Fairies land only at midnight:

on laryngeal sonorant/vowel roots in Korean

Daniel Gleim & Hyunjung Lee
University of Leipzig

MFM 27, University of Manchester

23rd May 2019

UNIVERSITÄT LEIPZIG

iGRA
INTERACTION OF GRAMMATICAL BUILDING BLOCKS

Overview

- A class of **sonorant/vowel final verb roots, "Fairy Roots"**, shows seemingly disparate quirky patterns.

- These patterns can be captured in a unified way with assuming underlying **floating features** and stratal OT.
- The floating feature creates a laryngeal sonorant that is present only **at an intermediate level** of the derivation (Duke-of-York).
- Accounts with simpler representations face severe problems.

Data

Laryngeal contrasts

- Korean has a three-way distinction in terms of laryngeal contrast in obstruents.
- This contrast is neutralised in coda position.

(1)	a.	/kal/	[**k**al]	'Zacco platypus (which turns red when it is about to lay eggs)'
	b.	/k^{h}al/	[**k^{h}**al]	'knife'
	c.	/k'al/	[**k'**al]	'color'

(2)	a.	/pjək/	[pjə**k**]	'wall'
	b.	/puək^{h}/	[pu.ə**k**]	'kitchen'
	c.	/pak'/	[pa**k**]	'outside'

- Vowels and sonorants do not show such contrasts on the surface!

Vowel Fairy Roots

- Vowel final roots generally do not affect the plain obstruent initial suffixes (3-a) (4-a).
- Fairy roots idiosyncratically induce laryngeal contrasts onto these suffixes (3-b,c) (4-b,c).

(3)	a.	/na-ta/	→	[na.**t**a]	‘occur’
	b.	/na^{ʔ}-ta/	→	[na.**t’**a]	‘get.better’
	c.	/na^{h}-ta/	→	[na.**t**$^{\mathbf{h}}$a]	‘give.birth’
(4)	a.	/na-ko/	→	[na.**k**o]	‘occur’
	b.	/na^{ʔ}-ko/	→	[na.**k’**o]	‘get.better’
	c.	/na^{h}-ko/	→	[na.**k**$^{\mathbf{h}}$o]	‘give.birth’

Vowel Fairy Roots

- Vowel final roots generally do not affect the plain obstruent initial suffixes (3-a) (4-a).
- Fairy roots idiosyncratically induce laryngeal contrasts onto these suffixes (3-b,c) (4-b,c).

(3)	a.	/na-ta/	→	[na.**t**a]	'occur'
	b.	/na^{ʔ}-ta/	→	[na.**t'**a]	'get.better'
	c.	/na^{h}-ta/	→	[na.**t^{h}**a]	'give.birth'
(4)	a.	/na-ko/	→	[na.**k**o]	'occur'
	b.	/na^{ʔ}-ko/	→	[na.**k'**o]	'get.better'
	c.	/na^{h}-ko/	→	[na.**k^{h}**o]	'give.birth'

Sonorant Fairy Roots

- Sonorant-final roots may be fairy roots, as well.
- However, they are more restricted (cf. Albright and Kang (2009)):

(5)	a.	/al-ta/	→	[al.**t**a]	'know'	
	b.	/al^{h}-ta/	→	[al.**t$^{\mathbf{h}}$**a]	'suffer'	
(6)	a.	/an^{ʔ}-ta/	→	[an.**t'**a]	'hug'	
	b.	/an^{h}-ta/	→	[an.**t$^{\mathbf{h}}$**a]	'do.not'	
(7)		/kam^{ʔ}-ta/	→	[kam.**t'**a]	'wind'	

Sonorant Fairy Roots

- Sonorant-final roots may be fairy roots, as well.
- However, they are more restricted (cf. Albright and Kang (2009)):

(5) a. /al-ta/ → [al.**t**a] ‘know’

b. /al^{h}-ta/ → [al.**t$^{\mathbf{h}}$**a] ‘suffer’

(6) a. /an^{ʔ}-ta/ → [an.**t’**a] ‘hug’

b. /an^{h}-ta/ → [an.**t$^{\mathbf{h}}$**a] ‘do.not’

(7) /kam^{ʔ}-ta/ → [kam.**t’**a] ‘wind’

Puzzles

Fusion

- The inflectional affix -ə/-a/-jə optionally fuses with a preceding vowel (cf. Jun and Albright (2017)).

(8)	a.	/o-a/	→	[wa]	'come.INFL'
	b.	/p^hi-ə/	→	[p^hjə]	'blossom.INFL'
	c.	/na-a/	→	[na]	'occur.INFL'

Blocking of fusion

- If this affix attaches to a fairy root , fusion is blocked.

