On Galician Definite Article Allomorphy

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ABSTRACT. This paper provides an OT account for the phonologically conditioned allomorphy of the Galician definite articles. The allomorphy shows three interesting issues: 1) It is conditioned by the preceding word which belongs to the different syntactic constituent; 2) the allomorph without onset is preferred to the one with an onset even in the postvocalic position; 3) the triggers of the allomorphic alternation are deleted on the surface. In this paper, it is argued that the two types of alignment play crucial roles in the Galician definite article allomorphy: the alignment between lexical categories and prosodic words and the one between morphological word and syllable boundaries.

Keywords: lexical allomorphy, multiple underlying representations, morphosyntax-prosody alignment

1. Introduction: Definite Article Allomorphy in Galician

In Galician, a Romance language spoken in north western Spain, the definite articles have two allomorphs (Álvarez Blanco 1983, Dubert 2001):

(1) a. The 1st forms

<table>
<thead>
<tr>
<th></th>
<th>MASC.</th>
<th>FEM.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG.</td>
<td>o</td>
<td>a</td>
</tr>
<tr>
<td>PL.</td>
<td>os</td>
<td>as</td>
</tr>
</tbody>
</table>

b. The 2nd forms

<table>
<thead>
<tr>
<th></th>
<th>MASC.</th>
<th>FEM.</th>
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</thead>
<tbody>
<tr>
<td>SG.</td>
<td>lo</td>
<td>la</td>
</tr>
<tr>
<td>PL.</td>
<td>los</td>
<td>las</td>
</tr>
</tbody>
</table>

Of these two allomorphs, the occurrence of the 2nd forms is phonologically conditioned by the preceding word: if the preceding word ends in r or s, the 2nd forms occur:

(2) a. polo mar /por o mar/ ['polo 'mar] 'by the sea'
   vi-la xente /vir a xente/ ['vila '[ʃe]nte] 'to see the people'
   b. vimo-lo libro /vimos o libro/ ['vimolo 'liβro] 'we see the book'
   tódalas mulleres /todas as mulleres/ ['tɔdalas mu'ʎeres] 'all the women'

Otherwise, the default 1st forms occur: they occur in phrase-initial position and after vowel-ending words, as shown in (3) and (4), respectively:

(3) a nena /a nena/ ['a 'nena] 'the girl'
   os falantes /os falantes/ ['os fə'ʎantes] 'the speakers'
(4) para o campo /para o campo/ ['para o 'kampo] 'for the field'
   sobre a lingua /sobre a lingua/ ['soβɾe a liŋwa] 'about the language'

The allomorphic alternations of the definite articles raise the three interesting issues: firstly, the allomorphy is conditioned by the phonological property of the preceding word, which is not the member of the same syntactic phrase as the definite articles. This indicates that the syntactic structure is not properly projected to the prosodic structure. Secondly, the form without onset occurs as the default allomorph in spite of its marked syllable structure.
Thirdly, the triggers of the allomorphic alternation, the preceding word-final \( r \) and \( s \), are deleted on the surface, making the occurrence of the 2nd forms opaque. In this paper, I examine the Galician definite article allomorphy within the framework of Optimality Theory (OT) and argue that the two types of morphosyntax-prosody alignment constraints play crucial roles in the allomorphic alternations and that the deletion of the preceding word-final consonants can be accounted for as the avoidance of the sequence of continuant consonants.

2. Prosodification of the Definite Articles

The fact that the allomorphic selection is conditioned by the preceding word suggests that the definite article is phonologically cliticised to the preceding word, although they are not the member of the same syntactic constituent. The evidence for the prosodification of the Galician articles can be found in the realisations of the word-final nasals.

