The phonological endgame

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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’

1 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. *[ˈɬestr]
   [ˈɬester]
   llestr
   ‘dish’
   b. [ˈɬestri]
   llestri
   ‘dishes’

• Although consonant clusters as such are OK

(2)

a. *[ˈforð]
   [ˈforð]
   ffordd
   ‘road’
   b. *[ˈfirv]
   [ˈfirv]
   ffurf
   ‘form’

• Epenthesis (or rather copying), not deletion:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>[ˈmuːdul]</td>
<td>mwdwl</td>
</tr>
<tr>
<td>b.</td>
<td>[muˈduːle]</td>
<td>mydylau</td>
</tr>
</tbody>
</table>

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

(3)

a. *[ˈfeːnest]
   [ˈfeːnest]
   ffenestr
   ‘window’
   b. *[ˈfeˈnestri]
   [feˈnestri]
   ‘windows’
   (i)  *[ˈfeːnest]
   [ˈfeːnest]
   ffestri
   ‘dishes’
   (ii)  *[ˈfeːnesti]
   [feˈnesti]
   ‘dishes’
   (iii)  *[ˈfeːnesti]
   [feˈnesti]
   ‘dishes’

• Minor facts about (mostly) northern dialects:
  – Some dialects have metathesis: *[ˈewɨrθ] ~ [eˈwəθra] ‘uncle’
  – 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’ (posib)
• Both forms satisfy FrBIN
  – *[posib] defeats *[poːb] on foot structure
  – *[posib] and *[pobol] 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 FrBIN, because FrBIN must be satisfied in the penult
a. [ˈpuːdər] pwdr 'rotten'
b. *[ˈpuːdər]

- Arguably, the same is true of [ˈfe(ˈnɛm)ter]

### 1.3 The analysis of epenthesis

#### Possible motivations for epenthesis

- Why is [ˈpuːdər] better than [ˈpuːd]?
- Two possible answers: epenthesis is better than deletion (Max ≫ Dep)...
- ... or we need the right prosodic structure (HL uneven trochee or extrametricality, cf. Ní Chiosáin 1999)
- It is the former

<table>
<thead>
<tr>
<th>/pudr/</th>
<th>SonSeq</th>
<th>Max(Seg)</th>
<th>Dep(Seg)</th>
<th>σ-XM</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [ˈpuːdər]</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. [ˈpuːd]</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. *[ˈpuːdər]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. [ˈfoːrd]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. [ˈfoːroð]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. [ˈfoʊdər]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 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

![Diagram of prosodic structure]

- Multiple correspondence
- Similar to 'existential faithfulness' (Struijk 2000): Max requires that an input have some output, not that it have one output
- Epenthesis violates not Dep but Integrity

<table>
<thead>
<tr>
<th>/soʊˌuːdl/</th>
<th>SonSeq</th>
<th>Dep</th>
<th>Linearity</th>
<th>Integrity</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [ˈsoʊuːdl]</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. [ˈsoʊuːdl]</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. *[ˈsoʊuːdl]</td>
<td></td>
<td></td>
<td>(d, u)</td>
<td>*</td>
</tr>
</tbody>
</table>
| d. [ˈsoʊuːdoʊ] | | | (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]}, [ə] is {V-pl[cor], V-man[cl]}
- Basically, [ə] is disallowed in final syllables: so [ˈɬəvəɾ] 'book' from /ɬəvəɾ/
- This approach chooses the right candidate

#### No sour grapes

<table>
<thead>
<tr>
<th>/təvər/</th>
<th>Dep</th>
<th>Linearity</th>
<th>Integrity</th>
<th>MaxLink(V-man[cl])</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [ˈtəvəɾ]</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. [ˈbəviɾ]</td>
<td>(v, i)</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>c. *[ˈbəviɾ]</td>
<td>(v, i)</td>
<td></td>
<td></td>
<td>**!</td>
</tr>
</tbody>
</table>
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?

<table>
<thead>
<tr>
<th>/fenestr/</th>
<th>SonSeq</th>
<th>MaxSeg</th>
<th>DepSeg</th>
<th>σ-XM</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [ˈfeː)nestr]</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. ⋈ [ˈfeː)nest]</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. # [fe(ˈnes)ter]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Resolving the conundrum

• Our ranking will always prefer epenthesis over deletion, since we cannot use FyBin 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

<table>
<thead>
<tr>
<th>/fenestr/</th>
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<th>Max</th>
<th>Dep</th>
</tr>
</thead>
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<tr>
<td>a. [ˈfeː)nest]</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. [fe(ˈnes)ter]</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>/fenest/</td>
<td></td>
<td>#</td>
<td></td>
</tr>
</tbody>
</table>

• Problem: these constraints as such cannot distinguish between [feˈnestri] and *[feˈnesti]

• If anything, *[feˈnesti] saves a complex onset
Unpredictable deletion

- There does not appear to be clear phonological rationale to what deletes: [ˈfeːnest] ‘window’ but [ˈaːnaːd] ‘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)

\[\text{But what do we do with [dl] after all?}\]
\[\text{It’s not just [dl]: also [dn], [rn] (Russell 1984; P. W. Thomas 1995; Wmffre 2003)}\]

- This is all completely unproblematic under the allomorphy account

Overapplication

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

\[\text{(i)}\]
\[\text{[ˈaːndl] anadl ‘breath’}\]
\[\text{(ii)}\]
\[\text{[aˈnaːle] anadlu ‘breaths’}\]
\[\text{(i)}\]
\[\text{[aˈnadli] anadlu ‘breathe’}\]
\[\text{(ii)}\]
\[\text{*[aˈnaːli]}\]

- Makes sense if the selection happens at the stem level
- Parallel in Spanish (Bermúdez-Otero, forthcoming): constar ~ 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 hiddle ‘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], [lv] was regular in Middle Welsh
- Indeed we find [ˈɡuːðuɡ], but also [ˈfirv], [ˈpalv] (MW furry, pale)
- Should be testable on the corpora
- Next step

Summary

- There is no phonological conspiracy against rising-somority 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!

References

The Spanish lexicon stores stems with stem vowels, not roots with inflectional class features. Probus forthcoming.


