τ	σ ↑ τ	Max |
☞ a. H H L, σ				*	
b. H H L, σ			*!	*	
c. H H L, σ	*!				
d. H H L, σ			*!	**	

Word-Level: Outer Inflection Overwrites Derivation

	BEN	**2SG**	**BEN:2SG**
Stem Level	**H**	–	**H**
Word Level	–	**L**	**L**
	H	**L**	**L**

Intermediate Summary of the Analysis

- Blocking either by phonological competion 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 ≻ Negative ≻ Habitual ≻ Other
L-L/M-L H-M/M-M L-L/M-L

Problem: Crossover Exponence and Blocking

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

inflectional category	derivational category: simple	CP	CF B BAP AP
1S	Ø		
2S	Ø		-é
3S	Ø		
1P	-ku		
2P	-ka		
3P	-kɛ		
PAS	Ø	-è	
PAS:CT	-è		

Segmental vs. Tonal Affixes

a.	CVC/H			
	Ø	**CF/B**	**CP**	**BAP**
FIN	L	H	L	F
1/3S	L	H	L	F
PL	H	H	L	F
NF	F	H	L	F

b.	CVC/L			
	Ø	**CF/B**	**CP**	**BAP**
FIN	L	F	L	F
1/3S	L	F	L	F
PL	H	F	L	F
NF	L	F	L	F

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

	Ø	**B**	**BAP**	**AP**
NTS	+μ	μ μ	+μ	+μ
CT	+μ	μ μ	+μ	+μ
2SG	+μ	μ μ	+μ	+μ

Tonal vs. Length Affixation

a.	CVC/H			
	Ø	**B**	**BAP**	**AP**
NTS	H	H	H	H
CT	F	F	F	F
2SG	L	L	L	L

b.	CVC/L			
	Ø	**B**	**BAP**	**AP**
NTS	H	H	H	H
CT	F	F	F	F
2SG	L	L	L	L

Arbitrary Rule Blocks (Anderson 1992, Stump 2001)

(1)	μ- -μ	↔	BEN	(1)	H- -L	↔	CT
(2)	-μ	↔	CT	(2)	H-	↔	BEN

Problem: doesn't capture the fact that:

- Tone blocks tone
- Length blocks length
- Affixes block affixes

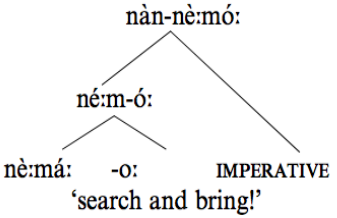
but neither blocks necessarily the other ones

Cyclic Overwriting: Inkelas (2014) on Hausa

- Every affix induces a morphophonological cycle

Ventive	LH	fìtá:	⇒	fít-ó:	'go out'
	HL	fáɗì		fáɗ-ó:	'fall down'
Imperative	H	kwá:ná	⇒	kwà:ná	'spend the night'
	HL	tá:ʃì		tà:ʃí	'get up'

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



(Imperative ⊗ (Ventive ⊗ (Verb))) (Inkelas and Zoll 2007:147)

Problem I: Blocked Cumulative Lengthening

	3SG		**3SG:BEN**		**CF:3SG**	
	μ	μ μ	μ	μ μ	μ	μ μ
Centrifugal	–	–	–	–	μ μ	μ μ μ
3SG	μ μ	μ μ μ	μ μ	μ μ μ	μ μ μ	μ μ μ μ
Benefactive	–	–	μ μ	μ μ	↯	
	μ μ	μ μ μ	μ μ	μ μ		

Due to locality ('Bracket Erasure') a μ-adding operation cannot distinguish a simplex from a derived μ μ-base

Problem II: Blocking of two Additive Tones

Benefactive: H-

a.	tè:ŋ	⇒	tə̀:ŋ	'dust:B'	**L ⇒ F**
b.	wéc	⇒	wə́:c	'kick:B'	**H ⇒ H**

Nonfinite: -L

a.	tè:ŋ	⇒	tə̀:ŋ	'dust:NF'	**L ⇒ L**
b.	wéc	⇒	wə̂:c	'kick:NF'	**H ⇒ F**

Benefactive Nonfinite H-

a.	tè:ŋ	⇒	tə̀:ŋ	'dust:B'	**L ⇒ F**
b.	wéc	⇒	wə́:c	'kick:B'	**H ⇒ H**

Problem II: Blocking of two Additive Tones

Variant 1:

Lexical Tone	L	H
Benefactive:	**H**-L	**H**-H
Nonfinite:	**H**-L-**L**	**H**-H-**L**
Output:	F	F ↯

Variant 2:

Lexical Tone	L	H
Nonfinite:	L-**L**	H-**L**
Benefactive:	**H**-L-**L**	**H**-H-**L**
Output:	F	F ↯

Correct **Output:** F H

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

Abbreviations

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

References

Andersen, T. (1995a). Morphological stratification in Dinka: On the alternations of voice quality, vowel length and tone in the morphology of transitive verbal roots in a monosyllabic language. *Studies in African Linguistics*, 23:1–63.

Andersen, T. (1995b). Morphological stratification in Dinka: On the alternations of voice quality, vowel length and tone in the morphology of transitive verbal roots in a monosyllabic language. *Studies in African Linguistics*, 23:1–63.

Andersen, T. (2004). Jumjum phonology. *Studies in African Linguistics*, 33:133–162.

Anderson, S. R. (1992). *A-Morphous Morphology*. Cambridge University Press, Cambridge.

Hyman, L. M. (2013). Morphological tonal assignments in conflict: Who wins? In *UC Berkeley Phonology Lab Annual Report (2013)*, pages 327–343.

Inkelas, S. (2014). *The Interplay of Morphology and Phonology*. Oxford University Press, Oxford.

Inkelas, S. and Zoll, C. (2007). Is grammar dependence real? A comparison between cophonological and indexed constraint approaches to morphologically conditioned phonology. *Linguistics*, 45(1):133–171.

Stump, G. T. (2001). *Inflectional Morphology*. Cambridge University Press, Cambridge.

Trommer, J. (2011). Phonological aspects of Western Nilotic mutation morphology. Habilitation Thesis, University of Leipzig.

Overview