Multiple Feature Mutation and Realize Morpheme

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Multiple Feature Mutation in Texistepec Popoluca

- 1st person nominative verb forms are marked by nasalizing the initial consonant
- 2nd person nominative verb forms are marked by nasalizing and palatalizing the initial consonant
- 3rd person nominative verb forms are marked by denasalizing and palatalizing the initial consonant

Root	**1P**	**2P**	**3P**	
dastah	**n**astah	**n**^{j}astah	**d**^{j}astah	‘dig’
naj	**n**aj	**n**^{j}aj	**d**^{j}aj	‘sprout’

(Reilly, 2002)

Crucial Point

Wolf (2005): Multiple-feature Mutation
requires a faithfulness constraint
specific to floating features (MAXFLT)

Claim here: MAXFLT is superfluous
under appropppriate morphological analysis

Overview

Simple Voicing Mutation in Aka (Akinlabi, 1996; Wolf, 2005)

Class 5 - singular	**Class 6 - plural**	
gɔ̀àlà	mà-**g**ɔ̀àlà	(game of imitation)
bèlèlé	mà-**b**èlèlé	‘sound of waterfall’
dʒámbà	mà-**dʒ**ámbà	‘mud’
dèŋgé	ma-**t**èŋgé	‘piercing tool’
gásá	ma-**k**ásá	‘palm branch’
bàpùlàkà	ma-**p**àpùlàkà	‘lung’

Singular of class 5 is expressed by voicing the initial consonant

Autosegmental Analysis (Lieber, 1987; Zoll, 1996; Wolf, 2005)

[+voice] ↔ [+sing]

\+ → $g_{\text{[+voice]}}asa$

$k_{\text{[–voice]}}asa$ ↔ [+N]

Crucial Question: Why can the floating feature owervrite the segmental one?

Overwriting by REALIZE MORPHEME

Input: [+vc] + $k_{[-vc]}$asa

	REALIZEMORPHEME	IDENT
☞ a. $g_{[+vc]}$asa		*
b. $k_{[-vc]}$asa	*!	

REALIZE MORPHEME: For every morpheme in the input, some phonological element should be present in the output.

(van Oostendorp, 2005; ≈ Akinlabi, 1996)

Overwriting by MAXFLT

Input: [+vc] + $k_{[-vc]}$asa

	MAXFLOAT	IDENT
☞ a. $g_{[+vc]}$asa		*
b. $k_{[-vc]}$asa	*!	

MAXFLT: All autosegments
that are floating in the input
have output correspondents.

(Wolf, 2005; ≈ Zoll, 1996)

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dastah	**n**astah	**n**^{j}astah	**d**^{j}astah	‘dig’
naj	**n**aj	**n**^{j}aj	**d**^{j}aj	‘sprout’

[+1] ↔ [+nasal]

[+2] ↔ [+nasal–back] (Wolf, 2005)

[+3] ↔ [-nasal–back]

MaxFlt vs. RealMorph in Multiple-Feature Mutation

Input: [-nas-bk] + $n_{[+nas+bk]}aj$

	MaxFlt	Ident
☞ a. $d^{j}_{[-nas-bk]}aj$		**
b. $d_{[-nas+bk]}aj$	*!	*
c. $n_{[+nas+bk]}aj$	*!*	

	RealMrph	Ident
a. $d^{j}_{[-nas-bk]}aj$		**!
☛ b. $d_{[-nas+bk]}aj$		*
c. $n_{[+nas+bk]}aj$	*!	

The Problem for REALIZEMORPHEME

REALIZEMORPHEME . . .

- . . . quantifies existentially, not universally
- . . . is satisfied if at least one floating feature is realized
- . . . doesn't enforce realization of all features in multiple-feature mutation

(Wolf, 2005)

Fission of Person and Number in Muna (van den Berg, 1989)

	sg	pl
1	**a-**kala	**ta-**kala
12	**do-**kala	**do-**kala**-amu**
2	**o-**kala	**o-**kala**-amu**
2 (polite)	**to-**kala	**to-**kala**-amu**
3	**no-**kala	**do-**kala

Subject Agreement is partially expressed by one affix (e.g. ta-)

and partially fissioned into person and number (e.g. o- -amu)

