Copy affixes in Kiranti

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Replicative processes in grammar

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(1) *Athpare (Ebert, 1997)*

    a.   lems–u–ŋ–e
             beat–3.P–1.A–Pst
             'I beat it'

    b.   lems–u–ŋ–tsi–ŋ–e
             beat–3.P–1.A–Ns–1.A–Pst
             'I beat them'

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(2) *Washo (Winter, 1970; Yu, 2008)*

Base		Plural
sukuʔ	'dog'	sukukuʔ
bɨk'ɨ	'grandmother's sister'	bɨk'ɨk'ɨ
bokoŋ	'snore'	bokokoŋ

➡ morpho-syntactic features realized by copying a prosodically defined portion of base segments

(3) *Hocank (Miner, 1993)*

Underlying	Surface	
ʃ–wapox	ʃawapox	'you stab'
ʃ–ruxuk	ʃuruxuk	'you earn'
hipres	hiperes	'know'

➡ a phonologically marked structure is avoided via doubling of a segment

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Case Studies

Criteria: the nature of the copying process

- trigger:
  - general phonotactic repair?
  - realization of morpho-syntactic features?

- size of the copied portion:
  - phonologically defined?
  - morphological unit (=only an affix)?

Kiranti languages (Tibeto-Burman, Eastern Nepal)

- verbal agreement:
  - person (1 (inclusive/exclusive), 2, 3)
  - number (Sg, Pl, Dual)
  - 'case': A (=subject of transitive verb), P (=object of transitive verb), and S (single argument of an intrans. verb)

- order of agreement suffixes:
  P(atient) ≫ A(gent) ≫ N(umber) ≫ P(er)s(on)*

*And 'reordering' of /ci/ in dual-3 contexts (=agent must be marked prominent, cf. Zimmermann (2015)).

Bantawa: Non-past positive paradigms (Doornenbal, 2009)
(underlying forms)

	1s	1de	1pe	1di	1pi	2s	2d	2p	3s	3d	3p
1s						kʰat–na	kʰat–na–ci	kʰat–na–nin	kʰat–u–ŋ	kʰat–u–ŋ–ci	kʰat–u–ŋ–ci
1de						kʰat–ni	kʰat–ni	kʰat–ni	kʰat–ci–u–ka	kʰat–ci–u–ci–ka	kʰat–ci–u–ci–ka
1pe						kʰat–ni	kʰat–ni	kʰat–ni	kʰat–u–m–ka	kʰat–u–m–ci–ka	kʰat–u–m–ci–ka
1di									kʰat–ci–u	kʰat–ci–u–ci	kʰat–ci–u–ci
1pi									kʰat–u–m	kʰat–u–m–ci	kʰat–u–m–ci
2s	ti–kʰat–ŋa	ti–kʰat–ni	ti–kʰat–ni						ti–kʰat–u	ti–kʰat–u–ci	ti–kʰat–u–ci
2d	ti–kʰat–ŋa–ci	ti–kʰat–ni	ti–kʰat–ni						ti–kʰat–ci–u	ti–kʰat–ci–u–ci	ti–kʰat–ci–u–ci
2p	ti–kʰat–ŋa–nin	ti–kʰat–ni	ti–kʰat–ni						ti–kʰat–u–m	ti–kʰat–u–m–ci	ti–kʰat–u–m–ci
3s	i–kʰat–ŋa	ni–kʰat–a–ci–ka	ni–kʰat–in–ka	ni–kʰat–ci	mi–kʰat	ni–kʰat	ni–kʰat–ci	ni–kʰat–in	kʰat–u	kʰat–u–ci	kʰat–u–ci
3d	i–kʰat–ŋa–ci	ni–kʰat–a–ci–ka	ni–kʰat–in–ka	ni–kʰat–ci	mi–kʰat	ni–kʰat	ni–kʰat–ci	ni–kʰat–in	i–kʰat–ci–u	i–kʰat–ci–u–ci	i–kʰat–ci–u–ci
3p	ni–kʰat–ŋa	ni–kʰat–a–ci–ka	ni–kʰat–in–ka	ni–kʰat–ci	mi–kʰat	ni–kʰat	ni–kʰat–ci	ni–kʰat–in	i–kʰat	mi–kʰat–u–ci	mi–kʰat–u–ci

1s	kon–ŋa
1de	kon–ci–ka
1pe	kon–in–ka
1di	kon–ci
1pi	kon–in
2s	ti–kon
2d	ti–kon–ci
2p	ti–kon–in
3s	kon
3d	kon–ci
3p	mi–kon

(4) *Some relevant affixes*

–u	↔	[+3,P]
–ka	↔	[+1,–2]
–ŋ	↔	[+1,+sg]
–m	↔	[–3,+pl,A]
–ci	↔	[–sg]

(Affixes not fully specified; theoretical account where more specific markers block less specific ones (e.g. Halle and Marantz, 1993; Harley and Noyer, 1999))

