A micromorphological approach to variable affix order

Gregory Stump

University of Kentucky

gstump@uky.edu

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Slides:

http://linguistics.as.uky.edu/gstump/recent-presentation-slides

Relations between rules in inferential-realizational morphology

Relations between rules in inferential-realizational morphology

Relation of paradigmatic opposition

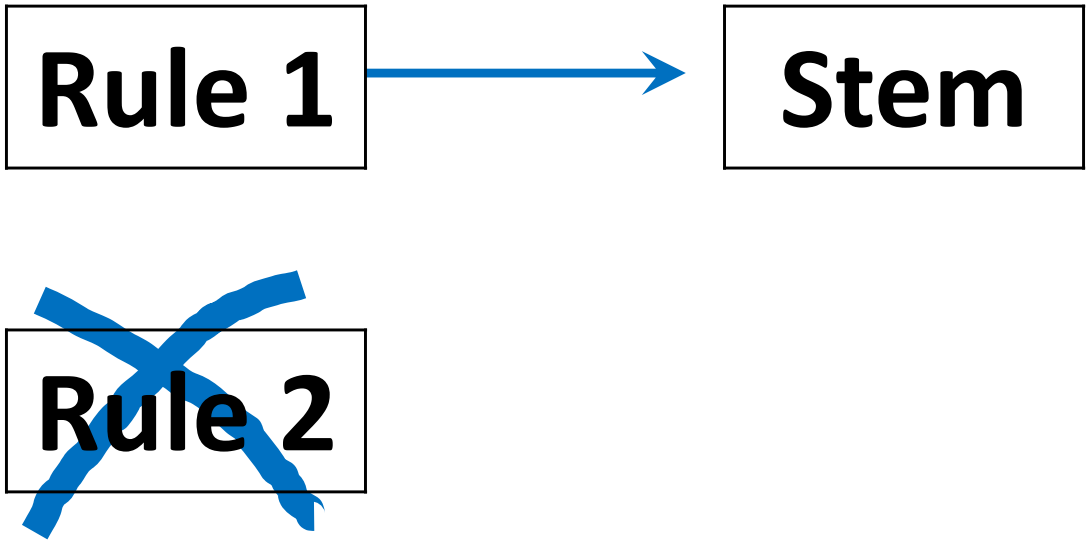
Rule 1

Stem

Rule 2

Relations between rules in inferential-realizational morphology

Relation of paradigmatic opposition



Relations between rules in inferential-realizational morphology

Relation of linear ordering

Rule 1 **Stem**

Rule 2

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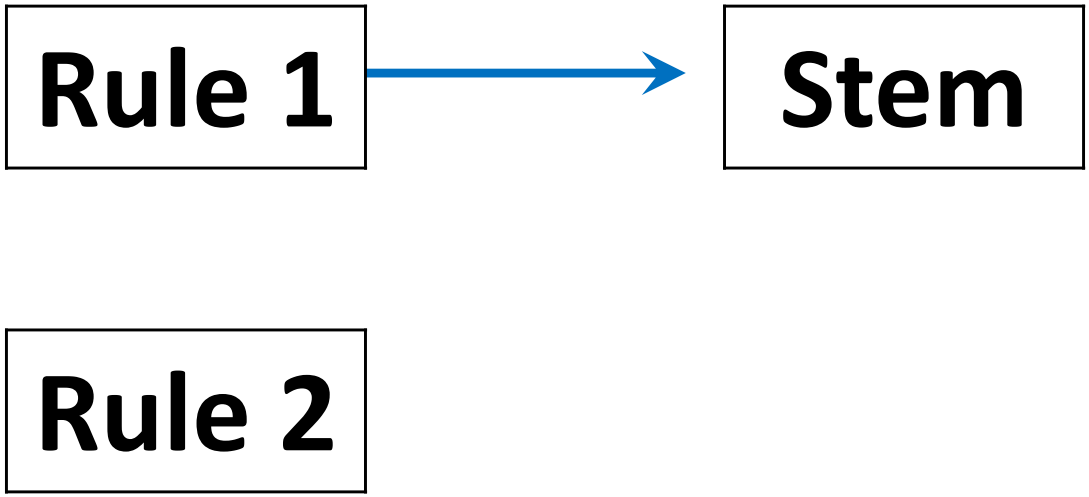

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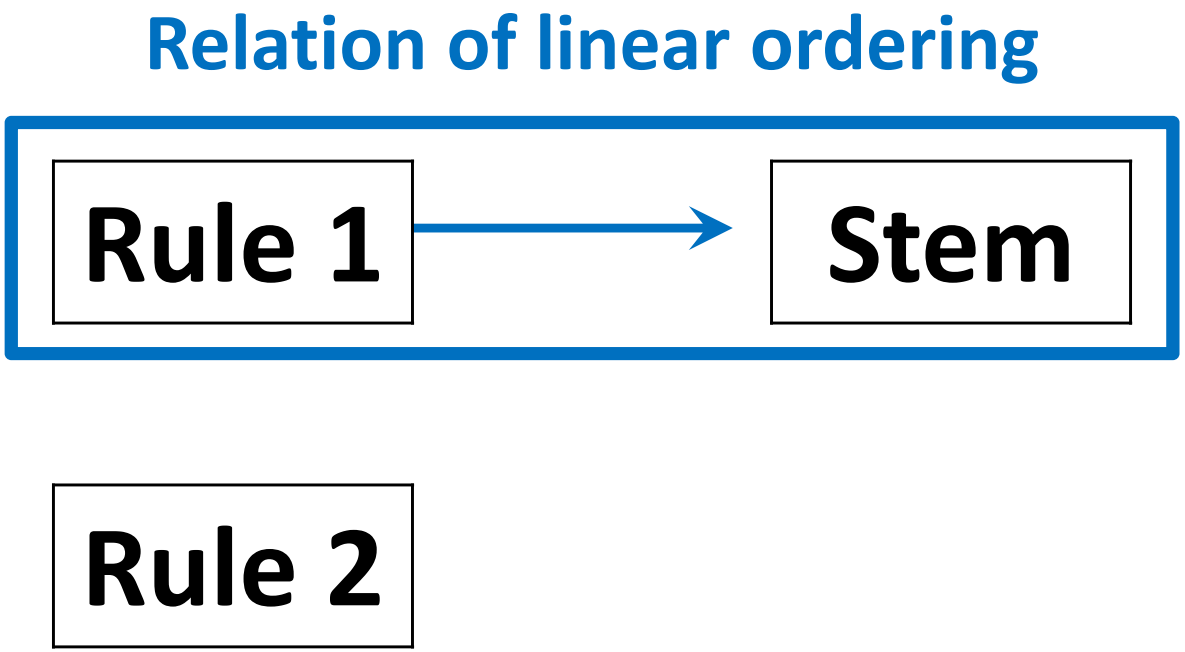

