D-DELETION IN ANDALUSIAN SPANISH: A MORPHO-PHONEMIC PHENOMENON WITH FREQUENCY-INDUCED SPREADING

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In Andalusian Spanish, consonant deletion in verb suffixes is a common phonological process. I propose to account for d-deletion, which occurs in the past participle suffix, through defining the specific environment in which the final consonants of verb suffixes are deleted and analyzing this deletion using Optimality Theory. By ranking a constraint on which final consonants in verb suffixes are deleted with other constraints, d-deletion can be explained in relation to other deletion processes. Additional cases of d-deletion are analyzed as spreading due to a frequency effect.

1. INTRODUCTION

1.1 Andalusian Spanish.

Andalusian Spanish is a variety of Standard Peninsular Spanish spoken in the autonomous community of Andalusia in southern Spain. The dialect’s distinguishing phonological, morphological, and syntactic features have been extensively studied by linguists. The dialect itself can be subdivided into Eastern Andalusian Spanish and Western Andalusian Spanish; the language spoken in the western provinces in Andalusia has a greater contrast with Standard Peninsular Spanish (Ariza 2007). Western Andalusian Spanish is also more likely to be found in the rural regions of provinces where Eastern Andalusian Spanish is spoken. Some question whether Andalusian Spanish has enough variation from Standard Peninsular Spanish to be termed a dialect. However, there are many linguistic processes which are unique to Andalusian Spanish, which clearly distinguishes it from other forms of spoken Spanish.

1.2 D-deletion in Andalusian Spanish.

This paper focuses on d-deletion in Andalusian Spanish. The dialect has a propensity for consonant deletion in various morphological domains. However, only the final d in a word can be deleted, and this most commonly occurs in the past participial verb suffix. While d-deletion is observable as a widely-occurring speech pattern in the region, this deletion process is subject to sociolinguistic factors and does not always occur. For example, Andalusian speakers often shift from their dialect to Standard Peninsular Spanish unconsciously depending on the situation. When speaking to Spanish speakers not from Andalusia, when in a formal setting, or when reading aloud, Andalusians commonly do not delete the d. It is unclear if this retention of the d is always because the speakers have switched to Standard Peninsular Spanish, as on occasion a speaker will retain the d but delete an s through a different phonological
Consonant deletion also varies depending on the speaker’s educational background; University graduates are less likely to delete certain consonants compared to the general population (Villena-Ponsoda, 2008). It is important to note that while the phenomenon of d-deletion does not occur invariably, it is quite common in casual Andalusian Spanish.

1.3 Optimality Theory.

The analysis of d-deletion is framed in Optimality Theory (OT), a constraint-based theory of Universal Grammar. An underlying assumption of OT is that all constraints are universal, that is, they exist in all languages (Prince & Smolensky, 1993/2004; McCarthy, 2002). Differences in the ranking of the universal set of constraints produce different languages. The convention for an OT analysis is to rank a set of at least two constraints against candidates for the output of a word in a table form, conventionally referred to as a tableau, as seen in (1) below.

<table>
<thead>
<tr>
<th>Input</th>
<th>CONSTRAINT A</th>
<th>CONSTRAINT B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candidate A</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Candidate B</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

In the tableau above, Candidate A violates Constraint B, signaled by the asterisk in that column. However, Candidate B violates an even higher constraint, A, which rules out that candidate as a possible output. Thus Candidate A “wins” and is the actual output of the language.

Through this process, OT suggests that constraints are innate. I show in this analysis that d-deletion in Andalusian Spanish can be contextualized within other deletion processes in the world’s languages.

1.4 Configuration of Analysis.

This paper is organized as follows: Section 1.5 demonstrates facts of general consonant deletion and d-deletion; Section 1.6 introduces a constraint by which final consonants in verb suffixes are deleted; Section 2 discusses the previous research on widespread consonant deletion and deletion specifically in verb suffixes as well as explains the use of morphological domains; Section 3 clarifies the problem of d-deletion; Section 4 analyzes consonant deletion in verb suffixes; Section 5 addresses why d-deletion in verb suffixes is selected above other potential outputs; Section 6 discusses d-deletion outside of the past participial verb suffix in the context of spreading due to frequency; and Section 7 summarizes the analysis.