Nasal Copying

1. Suffix Doubling across /–ci/

(5)   *Bantawa: Some 3 object forms*

A\P	3s		3Ns	
1s	k^hat–u–ŋ	[k^hatːuŋ]	k^hat–u–ŋ–ci	[k^hatːuŋcɨŋ]
1pe	k^hat–u–m–ka	[k^hatːumka]	k^hat–u–m–ci–ka	[k^hatːumcɨmka]
1pi	k^hat–u–m	[k^hatːum]	k^hat–u–m–ci	[k^hatːumcɨm]
2p	tɨ–k^hat–u–m	[tɨk^hatːum]	tɨ–k^hat–u–m–ci	[tɨk^hatːumcɨm]

2. Not two independent suffixes/the same realized twice

(6)   *Alternative marker specifications/segmentations*

a.   –ŋ$_1$ ↔   [+l,+sg]   –m$_1$ ↔   [–3,+pl,A]
      –ŋ$_2$ ↔   [+l,+sg] / __+3,–sg   –m$_2$ ↔   [–3,+pl,A] / __+3,–sg

b.   –ŋ   ↔   [+l,+sg] / __+3,+sg   –m   ↔   [–3,+pl,A] / __+3,+sg
      –ŋcɨŋ   ↔   [+l,+sg] / __+3,–sg   –mcɨm   ↔   [–3,+pl,A] / __+3,–sg

c.   –ŋ   ↔   [+l,+sg] / __+3,+sg   –m   ↔   [–3,+pl,A] / __+3,+sg
      –ŋ. . . ŋ   ↔   [+l,+sg] / __+3,–sg   –m. . . m   ↔   [–3,+pl,A] / __+3,–sg

- double realization of same feature in (6-a) and complication for affix order (P ≫ A ≫ N ≫ Ps elsewhere)
- absence of /–ci/ for the object is mysterious under (6-b)
- (6-c): a circumfix inside the suffix string?
➙ rather similar form and function but different morphemes

3. No general repair to avoid phonotactic markedness

Hypothesis:
An otherwise open final syllables is avoided.

Problems:
- there is non-final copying (7-a) (plausible markedness avoidance?)
- no final coda-nasal is provided for /–ka/

(7)   *Bantawa: No copying for /–ka/*

a.
A\P	3Ns		
1pe	k^hat–u–m–ci–ka	[k^hatːumcɨmka]	*[k^hatːumcɨmkam]

b.
A\P	3s		
1pe	k^hat–u–m–ka	[k^hatːumka]	*[k^hatːumkam]

c.
A\P	1pe		
3	nɨ–k^hat–in–ka	[k^hatːinka]	*[k^hatːinkan]

4. No suffix doubling with other affixes

(8)   *Bantawa: Some 3s object forms*

A\P	3s		
1de	k^hat–ci–u–ka	[k^hatcuʔa]	*[k^hatcuʔac]
1pe	k^hat–u–m–ka	[k^hatːumka]	*[k^hatːumkam]

(9)   *Bantawa: 3–1pe forms*

A\P	1pe		
3	nɨ–k^hat–in–ka	[k^hatːinka]	*[k^hatːinkan]

5. No copying of stem segments

(10)   *Bantawa: Some 3s object forms*

A\P	3s		
1de	kʰat–ci–u–ka	[kʰatcuʔa]	*[kʰatcutʔa]
1di	kʰat–ci–u	[kʰatcu]	*[kʰatcut]

(11)   *Bantawa: Some intransitive forms*

A\P			
1di	kon–ci	[konci]	*[koncin]
2d	tɨ–kon–ci	[tɨkonci]	*[tɨkoncin]
3d	kon–ci	[konci]	*[koncin]

6. No copying of a non-adjacent segments

(12)   *Bantawa: 1s–2d form*

A\P	2d		
1s	kʰat–na–ci	[kʰatnaci]	*[kʰatnacin]

(13)   *Yamphu: 1s–2d, past form*

A\P	3Ns		
1de	kʰaks–a–u–ŋ–ji	[kʰaksuŋjiŋ]	
1pe	kʰaks–a–u–ŋ–ma–ji	[kʰaksuŋmaji]	*[kʰaksuŋmajim]

(14)   *Limbu: Some 3Ns object forms, past negative*

A\P	3Ns		
1pe	mɛ–n–huʔr–mʔna–si	[mɛnhuʔmʔnasi]	*[mɛnhuʔmʔnasin]
2p	kɛ–n–huʔr–u–m–si–nɛn	[kɛnhuʔrumsimnɛn]	

Bantawa: 7. No copying of non-nasals?

. . . given the previous arguments that /–ci/ triggers copying of only adjacent affix-segments and given that it cannot copy its own onset, there are no contexts where copying of a non-nasal is expected.