(9)	a.	/co^{h}-a/	→	[co.a]	*[cwa]	'good.INFL'
	b.	/i^{ʔ}-ə/	→	[i.ə]	*[jə]	'tie.INFL'
	c.	/na^{ʔ}-a/	→	[na.a]	*[na]	'get.better.INFL'
	d.	/na^{h}-a/	→	[na.a]	*[na]	'give.birth.INFL'

Gemination

- Allomorph-less sonorant-initial affixes geminate, if attached to a fairy root.

(10)

a.	/po-ni/	→	[po.ni]	‘see.Q’
b.	/mək-ni/	→	[mək.ni]	‘eat.Q’

(11)

a.	/co^{h}-ni/	→	[con.ni]	‘be.good.Q’
b.	/na^{ʔ}-ni/	→	[nan.ni]	‘get.better.Q’
c.	/na^{h}-ni/	→	[nan.ni]	‘give.birth.Q’

Allomorph selection 1

➢ Fairy roots unexpectedly select the elsewhere allomorph ‘sɨmnita’.

(12)	a.	/po/- {mnita, sɨmnita}	→	[pom.ni.ta]	‘see.FORM’
	b.	/mək/-{mnita, sɨmnita}	→	[mək.sɨm.ni.ta]	‘eat.FORM’
(13)	a.	/co^{h}/-{mnita, sɨmnita}	→	[co.sɨm.ni.ta]	‘be.good.FORM’
	b.	/na^{ʔ}/-{mnita, sɨmnita}	→	[na.sɨm.ni.ta]	‘get.better.FORM’

Allomorph selection 2

- More unexpected allomorph selection by fairy roots can be observed with the elsewhere allomorph *‘ɨn’*.

(14)
a. /po/-{n, ɨn} → [pon] ‘seen’
b. /mək/-{n, ɨn} → [mə.kɨn] ‘eaten’

(15)
a. /co^{h}/-{n, ɨn} → [co.ɨn] ‘been.good’
b. /na^{ʔ}/-{n, ɨn} → [na.ɨn] ‘got.better’

Interim Summary

(16)

Roots	-C	fusion	allomorphy	gemination
V	-C	✓	✓	✗
 V^h	$-C^h$	✗	✗	✓
 $V^ʔ$	-C’	✗	✗	✓
l	-C	—	✓	—
 l^h	$-C^h$	—	✗	—
 $n^ʔ$	-C’	—	✓	—
 n^h	$-C^h$	—	✓	—
 $m^ʔ$	-C’	—	✓	—
C	-C’	—	✓	—

Interim Summary

(17)

Roots	-C	fusion	allomorphy	gemination
V	-C	✓	✓	✗
V^h	$-C^h$	✗	✗	✓
$V^ʔ$	-C’	✗	✗	✓
l	-C	—	✓	—
l^h	$-C^h$	—	✗	—
$n^ʔ$	-C’	—	✓	—
n^h	$-C^h$	—	✓	—
$m^ʔ$	-C’	—	✓	—
C	-C’	—	✓	—

All the nasal-final roots are fairy roots!

Proposal

Representation

- We propose that a floating laryngeal feature +F is a part of the underlying representation of fairy roots.

(18) /na^{+sg}/ 'give.birth'

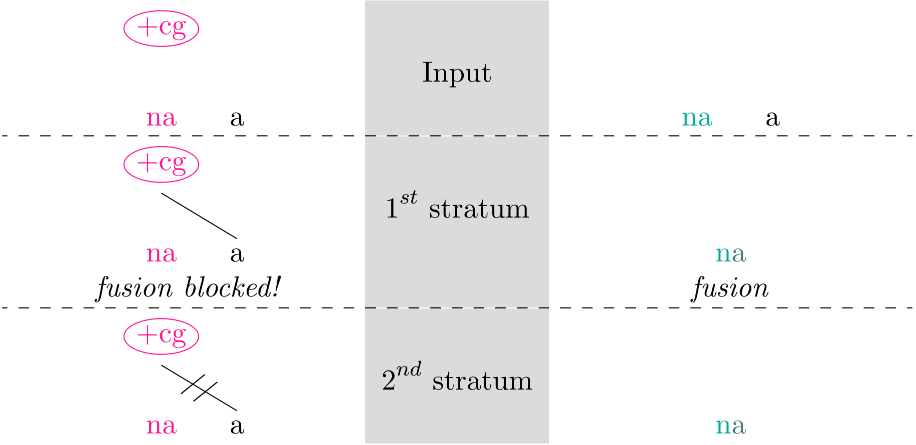
(19) /na^{+cg}/ 'get.better'

(20) /na/ 'occur'

Derivation

- We derive the three puzzles with a feeding/bleeding Duke-of-York gambit (Bermúdez-Otero, Ricardo 2001).
- in the first stratum the floating feature
  - docks to any affix.
  - influences allomorph selection.
  - blocks fusion.
  - induces gemination.
- in the next stratum
  - the laryngeal specification is neutralised.