The representation of the underlying form of words, or more specifically the written representation of the word, in this paper will be represented in italics, while the spoken form or the potential spoken form
will be in quotes. English translations will be in quotes in parentheses. For example, when discussing the d-deletion in Andalusian Spanish, *acabado* is spoken as ‘acabao’ (‘finished’).

1.5 Consonant Deletion.

While living for four months in Córdoba, a city in Andalusia, I came to notice the commonality of consonant deletion. To investigate this phenomenon more closely I recorded an Andalusian college student from la Universidad de Córdoba, who at the time of recording was studying at Wellesley College for the year. She is a native Spanish speaker who, having grown up in Córdoba, speaks in the Andalusian dialect while at home. The informant also can speak Standard Peninsular Spanish and is competent in English.

My informant showed Andalusian Spanish’s propensity to delete not only consonants but even whole syllables, when speaking casually. The deletion process is apparent in the following commonly used words, which in Andalusian Spanish are shortened to one syllable.

\[
\begin{align*}
\text{para} & \quad \text{‘pa’} \quad (‘for’) \\
\text{todo} & \quad \text{‘to’} \quad (‘all’) \\
\end{align*}
\]

From the spectrograph below it is clear that in *todo* (‘all’), not just the consonant *d* is deleted, but rather the whole final syllable *do* is removed.

As seen above, the shortening of frequently used words can occur in Andalusian Spanish. However, the most common deletion processes explain the removal of one specific sound. The regularity of consonant deletion can be seen in the data below\(^1\):

\[\begin{align*}
\text{isla} & \quad \text{‘ila’} \quad (‘island’) \\
\text{calores} & \quad \text{‘calore’} \quad (‘colors’) \\
\text{toses} & \quad \text{‘tose’} \quad (‘coughs’) \\
\text{perla} & \quad \text{‘pela’} \quad (‘pearl’) \\
\text{carne} & \quad \text{‘cane’} \quad (‘meat’) \\
\end{align*}\]

\(^1\) In some of these examples the deleted consonants make the preceding vowels aspirated or cause another phonological process to occur. However, for the purpose of this paper, they will be included with other consonant-deletions in Andalusian Spanish.
1.5.1 D-Deletion Data.

While the deletion of \( d \) in \textit{todo} is part of a propensity to shorten some words, d-deletion usually occurs only under certain circumstances, specifically, in –\textit{ado} and –\textit{ido} verb suffixes, as seen in (3) and (4). Otherwise, the \( d \) is retained, as in examples (5), (6) and (7).

(3) –\textit{ado} word endings
- \textit{callado} ‘callao’ (‘silent’)
- \textit{acabado} ‘acabao’ (‘finished’)
- \textit{ocupado} ‘ocupao’ (‘occupied, busy’)

(4) –\textit{ido} word endings
- \textit{dormido} ‘dormio’ (‘slept’)
- \textit{recibido} ‘recibio’ (‘received’)

(5) –\textit{edo} word endings
- \textit{torpedo} ‘torpedo’ (‘torpedo’)

(6) –\textit{odo} word endings
- \textit{acomodo} ‘acomodo’ (‘arrangement’)
- \textit{periodo} ‘periodo’ (‘period’)

(7) –\textit{udo} word endings
- \textit{agudo} ‘agudo’ (‘acute’)
- \textit{dudo} ‘dudo’ (‘doubt’)

The above data from my subject show that \( d \) is deleted in word-final –\textit{ado} and –\textit{ido}. However, the context of this deletion cannot be generalized to all words ending in –\textit{Vdo}, meaning –\textit{do} preceded by any vowel, as seen in the retention of \( d \) in (5), (6), and (7). While d-deletion occurs in \textit{ado} and \textit{ido} configurations, the paradigm in which \( d \) is deleted must be specifically word-final, as seen in the following spectrograph, which is of my informant’s representation of \textit{adorado} ‘adorao’ (‘adored’). Note that the \( d \) is deleted in the final –\textit{ado} but is retained in the initial \textit{ado}.

The following spectrograph shows an example of the retention of a word-final \( d \), in \textit{torpedo} ‘torpedo’ (‘torpedo’). There is a distinct contrast between the ending of this word, –\textit{edo}, and the ending of the spectrograph above, \textit{adorado} (‘adored’), –\textit{ao}.