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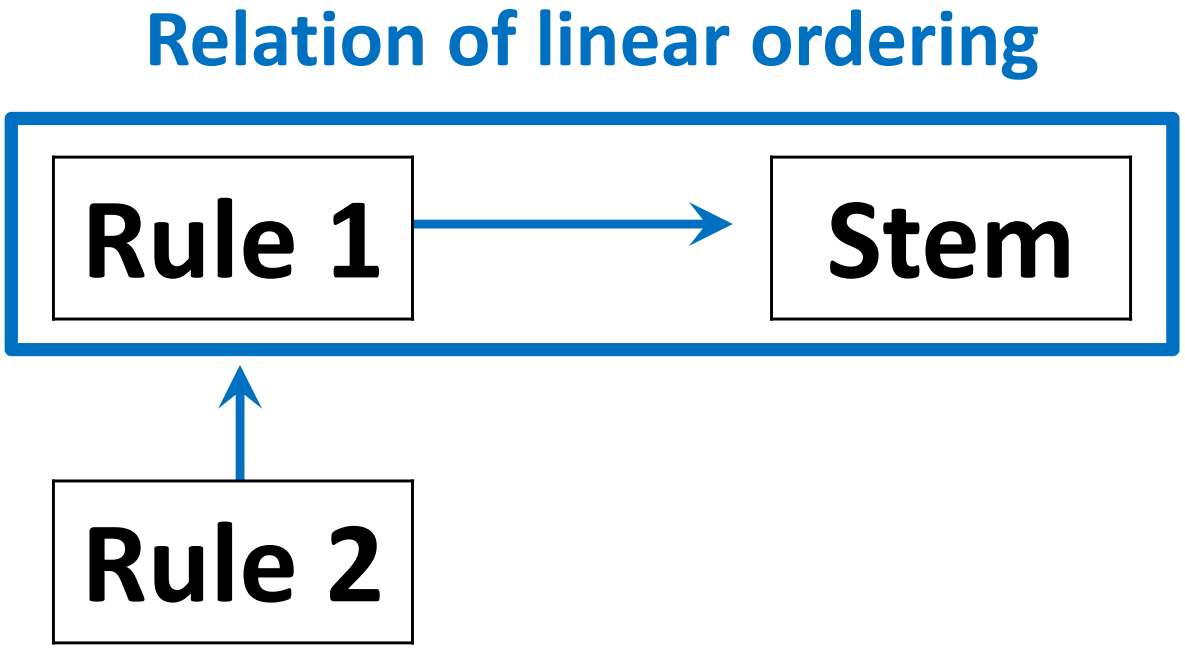

Relations between rules in inferential-realizational morphology

Relation of rule conflation

Rule 1

Stem

Rule 2

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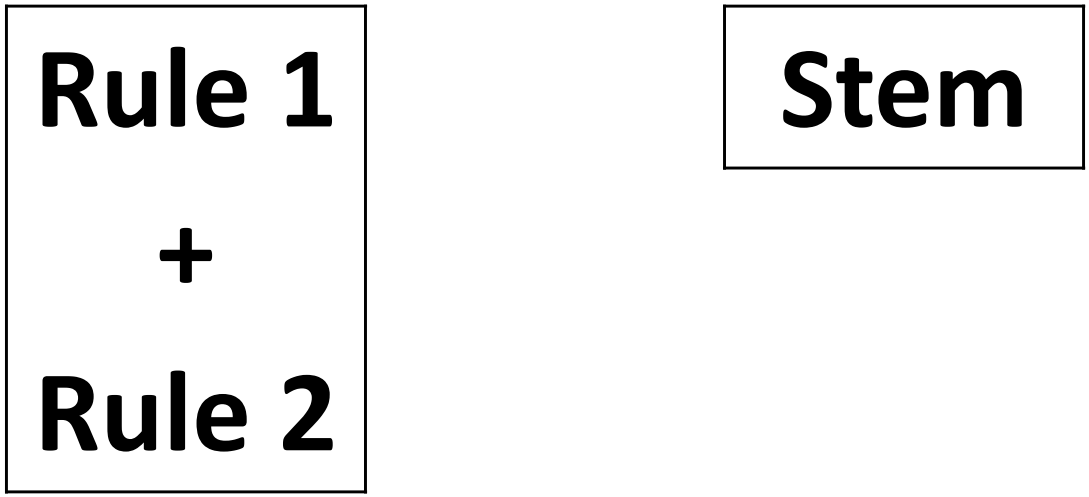

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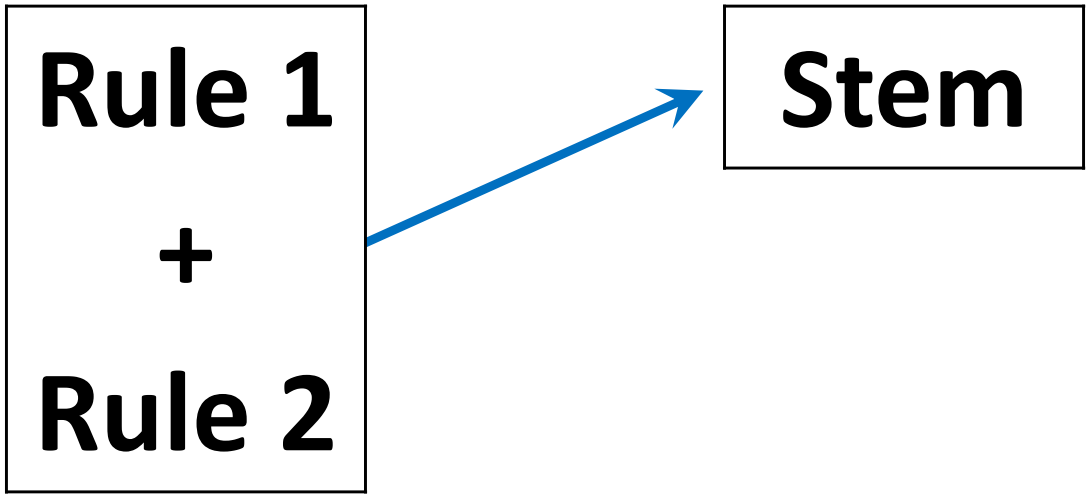

Two kinds of morphotactically conditioned variation in affix order

In some instances, variation in affix order is apparently conditioned by the presence or absence of other morphological marking (= **morphotactically conditioned variation**).

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Here, I propose a general approach to modeling stem-pivotal and affix-pivotal instances of morphotactically conditioned variation in affix order.

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The micromorphology hypothesis

An affix may itself be morphologically complex.

Stem-pivotal variation in affix order

An example from Noon (Niger-Congo; Senegal)

Data from

Soukka, Maria. 2000. *A descriptive grammar of Noon: A Cangin language of Senegal*. Munich: LINCOM EUROPA.

The inflection of the Noon adjective YAK ‘big’

			Noun class	Indefinite	Definite		
					Location 1	Location 2	Location 3
Nondiminutive	Inanimate	sg	1	*wiyak*	*wiyakwii*	*wiyakwum*	*wiyakwaa*
			2	*fiyak*	*fiyakfii*	*fiyakfum*	*fiyakfaa*
			3	*miyak*	*miyakmii*	*miyakmum*	*miyakmaa*
			4	*kiyak*	*kiyakkii*	*kiyakkum*	*kiyakkaa*
			5	*piyak*	*piyakpii*	*piyakpum*	*piyakpaa*
			6	*jiyak*	*jiyakjii*	*jiyakjum*	*jiyakjaa*
		pl	1–3	*ciyak*	*ciyakcii*	*ciyakcum*	*ciyakcaa*
			4–6	*tiyak*	*tiyaktii*	*tiyaktum*	*tiyaktaa*
	Animate	sg		*yiyak*	*yiyakyii*	*yiyakyum*	*yiyakyaa*
		pl		*ɓiyak*	*ɓiyakɓii*	*ɓiyakɓum*	*ɓiyakɓaa*
Diminutive		sg		*jiyak*	*jiyakjii*	*jiyakjum*	*jiyakjaa*
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Noon adjectival inflections

			Noun class	Class marker
Nondiminutive	Inanimate	sg	1	*w-*
			2	*f-*
			3	*m-*
			4	*k-*
			5	*p-*
			6	*j-*
		pl	1–3	*c-*
			4–6	*t-*
	Animate	sg		*y-*
		pl		*ɓ-*
Diminutive		sg		*j-*
		pl		*t-*

Prefixal formative:	*i-*

Suffixal formatives:	
Location 1	*-ii*
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		pl		*ɓiyak*	*ɓiyakɓii*	*ɓiyakɓum*	*ɓiyakɓaa*
Diminutive		sg		*jiyak*	*jiyakjii*	*jiyakjum*	*jiyakjaa*
		pl		*tiyak*	*tiyaktii*	*tiyaktum*	*tiyaktaa*

			Noun class	Definite Location 2
Non-diminutive	Inanimate	sg	1	*wiyakwum*
			2	*fiyakfum*
			3	*miyakmum*
			4	*kiyakkum*
			5	*piyakpum*
			6	*jiyakjum*
		pl	1–3	*ciyakcum*
			4–6	*tiyaktum*
	Animate	sg		*yiyakyum*
		pl		*ɓiyakɓum*
Diminutive		sg		*jiyakjum*
		pl		*tiyaktum*

