Laryngeal realism revisited: voicelessness in Breton

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Laryngeal realism revisited: voicelessness in Breton

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University of Manchester

Plan

▶ Setting the scene, Part I: laryngeal realism, Element Theory, and the status of H
▶ Setting the scene, Part II: pre-sonorant voicing and its interpretation
▶ Bothoa Breton is a “H language” phonologically despite its Romance-like obstruent system
▶ Added bonus: there is a ternary contrast on the surface, and it is better implemented in feature-geometrical terms

Background

Laryngeal realism and phonetic essentialism

▶ Classic position: [±voice] is all there is, most recently Wetzels & Mascaro (2001)
  ▶ “L languages” (Romance, Slavic, Dutch?, Yiddish?): short-lag VOT vs. consistent prevocing in stops — [∅] vs. [voice];
  ▶ “H languages” (English, German, Welsh, Turkish): long-lag VOT vs. variably voiced stops — [spread glottis] vs. [∅].
▶ Similar approaches in GP/DP/Element Theory (e.g. Harris 1994, 2009; Harris & Lindsey 1995; Backley 2011)

Phonetic essentialism: some issues

▶ Issue 1: H often associated with [spread glottis] — undue focus on stops and VOT
  ▶ Logically, glottal spreading does not necessarily entail positive VOT, it can just inhibit voicing
  ▶ Inconsistent with surface behaviour (e.g. English coda glottaling)
▶ Issue 2: phonetic bias
  ▶ H languages often tend to have variable voicing in stops: assumed to be “passive”, reflecting its lack of specification (e.g. Jessen & Ringen 2002; Jansen 2004; Honeybone 2005)
Phonetic and phonological patterning

- What if we only look at phonological patterns when dealing with phonological representations?
- Phonetics should not determine phonology (cf. Rice 1994, *passim*).
- It should be logically possible to have a “H language” with “L-type” phonetics.
- E.g. with H stops realized with short-lag VOT.
- Rather obvious proposal.
  - GP/DP circles: Cyran (2010, 2011);
  - Also Blaho (2008).
- Problem: evidence sometimes hinges on pre-sonorant voicing.
- Cyran (2011) on Kraków/Poznań Polish: PSV is the mirror image of final devoicing, i.e. H deletion.

Representational solution

- The representational solution is to assume that PSV derives from the same surface underspecification process that gives variable voicing of lenis stops in H languages.
- Colina (2009) for Ecuadorian Spanish.
- Cyran (2011) for Kraków/Poznań Polish.
- Solves the phonological problems very nicely.
- But is PSV phonological?

Phonological problems with PSV

- Especially acute in a contrast-based framework.
- If PSV is treated as a phonological spreading process...
  - ...where do the vowels and sonorants get redundant voicing specifications?
    - They are voiced because there is full specification.
    - They receive redundant [+voice] postlexically.
  - ...why does PSV sometimes do strange things?
    - In some Breton dialects (e.g. Jackson 1960), PSV in stops parallels [x]~[h].
    - In some Dutch dialects PSV creates [ɡ], which is otherwise marginal at best.

- Strycharczuk (2010): Poznań Polish PSV not neutralizing → no evidence for the H/L question.
- Strycharczuk & Simon (forthcoming): West Flemish PSV not assimilatory, involves categoricity (optional choice between categorical variants), inconsistent with the surface-underspecification analysis.
- Are we entitled to use PSV evidence for phonological representations?
- Not unless there is other robust phonological evidence.
- Which is why I'm here today.
Bothoa Breton (Humphreys 1995) contrasts three types of consonants on the surface:

- Voiceless Consonants
- Voiced Consonants
- Delaryngealized Obstruents

In other words, voiced obstruents are less structurally marked than voiceless obstruents (Causley 1999; Rice 2003)

The inventory of Breton includes:

- Stops: p, b, t, d, k, g
- Affricates: ʧ, ʤ
- Fricatives: f, v, s, z, ʃ, ʒ, h
- Nasals: m, n
- Laterals: l
- Rhotics: r
- Approximants: w, ɥ, j

The proposal I

The proposal II

Explicit formulation of an old insight:

- Krämer (2000): Onset Voicing
- Hall (2009): Default Voicing

Key criteria

- Phonological activity of [+voice];
- No phonological activity of [+voice] separate from [+voiceless];
- Word-final delaryngealization: evidence from interaction with floating features supports the surface-underspecification treatment of pre-sonorant voicing

Word-level phonology

- I give suffixed forms to avoid final devoicing
- Assimilation:

  1. (i) [ɛsˈkɔbijən] ‘bishops’
     (ii) [ɛsˈkɔptɪ] ‘diocese’
  2. (i) [ˈtom] ‘warm’
     (ii) [ˈtomdər̥] ‘heat’
     (iii) [ˈzɛːho] ‘to dry’
     (iv) [ˈzɛhtər̥] ‘drought’

- Preservation of the marked (Causley 1999; de Lacy 2006): assimilatory neutralization preserves the bigger structure
Assimilation: the geometry

- Assume something compels two adjacent obstruents to share a laryngeal specification...
- ...and don’t think too much about delinking vs. coalescence of C-lar nodes...

\[
\begin{array}{c}
zɛ \text{h} \\
\text{C-lar} \\
\text{C-man} \\
\text{vcl}
\end{array}
\quad \begin{array}{c}
d \rightarrow tər \\
\text{C-lar} \\
\text{C-pl} \\
\text{cor}
\end{array}
\]

Complications

- In fact, obstruent clusters are mostly voiceless in Bothoa Breton

\[
\begin{array}{c}
(2) \quad \text{a. } \quad (i) \quad [\text{änweːtə}] & \quad \text{‘to offend’} \\
\quad \text{ii} \quad [\text{änweːstər}] & \quad \text{‘humiliation’} \\
\text{b. } \quad (i) \quad [\text{kaːzə}] & \quad \text{‘cat’} \\
\quad \text{ii} \quad [\text{bjan}] & \quad \text{‘small’} \\
\quad \text{iii} \quad [\text{kasʻpjan}] & \quad \text{‘kitten’}
\end{array}
\]

- Some sort of licensing requirement forcing the addition of [voiceless] to multiply linked C-lar (cf. van Oostendorp 2003)

Further evidence for [voiceless]

- “Provection”: associated with certain suffixes
  - Voiced obstruents devoice
  - Vowels in closed syllables shorten
  - Voiceless obstruents and sonorants unaffected

\[
\begin{array}{c}
(3) \quad \text{a. } \quad (i) \quad [\text{fæbˈliːʒən}] & \quad \text{‘weakness’} \\
\quad \text{ii} \quad [\text{fæ̚b}] & \quad \text{‘weak’} \\
\quad \text{iii} \quad [\text{fepʰh}] & \quad \text{‘weaker’} \\
\text{b. } \quad (i) \quad [\text{kaːzə}] & \quad \text{‘cat’} \\
\quad \text{ii} \quad [\text{kasʻd}] & \quad \text{‘to be on heat (of cats)’}
\end{array}
\]
Bothoa Breton
Below the word level

**Analysis**

- I suggest the facts are best analysed with a floating mora associated with a C-lar[vcl] feature

\[
\begin{align*}
\sigma & \quad \mu \\
\mu & \quad \sigma \\
\sigma & \quad \mu \\
\mu & \quad \sigma \\
\end{align*}
\]

- Evidence for the activity of [voiceless]
- Some forms still retain the [h]: [ˈskãː] 'light', [ˈskãːh] 'lighter'

**Word-level phonology: summary**

- Apart from final devoicing (to which we return), there is little evidence for the marked status of voiced obstruents
- In particular, they are not triggers of assimilation
- Voiceless obstruents and [h] demonstrate phonological activity:
  - Preservation in assimilation
  - Triggers in additive processes
- Important generalization: at the word level, obstruent clusters neutralize to voiceless
  - Robust evidence for the phonological activity of [voiceless]

**Further evidence for [voiceless]: the provective mutation**

- Triggered by certain proclitics
- Voiceless obstruents unaffected; voiced ones devoice

\[(4)\]