(15)   *Some 3s object forms*

A\P	3s		No stem material copied	No copying of 'itself'
1de	kʰat–ci–u–ka	[kʰatcuʔa]	*[kʰatcutʔa]	*[kʰatcicʔa]
1di	kʰat–ci–u	[kʰatcu]	*[kʰatcut]	*[kʰatcicu]

Additional criterion: Copying of parts of a suffix

(16)   *Bantawa: 1s object forms*

A\P	1s	
2d	tɨ–kʰat–ŋaŋ–ci	[tɨkʰatŋaŋciŋ]
3d	i–kʰat–ŋaŋ–ci	[ikʰatŋaŋciŋ]

Alternative:
-ŋa ↔ [+1,+sg,SP]
-ŋ ↔ [+1,+sg,AP]
➡ extended exponence

(17)   *Puma: d–1s form*

A\P	2d	
2d	tʌ–cind–oŋ–ci	[tʌcindoŋcʌŋ]
3d	pʌ–cind–oŋ–ci	[pʌcindoŋcʌŋ]

Alternative:
-o ↔ [+1,+sg,P]
-ŋ ↔ [+1,+sg]
➡ extended exponence

(18)   *Limbu: 1s–3, past negative form*

A\P	3Sg		3Ns	
1s	mɛ–n–huʔr–baŋ	[mɛnhuʔrbaŋ]	mɛ–n–huʔr–baŋ–si	[mɛnhuʔrbaŋsiŋ]

Alternative:
-ŋ ↔ [+1,+sg,A]   -ba ↔ [+1,+sg] / __+3,–sg(–pos,+pst)   ➡ extended exponence

Nasal copying: summary

1. morpheme-specific: triggered by /–ci/ (& its cognates)
2. only consonants that are directly adjacent to /–ci/ are copied
3. only adjacent affix-consonants are copied
   ➙ 2.+3.: only nasal consonants are copied
4. parts of affixes are copied

	1.	2.	3.	4.
Bantawa	☺	☺	☺	☺
Puma	☺	☺	☺	☺
Limbu	☺	☺	☺	☺
Athpare	☺	☺	☺	ø
Chamling	☺	☺	ø	ø
Belhare	☺	☺	ø	ø
Chintang	☺	☹	ø	ø
Yakkha	☺	☺	ø	☹
Yamphu	☺	☺	ø	☹

(☺=evidence found,
ø=no (counter-)evidence,
☹=counterevidence)

Syllable Copying

Past and non-past surface paradigms for Athpare (Ebert, 1997)

	1s	1de	1pe	1di	1pi	2s	2d	2p	3s	3d	3p
1s						lem-n-e	lem-na-c-e	lem-na-n-e	lems-u-ŋ-e	lems-u-ŋ-ciŋ-e	lems-u-ŋ-ciŋ-e
1de						lem-n-e	lem-na-c-e	lem-na-n-e	lems-a-c-u-ŋ-e	lems-a-c-u-ŋ-e	lems-a-c-u-ŋ-e
1pe						lem-n-e	lem-na-c-e	lem-na-n-e	lems-u-m-m-e	lems-u-m-cim-m-e	lems-u-m-cim-m-e
1di									lems-a-c-u-e	lems-a-c-u-e	lems-a-c-u-e
1pi									lems-u-m-e	lems-u-m-cim-e	lems-u-m-cim-e
2s	a-lems-a-ŋ-e	a-lems-a-ci-ŋ-e	a-lems-i-ŋ-e						a-lems-u-e	a-lems-u-c-e	a-lems-u-c-e
2d	a-lems-a-ci-ŋ-e	a-lems-a-ci-ŋ-e	a-lems-i-ŋ-e						a-lems-a-c-u-e	a-lems-a-c-u-e	a-lems-a-c-u-e
2p	a-lems-i-ŋ-e	a-lems-a-ci-ŋ-e	a-lems-i-ŋ-e						a-lems-u-m-e	a-lems-u-m-cim-e	a-lems-u-m-cim-e
3s	lems-a-ŋ-e	lems-a-ci-ŋ-e	lems-i-ŋ-e	a-lems-a-c-e	a-lems-e	m-a-lems-e	m-a-lems-a-c-e	m-a-lems-i-e	lems-u-e	lems-u-c-e	lems-u-c-e
3d	lems-a-ci-ŋ-e	lems-a-ci-ŋ-e	lems-i-ŋ-e	a-lems-a-c-e	a-lems-a-c-e	m-a-lems-e	m-a-lems-a-c-e	m-a-lems-i-e	lems-a-c-u-e	lems-a-c-u-e	lems-a-c-u-e
3p	o-lems-a-ŋ-e	o-lems-a-ci-ŋ-e	o-lems-i-ŋ-e	a-lems-a-c-e	a-lems-e	m-a-lems-e	m-a-lems-a-c-e	m-a-lems-i-e	o-lems-u-e	o-lems-u-c-e	o-lems-u-c-e