Sample Illustration



Assumptions

- Stratal OT (Kiparsky, Paul 2000; Bermúdez-Otero, Ricardo 2001).
- Floating Features (Zoll 1993, 1996) .

Analysis

Constraints

- *FLOAT
  Assign * to every feature F that is not linked to a root node •

- ALTERNATION
  Assign * to every epenthetic association line between elements having the same morphological affiliation
  cf. Morphological Colour Revithiadou (2007); **?**)

- DEP •
  Assign * to every epenthetic root node •

- $*V^{ʔ/h}$
  Assign * to every vowel root node linked to [+cg]/[+sg]

Stem-level Optimization

T₁. Stem-level,

MAXF, *FLOAT ≫ *V^h

I: co (+sg) − a	MAXF	*FLOAT	DEP •	ALTER	*ν([+sg][-sg])	*V.V	*V^h
O^1: co(+sg)a		*!				*	
☞ O^2: co.a^h						*	*
O^3: cwa	*!						*
O^4: co.ha			*!				
O^5: $cw^h a^h$				*!			**
O^6: cwa^h					*!		*

- *ν([+sg][-sg])
  Assign * to every nucleus linked to opposite values of [±sg]
  (cf. Kehrein, Wolfgang and Golston, Chris (2004))
- *V.V
  Assign * to adjacent heterosyllabic vowels

Stem-level Optimization

T_1. Stem-level, MaxF, *Float ≫ *V^h

I: co (+sg) – a	MaxF	*Float	Dep •	Alter	*ν([+sg][-sg])	*V.V	*V^h
O^1: co(+sg)a		*!				*	
☞ O^2: co.a^h						*	*
O^3: cwa	*!						*
O^4: co.ha			*!				
O^5: $cw^h a^h$				*!			**
O^6: cwa^h					*!		*

- *ν([+sg][-sg])
  Assign * to every nucleus linked to opposite values of [±sg]
  (cf. Kehrein, Wolfgang and Golston, Chris (2004))
- *V.V
  Assign * to adjacent heterosyllabic vowels

Stem-level Optimization

T₁. Stem-level, MaxF, *Float ≫ $*V^h$

I: co (+sg) – a	MaxF	*Float	Dep •	Alter	*ν([+sg][-sg])	*V.V	$*V^h$
O^1: co(+sg)a		*!				*	
☞ O^2: co.a^h						*	*
O^3: cwa	*!						*
O^4: co.ha			*!				
O^5: $cw^h a^h$				*!			**
O^6: cwa^h					*!		*

- *ν([+sg][-sg])
  Assign * to every nucleus linked to opposite values of [±sg]
  (cf. Kehrein, Wolfgang and Golston, Chris (2004))
- *V.V
  Assign * to adjacent heterosyllabic vowels

Stem-level Optimization

T₁. Stem-level, MaxF, *Float ≫ *V^h

I: co (+sg) – a	MaxF	*Float	Dep •	Alter	*ν([+sg][-sg])	*V.V	*V^h
O^1: co(+sg)a		*!				*	
☞ O^2: co.a^h						*	*
O^3: cwa	*!						*
O^4: co.ha			*!				
O^5: $cw^h a^h$				*!			**
O^6: cwa^h					*!		*

- *ν([+sg][-sg])
  Assign * to every nucleus linked to opposite values of [±sg]
  (cf. Kehrein, Wolfgang and Golston, Chris (2004))
- *V.V
  Assign * to adjacent heterosyllabic vowels

Stem-level Optimization

T₁. Stem-level,

MaxF, *Float ≫ *V^h

I: co (+sg) – a	MaxF	*Float	Dep •	Alter	*ν([+sg][-sg])	*V.V	*V^h
O^1: co(+sg)a		*!				*	
☞ O^2: co.a^h						*	*
O^3: cwa	*!						*
O^4: co.ha			*!				
O^5: cw^{h}a^h				*!			**
O^6: cwa^h					*!		*

- *ν([+sg][-sg])
  Assign * to every nucleus linked to opposite values of [±sg]
  (cf. Kehrein, Wolfgang and Golston, Chris (2004))
- *V.V
  Assign * to adjacent heterosyllabic vowels