			Noun class	Definite Location 2				
				–2	**–1**	**Stem**	**1**	**2**
Non-diminutive	Inanimate	sg	1	*w-*	*i-*	***yak***	*-w*	*-um*
			2	*f-*	*i-*	***yak***	*-f*	*-um*
			3	*m-*	*i-*	***yak***	*-m*	*-um*
			4	*k-*	*i-*	***yak***	*-k*	*-um*
			5	*p-*	*i-*	***yak***	*-p*	*-um*
			6	*j-*	*i-*	***yak***	*-j*	*-um*
		pl	1–3	*c-*	*i-*	***yak***	*-c*	*-um*
			4–6	*t-*	*i-*	***yak***	*-t*	*-um*
	Animate	sg		*y-*	*i-*	***yak***	*-y*	*-um*
		pl		*ɓ-*	*i-*	***yak***	*-ɓ*	*-um*
Diminutive		sg		*j-*	*i-*	***yak***	*-j*	*-um*
		pl		*t-*	*i-*	***yak***	*-t*	*-um*

			Noun class	Definite Location 2				
				–2	**–1**	**Stem**	**1**	**2**
Non-diminutive	Inanimate	sg	1	*w-*	*i-*	***yak***	*-w*	*-um*
			2	*f-*	*i-*	***yak***	*-f*	*-um*
			3	*m-*	*i-*	***yak***	*-m*	*-um*
			4	*k-*	*i-*	***yak***	*-k*	*-um*
			5	*p-*	*i-*	***yak***	*-p*	*-um*
			6	*j-*	*i-*	***yak***	*-j*	*-um*
		pl	1–3	*c-*	*i-*	***yak***	*-c*	*-um*
			4–6	*t-*	*i-*	***yak***	*-t*	*-um*
	Animate	sg		*y-*	*i-*	***yak***	*-y*	*-um*
		pl		*ɓ-*	*i-*	***yak***	*-ɓ*	*-um*
Diminutive		sg		*j-*	*i-*	***yak***	*-j*	*-um*
		pl		*t-*	*i-*	***yak***	*-t*	*-um*

			Noun class	Definite Location 2				
				–2	**–1**	**Stem**	**1**	**2**
Non-diminutive	Inanimate	sg	1	*w-*	*i-*	***yak***	*-w*	*-um*
			2	*f-*	*i-*	***yak***	*-f*	*-um*
			3	*m-*	*i-*	***yak***	*-m*	*-um*
			4	*k-*	*i-*	***yak***	*-k*	*-um*
			5	*p-*	*i-*	***yak***	*-p*	*-um*
			6	*j-*	*i-*	***yak***	*-j*	*-um*
		pl	1–3	*c-*	*i-*	***yak***	*-c*	*-um*
			4–6	*t-*	*i-*	***yak***	*-t*	*-um*
	Animate	sg		*y-*	*i-*	***yak***	*-y*	*-um*
		pl		*ɓ-*	*i-*	***yak***	*-ɓ*	*-um*
Diminutive		sg		*j-*	*i-*	***yak***	*-j*	*-um*
		pl		*t-*	*i-*	***yak***	*-t*	*-um*

			Noun class	Definite Location 2				
				–2	**–1**	**Stem**	**1**	**2**
Non-diminutive	Inanimate	sg	1	*w-*	*i-*	***yak***	*-w*	*-um*
			2	*f-*	*i-*	***yak***	*-f*	*-um*
			3	*m-*	*i-*	***yak***	*-m*	*-um*
			4	*k-*	*i-*	***yak***	*-k*	*-um*
			5	*p-*	*i-*	***yak***	*-p*	*-um*
			6	*j-*	*i-*	***yak***	*-j*	*-um*
		pl	1–3	*c-*	*i-*	***yak***	*-c*	*-um*
			4–6	*t-*	*i-*	***yak***	*-t*	*-um*
	Animate	sg		*y-*	*i-*	***yak***	*-y*	*-um*
		pl		*ɓ-*	*i-*	***yak***	*-ɓ*	*-um*
Diminutive		sg		*j-*	*i-*	***yak***	*-j*	*-um*
		pl		*t-*	*i-*	***yak***	*-t*	*-um*

			Noun class	Prefixal concord	Stem	Definite suffix
Non-diminutive	Inanimate	sg	1	*w-i-*	***yak***	*-w-um*
			2	*f-i-*	***yak***	*-f-um*
			3	*m-i-*	***yak***	*-m-um*
			4	*k-i-*	***yak***	*-k-um*
			5	*p-i-*	***yak***	*-p-um*
			6	*j-i-*	***yak***	*-j-um*
		pl	1–3	*c-i-*	***yak***	*-c-um*
			4–6	*t-i-*	***yak***	*-t-um*
	Animate	sg		*y-i-*	***yak***	*-y-um*
		pl		*ɓ-i-*	***yak***	*-ɓ-um*
Diminutive		sg		*j-i-*	***yak***	*-j-um*
		pl		*t-i-*	***yak***	*-t-um*

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Non-diminutive	Inanimate	sg	1	*w-i-*	***yak***	*-w-um*
			2	*f-i-*	***yak***	*-f-um*
			3	*m-i-*	***yak***	*-m-um*
			4	*k-i-*	***yak***	*-k-um*
			5	*p-i-*	***yak***	*-p-um*
			6	*j-i-*	***yak***	*-j-um*
		pl	1–3	*c-i-*	***yak***	*-c-um*
			4–6	*t-i-*	***yak***	*-t-um*
	Animate	sg		*y-i-*	***yak***	*-y-um*
		pl		*ɓ-i-*	***yak***	*-ɓ-um*
Diminutive		sg		*j-i-*	***yak***	*-j-um*
		pl		*t-i-*	***yak***	*-t-um*

Noon adjectival inflections

			Noun class	Prefixal concords	Definite suffixes		
					Location 1	Location 2	Location 3
Nondiminutive	Inanimate	sg	1	*w-i-*	*-w-ii*	*-w-um*	*-w-aa*
			2	*f-i-*	*-f-ii*	*-f-um*	*-f-aa*
			3	*m-i-*	*-m-ii*	*-m-um*	*-m-aa*
			4	*k-i-*	*-k-ii*	*-k-um*	*-k-aa*
			5	*p-i-*	*-p-ii*	*-p-um*	*-p-aa*
			6	*j-i-*	*-j-ii*	*-j-um*	*-j-aa*
		pl	1–3	*c-i-*	*-c-ii*	*-c-um*	*-c-aa*
			4–6	*t-i-*	*-t-ii*	*-t-um*	*-t-aa*
	Animate	sg		*y-i-*	*-y-ii*	*-y-um*	*-y-aa*
		pl		*ɓ-i-*	*-ɓ-ii*	*-ɓ-um*	*-ɓ-aa*
Diminutive		sg		*j-i-*	*-j-ii*	*-j-um*	*-j-aa*
		pl		*t-i-*	*-t-ii*	*-t-um*	*-t-aa*

Rule conflation in Noon adjectival inflection

			Noun class	Class marker
Nondiminutive	Inanimate	sg	1	*w-*
			2	*f-*
			3	*m-*
			4	*k-*
			5	*p-*
			6	*j-*
		pl	1–3	*c-*
			4–6	*t-*
	Animate	sg		*y-*
		pl		*ɓ-*
Diminutive		sg		*j-*
		pl		*t-*

Prefixal formative:	*i-*

Suffixal formatives:	
Location 1	*-ii*
Location 2	*-um*
Location 3	*-aa*

Rule conflation in Noon adjectival inflection

			Noun class	Class marker
Nondiminutive	Inanimate	sg	1	*w-*
			2	*f-*
			3	*m-*
			4	*k-*
			5	*p-*
			6	*j-*
		pl	1–3	*c-*
			4–6	*t-*
	Animate	sg		*y-*
		pl		*ɓ-*
Diminutive		sg		*j-*
		pl		*t-*

