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 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>
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</thead>
<tbody>
<tr>
<td>Stop</td>
<td>p(ː)</td>
<td>t(ː)</td>
<td>k(ː)</td>
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<tr>
<td></td>
<td>b(ː)</td>
<td>d(ː)</td>
<td>g(ː)</td>
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</tr>
<tr>
<td>Fricative</td>
<td>f(ː)</td>
<td>θ(ː)</td>
<td>s(ː)</td>
<td>j</td>
<td>x(ː)</td>
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<tr>
<td>Affricate</td>
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<td></td>
<td></td>
<td>tʃ(ː)</td>
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<td>dʒ(ː)</td>
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<tr>
<td>Nasal</td>
<td>m(ː)</td>
<td>n(ː)</td>
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<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[f]rian, ME o[f]er
    - Creation of final contrast through apocope: OE lu[v]u, lME love [loːv]

Unanswered questions

- We find the form firs 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
  - \[ \text{C}^{+\text{cont}} \rightarrow [+\text{voi}] / [+\text{voi}] / [+\text{voi}] \] (e.g. Hogg 1992)
- Examples
  - wulf[f] ‘wolf’ but wulf[v]as ‘wolves’
  - bu[s] ‘house’ but bu[z]ian ‘to house’
  - ba[ð] ‘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 mediæval and modern Brythonic

- Welsh: [v ȳ (ɣ)] contrast with [f ȳ x]

- Cornish: [v ȳ z (ɣ)] contrast with [f ȳ 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/ → /v/, /v/ → /o/
• More initial mutation: ‘new lenition’ (Breton, probably Cornish)
  - /f/ → /f̬/ where available, else [v]
  - /s/ → /z/
  - /ʃ/ → /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. [ˈkəʊz] kozh ‘old’
  b. [ˈkɔsəħ] kosboc’h ‘older’
  c. [aɣ ˈhɔsə] 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 latbe [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 [ɔ])

• Basic sound change: singleton stop → fricative / V_

Phonemicisation in Brythonic

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

  Fricatives postvocically, stops postconsonantal and in gemination

• Date uncertain
  - Early, but uncertain, date (e.g. Sims-Williams 1990; McCone 1996): common to Brythonic and Goidelic and possibly also Celtic (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 *Ōrbo-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>
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<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>
<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
• 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 medicu becomes W 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 ɗ ɣ/ are effectively sonorants (Iosad 2012; Botma and van ’t Veer, forthcoming)
  – Welsh /v ɗ/ 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 ofʔ
  - 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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