Stem-level Optimization

T₁. Stem-level,

MaxF, *Float ≫ *V^h

I: co (+sg) – a	MaxF	*Float	Dep •	Alter	*ν([+sg][-sg])	*V.V	*V^h
O^1: co(+sg)a		*!				*	
☞ O^2: co.a^h						*	*
O^3: cwa	*!						*
O^4: co.ha			*!				
O^5: $cw^h a^h$				*!			**
O^6: cwa^h					*!		*

- *ν([+sg][-sg])
  Assign * to every nucleus linked to opposite values of [±sg]
  (cf. Kehrein, Wolfgang and Golston, Chris (2004))
- *V.V
  Assign * to adjacent heterosyllabic vowels

Stem-level Optimization

T₁. Stem-level,

MaxF, *Float ≫ $*V^h$

I: co (+sg) – a	MaxF	*Float	Dep •	Alter	*ν([+sg][-sg])	*V.V	$*V^h$
O^1: co(+sg)a		*!				*	
☞ O^2: co.a^h						*	*
O^3: cwa	*!						*
O^4: co.ha			*!				
O^5: cw^{h}a^h				*!			**
O^6: cwa^h					*!		*

- *ν([+sg][-sg])
  Assign * to every nucleus linked to opposite values of [±sg]
  (cf. Kehrein, Wolfgang and Golston, Chris (2004))
- *V.V
  Assign * to adjacent heterosyllabic vowels

Stem-level Optimization

T₁. Stem-level,

MaxF, *Float ≫ *V^h

	I: co (+sg) – a	MaxF	*Float	Dep •	AltR	*ν([+sg][-sg])	*V.V	*V^h
	O^1: co(+sg)a		*!				*	
☞	O^2: co.a^h						*	*
	O^3: cwa	*!						*
	O^4: co.ha			*!				
	O^5: cw^{h}a^h				*!			**
	O^6: cwa^h					*!		*

At the stem level the laryngeal contrast can survive on any suffixes, even if they are Vowel/Sonorant.

Word-level Optimization

T₂. Word-level

$*V^h \gg$ MaxF

I: co.a^h	$*V^h$	Max(σ)	*V.V	MaxF
O^1: co.a^h	*!			
☞ O^2: co.a			*	*
O^3: cwa		*!		*

- Max(σ): Assign * to every input syllable which is not present in the output

At the word level the laryngeal specification is neutralised.

Word-level Optimization

$*V^h \gg$ MAXF

T_2. *Word-level*

I: co.a^h	$*V^h$	MAX(σ)	*V.V	MAXF
O^1: co.a^h	*!			
☞ O^2: co.a			*	*
O^3: cwa		*!		*

➢ MAX(σ): Assign * to every input syllable which is not present in the output

At the word level the laryngeal specification is neutralised.

Word-level Optimization

T_2. *Word-level*

$*V^h \gg$ MaxF

I: co.a^h	$*V^h$	Max(σ)	$*V.V$	MaxF
O^1: co.a^h	*!			
☞ O^2: co.a			*	*
O^3: cwa		*!		*

- Max(σ): Assign * to every input syllable which is not present in the output

At the word level the laryngeal specification is neutralised.

Word-level Optimization

$*V^h \gg$ MAXF

T₂. Word-level

I: co.a^h	$*V^h$	MAX(σ)	*V.V	MAXF
O^1: co.a^h	*!			
☞ O^2: co.a			*	*
O^3: cwa		*!		*

- MAX(σ): Assign * to every input syllable which is not present in the output

At the word level the laryngeal specification is neutralised.

Duke-of-York Gambit

(21)

co+sg-a	UR	ABC
coa^{h}	Feature Docking	ABD
cannot apply	Fusion	–
coa	Feature Deletion	ABC

Stem level: Gemination

T_3. Stem-level,

I: co +sg -ni	$S^h \rightarrow \mu$	DEP μ	$*S^h$
O^1: co.n^{h}i	*!		*
☞ O^2: con$^h_\mu$i		*	**

- $S^h \rightarrow \mu$: Assign * to every laryngeally specified sonorant node which is not moraic
- Assumption: Geminates are moraic, whereas coda consonants are not moraic (There is no evidence for moraicity of codas).

Stem level: Gemination

T_3. Stem-level,

I: co+sg-ni	$S^h \rightarrow \mu$	DEP μ	$*S^h$
O^1: co.n^{h}i	*!		*
☞ O^2: con$^h_\mu$i		*	**

- $S^h \rightarrow \mu$: Assign * to every laryngeally specified sonorant node which is not moraic
- Assumption: Geminates are moraic, whereas coda consonants are not moraic (There is no evidence for moraicity of codas).

