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]
    b. [ˈɬester]
    llestr
    ‘dish’

(2) a. *[ˈforð]
    b. [ˈforð]
    ffordd
    ‘road’

• Although consonant clusters as such are OK

(3) a. *[ˈmuːdul]
    mwdwl
    ‘haycock’

b. [muˈduːle]
    mydylau
    ‘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]
    (ii) [ˈfeːnestri]
    (iii) *[ˈfeːnesti]
    ffnestr
    ‘window’

b. (i) [ˈaːnal]
    (ii) [ˈaːnali]
    (iii) *[ˈaːnalə]
    anadl
    ‘breath’

• Minor facts about (mostly) northern dialects:
  – Some dialects have metathesis: [ˈewɨθra] ‘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 FtBin
  – [(posib)\textsubscript{1}] defeats *[(po)\textsubscript{2}(sibil)\textsubscript{3}] on foot structure
  – *[(po:b)\textsubscript{1}] and [(pobol)\textsubscript{1}] tie on foot structure and Dep, [(po:b)] 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
1.3 The analysis of epenthesis

Possible motivations for epenthesis

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

<table>
<thead>
<tr>
<th></th>
<th>SonSeq</th>
<th>Max(Seg)</th>
<th>Dep(Seg)</th>
<th>(\sigma)-XM</th>
</tr>
</thead>
<tbody>
<tr>
<td>/puːd(\text{dr})/ a. [(\text{puːd}\text{dr})]</td>
<td>(\ast)</td>
<td>(\ast)</td>
<td>(\ast)</td>
<td></td>
</tr>
<tr>
<td>b. [(\text{puːd})] &amp; c. (\ell) [(\text{puːd}\text{dr})] &amp; d. [(\text{forð})] &amp; e. [(\text{foː}\text{rð})] &amp; f. [(\text{foː}\text{ð})]</td>
<td></td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>SonSeq</th>
<th>Dep</th>
<th>Linearity</th>
<th>Integrity</th>
</tr>
</thead>
<tbody>
<tr>
<td>/s(\text{o}<em>{1}\text{u}</em>{2}\text{dl})/ a. [(s(\text{o}<em>{1}\text{u}</em>{2}\text{dl})]</td>
<td>(\ast)</td>
<td>(\ast)</td>
<td>(\ast)</td>
<td>(\ast)</td>
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<tr>
<td>b. [(s(\text{o}<em>{1}\text{u}</em>{2}\text{dl})] &amp; c. (\ell) [(s(\text{o}<em>{1}\text{u}</em>{2}\text{dl}<em>{1})] &amp; d. [(s(\text{o}</em>{1}\text{u}<em>{2}\text{do}</em>{1})]</td>
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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]\}, \([a]\) is \{V-pl[cor], V-man[cl]\}
- Basically, \([a]\) is disallowed in final syllables: so ['\(\text{ðəvə}\)'] 'book' from /\(\text{ðəvə}\)/
- This approach chooses the right candidate

No sour grapes

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<th>Dep</th>
<th>Linearity</th>
<th>Integrity</th>
<th>MaxLink(V-man[cl])</th>
</tr>
</thead>
<tbody>
<tr>
<td>/(\text{i}<em>{2}\text{v}</em>{1}\text{r})/ a. [(\text{i}<em>{2}\text{v}</em>{1}\text{r})]</td>
<td>(\ast)</td>
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<td>b. [(\text{i}<em>{1}\text{v}</em>{1}\text{r})] &amp; c. (\ell) [(\text{i}<em>{2}\text{v}</em>{1}\text{r})]</td>
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</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

\[
\begin{array}{c|c|c|c|c|c|c}
\text{Wd} & \sigma & \mu & \ell & c & e \text{ \(\ell\)} & t \\
\hline
\text{C-man} & \text{C-pl} & \text{V-man} & \text{V-pl} & \text{[op]} & \text{[cor]} & \text{[cor]} \\
\end{array}
\]
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?

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

**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

**Why allomorphy?**

- But now we have no conspiracy: SonSeq does not play a role in selecting [ˈfeːnest] over [ˈfeːnestr]

- 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

  a. (i) [ˈheːlem] belm 'corn stack'
     (ii) [ˈhelmi] belmi 'corn stacks'
  b. (i) [ˈɡuːðuɡ] gwddf 'neck'
     (ii) [ˈɡuðɡe] gyddfau 'necks'


- Epenthesis can fail in words like gof, ofr etc.

- Possibly no epenthesis in borrowings (Fynes-Clinton 1913; Hannahs 2009): [bekn], [nobl]
Unpredictable deletion

• There does not appear to be clear phonological rationale to what deletes: [ˈfeːnestr] ‘window’ but [ˈaːnal] ‘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 *[feˈnesti]…
• Deletion can actually show cyclic misapplication (P. W. Thomas 1995; Wmffre 2003)
• But appears to stay inside the boundaries of morphological categories

(i) a. (i) [ˈaːnal] anadl ‘breath’
   (ii) [ˈaːnale] anadluau ‘breaths’
(ii) [ˈaːndli] anadlu ‘breath’
• 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 (Kaise 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], [lw] was regular in Middle Welsh
• Indeed we find [ˈɡuðuɡ], but also [ˈfirv], [ˈpalv] (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!

References

———. forthcoming. The Spanish lexicon stores stems with stem vowels, not roots with inflectional class features. *Probus* 23 (1).