Prefixal formative:	*i-*

Suffixal formatives:	
Location 1	*-ii*
Location 2	*-um*
Location 3	*-aa*

Rule conflation in Noon adjectival inflection

			Noun class	Class marker
Nondiminutive	Inanimate	sg	1	*w-*
			2	*f-*
			3	*m-*
			4	*k-*
			5	*p-*
			6	*j-*
		pl	1–3	*c-*
			4–6	*t-*
	Animate	sg		*y-*
		pl		*ɓ-*
Diminutive		sg		*j-*
		pl		*t-*

Prefixal formative:	*i-*

Suffixal formatives:	
Location 1	*-ii*
Location 2	*-um*
Location 3	*-aa*

Rule conflation in Noon adjectival inflection

			Noun class	Class marker
Nondiminutive	Inanimate	sg	1	*w-*
			2	*f-*
			3	*m-*
			4	*k-*
			5	*p-*
			6	*j-*
		pl	1–3	*c-*
			4–6	*t-*
	Animate	sg		*y-*
		pl		*ɓ-*
Diminutive		sg		*j-*
		pl		*t-*

Prefixal concord

Prefixal formative:	*i-*

Suffixal formatives:	
Location 1	*-ii*
Location 2	*-um*
Location 3	*-aa*

Rule conflation in Noon adjectival inflection

			Noun class	Class marker
Nondiminutive	Inanimate	sg	1	*w-*
			2	*f-*
			3	*m-*
			4	*k-*
			5	*p-*
			6	*j-*
		pl	1–3	*c-*
			4–6	*t-*
	Animate	sg		*y-*
		pl		*ɓ-*
Diminutive		sg		*j-*
		pl		*t-*

Prefixal formative:	*i-*

Suffixal formatives:	
Location 1	*-ii*
Location 2	*-um*
Location 3	*-aa*

Rule conflation in Noon adjectival inflection

			Noun class	Class marker
Nondiminutive	Inanimate	sg	1	*w-*
			2	*f-*
			3	*m-*
			4	*k-*
			5	*p-*
			6	*j-*
		pl	1–3	*c-*
			4–6	*t-*
	Animate	sg		*y-*
		pl		*ɓ-*
Diminutive		sg		*j-*
		pl		*t-*

Prefixal formative:	*i-*

Suffixal formatives:	
Location 1	*-ii*
Location 2	*-um*
Location 3	*-aa*

Rule conflation in Noon adjectival inflection

			Noun class	Class marker
Nondiminutive	Inanimate	sg	1	*w-*
			2	*f-*
			3	*m-*
			4	*k-*
			5	*p-*
			6	*j-*
		pl	1–3	*c-*
			4–6	*t-*
	Animate	sg		*y-*
		pl		*ɓ-*
Diminutive		sg		*j-*
		pl		*t-*

Prefixal formative:	*i-*

Suffixal formatives:	
Location 1	*-ii*
Location 2	*-um*
Location 3	*-aa*

Rule conflation in Noon adjectival inflection

			Noun class	Class marker
Nondiminutive	Inanimate	sg	1	*w-*
			2	*f-*
			3	*m-*
			4	*k-*
			5	*p-*
			6	*j-*
		pl	1–3	*c-*
			4–6	*t-*
	Animate	sg		*y-*
		pl		*ɓ-*
Diminutive		sg		*j-*
		pl		*t-*

Prefixal formative:	*i-*

Suffixal formatives:	
Location 1	*-ii*
Location 2	*-um*
Location 3	*-aa*

Definite suffixes

Realization rule anatomy

$$X,\ C,\ \tau \longrightarrow \boldsymbol{f}(X)$$

Realization rule anatomy

$$X, C, \tau \rightarrow \boldsymbol{f}(X)$$

X	variable over stems
C	category of stems
τ	morphosyntactic property set
$\boldsymbol{f}$	operation on stems

Realization rule anatomy

$$X, C, \tau \longrightarrow \boldsymbol{f}(X)$$

Gloss:

Where $\langle Z, \sigma \rangle$ is the pairing of a stem Z with a morphosyntactic property set σ such that
$Z \in C$ and
$\tau \subseteq \sigma$,

$\langle Z, \sigma \rangle$ is realized as $\langle \boldsymbol{f}(Z), \sigma \rangle$.

Block 1.

a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)
c. X, Adjective, {–dim –anim sg 3} → ***prefix***(*m*, X)
d. X, Adjective, {–dim –anim sg 4} → ***prefix***(*k*, X)
e. X, Adjective, {–dim –anim sg 5} → ***prefix***(*p*, X)
f. X, Adjective, {–dim –anim sg 6} → ***prefix***(*j*, X)
g. X, Adjective, {–dim –anim pl 1–3} → ***prefix***(*c*, X)
h. X, Adjective, {–dim –anim pl 4–6} → ***prefix***(*t*, X)
i. X, Adjective, {–dim +anim sg} → ***prefix***(*y*, X)
j. X, Adjective, {–dim +anim pl} → ***prefix***(*ɓ*, X)
k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)
l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2.

m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3.

n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Noun-class prefixes

Block 1.

a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
ective, {–dim –anim sg 2} → ***prefix***(*f*, X)
ective, {–dim –anim sg 3} → ***prefix***(*m*, X)
ective, {–dim –anim sg 4} → ***prefix***(*k*, X)
e. X, Adjective, {–dim –anim sg 5} → ***prefix***(*p*, X)
f. X, Adjective, {–dim –anim sg 6} → ***prefix***(*j*, X)
g. X, Adjective, {–dim –anim pl 1–3} → ***prefix***(*c*, X)
h. X, Adjective, {–dim –anim pl 4–6} → ***prefix***(*t*, X)
i. X, Adjective, {–dim +anim sg} → ***prefix***(*y*, X)
j. X, Adjective, {–dim +anim pl} → ***prefix***(*b*, X)
k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)
l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2.

m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3.

n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1.
a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)
c. X, Adjective, {–dim –anim sg 3} → ***prefix***(*m*, X)
d. X, Adjective, {–dim –anim sg 4} → ***prefix***(*k*, X)
e. X, Adjective, {–dim –anim sg 5} → ***prefix***(*p*, X)
f. X, Adjective, {–dim –anim sg 6} → ***prefix***(*j*, X)
g. X, Adjective, {–dim –anim pl 1–3} → ***prefix***(*c*, X)
h. X, Adjective, {–dim –anim pl 4–6} → ***prefix***(*t*, X)
i. X, Adjective, {–dim +anim sg} → ***prefix***(*y*, X)
j. X, Adjective, {–dim +anim pl} → ***prefix***(*b*, X)
k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)
l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Prefixal formative

djective, {definite loc1} → ***suffix***(*ii*, X)
djective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1.
a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)
c. X, Adjective, {–dim –anim sg 3} → ***prefix***(*m*, X)
d. X, Adjective, {–dim –anim sg 4} → ***prefix***(*k*, X)
e. X, Adjective, {–dim –anim sg 5} → ***prefix***(*p*, X)
f. X, Adjective, {–dim –anim sg 6} → ***prefix***(*j*, X)
g. X, Adjective, {–dim –anim pl 1–3} → ***prefix***(*c*, X)
h. X, Adjective, {–dim –anim pl 4–6} → ***prefix***(*t*, X)
i. X, Adjective, {–dim +anim sg} → ***prefix***(*y*, X)
j. X, Adjective, {–dim +anim pl} → ***prefix***(*b*, X)
k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)
l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Suffixal formatives

ective, {} → ***prefix***(*i*, X)

Block 3.
n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Conflation of realization rules

Given the realization rules (a) and (b), ***conflate***((a),(b)) is the rule (c).

(a) $X, C, \sigma \longrightarrow f(y, X)$

(b) $X, D, \tau \longrightarrow g(z, X)$

(c) $X, C \cap D, \sigma \sqcup \tau \longrightarrow f(g(z, y), X)$

Conflation of realization rules

Given the realization rules (a) and (b), ***conflate***((a),(b)) is the rule (c).

