

Exceptionality in Spanish Stress*

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Abstract

Stress in vowel-final non-verbs in Spanish regularly falls on the penultimate syllable, while stress in consonant-final words regularly falls on the final syllable. There are two main classes of exceptions to this regularity: stress on the syllable preceding the regular one, and stress on the syllable following the regular one. Harris (1983) provides arguments that the second class of exceptions is morphologically systematic, but falls short of the stronger claim that this pattern is simply a subcase of the regular stress pattern. I argue here that there is much to be gained from this stronger claim, including a simple and elegant analysis of the first class of exceptions.

Keywords: Spanish; stress; exceptions; derivational stem; word

Resum. *Excepcionalitat en l'accent de l'espanyol*

L'accent en les formes no verbals de l'espanyol acabades en vocal cau regularment sobre la penúltima síl·laba, mentre que l'accent en paraules acabades en consonant cau regularment sobre l'última síl·laba. Hi ha dues classes principals d'excepcions a aquesta regularitat: accent en la síl·laba que precedeix la que tindria l'accent regularment i accent en la síl·laba que segueix la que el tindria regularment. Harris (1983) argumenta que la segona classe d'excepcions és morfològicament sistemàtica, però no arriba a defensar la posició més forta que aquest patró és simplement un subcas del patró regular. Aquí argumente que s'hi pot guanyar molt amb aquesta afirmació més forta, incloent-hi una anàlisi més senzilla i elegant de la primera classe d'excepcions.

Paraules clau: espanyol; accent; excepcions; radical derivatiu; mot

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1. Introduction

This paper focuses on the placement of main stress in a significant subset of Spanish non-verbs, henceforth ‘words’. Stress in vowel-final words in Spanish regularly falls on the penultimate syllable (e.g. *cuádro* ‘frame’), while stress in consonant-final words regularly falls on the final syllable (e.g. *ladrón* ‘burglar’).¹ There are two main classes of exceptions to this regularity:

- (1) stress on the syllable preceding the regular one (i.e., antepenultimate stress in vowel-final words, penultimate stress in consonant-final words), and
- (2) stress on the syllable following the regular one (i.e., final stress in vowel-final words).

A third class of exceptions consists of a handful of relatively uncommon words (e.g. *régimen*, *espécimen*, *interin*), plus some loanwords and proper/place names discussed in §3.2, that distinguish themselves further by ending in a consonant but having antepenultimate stress. These words are thus exceptions to the class of exceptions noted in (1), and are identified as ‘Class X’ in the summary table in (3). I’ll have nothing substantive to say about Class X words in this paper; see instead Roca (1988, 2005, 2006) and Oltra-Massuet & Arregi (2005).

(3)

	Regular	Exceptional		
		Class (1)	Class (2)	Class X
<i>V-final words</i>	penultimate ... <i>’σ</i> # sabána ‘savannah’	antepenultimate ... <i>’σσ</i> # sábana ‘sheet’	final ... <i>’σ</i> # Panamá ‘Panama’	
<i>C-final words</i>	final ... <i>’σ</i> # animál ‘animal’	penultimate ... <i>’σ</i> # caníbal ‘cannibal’		antepenultimate ... <i>’σσ</i> # régimen ‘diet’

1. Spanish orthography is used throughout; main stress is always indicated. Words ending in the plural suffix *-(e)s* are systematically stressed on the same syllable as the corresponding singular: *cuádro* ~ *cuádro*s, *ladrón* ~ *ladró*nes. Notable exceptions are a few examples with ‘moveable stress’ like *régimen* ~ *régimenes* ‘diet(s)’ and *carácter* ~ *caracté*res ‘character(s)’; see the Appendix of Harris (1983) as well as Roca (1988, 2005, 2006) for discussion.

Harris (1983) provides compelling arguments for his claim that Class (2) exceptions are morphologically systematic, but falls short of the stronger claim that the pattern exhibited by this class is simply a subcase of the regular stress pattern. This stronger claim is summarized in the table in (4), in which Class (2) ‘exceptions’ are now listed as a subcase of the regular pattern.

