Phonemicization vs phonologization: voiced fricatives in Old English and Brythonic

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Phonemicisation vs. phonologisation

Voiced fricatives in Old English and Brythonic

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1 Context

1.1 Introduction

Outline of argument

• Strict (naïve) contrastivist hypothesis: if two things are predictably distributed, the distinction is phonologically irrelevant

• Voiced fricatives in Old English and Brythonic Celtic
  – Are (by and large) predictably distributed
  – Plenty of evidence that the distribution is phonologically relevant

• Phonologisation: creation of phonologically distinct representations

• Phonemicisation: establishment of unpredictable distribution

• Phonologisation precedes phonemicisation: ‘allophony’ → marginal contrast → contrast

Our examples

• Lenis fricatives in Old English
  – Arise from fortis/H/[spread glottis] fricatives through foot-medial lenition
Largely predictable distribution in Old English, clear phonemicisation by moderately early Middle English

• Voiced fricatives in Brythonic Celtic
  – Arise from voiced stops through phrase-level intervocalic lenition
  – Largely predictable distribution early on, major changes in prosodic structure lead to phonemicisation

• But in both cases:
  – Distribution is predictable but sensitive to phonology: it is enforced by phonological computation (Hall & Hall, Kim this conference)
  – Voiced fricatives survive secondary split, which presupposes distinct representations (Dresher this conference)

1.2 Some assumptions

The Contrastivist Hypothesis

• In its purest form, the CH is about representations

• What about computation?
  • Most phonological theories on the market are powerful enough to coerce arbitrary representations into predictable distributions

• Can the CH be reconciled with this?
  • Yes: phonemicisation is a fact about surface distributions, not about what the phonology works with (cf. Scobbie 2007)

• Fruitful to distinguish phonemicisation and phonologisation

What does phonology know?

• Standard position going back to Chomsky and Halle (1968) if not Jakobson, Fant, and Halle (1951): everything language-specific is phonological, phonetics is universal and not interesting

• Under attack from several perspectives recently

• We assume phonology exists but there is a non-trivial division of labour: ‘Is X a phonological phenomenon?’ is an interesting question (Morén 2006; Hale, Kissock, and Reiss 2007; Odden 2013)

• Under this approach, ‘When does X become phonological?’ is also an interesting question

• And how do we know?
The life cycle

• It is uncontroversial that phonological patterns can arise as a grammaticalisation of (predictable) phonetics (e.g. Hyman 1976; Janda 2003; Bermúdez-Otero 2007; Bermúdez-Otero and Trousdale 2012)

• If so, we expect the early stages of phonologisation to produce predictable distributions or at best marginal contrasts (Scobbie and Stuart-Smith 2008; Bye 2013)

• Further, historical phonology exists: phonological (but not necessarily phonemic) distinctness is important in phonological change

2 Fricative lenisation in Old English

2.1 Phonemicisation in English

The textbook position

We set dorsals aside here: ‘[x]...no longer existed’ in the environments relevant here (Hogg 1992, p. 276)

• It is widely accepted that OE had one distinctive series of fricatives, with allophonic voicing in ‘intervocalic’ position

Laker (2009) dissents, but Minkova (2011) provides a compelling defence of the phonological predictability of fricative ‘voicing’

Textbook OE phonemic inventory

From Lass (1987)

<table>
<thead>
<tr>
<th>Manner</th>
<th>Labial</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Postalveolar</th>
<th>Palatal</th>
<th>Velar</th>
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</thead>
<tbody>
<tr>
<td>Stop</td>
<td>p(ː)</td>
<td>t(ː)</td>
<td>k(ː)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b(ː)</td>
<td>d(ː)</td>
<td>g(ː)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative</td>
<td>f(ː)</td>
<td>θ(ː)</td>
<td>s(ː)</td>
<td>f(ː)</td>
<td>x(ː)</td>
<td></td>
</tr>
<tr>
<td>Affricate</td>
<td></td>
<td></td>
<td></td>
<td>ŋ(ː)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>m(ː)</td>
<td>n(ː)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td>w</td>
<td>l(ː), r(ː)</td>
<td></td>
<td></td>
<td></td>
<td>j</td>
</tr>
</tbody>
</table>

Textbook Middle English

• Middle English: voiced fricatives in French loans, degemination of intervocalic fortis fricatives and apocope create a contrast

• Again Lass (1987)
## The sequence of events

- **What conditions in Old English allowed the ME contrast to develop?**

  - **Standard answer:** French borrowings, degemination etc. were the *cause* of phonemicisation
  - Many borrowings with initial [v] (*veal, very, vile, victory*...), some also with initial [z]: *zeal, zodiac*...
  - Creation of medial contrast through degemination: OE *o[fː]rian*, ME *o[f]er*
  - Creation of final contrast through apocope: OE *lu[v]u*, lME *love* [loːv]

## Unanswered questions

- We find the form *fers* from Latin *versus* (e.g. in Ælfric, Orm) — sometimes taken to be evidence for fricative voicing but could it be a nativised loan? And if so, why didn’t ME just carry on like this?

