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The phonological endgame: Welsh svarabhakti revisited

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Plan

- Discuss the facts of svarabhakti in South Welsh: epenthesis and deletion
- Provide a phonological analysis of epenthesis
- Show that deletion cannot be derived if the analysis of epenthesis is correct
- Argue that deletion is not phonological but allomorphic
- Reconcile the proposal with approaches to the ‘duplication problem’

I Svarabhakti in Welsh

1.1 The basic facts

Svarabhakti in Welsh

- Pembrokeshire Welsh (Awbery 1986)
- Welsh tends to disallow word-final rising-sonority sequences

(1)	a.	*[ʎestr]		
	b.	[ʎester]	<i>llestr</i>	‘dish’
	c.	[ʎestri]	<i>llestri</i>	‘dishes’

- Although consonant clusters as such are OK

(2)	a.	[ˈforð]	<i>ffordd</i>	‘road’
	b.	[ˈfirv]	<i>ffurf</i>	‘form’

- Epenthesis (or rather copying), not deletion:

(3)	a.	[ˈmuːdul]	<i>mwdwl</i>	‘haycock’
	b.	[muˈduːle]	<i>mydylau</i>	‘haycocks’

Svarabhakti in Welsh cont’d

- But epenthesis is only deployed if the fully faithful candidate is monosyllabic
- If the form is longer, we get deletion

(4)	a.	(i)	[ˈfeːnest]	<i>ffenstr</i>	‘window’
		(ii)	[feˈnestri]	<i>ffenestri</i>	‘windows’
		(iii)	*[feˈnesti]		
	b.	(i)	[ˈaːnal]	<i>anadl</i>	‘breath’
		(ii)	[aˈnadli]	<i>anadlu</i>	‘breathe’
		(iii)	*[aˈnaːli]		

- Minor facts about (mostly) northern dialects:
 - Some dialects have metathesis: [ˈewirθ] ~ [eˈwəθra] ‘uncle(s)’
 - Epenthesis sometimes fails, especially with [vC]

1.2 The conspiracy unmasked

Analysis

- ‘Unity in diversity’ (Hannahs 2009)
- All processes driven by the avoidance of sonority sequencing violations
- The difference between deletion and epenthesis is foot structure
- North Welsh: [ˈpobol] ‘people’ (*pobl*), [ˈposib] ‘possible’ (*posibl*)
- Both forms satisfy FTBIN
 - [(posib)_{FT}] defeats *[(po)_{FT}(sibil)_{FT}] on foot structure
 - *[(poːb)_{FT}] and [(pobol)_{FT}] tie on foot structure and DEP, [poːb] loses on MAX

Trouble in South Wales

- This analysis is not applicable to South Welsh
- North Welsh disallows long vowels except in final syllables
- South Welsh positively requires them in some contexts in penultima
- Epenthesis does not help with FTBIN, because FTBIN must be satisfied in the penult

- (5) a. ['pu:du:r] pudr 'rotten'
 b. *['pudur]

- Arguably, the same is true of [fe('ne_μs_μ)ter]

1.3 The analysis of epenthesis

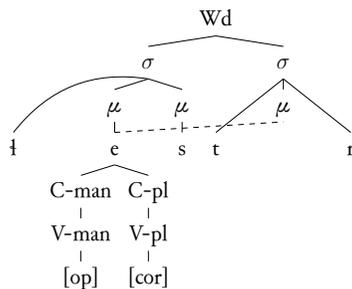
Possible motivations for epenthesis

- Why is ['pu:du:r] better than ['pu:d]?
 - Two possible answers: epenthesis is better than deletion (MAX ≫ DEP)...
 - ... or we need the right prosodic structure (HL uneven trochee or extrametricality, cf. Ni Chiosáin 1999)
- It is the former

	SONSEQ	MAX(Seg)	DEP(Seg)	σ-XM
/pudr/ a. ['(pudr)]	*!			*
b. ['(pu:d)]		*!		*
c. ^{ES} ['(pu:)du:r]			*	
/forð/ d. ^{ES} ['(forð)]				*
e. ['(fo:r)]		*!		*
f. ['(fo:)roð]			*!	