In Galician, alveolar nasal has different realisations according to its position in a prosodic word (PrWd): it is velarised in PrWd-final position. In PrWd-internal coda position, it assimilates to the following consonant, while it is realised as alveolar in onset position (Freixeiro 1998). The various realisations of word-final nasals shown in (5) indicate that the articles are phonologically cliticised to the preceding word if it is available:

\[(5) \]
\[
\begin{align*}
\text{a. } & \text{ quixo } un \text{ libro} [\text{k}i\text{j}o \text{ u}n \text{ li}\text{bro}] \quad \text{'he liked a book.'} \\
\text{b. } & \text{ tivo } un \text{ neno} [\text{ti}\text{b}o \text{ u}n \text{ neno}] \quad \text{'he had a child.'} \\
\text{c. } & \text{ un } \text{ poco} [\text{um}'\text{powko}] \quad \text{'a little'} \\
\text{} & \text{ un } \text{ dente} [\text{un}'\text{dente}] \quad \text{'a tooth'} \\
\text{} & \text{ un } \text{ kilo} [\text{u}\text{n}'\text{kilo}] \quad \text{'a kilo'} \\
\text{} & \text{ vi } \text{ n } \text{ a casa} [\text{bina }\text{kasa}] \quad \text{'I saw the house.'} \\
\text{} & \text{ come } \text{ n } \text{ o caldo} [\text{komeno }\text{kaldo}] \quad \text{'we eat the broth.'}
\end{align*}
\]

Velarised article-final nasals in (5a) indicates that it is final in a PrWd. Contrastively, the fact that the article-final nasal assimilates to the following consonant in (5b) shows that the article is cliticised to the following word, if the preceding word is not available. Finally, in the examples in (5c), where nasal-ending verbs are followed by the 1st form of the definite article, the verb-final nasal is realised as alveolar. This indicates that the verb and the definite article are in the same PrWd and the verb-final nasal is syllabified as an onset of the following vowel. The prosodifications of Galician articles established by the nasal realisation are shown in (6):

\[(6) \]
\[
\begin{align*}
\text{a. Phrase-internal} & \quad \text{b. Phrase-initial} \\
& \quad \begin{cases} \text{[VP vi \[ DP la \[ NP xente ]\]] } & \begin{cases} \text{[DP a \[ NP nena ] } \end{cases} \\
& \quad (\text{PrWd }) & \quad (\text{PrWd }) \\
\end{cases}
\end{align*}
\]

Notice that in (6a) the PrWd structures do not properly correspond to the syntactic phrase structure. Now, the question is: why does the mismatch between syntactic and prosodic structures happen?
The key to the answer is found in the morphosyntax-prosody correspondence in (6a): the left boundaries of the lexical categories, but not of the functional category, coincide with those of the PrWds. So, the generalisation is that the lexical category must be projected to the prosodic structure, while the functional category need not be projected. The prosodic structures in (6) are accounted for by the following constraints:

(7) a. Align-L(Lex, PrWd) (= WDConL; Selkirk 1995):

The left edge of a lexical category must coincide with the left edge of a PrWd.

b. Align-L(XP, PrWd) (= ALIGNXP-L):

The left edge of a XP must coincide with the left edge of a PrWd.

c. FNC#PrWd: A functional word does not correspond to a PrWd.

If FNC#PrWd and WDConL dominate ALIGNXP-L, only the boundaries of the lexical category are projected to the prosodic structures, as illustrated in (8):

<table>
<thead>
<tr>
<th>Structure</th>
<th>FNC#PrWd</th>
<th>WDConL</th>
<th>AlignXP-L</th>
</tr>
</thead>
<tbody>
<tr>
<td>![VP vir [DP a [NP xente]]]</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>![VP vir [DP a [NP xente]]] (PrWd) (PrWd) (PrWd)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>![VP vir [DP a [NP xente]]] (PrWd)</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>![VP vi [NP xente]]] (PrWd) (PrWd) (PrWd)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If an article is preceded by a lexical category, projecting the DP boundary on a PrWd results in a violation of FNC#PrWd or WDConL, as shown in (8a, b). Therefore, candidate (8c) which only projects the boundaries of the lexical categories are selected as the optimal candidate. On the other hand, if a definite article is not preceded by other words, the entire DP corresponds to a PrWd, because FNC#PrWd dominates WDConL.

