

Laryngeal phonology in Plougrescant Breton: sandhi, mutation, and contrast

Pavel Iosad
Universitetet i Tromsø/CASTL
pavel.iosad@uit.no

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1. Laryngeal phonology in a Breton dialect
2. Final devoicing is loss of contrast, not loss of feature
3. Sandhi voicing is phonetic implementation (mostly)
4. Devoicing sandhi do not need [–voice]
5. Privative laryngeal features will do
6. Implications

Background

- ▶ Breton: a Celtic language, closely related to Cornish and Welsh
- ▶ Mostly described by Celtologists, dialectologists, and historical linguists
- ▶ Breton phonology remains seriously understudied (as opposed to syntax)
- ▶ Few proper phonetic studies, mostly aural transcriptions
- ▶ What can we do?

Previous work

Krämer (2000)

- ▶ Île de Groix Breton (Ternes, 1970)
- ▶ Argued to exhibit a ternary contrast between [+voice], [–voice], and [ovoice] segments
- ▶ Evidence for binary features
- ▶ Final devoicing is loss of features

Hall (2008)

- ▶ Same dialect, same source
- ▶ Privative features with feature geometry
- ▶ Feature disalignment
- ▶ Final devoicing is loss of features **and** loss of contrast

The present approach

- ▶ **Work in progress, (almost) nothing is final**
- ▶ Features are **privative** with feature geometry
- ▶ “Final devoicing” is loss of contrast
- ▶ Devoicing sandhi is
 - ▶ Either lexical phonology
 - ▶ Or failed mutation due to geminate inalterability
- ▶ Argument for substance-free phonology
- ▶ Tested on Plougrescant Breton (Jackson, 1960)

Consonant inventory

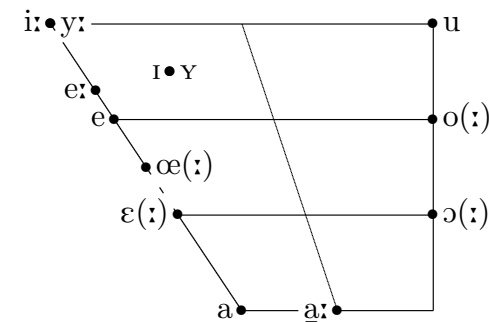
Manner	Place							
	Labial	Alveolar	Postalveolar	Palatal	Velar	Uvular	Laryngeal	
Stop	p b	t d		c ɟ	k g			
Fricative	f v	s z	ʃ			χ		h
Nasal	m	n		ɲ				
Lateral		l		ʎ				
Rhotic		r						
Glide	w			j				

- ▶ Length contrast for all consonants except voiced obstruents

Breton dialects

- ▶ Traditionally divided into four groups
 - ▶ Cornouaillais, Trégorrois, Léonais (KLT): relatively homogeneous, basis for standard language
 - ▶ Vannetais (south-east): very divergent, sometime even served by own literary tradition (Guillevic & Le Goff, 1902)
- ▶ Île de Groix is a **Vannetais** dialect
- ▶ Source rather messy (“phonemic” approach, not very systematic)
- ▶ Here: attempt to look at a less messy data point
- ▶ Plougrescant is a Trégorrois dialect; description by Jackson (1960) more systematic
- ▶ Further outlook: extend approach to Île de Groix if possible

Vowel inventory



- ▶ Length is only licensed by (main) stress

Restrictions on laryngeal features

- ▶ Voiced and voiceless obstruents contrast word-initially; **short** allophones

(1)	a.	[ˈpɛsk]	‘fish’
	b.	[ˈbœ:rɛ]	‘morning’
	c.	[ˈlɔ:gɒt]	‘mice’

- ▶ Voiced and voiceless obstruents contrast immediately following unstressed vowels; **short** allophones:

(2)	a.	[bɔˈtɔ:]	‘shoes’
	b.	[ʃaˈdɛn:ət]	‘chained (participle)’
	c.	[kʏˈry:mɔ]	‘peals of thunder’

Restrictions on laryngeal features

- ▶ Word-finally following a stressed vowel, **voiced** obstruents are **not permitted**. Consonants are **short** following **long** stressed vowels and **long** following **short** stressed vowels.

