Relativized Contiguity and Word-Final Deletion in Catalan

Seiichiro Kikuchi
Tohoku University
S_kiku@sal.tohoku.ac.jp

Goals of this paper:
- To provide an OT account for word-final rhotic deletion in Catalan arguing for the positional markedness constraints.
- To show that the CONTIGUITY constraints that are relativized to morphosyntactic boundaries can account for the difference between plural formation and cliticization with respect to their interaction with the word-final rhotic deletion.

1 Word-final rhotic deletion in Catalan

1.1 Word-final r-deletion
- Word-final r is deleted if it is preceded by a stressed vowel (Mascaró 1976, Wheeler 1979, Hualde 1992, Bonet and Lloret 1998):

(1) a. primer [primé] 'first (m.sg.)'
    clar [klá] 'clear (m.sg.)'
    sencer [s̱ns̱ṟ] 'whole (m.sg.)'
    voler [bulé] 'to want'
    tirar [tirá] 'to throw'

b. primera [primérṟ] 'first (f.sg.)'
    clara [klárṟ] 'clear (f.sg.)'
    sencera [s̱ns̱rṟṟ] 'whole (f.sg.)'

(1b) shows that:
- The nominal stems in (1a) lexically have a stem-final r.
- Stem-final r is realized if it is followed by a gender-marking vowel.

Stress on the preceding vowel and the word-finality of rhotics are crucial to this process. Therefore, r is not deleted when:

(2) It is preceded by an unstressed vowel:
    miser [miẕṟ] 'miserable'
    mortifèr [mortif̱ṟ] 'deadly'

(3) It is not underlyingly word-final:
    curt [kúrt] 'short'
    matern [matérérṟ] 'maternal (m.sg.)'

1.2 Opaque rhotic deletion in plural forms
- Stem-final r is opaquely deleted in plural forms where it is followed by the plural morpheme -s and is not word-final:

(4) primers [prim̱rs] 'first (m.pl.)'
    clars [kḻrs] 'clear (m.pl.)'
    sencers [s̱ns̱rs] 'whole (m.pl.)'

- Given that Catalan generally allows the word-final rs cluster as in curs [kúrs] 'course', the deletion of r in (4) cannot be attributed to the syllable structure constraints.

1.3 Non-deletion of rhotics in cliticized forms
- The final r of infinitives is not deleted when it is followed by enclitics without regard to whether the clitic begins with a vowel (5a) or a consonant (5b) (Wheeler 1979, Hualde 1992, Bonet and Lloret 1998):

(5) a. pensar [p̱ns̱ṟ] pensar-ho [p̱ns̱ṟu] 'to think' 'to think it'
    voler [bulé] voler-ho [bulérṟ] 'to want' 'to want it'
    tirar [tirá] tirar-ho [tirárṟ] 'to throw' 'to throw it'

b. agrair [aγ̱ṟ] agrair-l'hí [aγ̱ṟrṟ] 'to thank' 'to thank him for it'
    voler [bulé] voler-te [bulérṟ] 'to want you'
    sortir [surtiḻṟ] sortir-ne [surtiḻṟrṟ] 'for us to leave'
    saber [s̱β̱ṟ] saber-la [s̱β̱rṟrṟ] 'to know' 'to know it'
1.4 Issues

The rhotic deletion:
- Why is \( r \) deleted in word-final position?
- Why does stress play a crucial role?

Interaction of the deletion process with plural formation and cliticization:
- Why does the rhotic deletion opaquely apply to plural forms?
- Why do clitics block the rhotic deletion?
- What is the difference between plural forms and cliticized forms?

In the rule-based approach, the different interactions are attributed to the difference in the rule ordering:

(6) Rhotic deletion rule
\[ r \Rightarrow \emptyset / V_{\text{\textbullet}} \]

(7) Rule ordering
Cliticization \( \Rightarrow \) Rhotic deletion \( \Rightarrow \) Plural formation

The rule-based approach is problematic because:
- The rhotic deletion rule (6) does not explain why \( r \) should be deleted in that environment.
- The rule ordering in (7) is not plausible, because a morphosyntactic process (cliticization) precedes a lexical process (inflection).

2 An OT analysis I: The rhotic deletion process

- Why is word-final \( r \) deleted in stressed syllables?
  - Rhotics are too sonorous to be in the coda position of a stressed syllable.

Prosodic markedness constraints in prominent positions (de Lacy 2001):

Prosodic markedness constraints can be relativized to phonologically prominent positions (eg. initial syllable, stressed syllable).

(8) Sonority constraint hierarchy (after Prince and Smolensky 1993)

a. The margin sonority hierarchy:
\[ M(\text{ARGIN})/X: \text{X must not be parsed as a marginal position of a stressed syllable.} \]
\[ \| M/\text{vowel} \gg M/\text{glide} \gg M/\text{liquid} \gg M/\text{nasal} \gg M/\text{obstruent} \| \]

Interpretation: The more sonorous a segment is, the less favorable it is in a marginal position of a stressed syllable.

b. The nucleus sonority hierarchy:
\[ M(\text{NUCLEUS})/X: \text{X must not be parsed as a syllable nucleus.} \]
\[ \| M/\text{obstruent} \gg M/\text{nasal} \gg M/\text{liquid} \gg M/\text{glide} \gg M/\text{vowel} \| \]

Interpretation: The more sonorous a segment is, the more favorable it is as a nucleus of a stressed syllable.

(9) Constraint ranking for word-final rhotic deletion in Catalan:
\[ M(\text{\textbullet})/\text{liquid} \gg M_{\text{XO}} \gg M/\text{liquid} \]

Note: *M(\text{\textbullet})/X \gg M/X is universally fixed, because they are in a stringency relationship: violations of *M(\text{\textbullet})/X are always a subset of those of *M/X.