	1s	1de	1pe	1di	1pi	2s	2d	2p	3s	3d	3p
1s						lem-na-?a	lem-na-?a-ci	lem-na-?a-ni	lems-u-ŋ-tuŋ	lems-u-ŋ-ciŋ-ciŋ	lems-u-ŋ-ciŋ-ciŋ
1de						lem-na-?a	lem-na-?a-ci	lem-na-?a-ni	lem-c-u-cu-ŋa	lem-c-u-cu-ŋa	lem-c-u-cu-ŋa
1pe						lem-na-?a	lem-na-?a-ci	lem-na-?a-ni	lems-u-m-tum-ma	lems-u-m-cim-tum-ma	lems-u-m-cim-cim-ma
1di									lem-c-u-cu	lem-c-u-cu	lem-c-u-cu
1pi									lems-u-m-tum	lems-u-m-cim-cim	lems-u-m-cim-cim
2s	a-lem-ma-?a	a-lem-ci-ci-ŋa	a-lems-i-ti-ŋa						a-lems-u-tu	a-lem-c-u-ci-ci	a-lems-u-ci-ci
2d	a-lem-ci-ci-ŋa	a-lem-ci-ci-ŋa	a-lems-i-ti-ŋa						a-lem-c-u-cu	a-lem-c-u-cu	a-lem-c-u-cu
2p	a-lems-i-ti-ŋa	a-lem-ci-ci-ŋa	a-lems-i-ti-ŋa						a-lems-u-m-tum	a-lems-u-m-cim-cim	a-lems-u-m-cim-cim
3s	lem-ŋa-?a	lems-i-ti-ŋa	a-lem-ci-ci-ŋa	a-lem-ci-ci	a-lem-yuk	m-a-lem-yuk	m-a-lem-ci-ci	m-a-lems-i-ti	lems-u-tu	lems-u-ci-ci	lems-u-ci-ci
3d	lem-ci-ci-ŋa	lems-i-ti-ŋa	a-lem-ci-ci-ŋa	a-lem-ci-ci	a-lem-yuk	m-a-lem-yuk	m-a-lem-ci-ci	m-a-lems-i-ti	lem-c-u-cu	lem-c-u-cu	lem-c-u-cu
3p	o-lem-ŋa-?a	o-lem-ci-ci-ŋa	o-lems-i-ti-ŋa	a-lem-ci-ci	a-lem-yuk	m-a-lem-yuk	m-a-lem-ci-ci	m-a-lems-i-ti	o-lems-u-tu	o-lems-u-ci-ci	o-lems-u-ci-ci

Syllable copying in Athpare

- past marker /–e/; following all agreement suffixes
- non-past marker /–t/ preceding person agreement* and triggering copying of the affix-syllable preceding it

*Order P ≫ A ≫ N ≫ N-Pst ≫ Ps *but* the /–t/ must never be adjacent to the stem; reordering in, for example, /–ŋa/$_{+1+2}$–t/.

Syllable copying in Athpare

(19)   *Syllable copying triggered by /–t/*

    a.   *1–3 forms*

A\P	3s		3Ns	
1s	–u–ŋ–t	[uŋ.tuŋ]	–u–ŋ–tsi–t	[uŋ.tsiŋ.tsiŋ]
1de	–tsi–u–t–ŋa	[tsu.tsu.ŋa]	–tsi–u–t–ŋa	[tsu.tsu.ŋa]
1pe	–u–m–t–ŋa	[um.tumːa]	–u–m–tsi–t–ŋa	[um.tsim.tsimːa]
1di	–tsi–u–t	[tsu.tsu]	–tsi–u–t	[tsu.tsu]
1pi	–u–m–t	[um.tum]	–u–m–tsi–t	[um.tsim.tsim]

    b.   *Intransitive*

1s	–ŋa–t	[ŋa.ʔa]
1de	–tsi–t–ŋa	[tsi.tsi.ŋa]
1pe	–i–t–ŋa	[i.ti.ŋa]
1di	–tsi–t	[tsi.tsi]
1pi	–i–t	[i.ti]

Syllable copying in Athpare

- the maximal affix-syllable preceding /t/ is copied, including the onset (e.g. 1di.intr)
  /–tsi–t/ → tsi t tsi → [tsi.tsi]; *[tsi.ti]
  - *Phonology:* regular avoidance of vowel hiatus and /t+ts/ → [ts]

- interaction with nasal copying (e.g. 1s–3Ns)
  . . . /–ŋ–tsi/. . . → [. . . ŋtsiŋ. . .]
  . . . [. . . ŋ.tsiŋ] + /–t/ → [. . . ŋ.tsiŋ.tsiŋ]

Summary: Copying in Kiranti

Summary

- morpheme-specific processes
- differences in what restricts the size of the copied portion:
  - phonologically restricted
    ➙ nasal copying in Bantawa
  - sensitive to morpheme boundaries
    ➙ whole syllable copying in Athpare
    ➙ no partial affix copying in Yakkha & Yamphu

Theoretical account

One theoretical 'landscape' of copying
(Kawahara, 2007; Inkelas, 2008)

Phonological copying

(20)　Hocank (Miner, 1993)

Underlying	Surface	
ʃ–wapox	ʃawapox	'you stab'
ʃ–ruxuk	ʃuruxuk	'you earn'
hipres	hiperes	'know'

Autosegmental spreading (e.g. Kawahara, 2007) or string-internal correspondence (e.g. Inkelas, 2008).

Morphologial reduplication

(21)　Washo (Winter, 1970; Yu, 2008)

Base		Plural
suku?	'dog'	sukuku?
bɨk'ɨ	'grandmother's sister'	bɨk'ik'ɨ
bokoŋ	'snore'	bokokoŋ

RED-triggered BR-correspondence (e.g. Kawahara, 2007) or morphological doubling (e.g. Inkelas, 2008).

