Phonemicization vs phonologization: voiced fricatives in Old English and Brythonic

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Phonemicisation vs. phonologisation
Voiced fricatives in Old English and Brythonic

Patrick Honeybone
The University of Edinburgh
patrick.honeybone@ed.ac.uk

Pavel Iosad
University of Ulster / The University of Edinburgh
pavel.iosad@ed.ac.uk

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1  Context

1.1  Introduction

Outline of argument

• Strict (naïve) contrastivist hypothesis: if two things are predictably distributed, the dis-
tinction 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 lenisisation 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>
</tr>
</thead>
<tbody>
<tr>
<td>Stop</td>
<td>p(ː)</td>
<td>t(ː)</td>
<td>k(ː)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>b(ː)</td>
<td>d(ː)</td>
<td>g(ː)</td>
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<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>tj(ː)</td>
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<td></td>
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<td>d3(ː)</td>
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</tr>
<tr>
<td>Nasal</td>
<td>m(ː)</td>
<td>n(ː)</td>
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</tr>
<tr>
<td>Liquid</td>
<td>w</td>
<td>l(ː)</td>
<td>r(ː)</td>
<td>j</td>
<td></td>
<td></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, lufe → **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

- \[
\begin{array}{c}
\text{C} \\
+\text{cont}
\end{array} \rightarrow [+\text{voi}] / [+\text{voi}]_\bot [+\text{voi}] \quad (\text{e.g. Hogg 1992})
\]

- Examples
  - \(wul[f]\) ‘wolf’ but \(wul[v]\) as ‘wolves’
  - \(hu[z]\) ‘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):
   - *daro[θ]a* ‘spears (gen. pl.)’
   - *earfo[θ]u* ‘hardship (acc. pl.)’


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 (∣spread, ∣fortis, whatever)

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

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

  Southern English Fricative Voicing: lenition as loss of H: OE *fader*, southern ME *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 medieval and modern Brythonic

• Welsh: [v ð (ɣ)] contrast with [f θ χ]

• Cornish: [v ɹ ɹ 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/f̬/f contrast: /f̬/ → /u/, /v/ → /o/
• More initial mutation: ‘new lenition’ (Breton, probably Cornish)
  – /f/ → /ʃ/ 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. [ˈkoːz] kozh ‘old’
  b. [ˈkosəh] kosoc’h ‘older’
  c. [aɣ ˈhəsə] ar c’hoshañ ‘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 lazhañ [z/h/∅], Middle Cornish lathe [θ] ‘kill’, PC *slad- (OI slaide [θ] ‘killing’)
  b. Welsh afon [v], Middle Breton auon [v], Cornish auon [v] ‘river’, PC *abon- (OI a(w)b [ʔ])

• Basic sound change: singleton stop → fricative / V_

Phonemicisation in Brythonic
• Early stage: no surface contrast between voiced stops and fricatives

Fricatives postvocically, stops postconsonantally and in gemination
• Date uncertain
  – Early, but uncertain, date (e.g. Sims-Williams 1990; McConne 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 *Ŏrbogenos, 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 *Cadadγernos ← 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>
</thead>
<tbody>
<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>#g</td>
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<tr>
<td>Voiced geminate stops</td>
<td>bb</td>
<td>dd</td>
<td>gg</td>
</tr>
<tr>
<td>Voiceless fricatives</td>
<td>s(s)</td>
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<td></td>
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<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 ɡ] vs. [v ð ɣ] are enforced by phonological computation

- The absence of [b d ɡ] 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
• The fricatives are defined only by manner: laryngeal contrast redundant

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

\[\text{Essentially same story as for OE above}\]

**Effects of the rule**

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

\[\text{Contra Jackson (1953)}\]

• 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

\[\text{Mutations cannot have appeared without there having been a phonological rule outputting the right phonological symbols}\]

**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

\[\text{Same account in English for the preservation of [f] in *offer* and [v] in *love*}\]
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 ?
  - 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!
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14