Stem level: Gemination

T_3. Stem-level,

I: co+sg-ni	$S^h \rightarrow \mu$	DEP μ	$*S^h$
O^1: co.n^{h}i	*!		*
☞ O^2: con$^h_\mu$i		*	**

- $S^h \rightarrow \mu$: Assign * to every laryngeally specified sonorant node which is not moraic
- Assumption: Geminates are moraic, whereas coda consonants are not moraic (There is no evidence for moraicity of codas).

Stem level: Gemination

T_3. Stem-level,

I: co+sg-ni	$S^h \rightarrow \mu$	DEP μ	$*S^h$
O^1: co.n^{h}i	*!		*
☞ O^2: con$^h_\mu$i		*	**

- $S^h \rightarrow \mu$: Assign * to every laryngeally specified sonorant node which is not moraic
- Assumption: Geminates are moraic, whereas coda consonants are not moraic (There is no evidence for moraicity of codas).

Stem level: Gemination

T_3. Stem-level,

I: co +sg -ni	$S^h \rightarrow \mu$	DEP μ	$*S^h$
O^1: co.n^{h}i	*!		*
☞ O^2: con$^h_\mu$i		*	*

At the stem level, a geminate with laryngeal specification is optimal.

Stem level: Allomorph selection {ɨn, n}

T4. Stem-level, allomorph selection

I: co +sg {ɨn, n}	$S^h \rightarrow \mu$	DEP μ	*V.V	$*V^h$	$*S^h$
☞ O^1: co.ɨ^{h}n			*	*	
O^2: con^h	*!				*
O^3: con$^h_\mu$		*!			**

Stem level: Allomorph selection {ɨn, n}

T_4. Stem-level, allomorph selection

I: co +sg {ɨn, n}	$S^h \rightarrow \mu$	DEP μ	*V.V	*V^h	*S^h
☞ O^1: co.ɨ^{h}n			*	*	
O^2: con^h	*!				*
O^3: con$^h_\mu$		*!			**

Stem level: Allomorph selection {mnita, sɨmnita}

T_5. Stem-level, allomorph selection

I: co +sg {mnita, sɨmnita}	$S^h \rightarrow \mu$	DEP μ	*V.V	*V^h	*S^h
☞ O^1: co.s^hɨm.ni.ta					
O^2: com^h.ni.ta	*!				*
O^3: com^h_μni.ta		*!			**

Stem level: Allomorph selection {mnita, sɨmnita}

T_5. Stem-level, allomorph selection

I: co +sg {mnita, sɨmnita}	$S^h \rightarrow \mu$	DEP μ	*V.V	*V^h	*S^h
☞ O^1: co.s^hɨm.ni.ta					
O^2: com^h.ni.ta	*!				*
O^3: com^h_μni.ta		*!			**

Stem level: Allomorph selection {mnita, sɨmnita}

T_5. Stem-level, allomorph selection

I: co +sg {mnita, sɨmnita}	$S^h \to \mu$	Dep μ	*V.V	*V^h	*S^h
☞ O^1: co.s^{h}ɨm.ni.ta					
O^2: com^h.ni.ta	*!				*
O^3: com$^h_\mu$ni.ta		*!			**

Could our analysis get simpler?

Argument for floating features

- Our representation:

(22) /na^{+sg}/ 'give.birth'

(23) /na^{+cg}/ 'get.better'

(24) /na/ 'occur'

Argument for floating features

- Our representation:

(22)	/na +sg/ 'give.birth'	(23)	/na +cg/ 'get.better'	(24)	/na/ 'occur'

- Alternative representation:

(25)	/nah/ 'give.birth'	(26)	/naʔ/ 'get.better'	(27)	/na/ 'occur'

Argument for floating features

- However, Korean has no intervocalic /h/-deletion:

(28)	a.	/ihon/	$\rightarrow$	[i.**h**on]	'divorce'
				*[i.**o**n]	
	b.	/co**h**-a-hæ/	$\rightarrow$	[co.**a**.hæ]	'like.TR'
				*[co.**h**a.hæ]	
				*[co.**a**.æ]	

Argument against indexed constraints

- In this approach, morpheme specific phonology is derived by lexically indexed constraints (e.g. Benua (1997b,a))
- Alternative Representation:

(29) /na_{A}/ 'give.birth'

(30) /na_{B}/ 'get.better'

(31) /na_{C}/ 'occur'

Argument against indexed constraints

- Alternative Representation:

(32)	/na_{A}/ 'give.birth'	(33)	/na_{B}/ 'get.better'	(34)	/na_{C}/ 'occur'

- Necessary Constraints:

Argument against indexed constraints

- Alternative Representation:

(32) /na_{A}/ 'give.birth' (33) /na_{B}/ 'get.better' (34) /na_{C}/ 'occur'