And Kiranti?

No!　　　　　∼ fixed segmentism reduplication?
(Alderete et al., 1999; Nevins, 2005)
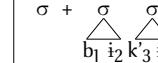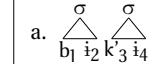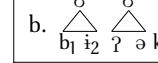*But:* blocked if no phonologically adjacent affix-C is present!

Another theoretical 'landscape' of copying
(Saba Kirchner, 2007, 2010)

(22)　*Three types of reduplication*

Phonological	**Morphological**	**Syntactic**
Phonology: Fission		Syntax: Node spelled out twice

- copying is a general phonological repair process
- modeled as fission in correspondence theory violating Integrity
  (Struijke, 2000; Nelson, 2003, e.g.)
- one marked structure that copying can avoid: otherwise empty prosodic nodes (24)

Copying as phonological repair

(23)　*Phonological reduplication*

$ʃ_1 + w_2a_3p_4o_5x_6$	*CC	Dep	Int
a. $ʃ_1w_2a_3p_4o_5x_6$	*!		
b. $ʃ_1əw_2a_3p_4o_5x_6$		*!	
☞ c. $ʃ_1a_3w_2a_3p_4o_5x_6$			*

(24)　*Morphological reduplication*

σ + σ σ　$b_1ɨ_2 k'_3 ɨ_4$	Max Flt	Dep	Int
a. σ σ　$b_1ɨ_2 k'_3 ɨ_4$	*!		
b. σ σ σ　$b_1ɨ_2 ʔ ə k'_3 ɨ_4$		*!	
c. σ σ σ　$b_1ɨ_2 k'_3 ɨ_4 k'_3 ɨ_4$			**
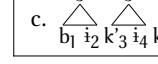
➙ the same (phonological) copying mechanism

Nasal copying: μ affixation

- representation of /–ci/ contains an empty μ that must be filled with segments (25-a)
- only nasals are copied: no obstruents in the coda (25-b)
- only affix material is copied: Integrity sensitive to $_{Af}$ and $_{St}$
  (cf. the overviews in Urbanczyk (2011) or Trommer (2010))

(25) a. μ>S
          Assign a violation mark to every μ not dominating a segment.

      b. *P]$_\sigma$ (cf. Botma and van der Torre, 2000; van der Hulst, 2008)
          Assign a violation mark for every obstruent in coda position.

Constraints

(25) a. DepS (?)
          Assign a violation mark for every output segment without a correspondent in the input.

      b. Integrity (=Int) (?)
          Assign a violation mark for every input segment wit multiple output correspondents

Nasal copying in OT

(26) *Nasal Copying in Bantawa*

μ 　　　　μ μ u₁ + ŋ₂+ c₃ i₄	μ>S	*P]$_\sigma$	Dep S	Int$_{St}$	Max μ	Int$_{Af}$
a. μ 　　　μ μ u₁ ŋ₂ c₃ i₄	*!					
b. μ 　　　μ u₁ ŋ₂ c₃ i₄					*!	
c. μ 　　　μ μ u₁ ŋ₂ c₃ i₄ c₃		*!				*
d. μ 　　　μ μ u₁ ŋ₂ c₃ i₄ n			*!			
☞ e. μ 　　　μ μ u₁ ŋ₂ c₃ i₄ ŋ₂						*

Syllable copying: σ affixation

- an empty σ must be filled with segments (27)
  (abbrev. for σ>μ and μ>S)
- the /t/ is underlyingly associated (as onset) to this syllable node, the copied syllable hence always follows it
- the σ dominated two μ's: if the preceding affix-syllable contains a coda, it is copied as well

(27) σ>S
      Assign a violation mark to every σ not dominating a segment.

Constraints

(27) a. Uniformity (=Unif) (?)
Assign a violation mark for every output segment corresponding to more than one input segment.

b. *[CC (?)
Assign a violation mark for every complex onset.

c. MaxAL
Assign a violation mark for every association line in the input between elements X and Y that lacks a corresponding association line in the output between corresponding elements x and y.

Syllable copying in OT

(28) *Syllable Copying in Athpare*

	$\sigma>$S	Dep S	Cont	Max AL	*tts	Int$_{St}$	Unif	Int$_{Af}$
a.	*!							
b.		*!						
☞ c.								*

Syllable copying in OT

- that the whole affix /–ci/ is copied follows from Contiguity (29)
- vs. nasal copying in other languages where parts of morphemes are copied – (29) is low-ranked in those

(29) Contiguity (=Cont) (after Landman, 2002)
For every pair of input elements X and Y that belong to the same morpheme and are contiguous:
Assign a violation mark if there are corresponding output elements x and y that are not contiguous.

Syllable copying in OT

(30) *Syllable Copying in Athpare*

	$\sigma>$S	Dep S	Cont	Max AL	*[CC	Int$_{St}$	Unif	Int$_{Af}$
a.	*!							
b.			*!					*
c.					*!			**
☞ d.							*	**

And the locality of the copying process?