<table>
<thead>
<tr>
<th>Spanish Word</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>callado</td>
<td>‘callao’ (‘silent’)</td>
</tr>
<tr>
<td>acabado</td>
<td>‘acabao’ (‘finished’)</td>
</tr>
<tr>
<td>ocupado</td>
<td>‘ocupao’ (‘occupied, busy’)</td>
</tr>
<tr>
<td>dormido</td>
<td>‘dormio’ (‘slept’)</td>
</tr>
<tr>
<td>recibido</td>
<td>‘recibio’ (‘received’)</td>
</tr>
<tr>
<td>torpedo</td>
<td>‘torpedo’ (‘torpedo’)</td>
</tr>
<tr>
<td>acomodo</td>
<td>‘acomodo’ (‘arrangement’)</td>
</tr>
<tr>
<td>periodo</td>
<td>‘periodo’ (‘period’)</td>
</tr>
<tr>
<td>agudo</td>
<td>‘agudo’ (‘acute’)</td>
</tr>
<tr>
<td>dudo</td>
<td>‘dudo’ (‘doubt’)</td>
</tr>
<tr>
<td>adorado</td>
<td>‘adorao’ (‘adored’)</td>
</tr>
</tbody>
</table>
The data from this section show that words which end in \(-ado/ido\) delete the \(d\). D-deletion can occur in past participle, adjectives, and other individual lexical words. I will discuss these in Section 6. As d-deletion most regularly occurs in past participle conjugations, the bulk of this paper will focus on that phenomenon.

\(-ado\) and \(-ido\) are the past participial endings in Spanish. The past participle is formed in Spanish by conjugating the verb \(haber\) (‘to have’) and changing the main noun to root + \(-ado\) for verbs ending in \(-ar\) and root + \(-ido\) for verbs ending in \(-er\) or \(-ir\). For example, ‘I have eaten’ is \(he\ comido\), where \(he\) is \(haber\) in first person singular and present tense, \(com\) is the root of \(comer\) (‘to eat’) and \(-ido\) is the past participial ending. As seen in \(apellido\) ‘apellio’ (‘last name’), d-deletion can occur outside the domain of past participial verb suffixes. These non-participial cases of deletion can be explained by spreading, to be discussed in Section 6.

1.6 Constraint for Consonant Deletion.

I propose to introduce a constraint, \(*VC(V)]\text{SUFFIX}\), which, properly ranked against some select established traditional constraints, allows for the deletion of \(d\) in the past-participle verb suffixes \(-ado\) and \(-ido\) to be the selected spoken outcome. \(VC(V)\) refers to situations in which a vowel is followed by a consonant and another optional vowel.

\(*VC(V)]\text{SUFFIX}: \text{No verb suffix can have a final consonant if the consonant is preceded by a vowel.}\)

The above constraint means that a consonant must be deleted if it is the final consonant in a verb suffix and if it is not preceded by a consonant. The final consonant can be word-final or can be followed by a vowel in the verb suffix.

2. Background

In order to account for d-deletion in Andalusian Spanish, the process must be considered in the broader context of all consonant deletion. Using OT, the ranking of constraints which selects for d-deletion in word-final verb suffixes must allow for the dialect’s other deletion processes to occur. D-deletion is not a distinct phonological process in Andalusian Spanish, but rather must be represented in relation to the
dialect’s general propensity to delete consonants.

2.1 Consonant Deletion Overview.

The consonants most commonly deleted in Andalusian Spanish are r, s, and d. R-deletion occurs most frequently when an r precedes an n or an l, or when an r is in word-final position. This deletion process is more commonly used by young female speakers or speakers with informal educational backgrounds (Díaz-Campos, 2008). Because it is word-final, r-deletion is very clear when Andalusian Spanish speakers use the infinitive form of a verb, which must end in –ar, -er, or –ir. The final n in a word is usually velarized, but is deleted by some speakers in words like hablar ‘habla’ (‘to speak’), hablan ‘habla’ (‘they speak’), hablas ‘habla’ (‘you speak’), and hablado ‘hablao’ (‘spoken’). Note that while all of these examples delete the final consonant, they do undergo different processes, like s-aspiration, in order to maintain their morphological contrasts. However, for the purpose of this paper, the subsequent changes which occur after deletion will not be considered. Rather, these examples are used to show a pattern of deletion in word-final consonants in Andalusian Spanish. More specifically, all of the examples above are in verb suffixes.