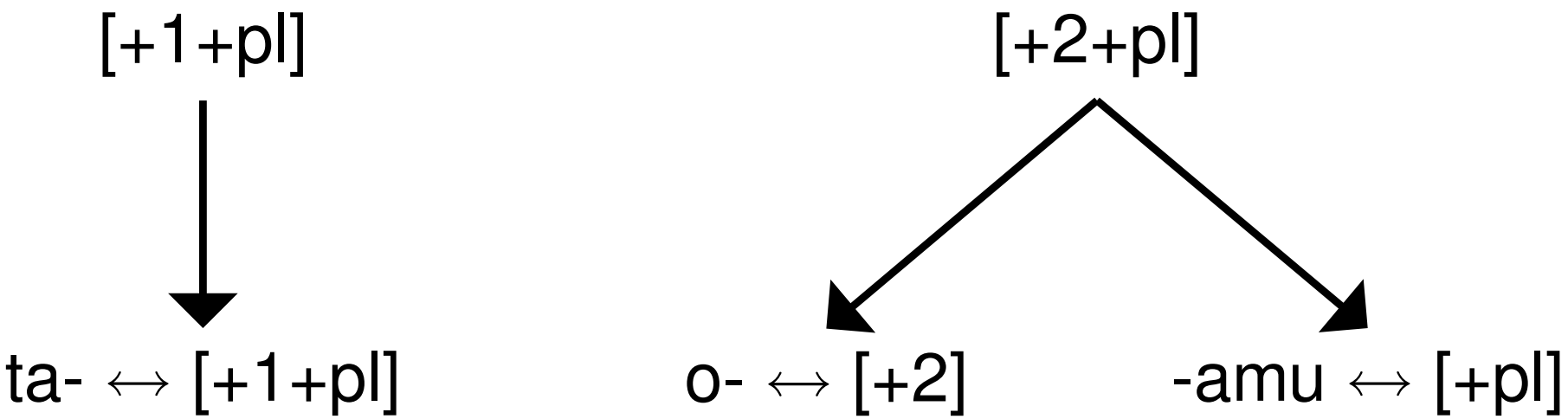
Fission in Distributed Morphology

- Syntax provides heads with morphosyntactic features, but without phonological content (e.g. [+1+pl])
- Morphology realizes heads phonologically by vocabulary items (e.g. ta- $\leftrightarrow$ [+1+pl])
- In Fission features of 1 head are expressed by more than 1 vocabulary item (e.g. [+2+pl] by o- $\leftrightarrow$ [+2] and -amu $\leftrightarrow$ [+pl])

(Noyer, 1992; Halle & Marantz, 1993; Frampton, 2003; Müller & Trommer, 2006)

(Similar Proposals in OT: Noyer, 1993; Trommer, 2001; Wunderlich, 2003)

Fission in Distributed Morphology

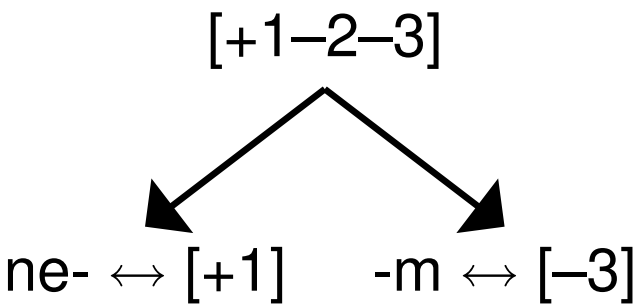


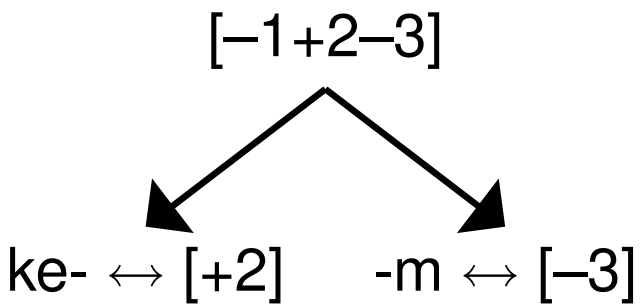
Fission of Person in Menominee (Trommer, 2007; data from Bloomfield, 1962)

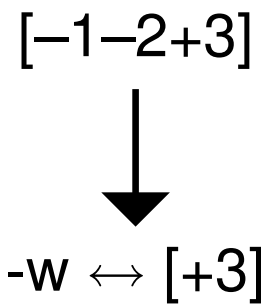
ne-po:se**-m**
[+1]-embark-[–3]
‘I embark’

ke-po:se**-m**
[+2]-embark-[–3]
‘you embark’

po:se**-w**
embark-[+3]
‘he embarks’