<table>
<thead>
<tr>
<th>a.</th>
<th>i.</th>
<th>'cat'</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>[ˈkaːz̥]</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>[o ˈkaːz̥]</td>
<td>'your (pl.) cat'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b.</th>
<th>i.</th>
<th>'brother'</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>[ˈbrøː:r]</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>[o ˈprøː:r]</td>
<td>'your (pl.) brother'</td>
</tr>
</tbody>
</table>

- Vowel and sonorants are prefixed with [h]:

\[(5)\]

<table>
<thead>
<tr>
<th>a.</th>
<th>i.</th>
<th>'key'</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>[ˈalve]</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>[o ˈhalve]</td>
<td>'your (pl.) key'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b.</th>
<th>i.</th>
<th>'book'</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>[ˈlɛvər]</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>[o ˈhɛvər]</td>
<td>'your (pl.) book'</td>
</tr>
</tbody>
</table>

- Best analysis: [h] coalescing with obstruents
- Corollary: [h] is [voiceless]

**Pre-sonorant voicing**

- Bothoa Breton seems to have it

\[(6)\]

<table>
<thead>
<tr>
<th>a.</th>
<th>i.</th>
<th>'roosters'</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>[ˈkɔɡəw]</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>[kɔɡ iˈzːməj]</td>
<td>'Yves-Marie’s rooster'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b.</th>
<th>i.</th>
<th>'hats'</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>[ˈtɔkəw]</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>[on ˌtɔraud]</td>
<td>'another hat'</td>
</tr>
</tbody>
</table>

- Although it doesn’t sound very phonological
- « Il faut se rappeler […] que l’alternance sourde/sonore, qui représente la catégorie plus importante de ces modifications, n’est pas, sur le plan phonétique, un simple choix binaire : on rencontre assez souvent, non seulement des sourdes douces, mais aussi des consonnes à sonorité décroissante. Plus le débit rapide et l’articulation relâchée, plus les assimilations sont poussées. » (Humphreys 1995)
Pre-sonorant voicing

- Phonetic data not available
- Still, I analyse this (and final devoicing) as word-final delaryngealization à la Jansen (2004); Colina (2009)
- Crucially, there is more evidence for the lack of specification
- One piece of evidence is that word-final obstruents become *voiced* before voiced obstruents

\[(\text{7}) \quad \begin{align*}
\text{a. } & [ˈlɒst] \quad \text{‘tail’} \\
\text{b. } & [ˌlɒzd \ˈbeːr] \quad \text{‘short tail’}
\end{align*}\]

- Which is precisely the opposite of what happens at the word level
- But couldn’t this just be a reranking at different strata? Well, yes

Devoicing sandhi, part I: lenition

- The lenition mutation involves voicing of stops

\[(\text{8}) \quad \begin{align*}
\text{a. } & [\text{pəwr}] \quad \text{‘poor’} \\
\text{b. } & [\text{o ᵑɾə\text{"bəwr}}] \quad \text{‘a poor country’}
\end{align*}\]

- Under the present assumptions, it must be the docking of a floating C-lar node

\[
p \rightarrow b
\]

\[
\begin{array}{c|c|c|c}
\text{C-lar} & \text{C-lar} & \text{C-pl} & \text{C-man} \\
[\text{vcl}] & [\text{lab}] & [\text{cl}]
\end{array}
\]

Devoicing sandhi, part II: the sandhi

- Some words beginning with voiced stops in isolation undergo devoicing when following an obstruent (Krämer 2000; Hall 2009)

\[(\text{9}) \quad \begin{align*}
\text{a. } & [ˈɡànte] \quad \text{‘with them’} \\
\text{b. } & [də \text{gas kànte}] \quad \text{‘to carry with them’} \\
\text{c. } & *[də \text{gaz gànte}]
\end{align*}\]

- Crucially, the same unexpected voiceless cluster is found in lenition contexts (although it is usually described as a “failure of lenition”)

\[(\text{10}) \quad \begin{align*}
\text{a. } & [ˈkoːz̥] \quad \text{‘old’} \\
\text{b. } & [\text{o \text{gə-dər} \text{gəz̥}] \quad \text{‘an old chair’} \\
\text{c. } & [\text{on iːliˈs \text{gəz̥}}] \quad \text{‘an old church’} \\
\text{d. } & *[\text{on iːliz \text{gəz̥}}]
\end{align*}\]

