

Phonological feature domains and the content of epenthetic vowels

(An argument for representations)

Marc van Oostendorp, Leiden University/HIL, oostendorp@rullet.leidenuniv.nl

GLOW Conference on Features\v

Overview of this talk

- The interaction between vowel epenthesis and vowel harmony and umlaut
- Dominant/recessive vowel harmony vs. root control
- Some problems for accounts without a worked-out theory of representations
- A theory of segmental integrity
- An extension of the theory to certain derived environment effects

Icelandic u-umlaut

(1)	barn	`child-ACC SG.'	börn-um	`child-DAT PL.'
	dag	`day-ACC SG.'	dög-um	`day-DAT PL.'
	vatn	`water-ACC SG.'	vötn-um	`wate-DAT PL.r'
	tala	`I speak'	töl-um	`we speak'
	baka	`I bake'	bök-um	`we bake'
	kalda	`cold-ACC SG. MASC.'	köld-um	`cold-DAT.SG.MASC.'

(2)	dag-ur	`day-NOM SG.'
	(/dag/+r/)	
	snarp-ur	`rough-MASC NOM SG.'
	(/snarp/+r/)	

(3)	b a r n	u m
	\	
	[-back]	
	[+round]	

Winnebago (Dorsey's Law)

(4)	x _o rojike	`hollow'
	hojisana	`recently'
	hirupini	`twist'
	maaš _a rac	`you promise'

Turkish: vowel harmony (front harmony)

(5)	nom.sg.	gen.sg.	nom.pl.	
	ev	ev-in	ev-ler	`house'
	ip	ip-in	ip-ler	`rope'
	kIz	kIz-In	kIz-lar	`girl'
	para	para-nIn	para-lar	`money'

- (6) eski `old' anla `understand'
 inci `pearl' ballk `fish'
 ince `thin' IIIk `tepid'

Turkish: exceptions to vowel harmony

- (7) hangi `which' miras `inherit'
 orkinos `tunny fish' fiskos `gossip'
 billur `crystal' zaruri `necessary'

Turkish epenthetic vowel: exception to the exception

- (8) *hIngi *mirIs
 piren's `prince' sehir `arrow' (/sehr/)
 tIransit `transit' ogul `son' (/ogI/)

Typology of vowel harmony systems

- (9) a. *Dominant/recessive vowel harmony*
 $[_i [k [_I X_I X_I] [_j X_j X_j] \quad X_k X_k]_k \quad X_I X_I]_I$
 $]_j]_I$
 F_I F_j F_I

- (10) b. *Root-controlled Vowel Harmony*
 $[_i [k [_I X_I X_I] [_j X_j X_j] \quad X_k X_k]_k \quad X_I X_I]_I$
 $]_j]_I$
 F_I F_j F_I

Turkish vowel harmony

- (11) a. [[ip] ler] c. [[[altI] gen] ler])
 rope PL Six NOM PL (=hexagonals)
- b. [[kIz] lar] d. [[sekiz] gen] ler]
 girl PL Eight NOM PL (=octagonals)

Non-existent languages

- Languages with affix-controlled vowel-harmony

Turkish*

- (12) a. [ip] lar] c. [[[alti] gen] lar])
 rope PL Six NOM PL (=hexagonals)
- b. [[kIz] lar] d. [[sekiz] gen] lar]
 girl PL Eight NOM PL (=octagonals)

- Languages in which the epenthetic vowel is the only one not to undergo vowel harmony. (In such a language there would be e.g. two [y]'s, one underlying, the other epenthetic. The underlying /y/ would be subject to harmony/umlaut, whereas the epenthetic vowel would not be sensitive to it)

Icelandic*

(13)	barn	`child-ACC SG.'	barn-[u]m	`child-DAT PL.'
			barn-[y]r	`child-NOM SG.'
			(/barn/+r/)	
	deg	`day-ACC SG.'	deg-ym	`day-DAT PL.'
			deg-[y]r	`day-NOM SG.'
			(/deg/+r/)	

Problems: rule-based accounts

- It is not clear how the restriction of 'root-control' should be implemented
- Icelandic is a classic case of opacity. There are two rules (UMLAUT and EPENTHESIS). If they are applied in this order we get Icelandic. But since we have no way to distinguish between target and trigger in the rule, we could also get Icelandic*.