Fission of Person in Sierra Popoluca (Müller, 2005)

Abs	
[+1–2–Erg]	a-
[+1+2–Erg]	t-a-
[–1+2–Erg]	m-i-
[–1–2–Erg]	–

Erg	
[+1–2+Erg]	a-n-
[+1+2+Erg]	t-a-n-
[–1+2+Erg]	i-n-
[–1–2–Erg]	i-

Abs	Erg	
[+1–2–Erg]	[–1+2+Erg]	a-n
[–1+2–Erg]	[+1–2+Erg]	m-a-n-
[–1–2–Erg]	[–1–2+Erg]	i-
[–1–2–Erg]	[+1–2+Erg]	a-n-
[–1–2–Erg]	[–1+2+Erg]	i-n-
[+1–2–Erg]	[–1–2+Erg]	a-
[–1+2–Erg]	[–1–2+Erg]	m-i-

n- ↔ [+Erg]
a- ↔ [+1]
i- ↔ [–1]
m- ↔ [+2] / [-Erg]
t- ↔ [+2] / [+1]

Texistepec Popoluca by Multiple Feature Mutation

Root	**1P**	**2P**	**3P**	
dastah	**n**astah	**n**^{j}astah	**d**^{j}astah	‘dig’
naj	**n**aj	**n**^{j}aj	**d**^{j}aj	‘sprout’

[+1] ↔ [+nasal]

[+2] ↔ [+nasal–back] (Wolf, 2005)

[+3] ↔ [-nasal–back]

Texistepec Popoluca by Fission of Floating Features

Root	**1P**	**2P**	**3P**	
dastah	**n**astah	**n**^{j}astah	**d**^{j}astah	‘dig’
naj	**n**aj	**n**^{j}aj	**d**^{j}aj	‘sprout’

[-3] ↔ [+nasal] (1st and 2nd person)

[-1] ↔ [-back] (2nd and 3rd person)

[+3] ↔ [-nasal] (3rd person)

Texistepec Popoluca by Fission of Floating Features

1p

nastah

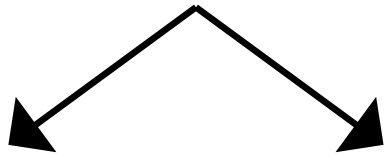
[+1–2–3]

[+nas]↔[–3]

2p

n^{j}astah

[–1+2–3]

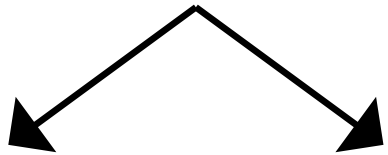


[+nas]↔[–3] [–back]↔[–1]

3p

d^{j}astah

[–1–2+3]



[–nas]↔[+3] [–back]↔[–1]

(cf. dastah, ‘dig’)

REALIZEMORPHEME Rehabilitated

Input: [+nas] +[–back] + $d_{[-nas+bk]}$astah

	REALIZEMORPHEME	IDENT
☞ a. $n^{j}_{[+nas-back]}$astah		**!
b. $d^{j}_{[–nas–back]}$astah	*!	*
c. $n_{[+nas+back]}$astah	*!	*
d. $d_{[+nas+bk]}$astah	*!*	

- REALMORPH refers to Vocabulary Items, not to Heads
- Since every floating feature is a morpheme, every floating feature must be realized
- MAXFLT gets superfluous

Multi-Feature Mutation + Affixation in T. Popoluca

Root	1P	12 P	2P	3P	
dastah	**n**astah	ta-**n**astah	**n**^{j}astah	**d**^{j}astah	‘dig’
naj	**n**aj	ta-**n**aj	**n**^{j}aj	**d**^{j}aj	‘sprout’

[-3] ↔ [+nasal] (1st and 2nd person)

[-1] ↔ [-back] (2nd and 3rd person)

[+3] ↔ [-nasal] (3rd person)

[+1+2] ↔ ta- (1st person inclusive)

Multi-Feature Mutation in Nuer Infinite Forms (Crazzolara, 1933)

	‘over-take’	‘hit’	‘pull out’	‘scoop hastily’	
Infinitive	coβ	ja:ç	guð	kêp	
Negat. Pres. Ptc.	còp	ja:c	gut̪	kep	[-voice -continuant]
Past Ptc.	cof	ja:ç	guθ	kɛ̀f	[-voice +continuant]

[+Part +Neg -Past] ↔ [-voice -continuant]