(5)	a.	[ˈtɔ:k]	‘hat’
	b.	[ˈme:l]	‘honey’
(6)	a.	[ˈgrwɛk:]	‘woman, wife’
	b.	[mɛl:]	‘ball’

Restrictions on laryngeal features

- ▶ Following **long** stressed vowels, consonants can only be **short**; voiceless obstruents do not occur:

(3)	a.	[ˈɔ:ber]	‘to do; to make; to work’
	b.	[ˈli:zər]	‘letter’
	c.	[ˈme:lən]	‘yellow’

- ▶ Following **short** stressed vowels, consonants are **long**; voiced obstruents cannot be long, so they are excluded:

(4)	a.	[ˈtɑp:rʊt]	‘to take’
	b.	[ˈjɑχ:ɔχ]	‘more healthy’
	c.	[skʏˈdɛl:o]	‘basins’

Summary

- ▶ Leaving final devoicing aside for a moment, laryngeal features are mostly predictable:
- ▶ Laryngeal contrasts are allowed in the onset of the **first** syllable and of the **stressed** syllable
- ▶ Otherwise they are predictable:
 - ▶ **Voiced** following **unstressed** (always short) vowels
 - ▶ **Voiced** when single and following **long** stressed vowels
 - ▶ **Voiceless** (and long) when single and following **short** stressed vowels
- ▶ What is contrastive? What is marked?

Final devoicing

- ▶ At first blush final devoicing looks normal

(7) a. [byga'lɛjjo] 'children'
b. [bɣ'gɑ:lɪc] 'child'

- ▶ But what about vowel length?
- ▶ This is a good question

Final devoicing in monosyllables

- ▶ The really interesting part is when a stressed vowel precedes
- ▶ Stress is normally penultimate in KLT (but **not** in Vannetais!), so this is mostly monosyllables and a few words with final stress
- ▶ If it is vowel length that is distinctive, we expect V:C#

(8) a. ['tɔ:go] 'hats'
b. ['tɔ:k] 'hat'

- ▶ And cf. minimal pairs like

(9) a. ['kas:] 'send!' ([s] never voiced, French borrowing)
b. ['ka:s] 'cat' (cf. orthographic *kaz*)

Final devoicing in monosyllables

- ▶ This isn't really devoicing in view of what we know about quantity and voicing
- ▶ This is **incomplete** neutralization
- ▶ Confer real devoicing:

(10) a. [lɔ'gɔ:dən] 'mouse'
b. [lɔ'gɔ:t:a] 'to hunt mice'

- ▶ Side note: it isn't always about voicing per se:

(11) a. ['rɔ:his] 'people of ar Roc'h'
b. ['rɔ:χ] 'ar Roc'h (placename)'

- ▶ Not really surprising if you know (some) [h] is historically *χ, but must be accounted for

Final devoicing in monosyllables

- ▶ Does real final devoicing happen? Well, yes
- ▶ There is variation described by Jackson (1960) as “free”, and especially with coronals
- ▶ Context probably unknowable; the ambition here is at best to find which representations are involved

(12) [ty:t]~[tɣt:] 'people' (orthographic *tud*)

- ▶ More examples to come immediately below, as they involve sandhi to which we now turn
- ▶ What about lexically voiceless finals? These are relatively few, French borrowings of various antiquity, and behave as expected, cf. (9-a)

Sandhi

- ▶ The traditional view (Stephens, 1993; Favereau, 2001) is essentially that all consonants are voiced in sandhi before [+voice] segments

- (13) a. [ˈpwe:ləz ˈã.ɔ̃] ‘if you saw me’
b. [ˌmab ˈne:we] ‘new son’
c. [ˌpɔb ˈbi.ən] ‘little youth’

- ▶ And voiceless before voiceless consonants

- (14) a. [ˌmap ˈhi:r] ‘tall son’
b. [ən ˌdyt ˈkap:ap] ‘the able people’

Sandhi

- ▶ In the narrative texts given by Jackson (1960), the sandhi rules are often violated
- ▶ Especially with regard to sandhi voicing

- (16) a. [ˌmap ˈdy:] ‘black son’
b. [ˌmɛrɣ ˈvɑ:t] ‘good girl’
c. [ˈdwa:n tɔɛs ˈdi:wĩ] ‘the fear that you have of me’