- Deletion and non-deletion of word-final rhotics:

(11) Rhotic deletion in stressed syllables:

<table>
<thead>
<tr>
<th>/klár</th>
<th>*M(\text{\textbullet})/\text{liquid}</th>
<th>MAXO</th>
<th>*M/\text{liquid}</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. klár</td>
<td>*!</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. klá</td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

(Throughout this paper, stress is lexically specified for the sake of simple arguments.)

(12) Non-deletion of rhotics in unstressed syllables:

<table>
<thead>
<tr>
<th>/míz̄er/</th>
<th>*M(\text{\textbullet})/\text{liquid}</th>
<th>MAXO</th>
<th>*M/\text{liquid}</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. míz̄ar</td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>
| b. míz̄ | | | *

- Non-deletion of word-internal rhotics:

Rhotic deletion does not apply word-externally because the deletion of a non-peripheral segment is not allowed by the dominant Domain-Contiguity constraint.

(13) Domain-Contiguity [D-CONTIG]:

If the elements in the input are contiguous in a morphological domain, their output correspondents must be contiguous.
Non-deletion in word-internal position: D-CONTIG >> *M(\(\sigma\))/liquid >> MAXIO

\[
\begin{array}{|c|c|c|}
\hline
/p\delta_r f-la/ & \text{D-CONTIG} & \text{*M(\(\sigma\))/liquid} \\
\hline
\toprule
a. p\delta_r f-la & & \\
\hline
b. p\delta_r f-a & * & \\
\hline
\end{array}
\]

3 An OT analysis II: (Non-)deletion in plural forms and cliticized forms

What is the difference between plural forms and cliticized forms?

Morphosyntactic boundary that lies between the stem-final \(r\) and the following morphemes.

a. Plural forms: morpheme boundary (denoted by "+")
   clars /\text{clar} + s/
   tirar-ho /tirar # u/
   saber-la /saber # la/

b. Cliticized forms: word boundary (denoted by "#")
   tirar-\# /tirar \# u/
   saber-\# /saber \# la/

Proposal: Morphosyntactically relativized Contiguity (cf. Lamontagne 1997)

\[\text{JUNCTURE-CONTIGUITY} \quad \text{(J-CONTIG)}\]

If the elements in the input are contiguous across a morphosyntactic boundary, their output correspondents must be contiguous.

\[\text{J(#)-CONTIGUITY} \quad \text{(J(#)-CONTIG)}\]

If the elements in the input are contiguous across a word boundary (#), their output correspondents must be contiguous.

Note: J(#)-CONTIG is universally dominates the general J-CONTIG, because word boundary is a specific instance of morphosyntactic boundaries.

Relevant constraint ranking

\[\text{J(#)-CONTIG} >> \text{*M(\(\sigma\))/liquid} >> \text{J-CONTIG}\]

Deletion of stem-final \(r\) in plural forms:

\[
\begin{array}{|c|c|c|}
\hline
/\text{kl\(\delta\)r}\#_1 s/ & \text{J(#)-CONTIG} & \text{*M(\(\sigma\))/liquid} \\
\hline
\toprule
a. \text{kl\(\delta\)r}_1 s & * & \\
b. \text{kl\(\delta\)r}_3 s & * & \\
\hline
\end{array}
\]

Non-deletion of stem-final \(r\) in cliticized forms:

\[
\begin{array}{|c|c|c|}
\hline
/tir\(\delta\)r\#_1 a/ & \text{J(#)-CONTIG} & \text{*M(\(\sigma\))/liquid} \\
\hline
\toprule
a. \text{ti}r\(\delta\)r\#_1 a & * & \\
b. \text{ti}r\(\delta\)r\#_3 a & * & \\
\hline
\end{array}
\]

Tautomorphic \(rs\) sequence is not relevant to J-CONTIG constraints but to D-CONTIG constraint.

Summary of constraint ranking

\[\text{J(#)-CONTIG}, \text{D-CONTIG} >> \text{*M(\(\sigma\))/liquid} >> \text{J-CONTIG}, \text{MAXIO} >> \text{*M/liquid}\]

4 Conclusion

In this paper, it is claimed that:

- The word-final rhotic deletion in Catalan is a process that excludes sonorous segments from the marginal position of a stressed syllable and this process is accounted for by the positional markedness constraints militating against the marked structures in prominent position.

- The different interactions of the rhotic deletion with plural formation and cliticization are attributed to the morphosyntactic boundaries that lie between the stem-final \(r\) and the following morphemes and the difference is accounted for by the JUNCTURE-CONTIGUITY constraints that are specific to morphosyntactic boundaries.

Residual and/or related issues

- Why are only rhotics but not laterals deleted?

According to Walsh Dickey (1997), the difference between rhotics and laterals is that rhotics have a non-primary laminal node, whereas laterals have a secondary dorsal node. I suggest that the deletion of only rhotics would be attributed to this non-primary laminal node.
• Non-deletion in -ment adverbs

(23) Stem-final r is not deleted in -ment adverbs:

\begin{align*}
\text{major} & \quad [\text{m}a\text{ʒ}o]\text{ɾ} \quad \text{‘major’} \\
\text{majorment} & \quad [\text{m}a\text{ʒ}ɔr\text{m}ɛn] \quad \text{‘mainly’}
\end{align*}

Adverbs with the suffix -ment are compounds in which secondary stress falls on the stem (non-reduction of the stem mid vowel shows that it has a secondary stress: cf. majoria [mαʒurίə] ‘majority’). The non-deletion of stem-final r in (23) shows that the boundary between the stem-final r and -ment is a word boundary.

References