(4)

	Regular		Exceptional	
			Class (1)	Class X
<i>V-final words</i>	penultimate ...’σσ# sabána ‘savannah’	final ...’σ# Panamá ‘Panama’	antepenultimate ...’σσσ# sábana ‘sheet’	
<i>C-final words</i>		final ...’σ# animál ‘animal’	penultimate ...’σσ# caníbal ‘cannibal’	antepenultimate ...’σσσ# régimen ‘diet’

I argue here that there is much to be gained from the stronger claim summarized in (4), including a simple and elegant analysis of Class (1) exceptions. The argument is built up without particular theoretical commitments in sections 2 through 4, establishing in particular that Spanish stress assignment is quantity insensitive (see also Ohannesian 2004; Piñeros, forthcoming) and that its domain is the derivational stem rather than the word (Hooper & Terrell 1976; Roca 1988, 2005, 2006). This is followed in section 5 by an analysis of Class (1) exceptions in terms of lexically-indexed constraints (Pater 2000, 2010) within Optimality Theory (Prince & Smolensky 2004).

The commitment to the stronger claim in (4) is shared by Roca (2006), who also employs lexically-indexed constraints in his account of Class (1) exceptions and further extends their use to account for Class X exceptions. This extension, as well as other differences in assumptions and expositional choices, lead Roca (2006) to a very different analysis than the one presented here. The present work is distinguished by its focus on the details of the consequences of the stronger claim in (4) for the analysis of Class (1) exceptions without the possibly confounding burden of aiming in addition for broader empirical coverage by tackling Class X exceptions as well.²

2. Regular stress and Class (2) ‘exceptions’

2.1. Regular stress: vowel-final words with penultimate stress

We start with Harris’s (1983: 91) key observation that vowel-final words with penultimate stress end in a terminal element (TE), generally a vowel *-o*, *-a*, or *-e*

2. An anonymous reviewer also points me to the indexed constraint analysis of Meinschaefer (2015), which differs in crucial respects from the analysis of Roca (2006) but aims for similarly broad empirical coverage.

(but sometimes a *-Vs* sequence) and typically associated with gender marking. The TE is always the last morpheme before the (inflectional) plural suffix. In the morphological analysis of Harris (1983), a TE is affixed directly to a *derivational stem* (henceforth referred to simply as ‘stem’). In the examples below, square brackets indicate word boundaries (preceded by the TE) and parentheses indicate stem boundaries.³ Note that the form of the TE associated with a given lexical root may vary in different morphological contexts; e.g. there is an *-o* in *máno* ‘hand’ but an *-a* in *maníta* ‘hand (dim.)’.⁴

- | | | | | | | |
|--------|-----------|----------------|-------------|--------------|-------------------|--------------------|
| (5) a. | [(páp)-a] | ‘potato’ | f. | [(pap+ít)-a] | ‘potato (dim.)’ | |
| | b. | [(mán)-o] | ‘hand’ | g. | [(man+ít)-a] | ‘hand (dim.)’ |
| | c. | [(bandíd)-o] | ‘bandit’ | h. | [(bandid+ít)-o] | ‘bandit (dim.)’ |
| | d. | [(candidát)-o] | ‘candidate’ | i. | [(candidat+ít)-o] | ‘candidate (dim.)’ |
| | e. | [(léj)-os] | ‘far’ | j. | [(lej+án)-o] | ‘distant’ |

2.2. Regular stress: consonant-final words with final stress

Stress on consonant-final words is regularly final, as shown in (6a-c). Harris (1983: 91) argues that these words don’t have a TE; under derivational affixation (6d-f), a TE is added and stress once again follows the penultimate pattern.

- | | | | | | | |
|--------|-----------|------------|----------|-----------------|-----------------|-----------------|
| (6) a. | [(paréd)] | ‘wall’ | d. | [(pared+cít)-a] | ‘wall (dim.)’ | |
| | b. | [(salón)] | ‘lounge’ | e. | [(salon+cít)-o] | ‘lounge (dim.)’ |
| | c. | [(animál)] | ‘animal’ | f. | [(animal+ít)-o] | ‘animal (dim.)’ |

2.3. Class (2) ‘exceptions’: vowel-final words with final stress

Harris (1983: 116-119) further claims that vowel-final words with final stress (7a-c) also lack a TE, just like the consonant-final words in (6a-c). Support for this view comes from the fact that the final vowel of unaffixed words remains under derivational affixation (7d-f), after which other TEs are added — again, just like the consonant-final words in (6d-f).⁵