- ▶ Jackson (1960) explains the texts were dictated at a slow pace
- ▶ However, some (in fact most) of the examples, such as (16-a) and (16-b), are transcribed with a secondary–main stress rhythm; these are possibly genuine connected phrases
- ▶ Thus failure of sandhi is not necessarily an artefact of dictation
- ▶ Note that vowels outside main-stressed syllables are shortened, so the preservation of length contrasts under devoicing does not work in the same way when stress is secondary

Sandhi

- ▶ Plus there is the devoicing sandhi that is the focus of Krämer (2000) and Hall (2008)
- ▶ For Île de Groix Ternes (1970) describes it as a lexical distribution: some words, and only these words, devoice initial obstruents following an obstruent
- ▶ For Plougrescant, Jackson (1960) is less concerned: “sometimes”

- (15) a. [ˈla:t tĩ] ‘said to me’, cf. [dĩ] ‘to me’
b. [ˈkankuf] ‘100 times’, cf. [ˈtɛrguf] ‘thrice’

Outline of analysis

- ▶ Outline feature analysis
- ▶ Argue that final devoicing without length permutations is a phonetic process
- ▶ Argue that sandhi voicing is the flip side of final devoicing
- ▶ Unify some devoicing sandhi with “failure of mutation”
- ▶ Tentatively propose that other devoicing sandhi are an artifact of univerbation

Feature analysis

- ▶ Before we even discuss final devoicing, we should solve the [voice]/[spread glottis] problem
- ▶ Phonetics rather poorly understood
- ▶ Voiceless stops are described as aspirated (at least initially) at Le Bourg Blanc (Falc'hun, 1951) and Saint-Pol-de-Léon (Sommerfelt, 1978), but these are both Léonais
- ▶ No mention of aspiration is made for Plougrescant by Jackson (1960, 1967)
- ▶ In all cases the voiced stops are described or assumed to be voiced
- ▶ One possible point: at Plougrescant fricatives underwent a context-free voicing (“new lenition”), cf. Southern English Fricative Voicing, which Honeybone (2005a) takes as evidence for [spread glottis]:∅
- ▶ But Honeybone (2005a) himself admits the analysis of fricatives should not be spread to stops uncritically

Final devoicing

- ▶ I propose that final devoicing is in fact loss of the laryngeal node, i. e. it is the exclusion of the very possibility of contrasting for laryngeal features
- ▶ Devoiced stops are a third phonological category: they behave differently from true voiceless stops in that they do not obey length-related restrictions
- ▶ True voiceless stops cannot follow long vowels; devoiced stops can
- ▶ In particular, what is the difference between final devoicing as in [ty:t] and final devoicing with gemination as in [tʏt:]?
- ▶ No tableaux in analysis (but hopefully it is pretty theory-independent)

Feature analysis

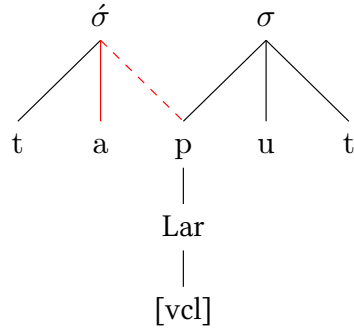
- ▶ In substance-free phonology with emergent privative features, this point is rather moot
- ▶ We are interested in the patterning, whether the “voiceless” obstruents are labelled [spread glottis] or [voiceless] (cf. Blaho, 2008) is irrelevant
- ▶ Or voiced stops are [voice] or [stiff], of course
- ▶ I propose that in Plougrescant Breton “voiceless stops” are [voiceless] and “voiced stops” do not bear a laryngeal feature, but do have a laryngeal node
- ▶ I return below to why nodes are better than features
- ▶ Main reason is restricted distribution: only initial and stressed syllables, both reasonable contexts for positional faithfulness (Beckman, 1999; Smith, 2002)
- ▶ We **need** to make reference to this feature to derive the restrictions (but not to describe final devoicing as I argue below)
- ▶ In that sense it is “marked” (Trubetzkoyan markedness)

