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Final devoicing and vowel lengthening in the north of Italy
A representational approach

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Plan of talk

▶ General context: vowel length in Northern Italy
▶ Incomplete neutralization in Friulian final devoicing
▶ Analysis of Friulian
▶ Extension to Lombard
▶ Conclusion

Setting the scene

▶ Romance varieties in Northern Italy: generally Gallo-Romance
▶ Distinctive vowel length

(1) Casale Corte Cerro (Western Lombard; Weber Wetzel 2002)
   a. (i) [fa:l]  ‘do it’
      (ii) [fal]  ‘mistake’
      (i) [puˈlit]  ‘turkeys’
      (ii) [puˈliːt]  ‘well (adv.)’

▶ For a general overview, see Repetti (1992)

Two types of long vowels I

▶ Lexically long vowels, often going back to compensatory lengthening due to cluster simplification

(2) Friulian
   a. [ˈneːre]  ‘black (fem.)’
   b. [ˈvoːli]  ‘eye’

▶ Many cases collected by Videsott (2001)
▶ Or the origin may be in the bimoraic norm (Repetti 1992)
Vowel length in Northern Italy

Overview

Two types of long vowels II

▶ Productive lengthening in (certain) oxytones

(3) Milanese (Prieto i Vives 2000; Sanga 1988)
   a. [ʃoːɡ]/[ʃoːk] ‘fire’

▶ Diachronical disagreement: see Loporcaro (2007) for ample references
▶ I tend to agree with Loporcaro (2007) that both types of lengthening have a single source, but this is irrelevant here: synchronic account only

Friulian

▶ Concentrating on Friulian here, specifically Central Friulian
▶ Many descriptions: Francescato (1966); Vanelli (1979); Baroni & Vanelli (2000); Miotti (2002); Finco (2007, 2009), to name but a few
▶ Has the second type of long vowels, and some varieties have the first one too
▶ Basic idea:
   ▶ There is no neutralization in final devoicing, only delaryngealization of voiced obstruents
   ▶ Delaryngealized obstruents fail to project a mora, so the bimoraic foot has to be built over the vowel
   ▶ Similar to how Prieto i Vives (2000) analyzes Milanese, except I also account for the laryngeal phonology

Consonant inventory

<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</td>
<td>b</td>
<td>t</td>
<td>d</td>
<td>c</td>
<td>j</td>
</tr>
<tr>
<td>Fricative</td>
<td>f</td>
<td>v</td>
<td>s</td>
<td>z</td>
<td>ʃ</td>
<td>(ʒ)</td>
</tr>
<tr>
<td>Nasal</td>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td>ġ</td>
<td>ɲ</td>
</tr>
<tr>
<td>Affricate</td>
<td>ts</td>
<td>dz</td>
<td>ʧ</td>
<td>dʒ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approximant</td>
<td>w</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>j</td>
</tr>
<tr>
<td>Rhotic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>r</td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>l</td>
<td></td>
</tr>
</tbody>
</table>

▶ Like any old Romance inventory, except the contrast between postalveolar affricates and palatal stops

Vowel inventory

<table>
<thead>
<tr>
<th>Height</th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short</td>
<td>Long</td>
<td>Short</td>
</tr>
<tr>
<td>High</td>
<td>i</td>
<td>iː</td>
<td>u</td>
</tr>
<tr>
<td>Mid-high</td>
<td>e</td>
<td>eː</td>
<td>o</td>
</tr>
<tr>
<td>Mid-low</td>
<td>ě</td>
<td>ěː</td>
<td>ā</td>
</tr>
<tr>
<td>Low</td>
<td>a</td>
<td>aː</td>
<td></td>
</tr>
</tbody>
</table>

▶ The mid low vowels ([ě ő]) are rare, and disallowed in unstressed syllables
▶ Again, any old Romance inventory plus vowel length
▶ Actually, the long vowels are fairly diphthongized (Miotti 2002) and are in fact diphthongs in many dialects (Francescato 1966)
Vowel length in Northern Italy

Basic Friulian data

Vowel lengthening I

The theoretical challenge

- A number of simple solutions are available in a rule-based theory, all relying on relinking a delinked mora
- Hualde (1990): voiced consonants are moraic (unclear whether underlyingly or via weight-by-position), final devoicing sets the mora afloat, lengthening is due to relinking
- Repetti (1992): Late Latin vowels are present underlyingly, apocope creates a floating mora, a final stressed vowel captures it
- Classic type of counterbleeding opacity with overapplication of vowel lengthening
- Theoretical goal:
  - Provide a parallel OT account
  - Solve representational issues

- These data are from Baroni & Vanelli (2000); Finco (2007) is in broad agreement
- Unstressed vowels are short; stressed vowels are normally short:

(4)

a. [aˈmi] ‘friend’
b. [ˈmɛt] ‘(s)he puts’
c. [canˈtade] ‘sung (fem.)’
d. [ˈgust] ‘taste’
e. [ˈmarɨ] ‘hand’
f. [ˈbraid] ‘arm’