- Why were the other not constrained by the synchronic restrictions on fricatives? Why not *offrian* → **over, lufu* → **lof*?

- We suggest: fricative lenisisation is *phonological* already in Old English (cf. Moulton 2003)

### 2.2 Phonologisation in Old English

#### The distribution

- The basic rule is Intervocalic Voicing 101

\[
\left[ \begin{array}{c}
+\text{cont} \\
\end{array} \right] \rightarrow [+\text{voi}] / [+\text{voi}]_\text{__, } [+\text{voi}] \quad (\text{e.g. Hogg 1992})
\]

- **Examples**
  - *wul[f]* ‘wolf’ but *wul[v]* as ‘wolves’
  - *hu[s]* ‘house’ but *hu[z]ian* ‘to house’
  - *ba[θ]* ‘bath’ but *ba[ð]ode* ‘bathed’

- This, however, is not the whole story
Phonological factors

• How do we know that phonology is involved?

The distribution is exquisitely sensitive to phonological factors, i.e. it is phonologised

1. Blocking in gemination referred to above: expected from a phonological perspective (Honeybone 2005b), gemination in OE is phonological because geminates count for weight

   
   In particular, there is no voicing between unstressed nuclei (Fulk 2001, 2002):
   
   – $\text{daro[}\theta\text{]}\text{a} \text{‘spears (gen. pl.)’}$
   
   – $\text{earfo[}\theta\text{]}\text{u} \text{‘hardship (acc. pl.)’}$

3. Certain types of boundaries block voicing too: $\text{trēo[f\]}\text{æst} \text{‘faithful’}, \text{weor[}\theta\text{]}\text{ liéas} \text{‘worthless’}$ (Takahashi 1995; Fulk 2002)

2.3 The phonology of fricatives

Summary

• Old English phonology manipulated distinct representations for voiceless and voiced fricatives, even though the result is (almost) complementary distribution of the two categories

• This situation must have appeared fairly early on and persisted for a long time

• Changes in the ME period were not the cause of the phonologisation but instead were enabled by it

• Essentially the same result as that of Moulton (2003)

• But we take a different view of the pattern

Specification of fricatives

• We follow Honeybone (2002, 2005a, 2012); Spaargaren (2009) in assuming voiceless fricatives in Old English must be specified for H ($\text{spread}$, $\text{fortis}$, whatever)

Activity in progressive assimilation: /kyss-(i)de/ $\rightarrow$ [kyste] ‘kissed’

Activity in regressive assimilation: /med-scead/ $\rightarrow$ [metsceat] ‘reward’ (Spaargaren 2009)

Southern English Fricative Voicing: lenition as loss of H: OE $\text{fader}$, southern ME $\text{uader}$ ‘father’ (Honeybone 2005a, 2012)
The importance of lenition

- Moulton (2003) assumes something similar, but he also suggests that lenis fricatives are specified for [+voice]
- We disagree: no evidence for phonological activity of [voice] in fricatives (see especially Spaargaren 2009)

Conclusion for Old English

- The pattern makes good sense as a phonological one
- Contrast Moulton (2003, 157): the situation is ‘curious’ and ‘contrary to all expectations given the predictability of the feature’
- Indeed we do not have to look far to find a comparandum

3 Voiced fricatives in Brythonic

3.1 Basics

Fricatives in mediæval and modern Brythonic

- Welsh: [v ð (ɣ)] contrast with [f θ χ]
- Cornish: [v ɗ z (ɣ)] contrast with [f θ s x]
- Breton: [v f̬ z ʒ] contrast with [f s xː/h ʃ], though many dialects lack [f̬]

- Seems pretty unremarkable except for the Breton
- Ample evidence for the phonological character of the contrast through alternations