Assumptions of analysis

- ▶ Vowel length distinctive in main-stressed syllables: faithfulness \gg markedness in this context
- ▶ *[voiceless] above MAX[vcl]
- ▶ Except for positional faithfulness: MAX[vcl]/Initial and MAX[vcl]/ó above *[vcl]
- ▶ Bimoraic template for main-stress syllable (MAIN-TO-WEIGHT): McGarrity (2003); Bye & de Lacy (2008)
- ▶ Final devoicing driven by a constraint *Lar/[_]_{wd} militating against any segments with a laryngeal node at the end of a (morphological?) Word

Medial obstruents: /Vt/

- ▶ Obstruents are long and voiceless following short stressed vowels



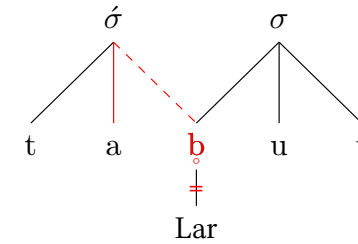
- ▶ The voiceless obstruent piggybacks on MAIN-TO-WEIGHT to be parsed into the stressed syllable and thus keep [vcl]
- ▶ This is assuming (as I do) that faithfulness to vowel length is undominated

Medial obstruents: /Vd/

- ▶ The obstruent loses its laryngeal specification in order to become moraic for the benefit of MAIN-TO-WEIGHT
- ▶ Laryngeally unspecified obstruent geminates are realized as voiceless for obvious phonetic reasons
- ▶ Maybe these are excluded by Lexicon Optimization since the learner never really has to posit /b̥:/?

Medial obstruents: /Vd/

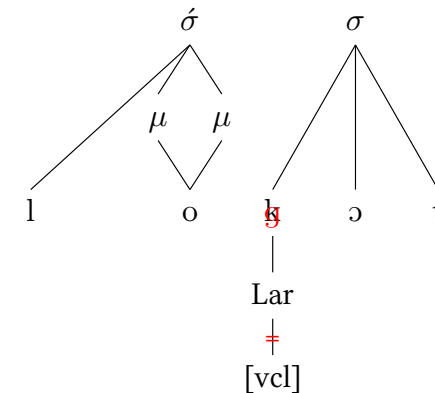
- ▶ Assuming richness of the base, what happens with voiced obstruents after short vowels?



- ▶ Assume a constraint *Lar/μ: geminates without laryngeal specifications exist in the language (geminate sonorants)
- ▶ This is of course outranked by positional faithfulness to [vcl] to derive the previous case

Medial obstruents: /V:t/

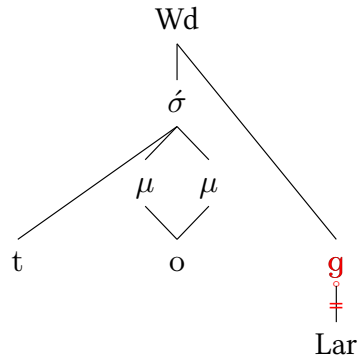
- ▶ This is a simple case



- ▶ No superheavy syllables, so [vcl] cannot be saved

Final devoicing: voiced stops

- ▶ No Lar node word-finally
- ▶ Final consonant is extrametrical (so maybe no Lar node not licensed by prosodic structure?)
 - ▶ Stress: ultimate if V: in final syllable, else penultimate. Moraic trochee, but then final VC must be L

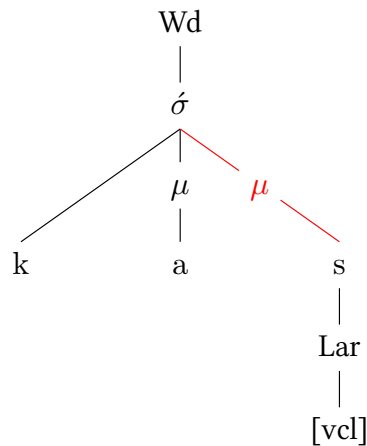


Final devoicing: voiced stops

- ▶ Laryngeally unspecified obstruents in pausa are realized as voiceless, phonetic reasons are well-known
- ▶ What if our [vcl] is really [spread glottis] in this dialect?
- ▶ It is apparently unproblematic to have aspiration as the phonetically natural realization of phonological underspecification (Vaux & Samuels, 2005)
- ▶ What about cases such as [ty:t]~[tyt:]?
- ▶ I propose this is real final devoicing, i. e. the imposition of the [vcl] feature at word (phrase?) edges (Iverson & Salmons, 2007)
- ▶ First let's look at underlying voiceless obstruents