<table>
<thead>
<tr>
<th>Structure</th>
<th>FNC#PrWd</th>
<th>WDConL</th>
<th>AlignXP-L</th>
</tr>
</thead>
<tbody>
<tr>
<td>![DP a [NP nena]]]</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>![DP a [NP nena]]] (PrWd) (PrWd)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. The Allomorphic Alternations

3.1. The underlying representation of the Galician definite articles

Having established the prosodic structures of the definite articles, let us turn to the analysis of the allomorphic alternations. But, before moving to the analysis of the allomorphic alternations, we must address the issue of the underlying representation (UR) of the Galician definite articles. In OT, it is argued that lexical allomorphy is accounted for by positing the multiple URs for that morpheme (Kager 1996, Mascaró 1996). In this approach, lexical items that show allomorphic alternations contain more than one URs, each
of which is available as an input to grammatical mapping, and the allomorphic choice is determined by constraint evaluation. In their analysis of the definite marker selection in Haitian Creole, Bonet, Lloret and Mascaró (2005) extend this approach by allowing a lexical precedence relations among listed URs. In their theory, the set of URs are defined as a (partially) ordered set: if \{A > B\}, A lexically precedes to B. The constraint \textsc{Priority}, defined as (10), demands faithfulness to this lexical ordering.

\begin{equation}
\textsc{Priority} \quad \text{(Bonet, Lloret and Mascaró 2005)}
\end{equation}

Given an input containing allomorphs \textit{m}_1, \textit{m}_2, ..., \textit{m}_n, and a candidate containing \textit{m}_i' in correspondence with \textit{m}_i, \textsc{Priority} assigns as many violation marks as the depth of ordering between \textit{m}_i and the highest dominating morph(s).

Following Bonet, Lloret and Mascaró (2005), I propose that the Galician definite articles have two URs that are in lexical precedence relation, as shown in (11).

\begin{equation}
\begin{array}{ll}
\text{DEF.MASC.SG.} = /o > lo/ & \text{DEF.FEM.SG.} = /a > la/ \\
\text{DEF.MASC.PL.} = /os > los/ & \text{DEF.FEM.PL.} = /as > las/ \\
\end{array}
\end{equation}

I assume both of the two allomorphs as underlying for following reasons: firstly, the 1st forms are historically developed from the 2nd forms by intervocalic \textipa{\textit{l}}-deletion, which is not active in Galician now (ILG/RAG 1982). Secondly, the definite articles with the underlying \textipa{\textit{l}} are observed in the Asturian dialect (Álvarez Blanco 1983). Thirdly, both the 1st forms and the 2nd forms cannot be phonologically derived from the others. I also assume that the precedence relation between the 1st and the 2nd forms in (11) is lexical, because the preference for the 1st forms (forms without onset) over the 2nd forms (forms with an onset), especially in postvocalic positions in (4), cannot be attributed to any phonological conditions.

\section{2. The occurrence of the 2nd forms and morphological word-syllable alignment}

Now, let us turn to the analysis of the occurrence of the 2nd forms after \textipa{\textit{r}}/\textipa{\textit{s}}-ending words. The question is why the 2nd forms occur after \textipa{\textit{r}}/\textipa{\textit{s}}-ending words. If we take into account the alignment between word and syllable boundaries, it becomes clear that only the 2nd forms can satisfy both the alignment between a morphological word (MWd) and a syllable boundaries and the syllable well-formedness constraints, as depicted in (12), where "#" and "." indicate MWd and syllable boundaries, respectively.

\begin{equation}
\begin{array}{ll}
\text{a. vi-la xente} & \text{b. *vir a xente} \\
\text{(vi#.la)#(xen.te)} & \text{*(vir#.a)#(xen.te) or *(vi .r#a)#(xen.te)}
\end{array}
\end{equation}