- gradient Linearity is violated more often if more segments intervene between the copied segment and its copy – but it is violated in all optimal candidates; hence ranked below μ>S and Max-μ

(31) *Nasal Copying in Bantawa*

μ μ μ n₁ a₂₊ c₃ i₄	μ>S	*P]σ	Dep S	Int_St	Max μ	Lin	Int_Af
☛ a. μ μ n₁ a₂ c₃ i₄					*!		
☞ b. μ μ μ n₁ a₂ c₃ i₄ n₁						***	*

The locality of the copying process

- Harmonic Grammar with weighted constraints: only a certain amount of reordering is allowed to supply the otherwise empty nodes with material (Legendre et al., 1990; Pater, to appear)

(32) *Nasal Copying in Bantawa in HG*

μ μ μ n₁ a₂₊ c₃ i₄	μ>S 9	*P]σ 9	Dep S 9	Int_St 9	Max μ 8	Lin 3	Int_Af 1	H
☞ a. μ μ n₁ a₂ c₃ i₄						-1		-8
b. μ μ μ n₁ a₂ c₃ i₄ n₁						-3	-1	-10
a. μ μ u₁ ŋ₂ c₃ i₄						-1		-8
☞ b. μ μ μ u₁ ŋ₂ c₃ i₄ ŋ₂						-2	-1	-7

Conclusion

Further implications

- expected counterpart under a theory where prosodic nodes are affixed: templatic copying; attested in Chintang (Bickel et al., 2007) where v2 verbs subcatagorize for a disyllabic host

  (33) *Chintang recursive inflection (Bickel et al., 2007, 6)*

  kos–i–gond–i–ki–ŋa–niŋ
  walk–Pl–Amb–Pl–Npst–Ex–Neg
  'We (pl.excl) don't walk around'

- sensitivity to morphological boundaries (=Contig): affix doubling patterns as in Bole (triggered by final suffix; restrictions on which affixes can be doubled across which other affixes)

(34) *Bole affix doubling (Ryan and Schuh, under preparation, 2+3)*
ŋgòr–án–tá–ŋ–gó
tie–Pl.S–Fem.Sg.O–Pl.S–Compl
'they tied her'

Summary

- Affix copying in Kiranti is another argument that the distinction into phonological copying and morphological doubling can not be absolute: it is an intermediate case

  (cf., for example, Haugen (2009) for a similar argument made for μ-affixation)

- assuming that morphological and phonological reduplication are the result of the same phonological process (Saba Kirchner, 2010) allows to account for such 'intermediate' cases where morpheme-specific copying is restricted/can be blocked by phonological factors

References I

Alderete, John, Jill Beckman, Laura Benua, Amalia Gnanadesikan and John McCarthy (1999), 'Reduplication with fixed segmentism', *Linguistic Inquiry* **30**, 327–364.

Bickel, Balthasar, G. Banjade, Martin Gaenszle, Elena Lieven, Netra Paudyal, I. Rai, M. Rai, N. Rai and Sabine Stoll (2007), 'Free Prefix Ordering in Chintang', *Language* **83**, 43–73.

Botma, Bert and Erik van der Torre (2000), The prosodic interpretation of sonorants in Dutch, *in* 'Linguistics in the Netherlands 2000', John Benjamin, pp. 17–29.

Doornenbal, Marius (2009), *A Grammar of Bantawa*, LOT, Utrecht.

Ebert, Karen H. (1997), *A Grammar of Athpare*, Lincom Europa, München, Newcastle.

Halle, Morris and Alec Marantz (1993), Distributed Morphology and the pieces of inflection, *in* K.Hale and S. J.Keyser, eds, 'The View from Building 20', Cambridge MA: MIT Press, pp. 111–176.

Harley, Heidi and Rolf Noyer (1999), 'Distributed morphology', *Glot International* **4**.

Haugen, Jason (2009), 'Three challenges for morphological doubling theory', Workshop of the Division of Labour between Phonology and Morphology, 16th January, Amsterdam.

Inkelas, Sharon (2008), 'The dual theory of reduplication', *Linguistics* **46**, 351–401.

Kager, René (1999), *Optimality Theory*, Cambridge University Press, Cambridge.

Kawahara, Shigeto (2007), 'Copying and spreading in phonological theory: Evidence from echo epenthesis', *UMOP: Papers in Optimality Theory* **32**.

References II

Landman, Meredith (2002), Morphological contiguity, *in* A.Carpenter, A.Coetzee and P.de Lacy, eds, 'Papers in Optimality Theory II: University of Massachusetts-Amherst Occasional Papers in Linguistics', GLSA, Amherst, MA.

Legendre, Geraldine, Yoshiro Miyata and Paul Smolensky (1990), 'Harmonic grammar – a formal multi-level connectionist theory of linguistic well-formedness: Theoretical foundations', *Proceedings of the 12th annual conference of the cognitive science society* pp. 388–395.