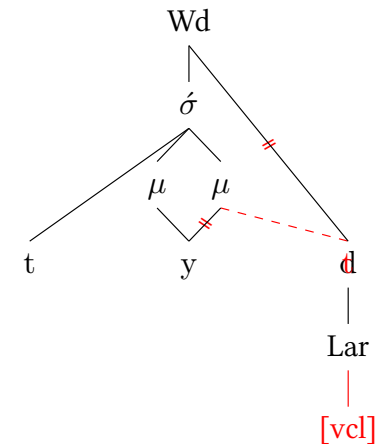
Final voiceless stops

- ▶ The [vcl] obstruent becomes moraic to satisfy MAIN-TO-WEIGHT, so the restrictions on vocalic quantity hold



True final devoicing

- ▶ In this scenario, forms such as [tyt:] for /tyd/ imply that the constraint driving final devoicing is ranked over faithfulness for vowel length.



Final devoicing: summary

- ▶ I have argued that what looks like normal final devoicing is in fact the deletion of a Lar node, or **absence of contrast**
- ▶ Further evidence: final /v/ does not always neutralize with /f/ phonetically: Jackson (1960) writes [v̥]
- ▶ We know [v] is aerodynamically complicated (Padgett, to appear)
- ▶ So this would be consistent with a phonologically underspecified /v̥/?
- ▶ Final devoicing as final fortition (Iverson & Salmons, 2007) is distinct from this process and also attested
- ▶ Grazing other dialects: final devoicing is optional at Saint-Pol-de-Léon (Sommerfelt, 1978) (?)

Voicing assimilation sandhi

- ▶ Before obstruents, we are faced with two options
- ▶ Same as above
 - ▶ Explains possible devoicing even before voiced obstruents
 - ▶ Possibly predicts that under certain phonetic circumstances final consonants may be voiced before voiceless consonants?
- ▶ Spread of Lar, with [vcl] if need be
 - ▶ Variation must have a phonological explanation (stochastic ranking?)
 - ▶ Devoicing sandhi crucial piece of evidence in favour

Voicing sandhi

- ▶ In this system, voicing sandhi arise from two sources
- ▶ Before sonorants: laryngeally unmarked stops are voiced in the phonetics
- ▶ Sonorants do not contrast for laryngeal features, so they do not have a [Lar] to spread
- ▶ Explains variability (pause-sensitivity?)
- ▶ No need to have (contrastive) laryngeal features for sonorants (Krämer, 2000; Blaho, 2008; Hall, 2008)
- ▶ [ˌm̩ab 'ne:we] = /m̩ab̥ ne:we/

Devoicing sandhi

- ▶ Some examples of devoicing sandhi
 - (17) a. [ˈla:t t̩ĩ] 'said to me'
 - b. [me 'gaf t̩ĩ] 'I find, I consider' (lit. 'I get to me')
 - c. [ˌdɔ 'wen:ək 't̩it] 'your two sous' (lit. 'two sous to you')
- ▶ Prepositions are overrepresented
- ▶ Actually, this is also true of Île de Groix!
- (18) [tra nə'vaŋk t̩emp] 'we don't miss anything' (lit. 'nothing is missing to us')
- ▶ What's with the prepositions?

Detour 1: mutation

- ▶ Breton is (widely?) known for its initial consonant mutation
- ▶ Here we are only interested in lenition

Underlying	p	t	k	b	d	g	m
Mutated	b	d	g	v	z	h	v

- ▶ The interesting bit is the voicing of voiceless stops

Detour 2: prepositions

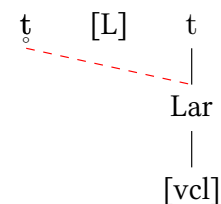
- ▶ Historically, prepositions in Brythonic have tended to undergo the effects of soft mutation/lenition in a context-free way
- ▶ Old Welsh and Old Breton *gurth* ‘through’, Modern Welsh *wrth*, Modern Breton *ouzh*
- ▶ Old Welsh *di* ‘to’, Modern Welsh *i* (via *[ði])
- ▶ Modern Welsh variation: *trwy* ~ *drwy* ‘through’