Vowel lengthening II

- Stressed vowels can be long:

(5)

a. [viːf] ‘alive’ (masc.)
b. [ˈspɔːrk] ‘dirty (masc.)’
c. [ˈneːri] ‘black’

- Minimal pairs: final syllables before single consonants:

(6)

a. (i) [ˈlɑːt] ‘gone (masc.)’
    (ii) [ˈvaːl] ‘(it is) worth’
b. (i) [ˈlɑːt] ‘milk’
    (ii) [ˈval] ‘valley’

- Generalization: the vowel before an obstruent is lengthened if the obstruent is underlyingly voiced

(7)

a. [ˈlade] ‘gone (fem.)’
b. [laˈta] ‘to breastfeed’

Missing pieces I

- The missing piece in the puzzle is the actual laryngeal neutralization of laryngeal contrast
- Baroni & Vanelli (2000) show quite conclusively that devoiced obstruents (though they only looked at stops) are phonetically different from true voiceless obstruents

- Acoustic data do not show voicing
- Acoustic data show weaker bursts w. r. t. true voiceless stops
- Statistically significant difference in vowel length w. r. t. word-internal stops
- Significant difference in vowel quality. Generally gradient and very variable, but before voiceless stops the vowel inventory is best described as [a o e u i], and before devoiced stops it is rather [ɑ o e u i]
- Significant difference in placement of F0 peak on the vowel: before devoiced stops, a HL tone; before voiceless stops, a relatively late H peak
- Devoiced stops significantly shorter than voiceless ones, about the same duration as word-medial voiced stops

- Theoretical goal:
  - Provide a parallel OT account
  - Solve representational issues
Missing pieces II

- Vowels before word-medial voiced stops are also lengthened, though by much less than before devoiced word-final stops: “half-long”
- The length facts are broadly confirmed by Finco (2007)

The pattern

- The final phonetically voiceless obstruents are not the same as lexical voiceless obstruents
- Phonetically: [ˈlat] vs. [ˈlaːd̥]
- Phonologically: I propose that final obstruents are delaryngealized (Mascaró 1987) in the output of phonology
- Voiceless stops are laryngeally specified, and this extra structure allows them to project a mora
- Ternary contrast formalized via feature geometry, for reasons to be explained below

Representational assumptions

(8) × × ×
    |    |    |
    Lar Lar Lar

[stiff]/[voiceless]

Devoiced Voiced Voiceless

- Broadly familiar (Mascaró 1987; Lombardi 1995; Avery 1996; Steriade 1997)
- But voiceless has most structure

Analysis

- Head foot must be bimoraic
- Weight-by-Position for laryngeally specified coda segments: WbP is an augmentation constraint
  - Laryngeally unspecified segments are not moraic by TETU
- [F] in Friulian is [voiceless]:
  - Markedness = structure.
  - De Lacy (2006): whatever is preserved is more marked, neutralization is to less marked
- Final devoicing: deletion of [Lar] but preservation of [vcl]
OT preliminaries

- **Main-to-Weight** (Bye & de Lacy 2008): stressed syllables are bimoraic
- Constraints on weight, partly following Morén (2001)
  - *μ([seg]): (certain segment types) cannot be moraic
  - MAX-μ: do not delete morae
  - DEP-μ: do not insert morae
  - MAXLINK-μ([seg]): do not delete moraic associations (for certain segment types)
  - DEPLINK-μ([seg]): do not insert moraic associations (for certain segment types)

- I propose: **Weight by Position[Lar]**: coda segments with a Lar node should be moraic
  - Usually Weight by Position is not parametrized, but this is necessary if we want to use it as a licensing constraint

---

No lengthening in /at/: OT analysis

(9)

<table>
<thead>
<tr>
<th>lat</th>
<th>MtW</th>
<th>MAX[vcl]</th>
<th>*Lar/_]Wd</th>
<th>WbP(Lar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ət</td>
<td>lāμ,dμ</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. laμ,āt</td>
<td>*</td>
<td>*</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. laμ,dμ</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. laμ,āμ,dμ</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. laμ,dμ</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. laμ,āμ,dμ</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

- Loss of laryngeal contrasts impossible, so WbP decides

---

Lengthening in /ad/

- In the case of /ad/, final devoicing must happen
- Final devoicing creates segments with no Lar node, so WbP(Lar) is inactive, and there is no reason for Vμ Cμ, hence lengthening

---
Lengthening in /ad/: OT analysis

<table>
<thead>
<tr>
<th></th>
<th>MrW</th>
<th>*μ[cons]</th>
<th>*μ/Lar/\ Wd</th>
<th>MAX(Lar)</th>
<th>WbP(Lar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>laμd</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>b.</td>
<td>laμdμ</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>c.</td>
<td>laμdμμ</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>d.</td>
<td>laμdμμμ</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>e.</td>
<td>laμdμμμμ</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

- There is no constraint that could force a mora to surface on the Lar-less devoiced obstruent.
- The extra structure effectively licenses moraicity; high-ranking *μ[cons] (or *μ[obst]) is necessary anyway to prevent gratuitous mora insertion.