- Necessary Constraints:
  - $^*\mathrm{VC}_{\mathrm{A,B}}$: No plain obstruent in this context

Argument against indexed constraints

- Alternative Representation:

(32) /na_{A}/ 'give.birth' (33) /na_{B}/ 'get.better' (34) /na_{C}/ 'occur'

- Necessary Constraints:
  - *$\text{VC}_{\text{A,B}}$: No plain obstruent in this context
  - *VC'_{A}: No glottalised obstruent in this context

Argument against indexed constraints

- Alternative Representation:

(32) /na_{A}/ 'give.birth'

(33) /na_{B}/ 'get.better'

(34) /na_{C}/ 'occur'

- Necessary Constraints:
  - $*\text{VC}_{\text{A,B}}$: No plain obstruent in this context
  - $*\text{VC'}_{\text{A}}$: No glottalised obstruent in this context
  - $*\text{VC}^{\text{h}}{}_{\text{B}}$: No aspirated obstruent in this context

Argument against indexed constraints

- Alternative Representation:

(32) /na_{A}/ 'give.birth' (33) /na_{B}/ 'get.better' (34) /na_{C}/ 'occur'

- Necessary Constraints:
  - *$\text{VC}_{\text{A,B}}$: No plain obstruent in this context
  - *VC'_{A}: No glottalised obstruent in this context
  - *$\text{VC}^{\text{h}}{}_{\text{B}}$: No aspirated obstruent in this context
  - $\textsc{Uniformity}_{\text{A,B}}$: No fusion in this context

Argument against indexed constraints

- Alternative Representation:

(32) /na_A/ 'give.birth' (33) /na_B/ 'get.better' (34) /na_C/ 'occur'

- Necessary Constraints:
  - $*VC_{A,B}$: No plain obstruent in this context
  - $*VC'_{A}$: No glottalised obstruent in this context
  - $*VC^{h}{}_{B}$: No aspirated obstruent in this context
  - $\textsc{Uniformity}_{A,B}$: No fusion in this context
  - $S \rightarrow \mu_{A,B}$: Gemination of sonorants in this context

Argument against indexed constraints

- Alternative Representation:

(32) /na_{A}/ 'give.birth'   (33) /na_{B}/ 'get.better'   (34) /na_{C}/ 'occur'

- Necessary Constraints:
  - $^*\text{VC}_{\text{A,B}}$: No plain obstruent in this context
  - $^*\text{VC'}_{\text{A}}$: No glottalised obstruent in this context
  - $^*\text{VC}^{\text{h}}{}_{\text{B}}$: No aspirated obstruent in this context
  - $\text{UNIFORMITY}_{\text{A,B}}$: No fusion in this context
  - $\text{S} \rightarrow \mu_{\text{A,B}}$: Gemination of sonorants in this context
  - …

- In addition, allomorph selection should be able to have an access to the indices.

Argument against cophonology

- In this approach, morpheme specific phonology is derived by morpheme specific rankings (e.g. Orgun (1996, 1998); Inkelas (1998)).

- Alternative Representation:

(35)	/nah/ 'give.birth'	(36)	/naʔ/ 'get.better'	(37)	/na/ 'occur'

Problem for cophonology

- Default Constraints ranking: MAX ≫*VhV
- Constraints ranking for A: *VhV ≫MAX

(38)

Input		Output	Ranking
co**h**-A	→	co.A	*VhV ≫MAX
co.a-ha	→	co.a.ha	MAX ≫*VhV
co.a.**h**a-A	→	*co.a.a.æ	*VhV ≫MAX

Problem for cophonology

- Default Constraints ranking: MAX ≫*VhV
- Constraints ranking for A: *VhV ≫MAX

(38)

Input		Output	Ranking
co**h**-A	→	co.A	*VhV ≫MAX
co.a-ha	→	co.a.ha	MAX ≫*VhV
co.a.**h**a-A	→	*co.a.a.æ	*VhV ≫MAX

- Still, bleeding of coalescence remains mysterious.

Conclusion

Summary

- We found a new generalisation on how laryngeal contrast of Korean S/V verbal roots affects the paradigm.

Summary

- We found a new generalisation on how laryngeal contrast of Korean S/V verbal roots affects the paradigm.
- We provided the evidence for a floating feature that in combination with strata accounts for the observed opacity.
  - The floating feature docks to the affixes, which changes the laryngeal specification.
  - The laryngealised S/V behaves differently for some processes and allomorph selection.
  - At the next level, this contrast is neutralised, unlike on the obstruents, rendering the previous processes opaque.