Some phonological processes

- Initial mutation: lenition
  - /m b/ → /v/ (WCB)
  - /d/ → /ð/ (WC), /z/ (B)
  - /ɡ/ → /ɣ/ with later developments (WCB)
- Final devoicing: Cornish and Breton
  - Cornish, Breton dialects with no v/f contrast: unremarkable
  - Breton dialects with tripartite v/f/f contrast: /f̬/ → /f/, /v/ → /o/
• More initial mutation: ‘new lenition’ (Breton, probably Cornish)
  - /l/ → /ʎ/ where available, else [v]
  - /s/ → /z/
  - /y/ → /ʒ/

The connection with quantity
• Best seen in Breton
• Restrictions following stressed vowel: only two patterns allowed, with alternations
  - Long vowel → voiced fricative
  - Short vowel → voiceless fricative

(1) Central Breton (Wmffre 1999)
  a. [ˈkɔːz] kozb ‘old’
  b. [ˈkɔsəh] kosboc’h ‘older’
  c. [aɣˈhɔsə] ar c’boshañ ‘the oldest’

• Similar but not identical to metrical restrictions in West Germanic (OE above; Dutch according to van Oostendorp 2003)

3.2 Phonemicisation in Brythonic

The appearance of voiced fricatives
• The source of voiced fricatives is the lenition of voiced stops (e.g. Matasović 2009)
(2) a. Middle Welsh lladdu [ð], Breton lazbañ [z/h/∅], Middle Cornish lathe [ð] ‘kill’, PC *slad- (OI slaide [ð] ‘killing’)
  b. Welsh afon [v], Middle Breton auon [v], Cornish auon [v] ‘river’, PC *abon- (OI a(w)b [β])

• Basic sound change: singleton stop → fricative /V_

Phonemicisation in Brythonic
• Early stage: no surface contrast between voiced stops and fricatives
  Fricatives postvocally, stops postconsonantally and in gemination
• Date uncertain
  – Early, but uncertain, date (e.g. Sims-Williams 1990; McCone 1996): common to Brythonic and Goidelic and possibly also Celtiberian (Villar 1993); solves some issues around borrowings into Irish (see also Schrijver 2009 for a reevaluation of the Brythonic/Goidelic relationship)
  – Later date (Jackson 1953: second half of 5th century): lenition affects Latin stops (W meddyg ‘doctor’ ← MEDIcu), therefore postdates the borrowing
Triggers of Brythonic phonemicisation

• Possible triggers of phonemicisation:
  
  – Syncope (mid 6th century according to Jackson 1953) creates non-postvocalic fricatives: PB *Ōro-genos, Old Welsh Urbgen, Middle Welsh Urien ([j] ← *[ɣ])
  
  – Simplification of voiced geminates: W aber ‘estuary’ from *ab-bero- ← ad-bero-. Date unclear but between lenition and ‘provection’ (devoicing of geminate stops arising through syncope, mid to late 6th century): OW Cattegirn from *Cadɔdiɣernos ← Catu-tigernos

• But what about phonologisation?

3.3 Phonologisation in Brythonic

Phonologisation in Brythonic

• As with OE, we suggest phonologisation precedes phonologisation by a long shot
  
  1. Productive phonology knows about the /v ð ɣ/ ~ /b d ɡ/ contrast but enforces the predictable distribution
  
  2. The existence of mutations presupposes a postlexical across-the-board phonological process à la Bermúdez-Otero (2007); Bermúdez-Otero and Trousdale (2012)
  
  3. Secondary split presupposes distinct representations (e. g. Kiparsky 1995; Janda 2003; Bermúdez-Otero 2007; Dresher this conference)

Systematic restrictions

<table>
<thead>
<tr>
<th>Manner</th>
<th>Labial</th>
<th>Coronal</th>
<th>Dorsal</th>
</tr>
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<tr>
<td>Voiceless singleton stops</td>
<td>p</td>
<td>t</td>
<td>k</td>
</tr>
<tr>
<td>Voiceless geminate stops</td>
<td>pp</td>
<td>tt</td>
<td>kk</td>
</tr>
<tr>
<td>Voiced singleton stops</td>
<td>#b</td>
<td>#d</td>
<td>#ɡ</td>
</tr>
<tr>
<td>Voiced geminate stops</td>
<td>bb</td>
<td>dd</td>
<td>ɡɡ</td>
</tr>
<tr>
<td>Voiceless fricatives</td>
<td>s(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voiced fricatives</td>
<td>(*#)v</td>
<td>(*#)ð</td>
<td>(*#)ɣ</td>
</tr>
</tbody>
</table>