(a) $X, \mathbf{C}, \sigma \longrightarrow f(y, X)$

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(c) $X, \mathbf{C} \cap \mathbf{D}, \sigma \sqcup \tau \longrightarrow f(g(z, y), X)$

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(a) $X, C, \sigma \longrightarrow f(y, X)$

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(c) $X, C \cap D, \sigma \sqcup \tau \longrightarrow f(g(z, y), X)$

Conflation of realization rules

Given the realization rules (a) and (b), ***conflate***((a),(b)) is the rule (c).

(a) $X, C, \sigma \longrightarrow \boldsymbol{f}(y, X)$

(b) $X, D, \tau \longrightarrow \boldsymbol{g}(z, X)$

(c) $X, C \cap D, \sigma \sqcup \tau \longrightarrow \boldsymbol{f}(\boldsymbol{g}(z, y), X)$

Conflation of realization rules

Given the realization rules (a) and (b), ***conflate***((a),(b)) is the rule (c).

(a) $X, C, \sigma \longrightarrow \boldsymbol{f}(y, X)$

(b) $X, D, \tau \longrightarrow \boldsymbol{g}(z, X)$

(c) $X, C \cap D, \sigma \sqcup \tau \longrightarrow \boldsymbol{f}(\boldsymbol{g}(z, y), X)$

Conflation of realization rules

Where **x-pref** and **x-suff** are realization rules that
prefix x and suffix x (respectively),

Conflation of realization rules

Where x-pref and x-suff are realization rules that
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conflate(**a-pref**, **b-pref**) = **ba-pref**

Conflation of realization rules

Where x-pref and x-suff are realization rules that prefix x and suffix x (respectively),

conflate(a-pref, b-pref) = ba-pref

conflate(**a-pref**, **b-suff**) = **ab-pref**

Conflation of realization rules

Where x-pref and x-suff are realization rules that prefix x and suffix x (respectively),

conflate(a-pref, b-pref) = ba-pref

conflate(a-pref, b-suff) = ab-pref

conflate(**a-suff**, **b-pref**) = **ba-suff**

Conflation of realization rules

Where x-pref and x-suff are realization rules that prefix x and suffix x (respectively),

conflate(a-pref, b-pref) = ba-pref

conflate(a-pref, b-suff) = ab-pref

conflate(a-suff, b-pref) = ba-suff

conflate(**a-suff**, **b-suff**) = **ab-suff**

Rule competition

The rule ***conflate***(**a**,**b**) occupies the same rule block as rule **a**, and its application overrides that of rule **a**.

Block 1.

a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)
c. X, Adjective, {–dim –anim sg 3} → ***prefix***(*m*, X)
d. X, Adjective, {–dim –anim sg 4} → ***prefix***(*k*, X)
e. X, Adjective, {–dim –anim sg 5} → ***prefix***(*p*, X)
f. X, Adjective, {–dim –anim sg 6} → ***prefix***(*j*, X)
g. X, Adjective, {–dim –anim pl 1–3} → ***prefix***(*c*, X)
h. X, Adjective, {–dim –anim pl 4–6} → ***prefix***(*t*, X)
i. X, Adjective, {–dim +anim sg} → ***prefix***(*y*, X)
j. X, Adjective, {–dim +anim pl} → ***prefix***(*b*, X)
k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)
l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2.

m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3.

n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1.
a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Noon prefixal concords

Where r is a rule of noun-class prefixation (Block 1) and m is the prefixal formative rule (Block 2), ***conflate***(m, r) belongs to Block 2.

k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)
l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2.
m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3.
n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:
conflate(m, a)

k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)
l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:
conflate(**m**, a)

k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)
l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)

b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:

conflate(**m**, **a**)

k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)

l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)

o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)

p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)

b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:

conflate(m, a).

X, Adjective, {–dim –anim sg 1} → ***prefix***(***prefix***(*w*, *i*), X)

k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)

l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)

o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)

p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)

b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:

conflate(m, a).

X, Adjective, {–dim –anim sg 1} → ***prefix***(***prefix***(*w*, *i)*, X)

→ ***prefix***(*wi*, X)

k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)

l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)

o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)

p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)

b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:

conflate(m, a).

X, Adjective, {–dim –anim sg 1} → ***prefix***(***prefix***(*w*, *i*), X)

→ ***prefix***(*wi*, X)

→ *wi*X

k. X, Adjective, {+dim sg} → ***prefix***(*j*, X)

l. X, Adjective, {+dim pl} → ***prefix***(*t*, X)

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)

o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)

p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Noon definite suffixes

Where r is a rule of noun-class prefixation (Block 1) and s is a suffixal formative rule (Block 3), ***conflate***(s, r) belongs to Block 3.

Block 2. m. X, Adjective, {} → ***prefix***(*l*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:
conflate(o, a)

Block 2. m. X, Adjective, {} → ***prefix***(*l*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)
b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:
conflate(**o**, a)

Block 2. m. X, Adjective, {} → ***prefix***(*l*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)
o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)
p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)

b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:

conflate(**o**, **a**)

Block 2. m. X, Adjective, {} → ***prefix***(*l*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)

o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)

p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)

b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:

conflate(o, a).

X, Adjective, {–dim –anim sg 1 definite loc2}

→ ***suffix***(***prefix***(*w*, *um)*, X)

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)

o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)

p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)

b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:

conflate(o, a).

X, Adjective, {–dim –anim sg 1 definite loc2}

→ ***suffix***(***prefix***(*w*, *um)*, X)

→ ***suffix***(*wum*, X)

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)

o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)

p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Block 1. a. X, Adjective, {–dim –anim sg 1} → ***prefix***(*w*, X)

b. X, Adjective, {–dim –anim sg 2} → ***prefix***(*f*, X)

Example:

conflate(o, a).

X, Adjective, {–dim –anim sg 1 definite loc2}

→ ***suffix***(***prefix***(*w*, *um)*, X)

→ ***suffix***(*wum*, X)

→ X*wum*

Block 2. m. X, Adjective, {} → ***prefix***(*i*, X)

Block 3. n. X, Adjective, {definite loc1} → ***suffix***(*ii*, X)

o. X, Adjective, {definite loc2} → ***suffix***(*um*, X)

p. X, Adjective, {definite loc3} → ***suffix***(*aa*, X)

Where A is an adjective with stem *adj* and
σ is any morphosyntactic property set appropriate to A,
⟨*adj*, σ⟩ is a cell in the paradigm of A.

The realization of ⟨*adj*, σ⟩ is
[Block 3 : [Block 2 : ⟨*adj*, σ⟩]]

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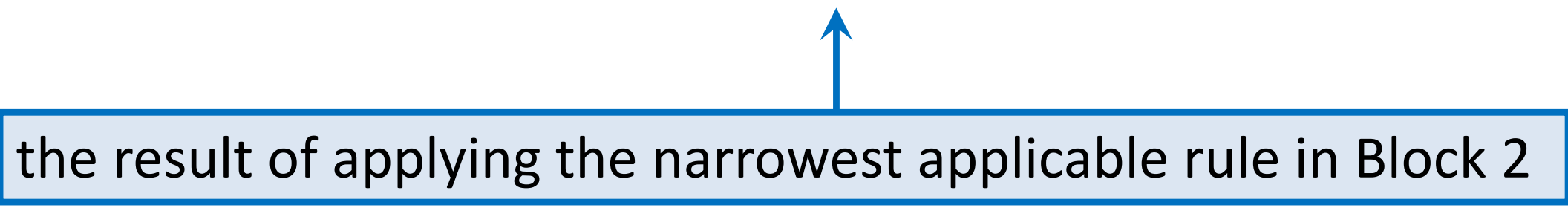

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In this analysis, the sole purpose of Block 1 is to induce rule conflations occupying Blocks 2 and 3.

Where σ = {–dim –anim sg 1 definite loc2}, ⟨*yak*, σ⟩ is a cell in the paradigm of YAK ‘big’.