- I represent the boundary between stems and derivational suffixes with ‘+’ rather than with the recursive stem structure given in Harris (1983: 92); I am agnostic on this point of morphological structure.
- Several anonymous reviewers remind me that diminutive formation is not as straightforward a diagnostic of the relation between TEs and the derivational stem as is implied in the text; see e.g. Smith (2011) and references therein. One reviewer cites examples with *-e* such as *cálla* ‘street’ ~ *callecíta* ‘street (dim.)’, which Colina (2003) takes as evidence that the *-e* is (or has been reanalyzed as) epenthetic, not a TE. Still, the reviewers’ point is well taken.
- The invariable presence of the stem-final vowel in this class of forms is not exceptionless, however; compare (7c,f) with [(Panamá)] ‘Panama’ ~ [(Panam+éñ)-o] ‘Panamanian’. This can be reasonably attributed to vowel deletion under hiatus (cf. [(habl+a)-r] ‘to talk’ ~ [(habl)-o] ‘I talk’); in the case

- | | | | | | | |
|--------|----------------------|------------------------|----------|----------------------------|------------------------------|-----------------|
| (7) a. | [(caf \acute{e})] | ‘coffee’ | d. | [(caf \acute{e} +cít)-o] | ‘coffee (dim.)’ | |
| | b. | [(domin \acute{o})] | ‘domino’ | e. | [(domin \acute{o} +cít)-o] | ‘domino (dim.)’ |
| | c. | [(Per \acute{u})] | ‘Peru’ | f. | [(Per \acute{u} +án)-o] | ‘Peruvian’ |

3. The domain of regular stress

3.1. *Stem vs. word*

All of the examples illustrated in (5), (6), and (7) can be taken to be subcases of a regular stress pattern in Spanish, the generalization for which is stated in (8). This generalization can be credited to Hopper & Terrell (1976); see also Roca (1988, 2005, 2006).

- (8) Stress is final in the stem.

Note that (8) accounts for penultimate stress in TE-final words (5), (6d-f), and (7d-f) as well as for final stress in words without a TE, whether consonant-final (6a-c) or vowel-final (7a-c). Despite the generality of this analysis, Harris (1983: 94-95) rejects (8) in favor of (9).

- (9) Stress is penultimate in the word.

The key difference here is that (8) claims the domain of stress to be the stem, while (9) claims it to be the word. (9) must thus state that stress is penultimate, to ignore the TE that separates the right edge of the stem from the right edge of the word. This accounts for regular penultimate stress in the TE-final words in (5), (6d-f), and (7d-f).

3.2. *Quantity sensitivity*

But of course an analysis in terms of (9) must be supplemented in order to account for final stress in words without a TE. Let’s start with the consonant-final words in (6a-c). In order to account for these, the following further condition is introduced, paraphrased from Harris (1983: 111).

- (10) Branching rhymes must be stressed.

In Harris’s (1983: 22-31) analysis of the syllable structure of Spanish, closed syllables (syllables with VC rhymes) have a branching rhyme. Consonant-final words (6a-c) must thus be stressed on the final syllable by (10), overriding the penultimate stress demanded by (9).

of (7f), the final *u* of the derivational stem is high and can thus be glided instead. An anonymous reviewer helpfully points me to Bermúdez-Otero (2006, 2013) for a different morphophonological analysis of stem-final vowel deletion, based on a very different morphological analysis of derivational affixation; see now also Myler (2015) for arguments against this morphological analysis.

On the face of it, the generalization in (8) is more straightforward than the one in (9), which requires an overriding condition (10). However, Harris argues that (10) is independently required to explain the placement of stress in Spanish. In addition to syllables with VC rhymes, there are two other types of syllables with branching rhymes in Spanish: syllables with rising-sonority diphthongs (V̄V rhymes, as in *cuádro* ‘frame’) and syllables with falling-sonority diphthongs (V̄V̄ rhymes, as in *cáusa* ‘cause’). Harris (1983: 88-90) asserts that all three of these branching-rhyme types, when in penultimate position, absolutely preclude antepenultimate stress (e.g. *molésto*, **mólesto* ‘annoying’; *manióbra*, **mániobra* ‘maneuver’; *dinosáurio*, **dinósaurio* ‘dinosaur’) — that is, that vowel-final words with penultimate branching rhymes cannot be Class (1) exceptions. This fact is the independent evidence adduced for the necessity of (10).