Implications

- Our work contributes to the discussion of whether Duke-of-York derivations are parts of human language capacity (Bermúdez-Otero, Ricardo 2001; Rubach 2003; Gleim 2018; Rasin 2019).
- Our analysis is also compatible with Yun (2008)'s proposal of strata in Korean and extends the noun-verb asymmetries observed by her.

Contact Information

Thank you!

Daniel Gleim, Hyunjung Lee
`daniel.gleim@uni-leipzig.de`
`hyunjung.lee@uni-leipzig.de`
University of Leipzig

l-deletion

- Korean does not tolerate lateral-nasal clusters (i.e., *NL, *LN).
  - ⋆ NL $\rightarrow$ NN $\sim$ LL
  - ⋆ LN $\rightarrow$ $\varnothing$N (only at the stem level)

l-deletion

➢ Korean does not tolerate lateral-nasal clusters (i.e., *NL, *LN).

- ⋆ NL → NN ∼ LL
- ⋆ LN → ∅N (only at the stem level)

(39)	a.	/inlju/	→	[il.lju]	'mankind'
	b.	/koŋljoŋ/	→	[koŋ.njoŋ]	'dinosaur(s)'

(40)	a.	/al-ni/	→	[a.ni]	*[al.ni]	'know.Q'
	b.	/kal-næ/	→	[ka.næ]	*[kal.næ]	'grind.CGR'

l-deletion

- Lateral fairy roots resist /l/-deletion.

(41)	a.	/al-ni/	→	[a.ni]	*[al.ni]	'know.Q'
	b.	/al^{+sg}-ni/	→	[al.ni]	*[a.ni]	'suffer.Q'

Stem level: l-deletion

$\textsc{Agree}^{[\pm nas]}_{[+vc]}$, $\textsc{Max-F} \gg {}^*S^h$

T_6. Stem-level /al/

I: al-ni	$\textsc{Agree}^{[\pm nas]}_{[+vc]}$	Max	Max-F	$^*S^h$
O^1: al.ni	*!			
☞ O^2: a.ni		*		

T_7. Stem-level /al+sg/

I: /al+sg-ni/	$\textsc{Agree}^{[\pm nas]}_{[+vc]}$	Max	Max-F	$^*S^h$
☞ O^1: al.n^hi			*	
O^2: al.ni	*!		*	
O^3: a.ni		*	*!	

➢ $\textsc{Agree}^{[\pm nas]}_{[+vc]}$: Count one violation for each pair of adjacent voiced consonant that has a different value for the feature [± nas]

Word level: l-deletion

$*\mathrm{S}^{\mathrm{h}} \gg \textsc{Agree}^{[\pm nas]}_{[+vc]}, \textsc{Max-F}$

T_8. Word-level /al/

I: a.ni	$*\mathrm{S}^{\mathrm{h}}$	Max	$\textsc{Agree}^{[\pm nas]}_{[+vc]}$	Max-F
☞ O^1: a.ni				
O^2: a.i		*!		

T_9. Word-level /al^{+sg}/

I: al.n$^{\mathrm{h}}$i	$*\mathrm{S}^{\mathrm{h}}$	Max	$\textsc{Agree}^{[\pm nas]}_{[+vc]}$	Max-F
O^1: al.n$^{\mathrm{h}}$i	*!			
☞ O^2: al.ni			*	*
O^3: a.ni		*!		*

Allomorphy of v

- All existing nasal-final roots are fairy roots.

(42)

Roots	-C
 $n^{ʔ}$	-C'
 n^{h}	-C^{h}
 $m^{ʔ}$	-C'

- Post-nasal Laryngealisation is not general rule in Korean nor in verbal domain.

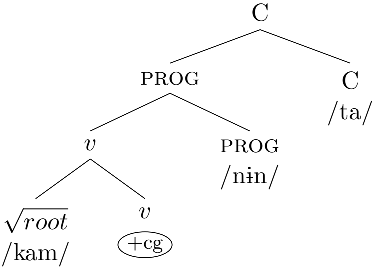
(43)

a.	/kam-nɨn-ta/	→	[kam.nɨn.**t**a]	'wind-PROG-DECL'
b.	/kam-ta/	→	[kam.**t'**a]	'wind-DECL'

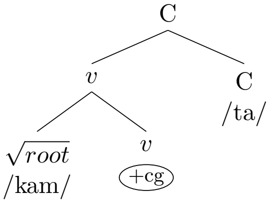
Hypothesis

- Hypothesis:
  Little v has two allomorphs: +cg and ∅.
- v - +cg selects nasal-final roots.

(44)



(45)



Evidence from a pilot wug test

- 3 native speakers of Korean were participated in this pilot test.