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conflate(m, a).
X, Adjective, {–dim –anim sg 1} → ***prefix***(***prefix***(*w*, *i)*, X)

Where σ = {–dim –anim sg 1 definite loc2},
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The realization of ⟨*yak*, σ⟩ is
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conflate(m, a).
X, Adjective, {–dim –anim sg 1} ⟶ ***prefix***(***prefix***(*w*, *i)*, X)

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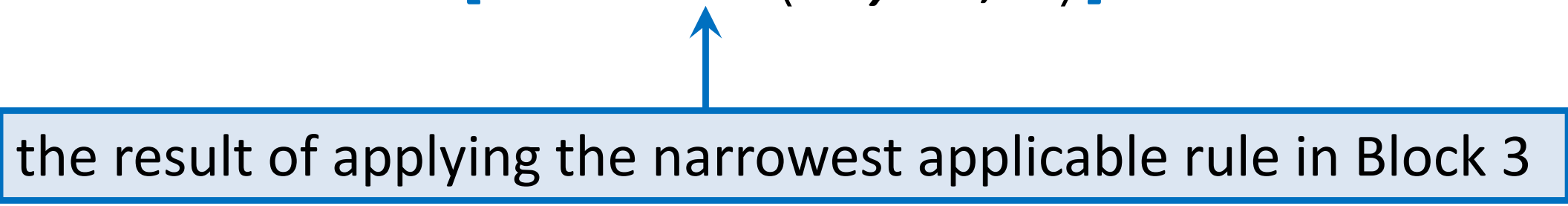

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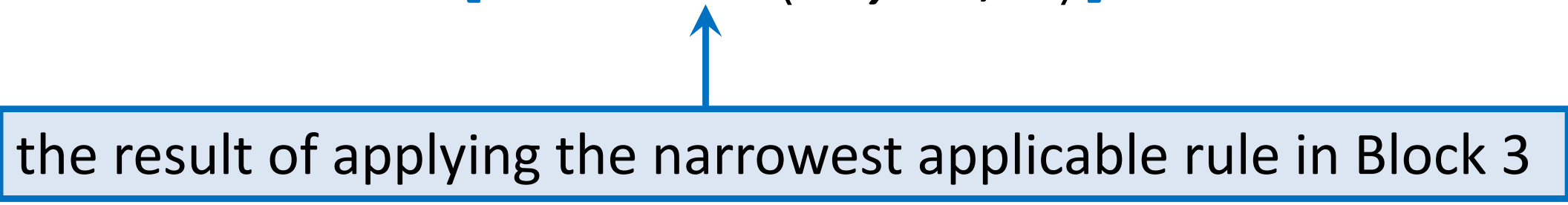
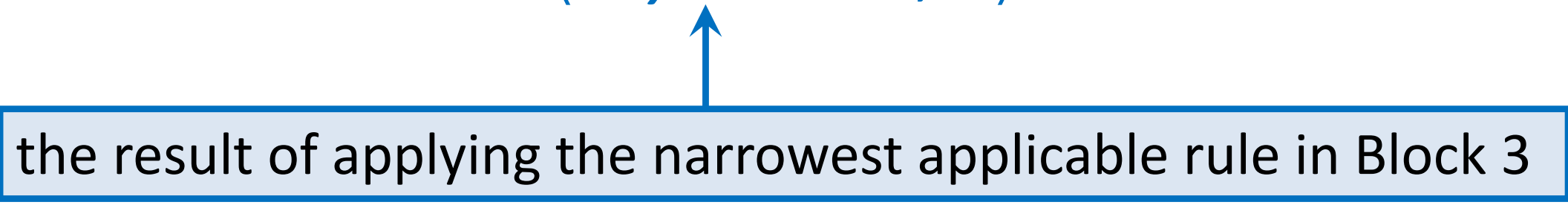


conflate(n, a).
X, Adjective, {–dim –anim sg 1 definite loc2}
→ ***suffix***(***prefix***(*w*, *um*), X)

Where σ = {–dim –anim sg 1 definite loc2},
⟨*yak*, σ⟩ is a cell in the paradigm of YAK ‘big’.

The realization of ⟨*yak*, σ⟩ is
⟨*wiyakwum*, σ⟩



conflate(n, a).
X, Adjective, {–dim –anim sg 1 definite loc2}
→ ***suffix***(***prefix***(*w*, *um*), X)

In this analysis, the conflation of the prefixal formative rule with rules of noun-class prefixation causes noun-class markers to appear before an adjective's stem, as part of its prefixal concord.

Stem
yak

'big' (nondiminutive inanimate definite 1sg location 2)

In this analysis, the conflation of the prefixal formative rule with rules of noun-class prefixation causes noun-class markers to appear before an adjective's stem, as part of its prefixal concord.

	i- **prefixal formative rule**	***w-*** **noun-class prefixation**
	conflated	
Stem		
yak		
'big' (nondiminutive inanimate definite 1sg location 2)		

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	i- **prefixal formative rule**	***w-*** **noun-class prefixation**
	conflated	
Stem	***wi* prefixation**	
yak	→ *wiyak*	
'big' (nondiminutive inanimate definite 1sg location 2)		

But the conflation of the suffix rules with rules of noun-class prefixation causes noun-class markers to appear after an adjective's stem.

	i- **prefixal formative rule**	***w-*** **noun-class prefixation**
	conflated	
Stem	***wi* prefixation**	
yak	→ *wiyak*	
'big' (nondiminutive inanimate definite 1sg location 2)		

But the conflation of the suffix rules with rules of noun-class prefixation causes noun-class markers to appear after an adjective's stem.

	i- **prefixal formative rule**	***w-*** **noun-class prefixation**	***-um*** **suffixal formative rule**	***-w*** **noun-class prefixation**
	conflated		conflated	
Stem	***wi* prefixation**			
yak	→ *wiyak*			
'big' (nondiminutive inanimate definite 1sg location 2)				

But the conflation of the suffix rules with rules of noun-class prefixation causes noun-class markers to appear after an adjective's stem.

	i- **prefixal formative rule**	***w-*** **noun-class prefixation**	***-um*** **suffixal formative rule**	***-w*** **noun-class prefixation**
	conflated		conflated	
Stem	***wi* prefixation**		***wum* suffixation**	
yak	→ *wiyak*		→ *wiyakwum*	
'big' (nondiminutive inanimate definite 1sg location 2)				

Stem-pivotal variation in affix order

Swahili relative affixes

Data from
Ashton, E. O. 1944. *Swahili grammar*. Essex: Longman.

Swahili relative affixes

Gender	**m/wa**	**m/mi**	**ki/vi**	**ji/ma**	**n/n**	**u/n**
SG	*ye*	*o*	*cho*	*lo*	*yo*	*o*
PL	*o*	*yo*	*vyo*	*yo*	*zo*	*zo*

Swahili relative affixes

In the default case, the **relative** affixes are suffixal:

vitabu	*a–vi–taka–**vyo***	*Hamisi*
books.CL.**vi**	SBJ:CL.**m**–OBJ:CL.**vi**–want–REL:CL.**vi**	Hamisi.CL.**m**
‘the books which Hamisi wants’		

Swahili relative affixes

Gender	**m/wa**	**m/mi**	**ki/vi**	**ji/ma**	**n/n**	**u/n**
SG	*-ye*	*-o*	*-cho*	*-lo*	*-yo*	*-o*
PL	*-o*	*-yo*	*-vyo*	*-yo*	*-zo*	*-zo*

Swahili relative affixes

Noun-class concords and Swahili relative affixes								
	Verbal concords				Combined with the relative suffix *-o*			
	Subject		Object					
Gender	SG	PL	SG	PL	SG		PL	
m/wa	*a-*	*wa-*	*m-*	*wa-*				
m/mi	*u-*	*i-*	*u-*	*i-*	*o*	(← *u-o*)	*yo*	(← *i-o*)
ki/vi	*ki-*	*vi-*	*ki-*	*vi-*	*cho*	(← *ki-o*)	*vyo*	(← *vi-o*)
ji/ma	*li-*	*ya-*	*li-*	*ya-*	*lo*	(← *li-o*)	*yo*	(← *ya-o*)
n/n	*i-*	*zi-*	*i-*	*zi-*	*yo*	(← *i-o*)	*zo*	(← *zi-o*)
u/n	*u-*	*zi-*	*u-*	*zi-*	*o*	(← *u-o*)	*zo*	(← *zi-o*)

*The affixes *ye* and *o* express noun-class agreement with a relativized argument belonging to the **m/wa** gender.