Analysis

- I suggest that both types of phenomena can be unified in terms of a C-lar floating node
- It is better to dock to an unspecified obstruent than to a specified one
- If there is no suitable site to the left (sonorants and vowels cannot be laryngeally specified), dock to the right $\rightarrow$ lenition.
Analysis

- If there is a suitable site to the left, dock there
- (Stratal alert!) Word-final obstruents come delaryngealized from the word level
- Docking to the left creates a domain for the spreading of [voiceless]

\[\text{d̥ə ɡa} \quad \text{kantæ}\]
\[\begin{array}{c}
\text{C-pl} \\
\text{C-lar} \\
\text{C-man}
\end{array}
\begin{array}{c}
\text{[cor]} \\
\text{[vcl]} \\
\text{[cl]}
\end{array}\]

How is that evidence for underspecification?

- Normally, C-lar[vcl] does not spread across a word boundary
- Sequences of a nasal and a (delaryngealized) stop undergo variable progressive assimilation of nasality in pre-sonorant position

\begin{align*}
(11) \quad & a. [ˈdän:] \quad \text{‘tooth’} \\
& b. [ˈdänd al] \quad \text{‘another tooth’}
\end{align*}

- In this respect, they differ from sequences of a nasal and a stop that has acquired a floating C-lar[vcl] feature (again!)

\begin{align*}
(12) \quad & a. \text{Floating C-lar[vcl]} \\
& (i) [om] \quad \text{‘our’} \\
& (ii) [tut om ‘amzər] \quad \text{‘all our time’} \\
& (iii) *[tud om ‘amzər] \\
& b. \text{After nasals} \\
& (i) [gant i ‘hwɛːr] \quad \text{‘with his sister’} \\
& (ii) *[gān: i ‘hwɛːr]
\end{align*}

No [vcl] spreading across a word boundary

- Familiar analysis...

\[\text{tu̯d} \rightarrow t (h)om\]
\[\begin{array}{c}
\text{C-man} \\
\text{C-pl} \\
\text{C-lar}
\end{array}
\begin{array}{c}
\text{[cl]} \\
\text{[cor]} \\
\text{[vcl]}
\end{array}\]

- But the C-lar[vcl] from an actual segment does not do this:

\begin{align*}
(13) \quad & a. [dən ‘hiːr] \quad \text{‘long teeth’} \\
& b. *[dənt ‘hiːr]
\end{align*}

\[\begin{array}{c}
\text{C-man} \\
\text{C-pl}
\end{array}
\begin{array}{c}
\text{C-lar}
\end{array}
\begin{array}{c}
\text{[cl]} \\
\text{[cor]} \\
\text{[vcl]}
\end{array}\]

Conclusion

- (There is a similar story to be told about prefixes)
- Both at the lexical and the postlexical level, there is ample evidence for the marked nature (phonological activity) of the feature [voiceless]
- The evidence for the phonological activity of [voice] is weak, despite the phonetics
- Crucially, a distinction must be made between contrastive non-specification (bare C-lar) and underspecification (no C-lar)
- Laryngeal underspecification of word-final obstruents makes sense even if we do not view pre-sonorant voicing as an argument
- But it surely is a nice result for the surface-underspecification theory of PSV
Implications Against phonetic essentialism

Problems with phonetic essentialism I

▶ There are two types of empirical problems with laryngeal realism
  ▶ Unexpected categoricity
    ▶ An “H language” like German is predicted to have variable/“passive” voicing of lenis stops
    ▶ Apparently borne out in German, English, Welsh, Turkish, Irish...
    ▶ Counterexamples:
      ▶ Overspecified, fully voiced lenis stops: Swedish (Ringen & Helgason 2004; Helgason & Ringen 2008; Beckman et al. 2011), possibly Île de Groix Breton (Ternes 1970)
      ▶ Lenis stops with categorical short-lag VOT and no passive voicing: Icelandic, Scottish Gaelic
      ▶ Also consider categorical voicing in German icatives (Beckman et al. 2009)
  ▶ On the other hand, these overspecified categories tend to be relatively inert phonologically (cf. Ringen & Helgason 2004)