(Wolf, 2005)

[+Part+Past] ↔ [-voice +continuant]

Multi-Feature Mutation in Nuer by Fission

	‘over-take’	‘hit’	‘pull out’	‘scoop hastily’	
Infinitive	coβ	ja:ç	guð	kêp	
Negat. Pres. Ptc.	cò**p**	ja:**c**	gu**t̪**	ke**p**	[-voice -continuant]
Past Ptc.	co**f**	ja:**ç**	gu**θ**	kɛ̀**f**	[-voice +continuant]

[+Part] $\leftrightarrow$ [-voice]

[+Past] $\leftrightarrow$ [+continuant]

[+Neg] $\leftrightarrow$ [-continuant]

Affixal Fission in German Infinite Forms

	Weak	**Strong**
Infinitive	weh-**en**	seh-**en**
Present Particicple	weh-**en-d**	seh-**en-d**
Past Participle	**ge**-weh-**t**	**ge-**seh-**en**
Past 2sg	weh-**t**-est	sah-st

[+Tense +Past] ↔ -t

[+Tense] ↔ -n

[+Part] ↔ -d / ____ [–Past]

[+Part] ↔ ge-

Multi-Feature Mutation + Affixation in Nuer (Crazzolara, 1933)

	‘overtake’	‘pull out’	‘scoop hastily’	
Infinitive	coβ	guð	kêp	
3sg.ind.pres.act.	có**β**-é	gú**ð**-é	ké**β**-é	[+vc+cont]-ɛ
1pl.ind.pres.act.	còɔ**f**-kɔ̀	gwɔ̀**θ**-kɔ̀	kɛ̀a**f**-kɔ̀	[-vc+cont]-kɔ

[+3+Ind-Past+Act] ↔ [+voice+continuant]-ɛ

(Wolf, 2005)

[+1+pl-Past+Act] ↔ [-voice+continuant]-kɔ

Full Present Indicative Active Paradigm of Nuer

	singular	**dual**	**plural**
1 (exc.)	ka:**β**-à		ka:**f**-kɔ́
1 (inc.)		ka:**f**-nè	ka:**f**-né
2	ka:**β**-ì		ka:**f**-é
3	ka:**β**-ɛ̀		ka:**f**-kɛ́

(ká:f, ‘to lay hold of’)

	singular	**dual**	**plural**
1 (exc.)	[+vc+cont]-a		[-vc+cont]-kɔ
1 (inc.)		[-vc+cont]-nè	[-vc+cont]-ne
2	[+vc+cont]-i		[-vc+cont]-e
3	[+vc+cont]-ɛ		[-vc+cont]-kɛ

Lost Generalizations

	singular	**dual**	**plural**
1 (exc.)	[**+vc+cont**]-a		[**-vc+cont**]-kɔ
1 (inc.)		[**-vc+cont**]-nè	[**-vc+cont**]-ne
2	[**+vc+cont**]-i		[**-vc+cont**]-e
3	[**+vc+cont**]-ɛ		[**-vc+cont**]-kɛ

- In all indicative active forms
  the stem-final consonant is [+continuant]
- In all singular forms,
  the stem-final consonant is [+voice]
- In all non-singular forms,
  the stem-final consonant is [–voice]

Affixation + Mutation in Nuer as Fission

	singular	**dual**	**plural**
1 (exc.)	[**+vc+cont**]-a		[**-vc+cont**]-kɔ
1 (inc.)		[**-vc+cont**]-nè	[**-vc+cont**]-ne
2	[**+vc+cont**]-i		[**-vc+cont**]-e
3	[**+vc+cont**]-ɛ		[**-vc+cont**]-kɛ

[-pl] ↔ [+voice]

[+pl] ↔ [-voice]

[+Ind-Past+Act] ↔ [+continuant]

Affixation + Mutation in Nuer as Fission

[-pl] ↔ [+voice]

[+pl] ↔ [-voice]

[+Ind-Past+Act] ↔ [+continuant]

[+1]	↔	-a	[+1]	↔	-kɔ /____ [+pl]
[+2]	↔	-i	[+2]	↔	-e /____ [+pl]
[+3]	↔	-ɛ	[+3]	↔	-kɛ /____ [+pl]

Summary

- Morphological Fission obviates MAXFLOAT and similar constraints
- Fission captures generalizations not available under multiple-feature mutation accounts
- Mutation and affixal morphology are even more similar than previously thought