Swahili relative affixes

a. Concordial prefixation: X, V, {{ki/vi 3 pl}} → ***prefix***(*vi*, X)

b. Relative suffixation: X, V, {{rel}} → ***suffix***(*o*, X)

c. ***conflate***((b), (a)): X, V, {{rel ki/vi 3 pl}} → ***suffix***(***prefix***(*vi*, *o*), X)
→ ***suffix***(*vyo*), X)

Swahili relative affixes

In the presence of prefix expressing **tense** or **negation**, the **relative** affixes are prefixal:

a. *vitabu* *a–**na**–**vyo**–vi–soma* *Hamisi*
books.CL.**vi** SBJ:CL.**m**–TNS–REL:CL.**vi**–OBJ:CL.**vi**–read Hamisi.CL.**m**
'the books which Hamisi is reading'

b. *vitabu* *a–**si**–**vyo**–vi–taka* *Hamisi*
books.CL.**vi** SBJ:CL.**m**–NEG–REL:CL.**vi**–OBJ:CL.**vi**–want Hamisi.CL.**m**
'the books which Hamisi doesn't want'

Swahili relative affixes

Analysis:

The conflated rules relative affixation are basically rules of suffixation.

X, V, {{rel ki/vi 3 pl}} → ***suffix***(*vyo*, X)

Swahili relative affixes

Analysis:

The conflated rules relative affixation are basically rules of suffixation.

The rules of tense and negative affixation are rules of prefixation.

X, V, {{rel ki/vi 3 pl}} → ***suffix***(*vyo*, X)

X, V, {fut} → ***prefix***(*ta*, X)

X, V, {neg {rel}} → ***prefix***(*si*, X)

Swahili relative affixes

Analysis:

The conflated rules relative affixation are basically rules of suffixation.

The rules of tense and negative affixation are rules of prefixation.

Even so, these rules belong to a single block.

X, V, {{rel ki/vi 3 pl}} → ***suffix***(*vyo*, X)

X, V, {fut} → ***prefix***(*ta*, X)

X, V, {neg {rel}} → ***prefix***(*si*, X)

Swahili relative affixes

Analysis:

Where (a) is a rule expressing tense or negation and
(b) is a rule of relative suffixation,
conflate((a), (b)) belongs to the same block.

X, V, {{rel ki/vi 3 pl}} → ***suffix***(*vyo*, X)
X, V, {fut} → ***prefix***(*ta*, X)
X, V, {neg {rel}} → ***prefix***(*si*, X)

Swahili relative affixes

Analysis:

Where **(a) is a rule expressing tense or negation** and
(b) is a rule of relative suffixation,
conflate((a), (b)) belongs to the same block.

X, V, {{rel ki/vi 3 pl}} → ***suffix***(*vyo*, X)
X, V, {fut} → ***prefix***(*ta*, X)
X, V, {neg {rel}} → ***prefix***(*si*, X)

Swahili relative affixes

Analysis:

Where (a) is a rule expressing tense or negation and

(b) is a rule of relative suffixation,

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X, V, {{rel ki/vi 3 pl}} → ***suffix***(*vyo*, X)

X, V, {fut} → ***prefix***(*ta*, X)

X, V, {neg {rel}} → ***prefix***(*si*, X)

Swahili relative affixes

Analysis:

Where (a) is a rule expressing tense or negation and
(b) is a rule of relative suffixation,
***conflate*((a), (b))** belongs to the same block.

X, V, {{rel ki/vi 3 pl}} → ***suffix***(*vyo*, X)
X, V, {fut} → ***prefix***(*ta*, X)
X, V, {neg {rel}} → ***prefix***(*si*, X)

X, V, {fut {rel ki/vi 3 pl}} → ***prefix***(*ta-vyo*, X)
X, V, {neg {rel ki/vi 3 pl}} → ***prefix***(*si-vyo*, X)

Swahili relative affixes

Analysis:

Where (a) is a rule expressing tense or negation and
(b) is a rule of relative suffixation,

***conflate*((a), (b))** belongs to the same block.

In this block, the conflated rules override all competitors.

X, V, {{rel ki/vi 3 pl}} → ***suffix***(*vyo*, X)
X, V, {fut} → ***prefix***(*ta*, X)
X, V, {neg {rel}} → ***prefix***(*si*, X)

X, V, {fut {rel ki/vi 3 pl}} → ***prefix***(*ta-vyo*, X)
X, V, {neg {rel ki/vi 3 pl}} → ***prefix***(*si-vyo*, X)

Swahili relative affixes

In this analysis, the rules of relative suffixation (themselves conflations) ordinarily cause relative markers to appear after a verb's stem.

	vi prefixation	**o suffixation**		
	conflated			
Stem	***vyo* suffixation**		***vi* prefixation**	***a* prefixation**
taka →	*takavyo* →		*vitakavyo* →	*avitakavyo*
'(books) that s/he wants'				

Swahili relative affixes

But the conflation of tense or negative prefixation rules with conflated rules of relative suffixation causes relative markers to appear before a verb's stem.

		si **prefixation**	**conflated *vyo* suffixation**	
		conflated		
Stem	***vi*** **prefixation**	***sivyo*** **prefixation**		***a*** **prefixation**
taka →	*vitaka* →	*sivyovitaka* →		*asivyovitaka*
'(books) that s/he doesn't want'				

Swahili relative affixes

This analysis explains the role of the tense/negative prefixes in conditioning the prefixal position of the relative suffixes.

		si prefixation	*vyo* suffixation	
		conflated		
Stem	***vi* prefixation**	***sivyo* prefixation**		***a* prefixation**
taka →	*vitaka* →	*sivyovitaka* →		*asivyovitaka*
‘(books) that s/he doesn’t want’				

Affix-pivotal variation in affix order

An example from Fula (Niger-Congo; Nigeria)

Data from

Arnott, D. W. 1970. *The nominal and verbal systems of Fula*. Oxford: Oxford University Press.

Fula subject- and object-agreement suffixes

a. *mball –u* ***–mi*** ***–be'***
help –REL.PST.ACT **–SBJ:1SG** **–OBJ:3PL.CL.2**
'I helped them'

b. *mball –u* ***–ɗaa*** ***–mo'***
help –REL.PST.ACT **–SBJ:2SG** **–OBJ:3SG.CL.1**
'you (sg.) helped him'

Fula subject- and object-agreement suffixes

c. *mball –u* ***–maa*** ***–mi'***
help –REL.PST.ACT **–OBJ:2SG** **–SBJ:1SG**
'I helped you (sg.)'

