1. Overview

Gorgia Toscana (1b) and Raddoppiamento fonosintattico (1c) in Florentine in the framework of Gradient Symbolic Representations.

(a) /ni/ → [nə]
(b) /ka/ → [ka]
(c) /at/ → [at]

• Unified explanation (strengthening ~ undershoot) for the different outcomes of a single underlying form:
  - k → [k], [k], [*k].

• Cross-linguistic: The same type of pattern in Tuscany, Ligurian, and Central Italian.

• Empirical adequacy: length of these derived segments (RF-allophones / lexical geminates).

2. The phenomena (Tuscan, Florentine)

Raddoppiamento fonosintattico (RF) (Chierchia 1983-86, Loporcaro 1997, Passino 2011)

Sandy process, where the initial consonant of the word, in the string word,~word, is lengthened if:

(a) word, is an onytec:
  - /fita/ → [fita]
  - /kara/ → [kara]

(b) word, is an item of a closed lexical class, whose historically earlier form has a consonant in final position:
  - a, da, e, o, ma, ne, tra, come, dove, qualche, to, from, and, or, but, between, how, where, somewhere
  - /kome/ → [kome]

Lexical RF


• Postvocalic consonant lenition: gradient, continuous phenomenon, with areal and style-dependent variability.

• It targets primarily stops, but all consonants; word-internally and across word boundaries (intervocalic position or branching onset):

  (a) /la/ /kasa/ → [la]
  - /kasa/ as 'the thing' → [la]
  - /kara/ as 'the cream' → [la]

• Asymmetry: word-internally, Gorgia is independent from stress; across word-boundary, it is only possible after non-stressed vowels. Why no lenition in (2a) /

The derived segments: evidence for strength

• RF-geminates are shorter than lexical geminates (47% vs 200% longer than the singletons) (Campos-Astorkiza 2014) and resemble singletons (Payne 2006) → strengthening

• Allophonic fricatives are: shorter than phonematic fricatives (\(\phi\) = 5 ms vs \(\phi\) = 83 ms (Sorianello 2002) + shorter than non-lenited stops (\(\phi\) = 44 ms vs \(\phi\) = 88 ms) (Sorianello et al. 2003) → weakening

3. The framework

• Gradient Symbolic Representations: continuous, numerical weight ~ degree of activity or presence of a symbol in a linguistic representation (Smolensky & Goldrick 2016).

• Numerical gradience associated to input and output elements (Faust & Smolensky 2007, Zimmermann 2018).

• The computation is couched in Harmonic Grammar: the constraints are weighted, not ranked.

4. The proposal

• Strength is an autosegmental object of the linguistic representation.

  (4) /a//miko/ ‘friend’ → [a//miko]

• Syllabic tier: \(\sigma\)

• Moraic tier: \(\mu\)

• Root node tier: \(\nu\)

• Segmental tier: \(\kappa\)

• The phonological strength is a correlate of the phonetic length.

• The gradient activity of the output segments can be other than 1.

• Stress brings into the representation some phonologically derived extra-activity that can be associated to a segment.

  (5) \[0.9 - 0.7\] \[1.5 - 0.7\]

• RF-geminates: non-moronic consonants associated to a strength value greater than 1 ("more present" in the representation) → interpreted by the phonetics as long.

• Labeled allophones: defective segments, weaker than default ("not canonically present" in the representation) → interpreted by the phonetics as non-occlusive and, consequently, as short.

5. The analysis

The constraints

• \textit{Weak-C-V-V:} Assign \(z\) violation for every intervocalic consonant with strength \(y\) in the output \((z = y)\).

• \textit{Float:} Assign \(z\) violation for every output activity \((z\) that is not linked to an output segment \((z = y)\).

• \textit{OneL:} Assign \(z\) violation for every segment with strength \(y\) \(+1\) in the output \((z = y + 1)\).

• \textit{OneL-V:} Assign \(z\) violation for every final vowel that has strength \(y\) \(+1\) in the output \((z = y + 1)\).

• \textit{MaxStr:} Assign \(z\) violation for every activity \((z\) that is present in the input but not in the output \((z = y - 1)\).

• \textit{Weak:} Assign \(z\) violation for every segment that is present in the output with a strength \((y)\) lower than 0.6 \((z = y - 1)\).

• \textit{UnifStr:} Assign \(z\) violation for each output activity \((z\) that corresponds to the fusion of more than 1 input activity \((z = y - 1)\).

The derivations

(6) \(\text{Gorgia: \ la casa }/\kappa a/ \text{ cara} \rightarrow [\kappa a/\text{ cara}]\)

(7) \(\text{Stress-driven RF: \ cità cara }/fita/ \kappa a/\text{ cara} \rightarrow [fita\text{ cara}]\)

(8) \(\text{Lexical RF: \ come }/\text{ kome} \text{ vi/}\text{ sa} \rightarrow [\text{ kome} \text{ vi/}\text{ sa}]\)

6. References


7. References


8. Concluding remarks

• RF arises by associating extra strength to a segment; it is therefore related to the phonological representation of linguistic elements and its sole trigger is \textit{Float}.

• Gorgia is a weakening process of postvocalic lenition that involves a decrease of strength. Labeled allophones are phonologically defective segments.

• What is new: (i) the competition between these two phenomena and their competition/complementary distribution, (ii) the representation of the derived segments based on the concept of phonological strength with a broader empirical adequacy than other approaches, (iii) a new contribution to the understanding of the division between phonetics and phonology.

• Possible further implementations: stressed vowel lengthening, the diachronic development of weak segments, synchronic variability of Gorgia, backward gemination, vowel deletion...

9. The representation of word

• The representation of word, contains some float strength (corresponding to a final etymological consonant).

• RF-gemination is caused by associating to a segment some extra-strength that is either brought in by stress (7) or originally associated to another segment (8).