The mechanism of epenthesis

- Let's assume for now that epenthesis is phonological
- Obvious approach: spreading
- Doesn't really work: you need to copy the entire segment



The solution

- Multiple correspondence
- Similar to 'existential faithfulness' (Struijke 2000): MAX requires that an input have *some* output, not that it have *one* output
- Epenthesis violates not DEP but INTEGRITY

	SONSEQ	DEP	LINEARITY	INTEGRITY
a. ['so ₁ u ₂ dɪ]	*!			
b. ['so ₁ u ₂ dil]		*!		
c. ^{ES} ['so ₁ u ₂ du ₂]			⟨d, u⟩	*
d. ['so ₁ u ₂ do ₁]			⟨u, o⟩ ⟨d, o⟩!	*

Why is this a good thing?

- Explains the excessive copying:
 - Why not copy/spread just one feature?
 - Why not just insert some default?
 - No hoops to jump explaining why there is no other harmony process
- Allows incomplete copy under duress from other constraints: no sour grapes (Padgett 2002)
- Never mind the features for now: see Iosad (submitted)
- I assume [i] is {V-pl[cor]}, [ɔ] is {V-pl[cor], V-man[cl]}
- Basically, [ɔ] is disallowed in final syllables: so ['təvir] 'book' from /təvr/
- This approach chooses the right candidate

No sour grapes

	DEP	LINEARITY	INTEGRITY	MAXLINK(V-man[cl])
a. ['təvir]	*!			
b. ['tɪviɾ]		⟨v, i⟩	*	**!
c. ^{ES} ['təviɾ]		⟨v, i⟩	*	*

2 The problem of deletion

2.1 Why deletion is not phonology

Extending the analysis

- So far we have been assuming that epenthesis is a phonological process repairing SONSEQ violations
- ☞ We will have the opportunity to revisit this
- What about deletion? Is there a phonological conspiracy?

	/fenestr/	SONSEQ	MAX(Seg)	DEP(Seg)	σ-XM
a.	[('fe:)nestr]	*!			
b.	☹ [('fe:)nest]		*!		
c.	☞ [fe('nes)ter]			*	

Resolving the conundrum

- Our ranking will always prefer epenthesis over deletion, since we cannot use FTBIN to that effect
- I suggest that the solution is to view the 'deletion' as *allomorphy*, or more specifically *phonologically conditioned stem allomorphy* (Bermúdez-Otero 2006, forthcoming; also Anderson 2008, forthcoming)
- The choice is between /fenestr/ and /fenest/ as *underlying* forms, which means faithfulness does not have anything to say about deletion

Resolving the conundrum in OT

- Faithfulness is irrelevant: a possible approach

	WINDOW	SONSEQ	MAX	DEP
/fenestr/ a.	[('fe:)nestr]	*!		
b.	[fe('nes)ter]			*!
c.	[('fe:)nest]		*!	
/fenest/ d.	☞ [('fe:)nest]			

- Problem: these constraints as such cannot distinguish between [fe'nestri] and *[fe'nesti]
- If anything, *[fe'nesti] saves a complex onset

Types of phonological conditioning

- When we say 'phonologically conditioned', we could mean
 - Output-oriented optimization (e.g. Lapointe 2001; Wolf 2008; Anderson 2008)
 - Input-driven subcategorization (e.g. Paster 2006; Bye 2007; Yu 2007)
- We probably need both (Nevins 2011)
- With Welsh, input subcategorization seems more promising, at least in terms of descriptive adequacy
- WINDOW $\Leftrightarrow \left\{ \begin{array}{l} /fenest/ : \text{---} \# \\ /fenestr/ \end{array} \right\}$

2.2 The advantages of allomorphy

Why allomorphy?