2.2 Deletion in Verb Suffixes.

Many of the above deletions occur in verb suffixes. For example, deletion of r, n, s, and d can be seen in hablar ‘habla’ (‘to speak’), hablan ‘habla’ (‘they speak’), hablas ‘habla’ (‘you speak’), and hablado ‘hablao’ (‘spoken’). Note that while all of these examples delete the final consonant, they do undergo different processes, like s-aspiration, in order to maintain their morphological contrasts. However, for the purpose of this paper, the subsequent changes which occur after deletion will not be considered. Rather, these examples are used to show a pattern of deletion in word-final consonants in Andalusian Spanish. More specifically, all of the examples above are in verb suffixes.

2.3 Defining Domain.

Since Andalusian Spanish appears to have a propensity to delete consonants in verb suffixes, the following analysis will separate words by root and affixes rather than by syllable boundaries. In the case of consonant deletion, and more specifically d-deletion in the past participle verb suffix, the only affixes being considered are verb suffixes. It has been argued that phonological changes can be tied to morpheme classes, as seen in base reduplication in Yoruba, where the reduplicant domain is only the base, or root, of the word (McCarthy & Prince, 1999). Henceforth words which aim to emphasize the distinction between root and suffix will be represented as root.suffix or ‘root.suffix’. Some of the constraints used in the OT analysis are domain-specific in order to

\[\text{While the n is usually velarized and not deleted, for the purposes of this analysis it is still being considered a deleted consonant in a verb suffix. Any variation between deleting and velarizing the n is being accounted for by the fact that it is a nasal, which commonly acts differently from other consonants.}\]
account for effects in the root of the word versus effects in the suffix of the verb.

3. THE PROBLEM: D-DELETION IN THE CONTEXT OF CONSONANT-DELETION

The deletion of the $d$ in the past participle verb suffix is evident in Andalusian Spanish. Since the phenomenon of deletion of the final consonant in the verb suffix is manifested with various other consonants, it appears that an analysis of d-deletion should consider these similar deletion processes in the dialect.

I will first analyze the specific circumstances in which consonant deletion in verb suffixes occur. A final consonant in a verb suffix is deleted in all cases with the following exceptions:

- The consonant is preceded by a consonant.
- The deletion of this consonant will create a long vowel.
- The final syllable of the word is stressed.

After creating a ranking of constraints which accounts for the context in which a final consonant is deleted in a verb suffix, I will narrow my analysis to d-deletion. Using the previously ranked constraints as well as some principled traditional constraints, I will analyze why d-deletion is the output for the suffixes –ado and –ido compared to other potential outputs for a conjugated verb in the past participle. Finally, I will explain other d-deletion occurrences in Andalusian Spanish through frequency and spreading.

4. RANKING OF CONSONANT-DELETION IN VERB SUFFIXES

Before determining why the $d$ is deleted in the past participle verb suffixes –ado/-ido, consonant deletion in verb suffixes must be contextualized. As noted in the background, in Andalusian Spanish consonants like $r$, $s$, $n$, and $d$ are deleted in certain places.

(8) cantar ‘canta’ (‘to sing’)  
bailas ‘baila’ (‘he dances’)  
hablan ‘habla’ (‘they speak’)  
acabado ‘acabao’ (‘finished’)

These examples show a clear propensity for Andalusian Spanish to delete the final consonant in verb suffixes. While other consonants are deleted in Andalusian Spanish, inside the domain of verb suffixes only final consonants have the potential to be deleted. All other consonants are retained. For example, in the verb suffix for the first person plural in the present tense, -amos/-emos/-imos, the $s$ is deleted, but the $m$ is retained.

There are three significant characteristics for all of the consonants deleted in verb suffixes in the examples above. These show that only in a specific context can the final consonant of a verb suffix be deleted$. First, the deleted final consonant is preceded by a vowel. Verb suffixes where the last consonant is preceded by a consonant, like the perfect simple preterit second person single endings –aste/-iste and the gerunds –ando/-iendo do not delete the final consonant. This means that for deletion to occur, the final consonant of a suffix must be preceded by a vowel. The reason may be that consonant clusters act differently from single consonants, as they have more complexity. Second, the verb suffixes which

3 Although some languages can stack suffixes, in the case of Andalusian Spanish verb suffixes, only one suffix can attach to the root verb. Therefore deleting the final consonant in a suffix is effectively the same as deleting the final consonant in the word.
delete the final consonant are not stress-final. Suffixes where the final consonant is in the stressed syllable, like the future first person singular viviré (‘I will live’), do not delete the final consonant. Third, when the final consonant of a verb suffix is between two of the same vowels, like in the preterit imperfect third person saltaba (‘he/she/it jumped’), the consonant is not deleted. Thus, in cases where the final consonant precedes a vowel, like in acabado (‘finished’), the deletion of the consonant does not cause a long vowel to occur.