There are several well-known difficulties with (10), however, which I briefly note here along with comments on their varying degrees of potential surmountability.

- (i) As pointed out by Roca (1988: 416-418), there do in fact exist some words with penultimate branching rhymes but antepenultimate stress (e.g. *Frómista*, *Róbinson*, *Wáshington*, *Mánchester*). But these are rare, largely loanwords, and primarily proper/place names.⁶
- (ii) Word-final V̄V rhymes, but not V̄V or VC, also absolutely preclude penultimate stress (e.g. *convóy*, **cónvoy* ‘convoy’) — that is, there are no Class (1)-style exceptions for V̄V-final words. This requires a separate override for (9), to be discussed in §3.3 below.
- (iii) Word-final V̄V rhymes also appear to absolutely preclude antepenultimate stress, even if they themselves are not stressed (e.g. *princípio*, **príncipio* ‘beginning’), which (10) cannot account for. Harris (1983: 131-135) also notes that VC-final words with antepenultimate stress (e.g. *régimen* ‘regimen’, *espécimen* ‘specimen’, *interin* ‘interim’) are rare, and on the basis of their “movable stress” (e.g. *especímenes* ‘specimens’) he concludes that these forms are “extragrammatical” (Harris 1983: 132); this is also not accounted for by (10).⁷
- (iv) Antepenultimate stress is also (judged to be) impossible in words the final onset of which is a trill (e.g. *chamárra*, **chámarrá* ‘jacket’). Harris (1969, 1983, 2001, 2002) analyzes the trill as (underlyingly) geminate for a variety of

6. Harris (1983: 148, note 10) notes the word *alícuota* ‘aliquot’, dismissing it as a unique form that “the overwhelming majority of speakers have never encountered” but also speculating that “we are [perhaps] dealing with the rounded velar segment *kʷ* rather than the sequence *ku*.” There is no such speculation available for the words in (i).

7. In this case, Harris (1983: 148, note 10) points to the unique (but not necessarily infrequent) word *ventrílocuo* ‘ventriloquist’, again dismissing it but speculating that it might end in *kʷo*, not *kuo*.

An anonymous reviewer points out that words such as *análsis* ‘analysis’ and *páncreas* ‘pancreas’ also fall into the class of VC-final words with antepenultimate stress. The final VC in these cases is a TE (cf. [(*anális*+áz)-o] ‘analysis (aug.)’, [(*pancrea*+tít)-is] ‘pancreatitis’), and these thus represent straightforward Class (1) exceptions.

reasons, including this one. But this analysis does not (independently) extend to palatals, all of which also appear to preclude antepenultimate stress from the same position (e.g. *campáña*, **cámpaña* ‘campaign’; *cabálla*, **cáballe* ‘horse’; *cobáyo*, **cóbayo* ‘guinea pig’; *estúche*, **éstuche* ‘case’).⁸

- (v) Syllables with branching rhymes in antepenultimate position are expected by (10) to be stressed — especially when both the penultimate and final syllable rhymes are not branching — but alongside *náufrago* ‘castaway’ (antepenultimate VY rhyme), *periódico* ‘newspaper’ (antepenultimate YV rhyme), and *báscula* ‘scales’ (antepenultimate VC rhyme), we have *bautizo* ‘christening’, *biblioteca* ‘library’, and *castigo* ‘punishment’.⁹ These latter examples are (generally taken to be) regular, the former Class (1) exceptions.

In sum, while the evidence for quantity sensitivity in Spanish stress is highly suggestive, it is not as solid (nor as internally consistent) as it is frequently made out to be. The argument that (10) is independently motivated, then, is without much force; the stem-domain analysis in (8) thus has more to recommend it than the word-domain (9)+(10) analysis.

3.3. Coextensive domains

Even with the help of (10), (9) does not account for final stress in vowel-final words (7a-c). So why does Harris reject (8) in favor of (9)? There are two main arguments. The first argument has to do with the cyclic assignment of Spanish stress, which I will not address here. The second, stronger argument has to do with the consistently penultimate stress of (bisyllabic) prepositions (as pronounced in isolation, (11)) and productive truncations (12). Stress in these two sets of forms is clearly penultimate in the word and clearly not final in the stem, hence they are consistent with (9) (with or without (10)) and not with (8).