Problems: constraint-based accounts (correspondence theory)

- It is still unclear how 'root-control' should be described. Simple cases such as *ip-ler* could be described by a ranking Faithful(root)>>Faithful(affix). But this ranking is stipulatory and furthermore still does not explain the more complex cases of *altI-gen-ler*, etc

(14) Factorial typology:

Ident(root), Ident(affix) >> Harmony	No harmony
Ident(root)>>Harmony>> Ident(affix)	(Almost) root-controlled harmony
Harmony >> Ident(root), Ident(affix)	Dominant/recessive harmony
Ident(affix)>>Harmony>>Ident (root)	(Almost) affix-controlled harmony; blocked by stipulation.

- Since Icelandic u-umlaut is a case of opacity, it is problematic for 'classical OT'. This problem may have been solved with the introduction of Sympathy theory (Karvonen and Sherman 1997)

(15)

a.

SONCON	Complex onsets rise in sonority, complex codas fall in sonority.
REALIZE-M	For every morpheme in the input, the output must contain at least one segment of that morpheme.
IDENT- [✱] O	Corresponding segments in [✱] candidate and output must have corresponding feature values.
DEP-IO	Every segment in the output must be present in the input
ANCHOR-R	Any element at the right edge of the input has a correspondent at the right edge of the output.
MAX-IO	Every segment in the input must be present in the output
UMLAUT	*[a C ₀ + C ₀ y]
IDENT	Corresponding segments in input and output must have corresponding feature values.

b.

/dag+r/	SON CON	REAL- M	IDENT- O	DEP- IO	ANCHOR- R	MAX- IO	UMLAUT	IDENT
a. dag		*!			*	*		
b. dagr	*!		*					
c. dagur				*			*	
d. dögur			*!	*				*

- In a theory of correspondence that bases itself on the segment (that works with featural identity) we predict the non-existence of Icelandic*. This theory is not uncontroversial however. If we were to allow MAX and DEP constraints for individual features, Icelandic* would again become a possibility, just as it is in rule-based theory.
- However, identity-based correspondence theory faces problems of its own. Why isn't every language like Winnebago, if the only force blocking feature spreading is faithfulness? (As soon as an independent force is discovered, the problem of Icelandic* may arise again.)

A theory of morphological domains for segments

- (16) a. **Integrity:**
a root node may not dominate features outside its morphological domain.
- b. The morphological domain of a segment (root node) S is
- the morpheme, or
 - the smallest word, or
 - the largest word to which S belongs.

(17) $[[[a_i l_i t_i I_i] \quad g_j e_j n_j] \quad l_k e_k r_k]$

i

j

k

(18)

Candidates	INTEGRITY	HARMONY
☞ $[[[altI] \quad gen] \quad ler]$		**
$[[[alti] \quad gen] \quad ler]$	*!	*

- (19) HARMONY >> INTEGRITY, FAITH Dominant/Recessive VH
 FAITH >> HARMONY (INTEGRITY) No harmony
 INTEGRITY >> HARMONY >> FAITH Root controlled VH

- In a parameter model, we may say that Integrity is switched on (root control) or off (dominant/recessive)

Epenthetic vowels have no morphological domain; epenthetic material is outside of any domain

(20)

/barn/+um/	INTEGRITY	UMLAUT	FAITH
barnum		*!	
☞ börnum			*

(21)

/dag/+r/	INTEGRITY	UMLAUT	FAITH
☞ dagur		*	
dögur	*!		*

- | | |
|----------------------------------|--|
| (22) HARMONY >> INTEGRITY, FAITH | All vowels trigger harmony |
| FAITH >> HARMONY (INTEGRITY) | No vowels trigger harmony |
| INTEGRITY >> HARMONY >> FAITH | Only underlying vowels trigger harmony |

Strict cyclicity effects

(23) **Strict Integrity (SI):**

A segment may only dominate features that are strictly within its domain.

A feature F is strictly within the domain of a segment S, if the domain of F is D1 and the domain of S is D2 and D2 is larger than D1.

(24) Winnebago

/xrojike/	SI	HARMONY	FAITH
☞ xrojike			
xrojeke	*!		
xerojike		*!	*

(25)

/hangi/	SI	HARMONY
☞ hangi		*
hengi	*!	

(26)

/prens/	SI	HARMONY
☞ prens		
pIrens		*!

(27)

/kedi/	KEEP-ASSOCIATION	SI	HARMONY
☞ kedi		*	
kedI	*!		*