d. *mball –u* ***–moo*** ***–mi'***
help –REL.PST.ACT **–OBJ:3SG.CL.1** **–SBJ:1SG**
'I helped him'

a. X, V, σ:{AGR:{{1sg subj}}} → ***suffix***(*mi*, X)
b. X, V, σ:{AGR:{{2sg subj}}} → ***suffix***(*aa*, X)
c. X, V, σ:{AGR:{{3sg CLASS:1 subj}}} → ***prefix***(*'o*, X)
d. X, V, σ:{AGR:{{1pl subj}}} → ***prefix***(*min*, X)
e. X, V, σ:{AGR:{{2pl incl subj}}} → ***suffix***(*ɗen*, X)
f. X, V, σ:{AGR:{{2pl excl subj}}} → ***suffix***(*ɗon*, X)
g. X, V, σ:{AGR:{{3pl CLASS:2 subj}}} → ***prefix***(*ɓe*, X)

h. X, V, σ:{AGR:{{1sg obj}}} → ***suffix***(*yam*, X)
i. X, V, σ:{AGR:{{2sg obj}}} → ***suffix***(*maa*, X)
j. X, V, σ:{AGR:{{3sg CLASS:1 obj}}} → ***suffix***(*moo*, X)
k. X, V, σ:{AGR:{{1pl obj}}} → ***suffix***(*min*, X)
l. X, V, σ:{AGR:{{2pl incl obj}}} → ***suffix***(*'en*, X)
m. X, V, σ:{AGR:{{2pl excl obj}}} → ***suffix***(*'on*, X)
n. X, V, σ:{AGR:{{3pl CLASS:2 obj}}} → ***suffix***(*ɓe*, X)

a. X, V, σ:{AGR:{{1sg subj}}} → ***suffix***(*mi*, X)
b. X, V, σ:{AGR:{{2sg subj}}} → ***suffix***(*aa*, X)
c. X, V, σ:{AGR:{{3sg CLASS:1 subj}}} → ***prefix***(*'o*, X)
d. X, V, σ:{AGR:{{1pl subj}}} → ***prefix***(*min*, X)
e. X, V, σ:{AGR:{{2pl incl subj}}} → ***suffix***(*den*, X)
f. X, V, σ:{AGR:{{2pl excl subj}}} → ***suffix***(*don*, X)
g. X, V, σ:{AGR:{{3pl CLASS:2 subj}}} → ***prefix***(*be*, X)

h. X, V, σ:{AGR:{{1sg obj}}} → ***suffix***(*yam*, X)
i. X, V, σ:{AGR:{{2sg obj}}} → ***suffix***(*maa*, X)
j. X, V, σ:{AGR:{{3sg CLASS:1 obj}}} → ***suffix***(*moo*, X)
k. X, V, σ:{AGR:{{1pl obj}}} → ***suffix***(*min*, X)
l. X, V, σ:{AGR:{{2pl incl obj}}} → ***suffix***(*'en*, X)
m. X, V, σ:{AGR:{{2pl excl obj}}} → ***suffix***(*'on*, X)
n. X, V, σ:{AGR:{{3pl CLASS:2 obj}}} → ***suffix***(*be*, X)

a. X, V, σ:{AGR:{{1sg subj}}} → ***suffix***(*mi*, X)

Subject-agreement rules and object agreement rules are all situated in the same rule block

i. X, V, σ:{AGR:{{2sg obj}}} → ***suffix***(*maa*, X)
j. X, V, σ:{AGR:{{3sg CLASS:1 obj}}} → ***suffix***(*moo*, X)

a. X, V, σ:{AGR:{{1sg subj}}} → ***suffix***(*mi*, X)

Analysis:
The object-agreement rules (i) and (j)
both conflate with
the subject-agreement rule (a)
to produce rules (o) and (p),
whose application blocks the application of (a) and (i) or (j).

i. X, V, σ:{AGR:{{2sg obj}}} → ***suffix***(*maa*, X)
j. X, V, σ:{AGR:{{3sg CLASS:1 obj}}} → ***suffix***(*moo*, X)

a. X, V, σ:{AGR:{{1sg subj}}} → ***suffix***(*mi*, X)

Analysis:

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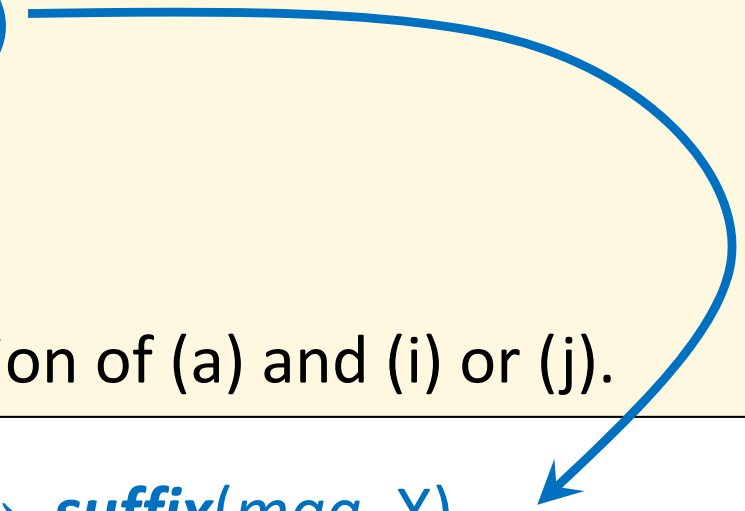

i. X, V, σ:{AGR:{{2sg obj}}} → ***suffix***(*maa*, X)

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The object-agreement rules (i) and (j)
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i. X, V, σ:{AGR:{{2sg obj}}} → ***suffix***(*maa*, X)
j. X, V, σ:{AGR:{{3sg CLASS:1 obj}}} → ***suffix***(*moo*, X)

a. X, V, σ:{AGR:{{1sg subj}}} → ***suffix***(*mi*, X)

Analysis:

The object-agreement rules (i) and (j)
both conflate with
the subject-agreement rule (a)
to produce **rules (o) and (p)**,
whose application blocks the application of (a) and (i) or (j).

i. X, V, σ:{AGR:{{2sg obj}}} → ***suffix***(*maa*, X)
j. X, V, σ:{AGR:{{3sg CLASS:1 obj}}} → ***suffix***(*moo*, X)

o. X, V, σ:{AGR:{{1sg subj} {2sg obj}}} → ***suffix***(*maa-mi*, X)
p. X, V, σ:{AGR:{{1sg subj} {3sg CLASS:1 obj}}} → ***suffix***(*moo-mi*, X)

a. X, V, σ:{AGR:{{1sg subj}}} → ***suffix***(*mi*, X)

Analysis:

The object-agreement rules (i) and (j)
both conflate with
the subject-agreement rule (a)
to produce rules (o) and (p),
whose application blocks the application of (a) and (i) or (j).

i. X, V, σ:{AGR:{{2sg obj}}} → ***suffix***(*maa*, X)
j. X, V, σ:{AGR:{{3sg CLASS:1 obj}}} → ***suffix***(*moo*, X)

o. X, V, σ:{AGR:{{1sg subj} {2sg obj}}} → ***suffix***(*maa-mi*, X)
p. X, V, σ:{AGR:{{1sg subj} {3sg CLASS:1 obj}}} → ***suffix***(*moo-mi*, X)

Otherwise, subject-agreement rules conflate with object-agreement rules.

In this analysis, the rules realizing subject agreement ordinarily conflate with rules realizing object agreement; subject-agreement suffixes therefore ordinarily precede object-agreement suffixes.

		***mi* suffixation**	***ɓe'* suffixation**
		conflated	
Stem	***u* suffixation**	***miɓe'* suffixation**	
mball→	*mballu →*	*mballumiɓe'*	
'I helped them'			

But the conflation of the rules realizing singular personal object agreement with the rule realizing 1sg subject agreement causes the 2sg and 3sg personal object suffixes to precede the 1sg subject suffix.

		***maa* suffixation**	***mi'* suffixation**
		conflated	
Stem	***u* suffixation**	***maami'* suffixation**	
mball →	*mballu* →	*mballumaami'*	
'I helped you (sg.)'			

Summary

- Where R1 and R2 are realization rules that are both applicable in the realization of a paradigm cell, the relation between R1 and R2 is either
  - a relation of paradigmatic opposition, or
  - a relation of linear ordering, or
  - a relation of conflation.

Summary

- Where R1 and R2 are realization rules that are both applicable in the realization of a paradigm cell, the relation between R1 and R2 is either
  - a relation of paradigmatic opposition, or
  - a relation of linear ordering, or
  - a relation of conflation.

- Relations of conflation account for instances of morphotactically conditioned variation in affix order, including
  - stem-pivotal variation (as in the inflection of Noon adjectives and Swahili relative verb forms) and
  - affix-pivotal variation (as in the inflection of Fula verbs).