- But now we have no conspiracy: SONSEQ does not play a rôle in selecting [('fe:)nest] over [fe:nestr]
- So how is this good?
 - ☞ Epenthesis may also be allomorphic
 - ☞ Deletion is lexically specific
 - ☞ Deletion can show cyclic misapplication within morphosyntactic classes

Lexically specific epenthesis

- Pembrokeshire Welsh also shows epenthesis that is not apparently driven by SONSEQ
- (6)
- | | | | | |
|----|------|-------------|----------------|---------------|
| a. | (i) | [('he:)lem] | <i>helm</i> | 'corn stack' |
| | (ii) | [('helmi)] | <i>helmi</i> | 'corn stacks' |
| b. | (i) | [('gu:ðug)] | <i>gwddf</i> | 'neck' |
| | (ii) | [('guðge)] | <i>gyddfau</i> | 'necks' |
- Also compare [('ferm)] 'farm' with [('sto:rom)] 'storm' in relevant locations in A. R. Thomas (2000)
 - Epenthesis can fail in words like *gafn*, *ofn* etc.
 - Possibly no epenthesis in borrowings (Fynes-Clinton 1913; Hannahs 2009): [bɛkn], [nobl]

Unpredictable deletion

- There does not appear to be clear phonological rationale to what deletes: ['fe:nestɹ] 'window' but ['a:nædl] 'breath';
- Hannahs (2009), following much of the literature, claims deletion of the sonorant (except [dl]) and introduces a constraint CONTIGMAXIO (bans deletion that leads to contiguity violations)
 - ☞ But what do we do with [dl] after all?
 - ☞ It's not just [dl]: also [dn], [rn] (Russell 1984; P. W. Thomas 1995; Wmffre 2003)
- This is all completely unproblematic under the allomorphy account

Overapplication

- Going back to the issue of *[fe'nesti]...
- Deletion can actually show cyclic misapplication (P. W. Thomas 1995; Wmffre 2003)
- But appears to stay inside the boundaries of morphological categories

(7)	a.	(i)	['a:nal]	<i>anadl</i>	'breath'
		(ii)	['a'na:le]	<i>anadlau</i>	'breaths'
	b.	(i)	['a'nadli]	<i>anadlu</i>	'breathe'
		(ii)	*['a'na:li]		

- Makes sense if the selection happens at the *stem level*
- Parallel in Spanish (Bermúdez-Otero, forthcoming): *contar* ~ *cuenta* but *cuento* ~ *cuentista*

The advantages of lexical insertion

- In the stem-centric model of Bermúdez-Otero (2012, forthcoming), generalizations about stem allomorphs are Jackendovian lexical redundancy rules
- ☞ Principled coupling of the stem-level syndrome (Kaisse and McMahon 2011), including cyclic misapplication, with phonological irregularity
- 'Deletion' is the debris of formerly productive phonology (Kiparsky 1995; Bermúdez-Otero 2007)
- Changes in terms of deletion behaviour are changes in underlying representation
- Some confirmation
 - Some deletion does become lexically stable, e. g. [hilo] for *bidlo* 'to sieve' (Iwan Wmffre p. c.)
 - These changes clearly proceed by lexical diffusion (Wmffre 2003)

A note on diachrony

- If this story is true, we should be seeing these diffusing changes in the diachrony
- Also: Schumacher (2011) claims that epenthesis in [lv], [rv], [ðv] was regular in Middle Welsh
- Indeed we find ['gu:ðug], but also ['firv], ['palv] (MW *furyf*, *palyf*)
- Should be testable on the corpora
- Next step

Summary

- There is no phonological conspiracy against rising-sonority sequences in (South) Welsh
- If epenthesis is phonology, deletion is not
- Stratal solution with stem allomorphy appears to create the duplication problem
- Advantages over a '(parallel) phonology at all costs' approach
- Duplication arises via diachrony and is not a 'problem' for synchronic analysis
- Whole-language analysis is important

Diolch yn fawr!

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