Detour 2: prepositions

- ▶ Why is this important?
- ▶ At least in Welsh, there is evidence that the new initial consonant is not fully lexicalized
- ▶ In particular, **gan* ‘with’ is historically **kant*
- ▶ The conjunction *a* ‘and’ causes a mutation whereby voiceless stops are spirantized to [f θ χ] but voiced ones are unaffected
- ▶ We expect **a gan* for ‘and with’, but it is actually *a chan* (Morgan, 1952; Ball & Müller, 1992)
- ▶ The same is true of *dros* and *drwy* though there the variants with the voiceless stop survive in the modern language
- ▶ So maybe *gan* is really [L]*can* underlyingly
- ▶ Where [L] is the autosegment (Wolf, 2007)

Back to Breton: devoicing sandhi

- ▶ I propose that (some) Breton devoicing sandhi reflect the same incomplete lexicalization of the voiced stops
- ▶ Consider *lavare*[t t]iñ



- ▶ Normally, [L] docks to the following /t/, e. g. due to MAXFLT (Wolf, 2007)
- ▶ But not when the Lar node spreads to a preceding root node

Devoicing sandhi

- ▶ This can be for any number of reasons
 - ▶ Some version of geminate inalterability
 - ▶ Structure sharing inhibits weakening processes (Honeybone, 2005b)
 - ▶ Under certain assumptions, the structure shown is not convex (Scobbie, 1997)

Devoicing sandhi

- ▶ This is the same phenomenon: an autosegment normally leading to voicing is inhibited by spreading of the Lar node
- ▶ Following sonorants the Lar node can't spread since sonorants with a Lar node are never well-formed
- ▶ But this time we have much better evidence for the autosegment being there
- ▶ The same data are described by Ternes (1970) in an extremely convoluted way...
- ▶ The generalization: if an obstruent is voiced by an autosegment, it can resist voicing by spreading Lar to a preceding obstruent

Devoicing sandhi

- ▶ Further evidence for this approach comes from so-called “failure of mutation” (Jackson, 1967, §481)
- ▶ Lenition of voiceless stops is said to “fail” when an adjective (given the necessary morphosyntactic conditions) follows an obstruent-final noun
- ▶ But with sonorant-final nouns or voiced stops mutation happens
- ▶ Cf. *kaer* ‘beautiful’
 - (19) a. un dimezell **gaer**
a maiden beautiful
 - b. ur vaouez **kaer**
a woman beautiful
- ▶ Morphosyntax actually irrelevant, since other triggers of this mutation are sonorant-final

What, autosegments?

- ▶ In previous work I have doubted that the autosegmental approach is suited to Brythonic Celtic mutations (cf. also Green, 2006)
- ▶ I think these data are actually pretty solid evidence for autosegments or at least for a phonological analysis
- ▶ Breton is less problematic than Welsh morphosyntactically
- ▶ Breton mutation seems to be genuinely sensitive to prosody (Pyatt, 2003)
- ▶ There is still the problem of doing mutation phonologically: Wolf (2007) covers only a small subset
- ▶ In particular, the autosegment should cause deletion of [vcl] in the current approach
- ▶ Problem! But see Bye & Svenonius (2009) for an approach...

More devoicing sandhi

- ▶ Other types of devoicing sandhi do not seem to fall under this rubric

(20) a. [san kɔ'ne:ri] 'Saint Gonery'
b. ['kankuɸ] 'thrice', cf. [tɛrguɸ] 'thrice'

- ▶ I propose that here devoicing is due to univerbation, i. e. the relevant words are now compounds
- ▶ Word-internally voiceless obstruent clusters are (nearly) universal (also noted by Hall, 2008 for Île de Groix)

More devoicing sandhi

- ▶ Jackson (1967, §487): “provection in common phrases”
- ▶ Are these actually phrases or words?
 - ▶ Saint Gonéry is the patron saint of the local chapel



- ▶ ‘Thrice’ might well be a single word, cf. Welsh *dwywaith* ‘twice’, and in fact *[guɸ] is the reduced form, cf. stressed *gwej* ‘time, occasion’
- ▶ Etc.