To account for the occurrence of the 2nd forms as an avoidance of the MWd-syllable misalignment, I propose the constraints in (13):

\begin{equation}
\begin{array}{ll}
\text{a. \textsc{Align-L}(MWd, } & \text{\sigma) (= \textsc{AlignMWd-L}):} \\
\text{The left edge of a MWd must coincide with the left edge of a syllable.} & \\
\text{b. \textsc{C.V: CV sequence must not be parsed heterosyllabically.}} & \\
\text{c. \textsc{Onset: Syllables must have an onset.}} & \\
\end{array}
\end{equation}
Among the constraints in (13), *C.V requires some notifications. This constraint is proposed in order to account for the fact that, even in language, such as Galician, where both onsetless syllables (both word-initially and word-internally) and closed syllables are allowed, intervocalic consonant must be syllabified with a following vowel. The occurrence of the 2nd forms after /r/s-ending words is accounted for by the ranking where the constraints in (13) other than ONSET dominates the PRIORITY constraint, as shown in (14), where the subscript numbers indicate the relation between the allomorph and the candidate.

<table>
<thead>
<tr>
<th>/vir#{a1&gt;la2}#/.../</th>
<th>*C.V</th>
<th>ALIGNMWd-L</th>
<th>PRIORITY</th>
<th>ONSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.  vir#.a1...</td>
<td>*!</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b.  vi.r#{a1...</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.  vi#.la2...</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

If the preceding word ends in /r or /s/, the selection of the 1st forms results in the onsetless syllable following a closed syllable (14a) or the misalignment between MWd and syllable boundaries (14b). These candidates are ruled out by *C.V and ALIGNMWd-L, respectively. Although candidate (14c) with the 2nd form violates PRIORITY, it does not violate the higher ranked constraints. Therefore, the 2nd form is selected as the optimal allomorph.

If the definite article is preceded by a vowel-ending word or is not preceded by other words, the higher ranked constraints are not violated. In this case, PRIORITY has a decisive role to select the candidates with the 1st forms as optimal. This is illustrated in (15-16).

<table>
<thead>
<tr>
<th>/para#{o1&gt;lo2}#/.../</th>
<th>*C.V</th>
<th>ALIGNMWd-L</th>
<th>PRIORITY</th>
<th>ONSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.  para#.o1...</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b.  para#.lo2...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>/{a1&gt;la2}#nena/</th>
<th>*C.V</th>
<th>ALIGNMWd-L</th>
<th>PRIORITY</th>
<th>ONSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.  a1#.ne.na</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b.  la2#.ne.na</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

In (15-16), the 1st forms are selected although they incur ONSET violations. This indicates that ONSET is dominated by PRIORITY.

4. Deletion of /r and /s/

As it is observed in (2), the verb/preposition-final /r and /s/ are deleted if the 2nd forms are selected. The deletion is obligatory when the 2nd forms occur, as suggested by the variation observed in the dialect spoken in Santiago de Compostela. In this dialect, both the 1st forms and the 2nd forms are possible after /r/s-ending words: todos os dias or todo-los dias 'all the day'. However, the 2nd forms always co-occur with the deletion of the preceding word-final consonant and *todos los dias, where the 2nd form do not co-occur with the deletion, is not attested (Dubert 2001). To answer the question why preceding word-final consonants are deleted before the 2nd forms, it is suggestive that these
 consonants are not deleted if the clitics other than the 2nd forms of the definite article are cliticised:

(17) facervos mal [fa'øerβos 'mal] 'to make you bad'
visitarme [bisi'tarme] 'to visit me'
vémoste no espello ['bemoste no es'peßo] 'we see you in the mirror'
collédesnos rabia [ko'xeđesnos 'raβja] 'you make us angry'

The difference between the deletion case in (2) and the non-deletion case in (17) is followings: in (2), where *r* and *s* are deleted, the consonantal sequence created by the cliticisation is a sequence of continuant consonants. Contrastively, if the sequence consists of a continuant and a stop as in (17), it is not affected by the deletion. So, the generalisation is that the preceding word-final *r* and *s* are deleted in order to avoid the sequence of continuant consonants. This is accounted for by the ranking where OCP [+continuant], which militates against the sequence of the continuant consonants, dominates PRIORITY and the anti-deletion faithfulness constraint MaxC, as shown in (18).