(11) a. [pára] ‘for’ c. [désde] ‘since’

b. [hásta] ‘until’ d. [sóbre] ‘over’

(12) a. [(múñe)] ‘doll’ (< *muñeca*) c. [(prófe)] ‘professor’ (< *profesor*)

b. [(árqui)] ‘architect’ (< *arquitecto*) d. [(Máuri)] ‘Maurice’ (< *Mauricio*)

Note that I follow Harris (1983: 94) in assuming that prepositions “have no derivational stem [because] there is no deprepositional or adprepositional deriva-

8. See Baković (2009) for a thorough review and critique of the various arguments that Harris has presented in favor of the analysis of the trill as underlyingly geminate. Lipski (1990: 168) and Hualde (2004: 391) have pointed out that all of these apparently stress-attracting singleton consonants are historically derived from geminates and heterosyllabic clusters in Latin, which would have been expected to attract stress; see also Roca (1988: 417).

9. The only branching antepenultimate rhymes that appear to allow *final* stress are VC rhymes (e.g. *bisturí* ‘scalpel’).

tional morphology”.¹⁰ Truncations, on the other hand, are assumed here to have such structure because they can be further derived; e.g., [(*profe+cít*)-*o*] ‘professor (dim.)’. (Harris (1983) says nothing about the possible internal structure of truncations.) The relevance of this point will be clear in a moment.

In order to bring final stress on the vowel-final forms in (7a-c) into the fold, then, Harris (1983: 118) proposes the rule paraphrased in (13) which, like (10), is in addition to and overrides (9).

- (13) A rhyme ending in a vocoid (= a [–consonantal] segment) that is final both in the stem and the word must be stressed.

Because prepositions (11) have no stem, (13) is irrelevant to them and so they are correctly assigned penultimate stress (when pronounced in isolation) by (9). But truncations (12) *do* have a stem, and so they would be *incorrectly* assigned *final* stress by (13). In other words, something additional must be said about truncations under either the stem-domain analysis in (8) or Harris’s (9)+(13) word-domain alternative, both of which incorrectly predict that truncations should be stressed on the final syllable. A likely candidate for that additional something is that truncation fits a(n unmarked) bisyllabic trochee template (Prieto 1992; Lipski 1995; Colina 1996; Piñeros 1998, 2000a, 2000b; Feliú 2001), but see the end of §5.4 for an alternative possibility.

This leaves prepositions as pronounced in isolation, about which Harris (1983: 94) has the following to say: “Normally — that is, in nonmetalinguistic discourse — prepositions are stressless in Spanish; they are proclitics to their object. [...] It might be countered that penultimate main stress of prepositions in isolation is (somehow) a reflection of their usual nonprimary stress in phrases”. I accept this counterargument and claim, without further discussion, that the stress of prepositions as pronounced in isolation (11) is irrelevant to the choice between (8) and (9)+(13). Given that truncations (12) require something additional under either analysis, this leaves the fact that (8) accounts directly for final stress in vowel-final forms (7a-c) while Harris’s alternative has to be complicated with (13) in addition to (9) in order to account for these forms.

But Harris (1983: 118-119) points out “an unexpected bonus” provided by (13): the fact noted in (ii) above, that VY-final words have no Class (1)-style exceptions (i.e., that word-final VY rhymes, such as in *convóy* ‘convoy’, are stressed without exception). Recall from §2.1 that TEs are either vowels (*-o*, *-a*, or *-e*) or, sometimes, *-Vs* sequences. Words ending in VY rhymes thus end in sequences that cannot be (and demonstrably are not) TEs, which means that the final syllable of such words — being both word-final and stem-final — will be correctly stressed

10. An anonymous reviewer notes that “it seems that (at least complex etymologically denominal) prepositions like *delante de* or *frente a* may, at least in certain varieties, undergo diminutive formation: *delantito de*, *frentito a*.” As the reviewer notes, this supports the analysis pursued here. While I agree with the reviewer that “[this] paper might profit from a more thorough discussion of Spanish morphological structure”, I defer to the limitations of space.

by (13). Even if the final \check{V} of any of these words is marked as extrametrical (as in Harris's analysis of Class (1) exceptionality; see §4 below), the preceding V satisfies the structural description of (13) and stress is still assigned on the final syllable.