Further empirical issues I

- No lengthening in paroxytones: the head foot is bisyllabic, so no reason to coerce obstruent moraicity, violating *μ.
- Non-obstruents:
  - Vowel length contrast before [l]: best explained as distinctive weight (Morén 2001): MAX-μ ≫ *μ[lat] ≫ WbP(lat).
  - Vowels always short before [ŋ]: undominated WbP[nas].
  - Lengthening of vowels before [r] (if it is phonological): *μ[rhotic].

- Feature descriptions are shorthands: importantly, they should refer to actual pieces of structure, not to the sonority hierarchy.
- The affricate [dʒ] devoices, but the preceding vowel fails to lengthen:
  (10) a. [vjaˈdʒa(ː)] ‘travel’
  b. [vjaʧ] ‘trip’ (*[vjaːʧ])

Further empirical issues II

- Could be a problem if, as often assumed, the affricates are really stops (e.g. Rubach 1994), since this behaviour is thus unexplained.
- Crucially, however, Friulian contrasts the postalveolar affricates with true palatal stops, so [ʧ dʒ] must really be affricates: I assume they have two root nodes at one level or another.
- The behaviour of [dʒ] is thus in line with the behaviour of other clusters in Friulian.
- An even further twist: vowels can be lengthened before final [ʧ] from /dʒ/, but only in a morphological context.
  (11) a. [disˈtruʤi] ‘destroy (inf.)’
  b. [al diˈstruʧ] ‘destroys (3sg.)’

- The extra mora must be morphological, creating an otherwise banned trimoraic syllable.

Further empirical issues III

- Ask me about:
  - Richness of the Base
  - Clusters in general
  - Possible cyclic effects with the plural suffix [-s]
**Discussion**

- Empirical advantages:
  - Good fit with the empirical data
  - Explains incomplete neutralization
  - Baroni & Vanelli (2000) show that final voiceless obstruents are longer: consistent with moraicity?
  - Consistent with the behaviour of Italian borrowings
  - Explains the lack of productive lengthening in paroxytones
- Conceptual advantages:
  - No opacity: OT wins
  - Underlying weight introduced only where absolutely necessary: no apocope à la Repetti (1992) or now-you-see-it-now-you-don’t non-surface weight à la Hualde (1990), surface phonology does the heavy lifting
  - Shows how feature geometry reproduces markedness effects à la de Lacy (2006) (i.e. preservation of the marked, markedness reduction) without recourse to stipulative markedness hierarchies

**Extension to Lombard**

- A similar process of productive oxytone lengthening is found in Western Lombard
  - Milan (Sanga 1988; Prieto i Vives 2000, *inter alia*)
  - Casale Corte Cerro (Weber Wetzel 2002)
- Similar analysis of Milanese by Prieto i Vives (2000): lengthening is due to a bimoraic requirement, the extra mora is attached to the vowel due to HNuc (“if something has to be moraic, prefer a vowel to a consonant”)
  - Should rely on underlying moraicity to prevent lengthening before voiceless consonants

**The importance of Lombard**

- An important difference between Lombard and Friulian is the laryngeal phonology
  - In Lombard, the devoiced obstruents are “variably” voiced:
    - “In milanese, le consonanti finali mantengono la sonorità in maniera variabile...o restano sonore, o passano a sorde, o hanno una realizzazione intermedia” (Sanga 1988)
  - Hard to tell without actual phonetic data, but this suggests a passive voicing pattern
  - If true, this is further corroboration: precisely the sort of thing to be expected if phonological delaryngealization leads to phonetic underspecification (Keating 1988)
  - Further advantage over the account of Prieto i Vives (2000), where variation remains unexplained

**No passive voicing in Friulian: why?**

- I suggest this is a matter of the interface
  - Passive voicing in Milanese is an enhancement strategy utilizing the non-contrastive laryngeal dimension, specifically Glottal Tension (Avery & Idsardi 2001)
  - Thus, in Milanese the ⟨Lar,[F]⟩ segment is realized with Glottal Width as the contrastive feature: for GW as voicelessness rather than aspiration, cf. Avery & Idsardi’s (2001) interpretation of Japanese
  - In Friulian, we can assume that GW is the primary realization of the contrast, so voicing is unavailable as an enhancement strategy
  - This shows why we need to distinguish the more abstract substance-free phonology and the conventional, non-contrastive implementation aspects
Conclusions

- Unified analysis of final devoicing and vowel lengthening in Friulian and Western Lombard
- Transparent analysis which explains the phonetic facts and does not rely excessively on lexical specification
- Advantages of substance-free phonology with feature geometry:
  - Markedness effects come for free
  - No need for very specific phonetic detail in the phonology

Granmarcè!

References


References II


References III


References IV


References V