<table>
<thead>
<tr>
<th>/vir#{a1&gt;la2}#.../</th>
<th>OCP</th>
<th>ALIGNMWDL</th>
<th>PRIORITY</th>
<th>MaxC</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. vi.r#a1...</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. vir#.la2...</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. vi#.la2...</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The failure of candidate (18a) with the 1st form indicates that ALIGNMWDL also dominates MaxC. For the Santiago de Compostela dialect, where both the 1st and the 2nd forms are possible after *r/s*-ending words, I assume that ALIGNMWDL and PRIORITY are re-rankable: if PRIORITY dominates ALIGNMWDL, the candidate with the 1st form (18a) is selected. It is important to note that the non-deletion candidate (18b) is never selected as optimal due to its violation of the dominant OCP [+cont]. In contrast, continuant + stop sequence is not deleted because it does not violate OCP [+cont], as shown in (19).

<table>
<thead>
<tr>
<th>/vemos#te.../</th>
<th>OCP</th>
<th>ALIGNMWDL</th>
<th>PRIORITY</th>
<th>MaxC</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ve.mos.#te</td>
<td></td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>b. ve.mo.#te</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As opposed to the argument above, Galician generally allows *rl* and *sl* both within a word (20a) and across a word boundary (20b) (Dubert 2001).

(20) a. merlo ['merlo] 'blackbird' lexis/ador [leʃisla'dor] 'legislator'
    b. ser lacazán ['ser lakaθaŋ] 'to be lazy'
        es lacazán ['es lakaθaŋ] 's/he is lazy'

The non-deletion of the word-internal *rl* or *sl* is accounted for by the ranking where DOMAIN-CONTIGUITY, the faithfulness constraint against morpheme-internal deletion, dominates OCP [+cont], as shown in (21).
The *rl/sl* sequences are not deleted in (20b), because in this case there is a PrWd boundary between *r/l* and *l*, and OCP is vacuously satisfied. This is shown in (22).

As a summary, the constraint ranking proposed in this paper is shown in (23).

5. Concluding Remarks

This paper examined the phonologically conditioned allomorphy of the Galician definite articles. It is argued that in the Galician definite article allomorphy, two types of alignment constraints play crucial roles: the mismatch between syntactic and prosodic structures are attributed to the alignment constraint between lexical categories and PrWds. Assuming that the Galician definite articles have multiple URs where each allomorph is lexically ordered, the allomorphic selection is accounted for by the interaction of PRIORITY constraint with the alignment constraint between MWd and syllable boundaries.

Although the proposed analysis accounts for the occurrence of the 2nd forms, there is a case where the analysis makes a wrong prediction: the 1st forms after *n*-ending words:

(24) comen o caldo [’komeno ’kaldo] ’we eat the broth’
     vin a casa [’bina ’kasa] ’I saw the house’

The fact that the verb-final *n* is not velarised in (24) shows that it is syllabified as an onset. However, the proposed analysis wrongly predict the 2nd forms after *n*-ending words due to the high-ranked ALIGNMWd-L. Álvarez Balnco (1983) claims that there are third allomorphs2, *no/na/nos/nas*, and it is the third allomorph that occurs after *n*-ending word with subsequent coalescence of the adjacent nasals. If ALIGNMWd-L does not require crisp-edges, this approach is compatible with the proposed analysis. This is the issue that must be addressed for the complete understanding of the Galician definite article allomorphy.
Notes
* This is a part of my paper presented at Phonology Forum 2005 held at Fukuoka University (August 25-27, 2005). I would like to thank the participants of the Forum, especially Junko Itô, Shin-ichi Tanaka, Tadashi Eguchi, Akira Ujihira, Yuji Kuwamoto, and Kuniyoshi Tanaka for their insightful comments and suggestions. Thanks also to Maria-Rosa Lloret and two anonymous reviewers for their comments. I am also thankful to Hitosi Gotoo and Yuichiro Fukumitsu for helpful discussion about an earlier version of this paper. All errors are my own.

1 For the argument for the laterals as continuants in Galician, see Kikuchi (2005).

2 The allomorphs beginning with $n$ are actually observed in the object pronoun allomorphy, where the allomorphic distributions are very similar to those of the definite articles, except for the allomorph beginning with $n$ occur after verbs ending in diphthongs (Freixeiro 2001).

References