Phonology knows about the contrast

• We propose that the positional restrictions on [b d g] vs. [v ð ɣ] are enforced by phonological computation

♫ The absence of [b d g] in the lenition position (however defined) is due to a phonological rule

• No real laryngeal contrast in fricatives: /s (h)/ and /v ð ɣ/ are not a phonological class

8
• The fricatives are defined only by manner: laryngeal contrast redundant

• Across-the-board deletion of stop component blocked syllable-initially, in gemination

  Essentially same story as for OE above

Effects of the rule

• As with OE *fers, borrowings follow the native pattern
  – Latin *medicus becomes *meddyg because of a synchronic restriction on surface [d], not because it is borrowed pre-lenition
    
    Contra Jackson (1953)

• Lack of laryngeal contrast means /v ð ɣ/ are effectively sonorants (Iosad 2012; Botma and van ’t Veer, forthcoming)
  – Welsh /v ð/ are inert in laryngeal assimilation
  – Breton [v] (when distinct from [f]) shows sonorant-like behaviour (cf. above)

The inheritance of the rule

• Voiced fricatives are involved in initial mutation

• The source of initial mutation is the application of lenition across word boundaries

• Consistent with the life cycle of phonological processes (Bermúdez-Otero 2007; Bermúdez-Otero and Trousdale 2012; Ramsammy, forthcoming)

• Phonetic tendencies stabilise and become phrase-level phonological patterns

  Mutations cannot have appeared without there having been a phonological rule outputting the right phonological symbols

The diachrony of the rule

• Phonologisation must precede secondary split (Kiparsky 1995; Janda 2003; Bermúdez-Otero 2007)
  – Voiced fricatives survive syncope to produce forms like *Urien
  – Voiced fricatives survive domain narrowing when lenition stops to operate at the phrase level

• Voiced fricatives become distinct phonological representations prior to changes in conditioning environments

  Same account in English for the preservation of [f] in *offer and [v] in *love
4 Discussion

4.1 Fricative voicing as lenition

Cross-linguistic similarities

- Old English
  - Phonologised distinction with a prosodically sensitive distribution
  - Weakly unconditioned process: fricative lenition ‘everywhere except’
  - Survives changes of context and phonemicises
  - Changes in conditioning: Southern English Fricative Voicing

- Brythonic
  - Phonologised distinction with phonologically defined distributions
  - Weakly unconditioned process: stop lenition ‘everywhere except’
  - Survives changes of context and phonemicises
  - Changes in conditioning: Breton and Cornish ‘new lenition’

- Franconian (not discussed here for reasons of space)
  - Clearly phonological (phonologised and phonemicised) distinction
  - Initial fricative voicing: a weakly unconditioned process?

Do we need contact explanations?

- These similarities have sometimes been explained by contact
  - Continental Germanic → English (Bennett 1955)
  - Brythonic → Old English (Laker 2009)
  - English → Cornish & Breton (Tristram 1995)

- Arguments against
  - Chronology of relevant sound changes (e.g. Nielsen 1994)
  - Chronology of phonemicisation (Minkova 2011)

- Our argument: voiced fricatives in English and Brythonic arise via an utterly ordinary process of lenition

- However, there are important differences too
  - English: loss of H; Brythonic: loss of θ
  - Different sensitivity to metrical structure

- Contact is an answer in search of a question
4.2 Theoretical consequences

Fixing the Contrastivist Hypothesis

- Cases such as that discussed here appear to fly in the face of the Contrastivist Hypothesis
- Should we abandon it?
- Probably not yet: a theory of phonology includes both representation and computation, the effects of the latter do not necessarily influence the former (Hall & Hall this conference)
- However, it does seem that a different formulation is in order

The Contrastivist Hypothesis redux

- The basic insight of the CH is that the set of phonologically active features is not larger than the set of features used to distinguish between a language's segments
- But the set of phonological segments can now be larger than the set of unpredictably distributed segments
- What the CH really says is no redundant features
- Once we've identified the set of phonological segments (via participation in truly phonological processes) and assigned a set of minimally contrastive specifications (say, via the Successive Division Algorithm; Dresher 2009), we may not assign more features
- This version of the CH still has content, but accommodates our facts

Conclusions

- Both Old English and Brythonic Celtic acquired voiced fricatives through a phonological process of lenition
- In both languages the phonological pattern produced (almost) predictable surface distributions for voiced fricatives for a fair length of time
- This does not falsify the Contrastivist Hypothesis, but follows from the existence of the phonological life cycle

Thank you!
References


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