Photo credit: Steffen Heilfort. Source.

Summary and outlook: sandhi

- ▶ Voicing sandhi are mostly due to phonetic implementation of laryngeally unspecified obstruents in a phrasal context
- ▶ Some devoicing sandhi are due to inhibition of autosegmentally induced voicing
- ▶ Others might possibly be not phrasal sandhi at all
- ▶ Both of these phenomena seem to be cross-dialectal, so the account possibly extends to Île de Groix:
 - ▶ Prepositions
 - ▶ More examples: the “devoicing” word [bə'nak] ‘any’ is Middle Breton *pennac* (Lewis & Piette, 1962, §45)
 - ▶ The “provection in common phrases” (univerbation) is described as pan-Breton. Examples of devoicing sandhi in Île de Groix include ‘grey peas’ and ‘little finger’—intuitively good candidates for univerbation

Loss of feature or loss of contrast

- ▶ Here I have argued that Breton presents examples two types of final devoicing
 - ▶ Final devoicing as loss of contrast: cf. the arguments of Harris (2009) for FD as weakening
 - ▶ Final devoicing as edge alignment: final fortition (Iverson & Salmons, 2007)
- ▶ Take-home message here: there is no process of “final devoicing”, “final weakening” or “final fortition” that we can speak of in universal terms
- ▶ Argument for substance-free phonology

Final devoicing as phonetics

- ▶ Growing body of work on final devoicing (and generally laryngeal assimilation) as a “low-level phonetic process”
- ▶ The *Paradestück* here is of course Dutch (Ernestus & Baayen, 2006, 2007; Jansen, 2007)
- ▶ Possibly others (e. g. the disputed claim for Polish)
- ▶ Breton seems to show quite good evidence for incomplete neutralization
- ▶ Laryngeally unspecified segments interpreted by the phonetics as devoiced or aspirated rather than [–voice] or [spread glottis] specified
- ▶ Needs careful cross-linguistic study

Ternary contrasts

- ▶ One answer: who says we never need bigger feature geometry trees? It is correct that arboreal representations can have many levels, but maybe this is empirically better?
- ▶ Related answer: binary features are no more God-given/less stipulative: [ovoice], [1voice] and [2voice] are also a notational variant, but these are as overgenerating as trees
- ▶ Reason: three independent values of [F] cannot capture implication relations in the same way that feature geometry can
- ▶ Here I argue that the feature geometry/underspecification approach is empirically more adequate than one based on [±voice] spreading

Ternary contrasts

- ▶ Krämer (2000) argues that the presence of both voicing and devoicing necessitates binary features, i. e. a ternary contrast
- ▶ Related issue: Uffmann (2009) asks how to distinguish between categorically voiceless and laryngeally unspecified stops in a privative system
- ▶ The answer is of course feature geometry
- ▶ Objection of Uffmann (2009): but this is an overgenerating notational variant of binary features

Tiers or features?

- ▶ Here I use class nodes (as in e. g. Avery, 1996)
- ▶ Blaho (2008): no need for nodes if features can do the job, e. g. substitute Lar with [obst] since only obstruents are laryngeally specified
- ▶ Gives strange results for Breton, since final devoicing is driven by *[obst]: works formally but how insightful is it? Are the devoiced obstruents sonorants? (Well, why not)
- ▶ Here: nodes are necessary

- ▶ If features can only attach to nodes, the presence of a node (even with no features) is the formal correspondent of contrastive specification
- ▶ Sort of answers the concern of Uffmann (2009) on the difference between two types of feature absence
- ▶ Without nodes, how do we define tiers and all the autosegmental phenomena that come with them?
- ▶ Null hypothesis: all and only features dependent on a specific node are on the same autosegmental tier
- ▶ Field of empirical inquiry

Avery, Peter J. 1996. *The representation of voicing contrasts*. Ph.D. thesis, University of Toronto.

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- ▶ New interpretation of Breton data
- ▶ Possible cross-dialectal extension
- ▶ Privative features can do the job
- ▶ Feature/node geometry is preferable to binary features and (possibly) to node-less geometry.

Trugarez!

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