- The test consisted of two parts:
  - the participants learn three nasal-final wug stems with corresponding videos.

  i.e., /hɨm/, /pin/, /uŋ/

  - the participants are asked to answer different inflected forms (i.e., /-taka/, /-ko is'ə/) of wug verbs.

Evidence from a pilot wug test

- The participants learn three nasal-final wug stems with corresponding videos.

Q: 고양이가 뭐 해? Play

'What does the cat do?'

Evidence from a pilot wug test

- The participants learn three nasal-final wug stems with corresponding videos.

A: 고양이가 흠어. Play

'The cat /hɨm/s.'

Evidence from a pilot wug test

- The participants are asked to answer different inflected forms (i.e., /-taka/, /-ko is’ə/) of wug verbs.

Q: 고양이가 뭐 하고 있어? Play
‘What is the cat doing?’

A: 고양이가 ________________

Prediction: [hɨm.**k’**o i.s’ə]

Results the pilot wug test

	Speaker A		
wug stems	/hɨm/	/pin/	/uŋ/
/-taka/	[hɨm.**t'**a.ka]	[pin.**t'**a.ka]	[uŋ.**t'**a.ka]
/-ko is'ə/	[hɨm.**k'**o]	[pin.**k'**o]	[uŋ.**k'**o]

	Speaker B		
wug stems	/hɨm/	/pin/	/uŋ/
/-taka/	[hɨm.**t'**a.ka]	[pin.**t'**a.ka]	[uŋ.**t'**a.ka]
/-ko is'ə/	[hɨm.**k'**o]	[pin.**k'**o]	[uŋ.**k'**o]

	Speaker C		
wug stems	/hɨm/	/pin/	/uŋ/
/-taka/	[hɨm.**t'**a.ka]	[pin.**t'**a.ka]	[uŋ.**t'**a.ka]
/-ko is'ə/	[hɨm.**k'**o]	[pin.**ko**]	[uŋ.**k'**o]

References I

Albright, A. and Kang, Y. (2009). Predicting innovative alternations in Korean verb paradigms. In *Proceedings of the 18th Current issues in unity and diversity of languages*, pages 1–20. Cascadilla Proceedings Project Somerville, MA.

Benua, L. (1997a). Affix classes are defined by faithfulness. In *University of Maryland Working Papers in Linguistics*, volume 5, pages 1–26.

Benua, L. (1997b). *Transderivational identity: Phonological relations between words.* PhD thesis, University of Massachusetts at Amherst.

Bermúdez-Otero, Ricardo (2001). Voicing and continuancy in Catalana nonvacuous Duke-of-York gambit and a Richness-of-the-Base paradox. Ms., University of Manchester.

Gleim, D. C. (2018). Tone does not trigger epenthesis: evidence from Arapaho . Talk at GLOW 41 in Budapest.

Inkelas, S. (1998). The theoretical status of morphologically conditioned phonology: a case study of dominance effects. In *Yearbook of Morphology 1997*, pages 121–155. Springer.

References II

Jun, J. and Albright, A. (2017). Speakers' knowledge of alternations is asymmetrical: Evidence from Seoul Korean verb paradigms. *Journal of Linguistics*, 53(3):567–611.

Kehrein, Wolfgang and Golston, Chris (2004). A prosodic theory of laryngeal contrasts. *Phonology*, 21(3):325–357.

Kiparsky, Paul (2000). Opacity and cyclicity. *The linguistic review*, 17(2-4):351–366.

Orgun, C. O. (1996). *Sign-based morphology and phonology with special attention to Optimality Theory*. PhD thesis, University of California, Berkeley.

Orgun, C. O. (1998). Cyclic and noncyclic phonological effects in a declarative grammar. In *Yearbook of Morphology 1997*, pages 179–218. Springer.

Rasin, E. (2019). Feeding Duke of York derivations in Arabic and their architectural consequences. Talk at OCP in Verona.

Revithiadou, A. (2007). Colored turbid accents and containment: A case study from lexical stress. *Freedom of analysis*, pages 149–174.

Rubach, J. (2003). Duke-of-York derivations in Polish. *Linguistic inquiry*, 34(4):601–629.

References III

Yun, J. (2008). Noun-verb asymmetries in Korean phonology. In *Proceedings of the 27th West Coast Conference on Formal Linguistics*, pages 449–457. Cascadilla Proceedings Project Somerville, MA.

Zoll, C. (1993). Ghost segments and optimality. In *The Proceedings of the West Coast Conference on Formal Linguistics*, volume 12, pages 183–199.

Zoll, C. C. (1996). *Parsing below the segment in a constraint based framework*. PhD thesis, University of California, Berkeley.