The above situations can be accounted for with three constraints being properly ranked for Andalusian Spanish. These are *VC(V)SUFFIX, *LONGVOWEL, and IDENTSS.

*VC(V)SUFFIX: No verb suffix can have a final consonant if the consonant is preceded by a vowel.

*LONGVOWEL: No vowel can follow the same vowel (Zoll, 1998; Baković, 2006; Rosenthall, 1994).

IDENTSTRESSEDSYLLABLE (IDENTSS): All features in input of the stressed syllable are present in the output of the stressed syllable.4

While *VC(V)SUFFIX justifies the deletion of final consonants in the verb suffixes of Andalusian Spanish, the language’s aversion to long vowels ranks above its propensity to delete, which explains why, while the d in acabado is deleted, the b in cantaba is retained. Below *LONGVOWEL is show in a pairwise ranking dominating *VC(V)SUFFIX. Henceforth all situations where Constraint X dominates Constraint Y will be represented as X >> Y, as in *LONGVOWEL >> *VC(V)SUFFIX.

(2) *LONGVOWEL >> *VC(V)SUFFIX

<table>
<thead>
<tr>
<th>SUFFIX</th>
<th>*LONGVOWEL</th>
<th>*VC(V)SUFFIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>cant.aba (‘he was singing’)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cant.aa</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>cant.aba</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

‘cant.aa’ violates *LONGVOWEL because the deletion of the b creates the long vowel ‘aa’. ‘cant.aba’ violates *VC(V)SUFFIX, as the b is the final consonant in a verb suffix and is preceded by a vowel, and yet it is not deleted.

Also ranked above *VC(V)SUFFIX is IDENTSS, meaning that maintaining the original features of the stressed syllable outranks deletions. In the below example, the final syllable of cantaré (‘I will sing’) is stressed, and as noted above, features in stressed syllables are not deleted.

(3) IDENTSS >> *VC(V)SUFFIX

<table>
<thead>
<tr>
<th>SUFFIX</th>
<th>IDENTSS</th>
<th>*VC(V)SUFFIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>cant.aré (‘I will sing’)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cant.aé</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>cant.aré</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

‘cant.aé’ violates IDENTSS, as the deleted r is from the stressed syllable ré. ‘cant.aré’ violates *VC(V)SUFFIX because the r is a final consonant, preceded by a vowel, and in a verb suffix, and yet it is not deleted.

By ranking *LONGVOWEL and IDENTSS above *VC(V)SUFFIX, the analysis shows the specific circumstances where deleting the final consonant in the verb suffix is outranked, and therefore does not occur.

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4 I acknowledge that this constraint likely covers a family of stress constraints which, when properly ranked for Andalusian Spanish, will cause stressed syllables to retain all features. For brevity’s sake, and as this paper does not delve into the stress system for syllables in Andalusian Spanish, I will simply use IDENTSS.
5. SELECTING FOR D-DELETION

In the specific case of d-deletion, additional constraints are required to show why deleting the d in –ado/-ido outranks other potential outputs of a conjugated verb in the past participle. The ranked constraints above signal when deletion will occur, but other constraints play a role in Andalusian Spanish as well. This section will use the verb acabado (‘finished’) as an example to show why deleting the d, which forms ‘acab.ao’, is selected above other possible spoken forms.

Potential outputs of acabado:

‘acab.ado’
‘acab.ao’ → actual output
‘aca.ado’
‘aca.ao’
‘acaob.ado’
‘acab.adao’
‘acaob.adao’

If in fact Andalusian Spanish does not want to have a VCV verb suffix ending, one possibility is to insert a vowel. Some languages, like Japanese, insert in order to create the desired output (Itô & Mester, 1986). To my knowledge Andalusian Spanish has no forms of insertion, and therefore insertion does not seem to be the preferred way of dealing with phonotactic preferences in general. Thus, the potential forms of acabado that use insertion—‘acaob.ado’, ‘acaob.adao’, and ‘acaob.adaao’—would be ruled out. From this I can assume that the family of dependence constraints is very highly ranked so that it is never—or at least rarely—violated. Dependence constraints, henceforth referred to as DEP, are constraints which require that every element in the output has a correspondent in the input. Because of this assumption, the last three listed potential spoken forms of acabado, ‘acaob.ado’, ‘acaob.adao’ and ‘acaob.adaao’, would never be selected, as they would always violate a highly-ranked DEP constraint.