Problems with phonetic essentialism II

▶ Passive voicing isn’t
  ▶ Westbury (1983); Westbury & Keating (1986): English speakers do expand the supraglottal cavity for lenis stops, it just happens to be insufficient to sustain voicing
  ▶ Kingston & Diehl (1994, 1995); Kingston et al. (2008): “lenis/voiced obstruents” are a category that English speakers cue, even if there is no consistent closure voicing

Substance-free to the rescue

▶ The present approach resolves both issues
  ▶ “Lenis” obstruents in H languages are contrastively specified for C-lar, not underspecified because of lack of contrast
  ▶ Overspecification is expected
  ▶ Substance-free: the realization is language-specific
    ▶ Prevoicing as in Swedish
    ▶ Devoicing as in Icelandic
    ▶ Multiple cues as in English (German? Welsh?)
  ▶ Also explains why English voicing is not entirely passive
  ▶ Still compatible with English being a H language, pace Kingston et al. (2009)

Conclusions: Breton

▶ Bothoa Breton is best treated as a language where voiceless obstruents are more marked than voiced ones
▶ Despite its Romance-like phonetics
▶ There is a ternary contrast on the surface, with delaryngealized obstruents in weak (neutralization-inducing) positions
▶ Privative features and feature geometry reflect markedness relationships better than binary features
Conclusions: laryngeal realism

- Substance-free laryngeal realism ("laryngeal relativism"; Cyran 2011)
- Languages can be H or L irrespective of their phonetics
- Surface underspecification is less widespread than often suggested
- Surface underspecification expected only in contrast-neutralization conditions, rarely across the board
- Does not invalidate the main insight

Trugarez!

Things to ask

Is there real data?

- Sorry, not yet. Treat this as a falsifiable prediction.

Ask me about...

- Prefixes (see bonus slides)
- Richness of the Base: what happens to delaryngealized obstruents in the input
- Surface underspecification and pre-sonorant voicing: a rôle for categorical distributions

Bonus: prefixes I

- Two productive prefixes: /had/ ‘re-’ and /diz/ ‘not’
- Behave like pwords in many respects
  - Consistently stressed
  - Final consonants behave like word-final ones
- /had/ is easy

  (14)  
  a.  [ˈdesko] ‘learn’
  b.  [ˌhaˈdˑesko] ‘relearn’

- Secondary stress on light syllable (otherwise rare)
- No devoicing (contra Hemon 1940; Press 1986)
- It’s just a pword

Bonus: prefixes II

- /diz/ is harder

  (15)  
  a.  (i)  [ˈalve] ‘key’
   (ii)  [ˌdiˈzalve] ‘opening’
  b.  (i)  [ˈpako] ‘pack’
   (ii)  [ˌdiˈspako] ‘unpack’
  c.  (i)  [ˈbaːdio] ‘baptize’
   (ii)  [ˌdiˈzvaːdio] ‘rename’

- Seems to be /diz/
- Causes lenition (/b/ → [v])
- This means we could have expected *[dizbako], but obstruent clusters are expected to be voiceless...
- Why not *[ˌdisˈfaːdio] then?
Bonuses: prefixes III

- I suggest it is /diz + {C-lar}/
- In [ˌdiˈzalve], C-lar docking is vacuous
- In [ˌdisˈpako], devoicing is entirely parallel to devoicing sandhi (recall prefixes are also pword-like domains)

\[
diz \rightarrow s \quad [\text{pako}]
\]

\[
\begin{array}{c}
\text{C-pl} & \text{C-lar} & \text{C-lar} & \text{C-pl} & \text{C-man} \\
\text{[cor]} & \text{[vcl]} & \text{[lab]} & \text{[cl]}
\end{array}
\]

References I


Bonuses: prefixes IV

- There are two explananda with [ˌdizˈvaːdio]
- Lack of cluster devoicing: spread of C-lar blocked across a word boundary, no incentive to epenthesize [vcl]
- Lack of coda delaryngealization: floating C-lar provides the feature

\[
diz \rightarrow \text{va}dio \quad [\text{vcl}]
\]

References II


References III


References V


References VI