McCarthy, John and Alan Prince (1995), Faithfulness and reduplicative identity, *in* J.Beckman, L.Dickey and S.Urbanczyk, eds, 'UMOP', GLSA, Amherst, MA, pp. 249–384.

Miner, Kenneth (1993), 'On some theoretical implications of Winnebago phonology', *Kansas Working Papers in Linguistics* **18**, 111–130.

Nelson, Nicole Alice (2003), Asymmetric Achoring, PhD thesis, Rutgers University.

Nevins, Andrew (2005), 'Overwriting does not optimize in non-concatenative morphology', *Linguistic Inquiry* **36**(2), 275–287.

Pater, Joe (to appear), Universal grammar with weighted constraints, *in* 'Harmonic Grammar and Harmonic Serialism', Equinox.

Ryan, Kevin and Russell Schuh (under preparation), 'Suffix doubling and suffix deletion in Bole', available at http://www.linguistics.ucla.edu/people/grads/kmryan/.

References III

Saba Kirchner, Jesse (2007), 'The phonology of lexical underspecification', ms. University of California, online available at http://jessesabakirchner.com/docs/2007-phonology-of-lexical-underspecification.pdf.

Saba Kirchner, Jesse (2010), Minimal Reduplication, PhD thesis, University of California at Santa Cruz. ROA 1078-0610.

Struijke, Caro (2000), Existential Faithfulness. A Study of Reduplicative TETU, Feature Movement, and Dissimilation, PhD thesis, University of Maryland at College Park.

Trommer, Jochen (2010), 'Paradigmatic generalization of morphemes', *Linguistische Arbeits Berichte Leipzig* **88**, 227–246.

Urbanczyk, Suzanne (2011), Root-affix asymmetries, *in* M.van Oostendorp, C. J.Ewen, E.Hume and K.Rice, eds, 'The Blackwell Companion to Phonology', Wiley Blackwell, Malden MA, chapter 104.

van der Hulst, Harry (2008), 'The Dutch diminutive', *Lingua* **118**, 1288–1306.

Winter, Werner (1970), 'Reduplication in Washo: A restatement', *International Journal of American Linguistics* **35**, 190–198.

Yu, Alan (2008), 'Two patterns of reduplication in Washo', *BLS 34* .

Zimmermann, Eva (2015), Hierarchy-governed affix order in Eastern Kiranti, *in* S.Manova, ed., 'Affix ordering across languages and frameworks', Oxford University Press, pp. 124–153.

Bantawa: non-past paradigm, surface forms (Doornenbal, 2009)

	1s	1de	1pe	1di	1pl	2s	2d	2p	3s	3d	3p
1s						kʰat-na	kʰat-na-ci	kʰat-na-nin	kʰatt-u-ŋ	kʰatt-u-ŋ-ciŋ	kʰatt-u-ŋ-ciŋ
1de						kʰat-ni	kʰat-ni	kʰat-ni	kʰat-c-u-ŋ	kʰat-c-u-ci-ʔa	kʰat-c-u-ci-ʔa
1pe						kʰat-ni	kʰat-ni	kʰat-ni	kʰatt-u-m-ka	kʰatt-u-m-cim-ka	kʰatt-u-m-cim-ka
1di									kʰat-c-u	kʰat-c-u-ci	kʰat-c-u-ci
1pl									kʰatt-u-m	kʰatt-u-m-cim	kʰatt-u-m-cim
2s	ti-kʰat-ŋa	ti-kʰat-ni	ti-kʰat-ni						ti-kʰatt-u	ti-kʰatt-u-ci	ti-kʰatt-u-ci
2d	ti-kʰat-ŋaŋ-ciŋ	ti-kʰat-ni	ti-kʰat-ni						ti-kʰat-c-u	ti-kʰat-c-u-ci	ti-kʰat-c-u-ci
2p	ti-kʰat-ŋaŋ-niŋ	ti-kʰat-ni	ti-kʰat-ni						ti-kʰatt-u-m	ti-kʰatt-u-m-cim	ti-kʰatt-u-m-cum
3s	i-kʰat-ŋa	ni-kʰatt-a-ci-ʔa	ni-kʰatt-in-ka	ni-kʰat-ci	mi-kʰat	ni-kʰat	ni-kʰatt-ci	ni-kʰatt-in	kʰatt-u	kʰatt-u-ci	kʰatt-u-ci
3d	i-kʰat-ŋaŋ-ciŋ	ni-kʰatt-a-ci-ʔa	ni-kʰatt-in-ka	ni-kʰat-ci	mi-kʰat	ni-kʰat	ni-kʰatt-ci	ni-kʰatt-in	i-kʰat-c-u	i-kʰat-c-u-ci	i-kʰat-c-u-ci
3p	ni-kʰat-ŋa	ni-kʰatt-a-ci-ʔa	ni-kʰatt-in-ka	ni-kʰat-ci	mi-kʰat	ni-kʰat	ni-kʰatt-ci	ni-kʰatt-in	i-kʰat	mi-kʰatt-u-ci	mi-kʰatt-u-ci

Athpare: past paradigm, surface forms (Ebert, 1997)