Other potential outputs for acabado are ‘aca.ado’ and ‘aca.ao’, as consonants are commonly deleted in Andalusian Spanish. While deleting any consonant seems like a potential possibility, in fact the consonants which are deleted outside of the verb suffix are all sonorants, like s and r. Thus, there is no evidence of obstruents being deleted in the root. This observation suggests that MAX-OBSROOT, is highly ranked. MAX-OBSROOT, defined below, is a maximality (MAX) constraint. A general MAX constraint requires that every element in the input has a correspondent in the output, or more simply, requires that no deletion occurs (Kager, 1999).

To determine why ‘acab.ao’ is preferred above acabado, the constraint *VC(V)SUFFIX must out-rank any faithfulness constraints which affect verb suffixes.

The following constraints will be used to show why ‘acab.ao’ is selected over other potential spoken forms of acabado:

MAX-OBSROOT: Every obstruent of the root of the input has a correspondent in root of the output.
MAXSUFFIX: Every segment of the suffix of the input has a correspondent in the suffix of the output

IDENT: All features in the input are in the output, and all features in the output are in the input

The tableau below shows that Andalusian Spanish allows for the deletion of the d in ‘acab.ao’ and prohibits the deletion of the b in ‘aca.ado’ through the constraint ranking MAX-OBSROOT >> MAXSUFFIX.

(5) MAX-OBSROOT >> MAXSUFFIX

<table>
<thead>
<tr>
<th>acab.ado (‘finished’)</th>
<th>MAX-OBSROOT</th>
<th>MAXSUFFIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>acab.ado</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>acab.ao</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

‘aca.ado’ violates MAX-OBSROOT because the obstruent b is deleted in the root acab. MAXSUFFIX is violated by ‘acab.ao’ because a segment, in this case the d, is in the input of the suffix but not the output.

Since MAXSUFFIX is outranked by MAX-OBSROOT and any DEP constraints, ‘acab.ao’ is selected over any potential output which uses epenthesis or which deletes obstruents in the root. In order to justify why ‘acab.ao’ should be selected over the input, acab.ado, *VC(V)SUFFIX must be shown outranking a principled faithfulness constraint, IDENT.

(6) *VC(V)SUFFIX >> IDENT

<table>
<thead>
<tr>
<th>acab.ado (‘finished’)</th>
<th>*VC(V)SUFFIX</th>
<th>IDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>acab.ado</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>acab.ao</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

‘acab.ado’ violates *VC(V)SUFFIX because the consonant d is the final consonant in the verb suffix and also is preceded by a vowel, yet it remains in the output. ‘acab.ao’ violates IDENT because the d-feature is not in both the input and the output.

All of the constraints used above can be combined into one large ranking which explains why ‘acab.ao’ is the spoken form of acab.ado in Andalusian Spanish and how it outranks all the other options of how to say the past participle form of this verb. The following ranking is not only for acab.ado, but also an analysis of the deletion of the final d in all past participle verb suffixes in Andalusian Spanish.

(7) *LONGVOWEL, IDENTSS >> *VC(V)SUFFIX, MAX-OBSROOT >> MAXSUFFIX, IDENT

<table>
<thead>
<tr>
<th>acab.ado (‘finished’)</th>
<th>*LONGVOWEL</th>
<th>IDENTSS</th>
<th>*VC(V)SUFFIX</th>
<th>MAX-OBSROOT</th>
<th>MAXSUFFIX</th>
<th>IDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>acab.ado</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>acab.ao</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>acab.ado</td>
<td></td>
<td>*</td>
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<tr>
<td>acaba.ado</td>
<td>*</td>
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<td>*</td>
</tr>
<tr>
<td>aca.ado</td>
<td>*</td>
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The ranking of these constraints can also be expressed in this manner:

\[
\begin{align*}
*\text{LONGVOWEL}, \text{IDENT}_{SS} \\
*\text{VC}(V)]\text{SUFFIX}, \text{MAX-OBSROOT} \\
\text{MAXSUFFIX}, \text{IDENT}
\end{align*}
\]

6. **SPREADING OF D-DELETION**

The ranking of constraints above accounts for the deletion of d in the –ado and –ido paradigm. While the past participle verb suffix is the only situation in which the d is deleted almost always by speakers of Andalusian Spanish, some speakers will d-delete for certain other words. The following data is from my personal observations while in Córdoba of words which end in –ado and –ido, where these endings are not verb suffixes. In these cases, the ranking of constraints would not account for the d-deletion, as *VC(V)]SUFFIX would not apply. Note that while not every speaker of Andalusian Spanish will delete the d in the output, the following words have the potential to delete the final d.

(9) apellido ‘apellio’ (‘last name’)  
pescado ‘pescao’ (‘fish’)

The above cases delete the d despite the lack of morphological break between root and suffix. While the d is deleted in these cases, a rule cannot be posited that every d which follows an a or an i and precedes an o should be deleted. For example, the adjective *definido* (‘definite’) does not often delete the d. The d-deletion which occurs when words end in –ado or –ido without these endings being verb suffixes can be explained through spreading. The past participle is a relatively common verb tense to use in Spanish, and deletion of sounds in past participles occurs in other dialects of the language (Bybee, 2002). Because of the frequency with which speakers use the past participle, d-deletion occurs the paradigm of –ado and –ido frequently. Since d-deletion transpires readily in Andalusian Spanish, the speakers are accustomed to the lack of the d when words end in –ado and –ido. Thus, when this situation occurs outside of a verb suffix, speakers spread the use of d-deletion to the final d in these frequently used words.

D-deletion is also observable in a few other cases which are similar to the –ado and –ido paradigm. The examples below show that d-deletion has also spread to words where the final d is preceded by a u and followed by an o:

(10) peludo ‘peluo’ (‘hairy’)  
a menudo ‘a menuo’ (‘often’)

The above data show the spreading effect of d-deletion because of the frequency of use of the past participle. However, the same informant who said ‘peluo’ for *peludo* (‘hairy’) also said ‘agudo’ for *agudo* (‘acute’). The spreading of d-deletion to other words should not be considered a formal rule, but rather a possible occurrence.

7. **CONCLUSION**

The proclivity of consonant deletion in Andalusian Spanish is apparent in the verb suffixes, where the final s, r, n, and d are regularly deleted. Most speakers delete the final d in the past participial verb suffix, which can be accounted for in the larger

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5 The –ado in *pescado* is a past participial verb suffix in the case of conjugating the verb *pescar* (‘to fish’) into *pescado* (‘fished’). However, even in the noun form of *pescado* (‘fish’), where –ado is not a verb suffix, the d is deleted to create ‘pescao.’
paradigm of deletion in verb suffixes through the introduction of the constraint \(*VC(V)_{\text{SUFFIX}}\). When correctly ranked against select traditional constraints, \(*VC(V)_{\text{SUFFIX}}\) represents the presence of final-consonant-deletion in verb suffixes. D-deletion occasionally happens outside of verb suffixes, which can be justified through the frequent use of the domain in which d-deletion occurs and its subsequent spreading to similar positions in words. The deletion of \(d\) in Andalusian Spanish occurs because the morphology of the verb suffix triggers a phonological process of deletion, which subsequently has spread to comparable locations without morphological breaks.

8. REFERENCES


9. **APPENDIX**

Words referenced from informant recordings:

- accurado  ‘acabao’  (‘finished’)
- acomodo  ‘acomodo’  (‘arrangement’)
- agudo  ‘agudo’  (‘acute’)
- apellido  ‘apellio’  (‘last name’)
- callado  ‘callao’  (‘silent’)
- dormido  ‘dormio’  (‘slept’)
- dudo  ‘dudo’  (‘doubt’)
- ocupado  ‘ocupao’  (‘occupied, busy’)
- para  ‘pa’  (‘for’)
- peludo  ‘peluo’  (‘hairy’)
- periodo  ‘periodo’  (‘period’)
- pescado  ‘pescao’  (‘fish’)
- recibido  ‘recibio’  (‘received’)
- todo  ‘to’  (‘all’)
- torpedo  ‘torpedo’  (‘torpedo’)

All other examples which are not specifically cited in this paper are from personal observations.