	1s	1de	1pe	1di	1pl	2s	2d	2p	3s	3d	3p
1s						lem-n-e	lem-na-c-e	lem-na-n-e	lems-u-ŋ-e	lems-u-ŋ-ciŋ-e	lems-u-ŋ-ciŋ-e
1de						lem-n-e	lem-na-c-e	lem-na-n-e	lems-a-c-u-ŋ-e	lems-a-c-u-ŋ-e	lems-a-c-u-ŋ-e
1pe						lem-n-e	lem-na-c-e	lem-na-n-e	lems-u-m-m-e	lems-u-m-cim-m-e	lems-u-m-cim-m-e
1di									lems-a-c-u-e	lems-a-c-u-e	lems-a-c-u-e
1pl									lems-u-m-e	lems-u-m-cim-e	lems-u-m-cim-e
2s	a-lems-a-ŋ-e	a-lems-a-ci-ŋ-e	a-lems-i-ŋ-e						a-lems-u-e	a-lems-u-c-e	a-lems-u-c-e
2d	a-lems-a-ci-ŋ-e	a-lems-a-ci-ŋ-e	a-lems-i-ŋ-e						a-lems-a-c-u-e	a-lems-a-c-u-e	a-lems-a-c-u-e
2p	a-lems-i-ŋ-e	a-lems-i-ŋ-e	a-lems-i-ŋ-e						a-lems-u-m-e	a-lems-u-m-cim-e	a-lems-u-m-cim-e
3s	a-lems-a-ŋ-e	a-lems-a-ci-ŋ-e	a-lems-i-ŋ-e	a-lems-a-c-e	a-lems-e	m-a-lems-e	m-a-lems-a-c-e	m-a-lems-i-e	lems-u-e	lems-u-c-e	lems-u-c-e
3d	a-lems-a-ci-ŋ-e	a-lems-a-ci-ŋ-e	a-lems-i-ŋ-e	a-lems-a-c-e	a-lems-e	m-a-lems-e	m-a-lems-a-c-e	m-a-lems-i-e	lems-a-c-u-e	lems-a-c-u-e	lems-a-c-u-e
3p	o-lems-a-ŋ-e	o-lems-a-ci-ŋ-e	o-lems-i-ŋ-e	a-lems-a-c-e	a-lems-e	m-a-lems-e	m-a-lems-a-c-e	m-a-lems-i-e	o-lems-u-e	o-lems-u-c-e	o-lems-u-c-e

Athpare: non-past paradigm, surface forms (Ebert, 1997)

	1s	1de	1pe	1di	1pl	2s	2d	2p	3s	3d	3p
1s						lem-na-ʔa	lem-na-ʔa-ci	lem-na-ʔa-ni	lems-u-ŋ-tuŋ	lems-u-ŋ-ciŋ-ciŋ	lems-u-ŋ-ciŋ-ciŋ
1de						lem-na-ʔa	lem-na-ʔa-ci	lem-na-ʔa-ni	lem-c-u-cu-ŋa	lem-c-u-cu-ŋa	lem-c-u-cu-ŋa
1pe						lem-na-ʔa	lem-na-ʔa-ci	lem-na-ʔa-ni	lems-u-m-tum-ma	lems-u-m-cim-cim-ma	lems-u-m-cim-cim-ma
1di									lem-c-u-cu	lem-c-u-cu	lem-c-u-cu
1pl									lems-u-m-tum	lems-u-m-cim-cim	lems-u-m-cim-cim
2s	a-lem-ma-ʔa	a-lem-ci-ŋa	a-lems-i-ti-ŋa						a-lems-u-tu	a-lems-u-ci-ci	a-lems-u-ci-ci
2d	a-lem-ci-ci-ŋa	a-lem-ci-ci-ŋa	a-lems-i-ti-ŋa						a-lem-c-u-cu	a-lem-c-u-cu	a-lem-c-u-cu
2p	a-lems-i-ti-ŋa	a-lems-i-ti-ŋa	a-lems-i-ti-ŋa						a-lems-u-m-tum	a-lems-u-m-cim-cim	a-lems-u-m-cim-cim
3s	a-lem-ŋa-ʔa	lem-ci-ci-ŋa	lems-i-ti-ŋa	a-lem-ci-ci	lems-i-ti	m-a-lem-ci-ci	m-a-lems-i-ti	m-a-lems-i-ti	lems-u-tu	lems-u-ci-ci	lems-u-ci-ci
3d	lem-ci-ci-ŋa	lems-i-ti-ŋa	lems-i-ti-ŋa	a-lem-ci-ci	lems-i-ti	m-a-lem-yuk	m-a-lem-ci-ci	m-a-lems-i-ti	lem-c-u-cu	lem-c-u-cu	lem-c-u-cu
3p	o-lem-ŋa-ʔa	o-lem-ci-ci-ŋa	o-lems-i-ti-ŋa	a-lem-ci-ci	lems-i-ti	m-a-lem-yuk	m-a-lem-ci-ci	m-a-lems-i-ti	o-lems-u-tu	o-lems-u-ci-ci	o-lems-u-ci-ci