I submit the following alternative analysis of $V\check{V}$ -final words, consistent with (8). First, I assume that — for the purposes of stress assignment, at least — $V\check{V}$ rhymes are treated as VV sequences. (Note that this is also a covert assumption behind (13), which refers to [–consonantal] *vocoids*, not vowels more specifically.) If the stress pattern of a $V\check{V}$ -final word is regular, stress is assigned by (8) to the final second vocoid, but because the sequence is ultimately realized monosyllabically as $V\check{V}$, the stress is realized on the more sonorous first vocoid. If the stress pattern of the word is Class (1) exceptional, stress is assigned to the penultimate first vocoid, where it is also realized. Antepenultimate stress when a word ends in a $V\check{V}$ rhyme is thus precluded.¹¹

3.4. *Verdict: the domain of stress in Spanish is the stem*

I conclude this section by accepting the stem-domain analysis in (8) as the correct analysis for all of the forms in (5), (6), and (7). The 'exceptions' in (7a-c) heretofore classified as Class (2) exceptions are not exceptions at all, not even under the 'systematic exceptions' interpretation that is granted to these forms under Harris's (9)+(13) word-domain alternative — not to mention the fact that the word-domain alternative also has to be complicated by (10) to account for final stress in consonant-final forms (6a-c), something that (8) also accounts for without further ado.

As pointed out in this section, however, this analysis is not without its own potential challenges, the most obvious being that it diminishes — if not rejects — the role of quantity sensitivity in the analysis of Spanish stress. If final stress in consonant-final forms (6a-c) is due to the fact that the final syllable in such forms is stem-final and not to the fact that such syllables have branching rhymes, then (10) is unnecessary to account for them. In §3.2 I noted five independent difficulties faced by the assumption that Spanish stress is quantity sensitive; following Roca (1988), my view is that these challenges outweigh those faced by the quantity insensitive alternative advanced here.¹² We arrive at the same conclusion, though via different paths: in Roca (1988), the main path is a reassessment of Harris's (1983) theoretical assumptions about extrametricality (about which see §4 below), whereas here the main path is a reassessment of Harris's (1983) empirical arguments and their consequences for the basic elements of the analysis.

11. It must of course be the case that final $\check{V}V$ rhymes are *not* also (reliably) treated as VV sequences for the purposes of stress assignment (*pace* Roca 2006: 252). As mentioned in both notes 6 and 7 above, at least some $\check{V}V$ sequences have an alternative segmental (and thus syllabic) analysis that merits more attention than I am in a position to give here, one in which the \check{V} is not a vocoid but rather a secondary articulation on the preceding onset consonant.
12. See now also Piñeros, forthcoming. Thanks to an anonymous reviewer for pointing me to this work.

4. Class (1) exceptions

Acceptance of the stem-domain analysis in (8) leaves the exceptions classified under (1): stress on the syllable preceding the regular one, now understood as stress on the penultimate syllable of the stem. Near-minimal contrasts are given in (14): regularly stressed forms in (14a-e) and Class (1) exceptionally stressed forms in (14f-j).

- | | | | |
|---------------------|------------|------------------|-------------|
| (14) a. [(molín)-o] | ‘windmill’ | f. [(cómic)-o] | ‘comic(al)’ |
| b. [(sabán)-a] | ‘savannah’ | g. [(sában)-a] | ‘sheet’ |
| c. [(pistól)-a] | ‘pistol’ | h. [(epístol)-a] | ‘epistle’ |
| d. [(animál)] | ‘animal’ | i. [(caníbal)] | ‘cannibal’ |
| e. [(paréd)] | ‘wall’ | j. [(huésped)] | ‘guest’ |

I take it to be uncontroversial that the contrasting pairs in (14) must be arbitrarily distinguished somehow in the lexicon; that is, that Class (1) stress as exemplified by (14f-j) is in fact an exceptional pattern as compared to the regular pattern exemplified by (14a-e). Harris (1983), armed with the (9)+(10)+(13) word-domain analysis, proposes to mark the rightmost segment of the stem of Class (1) exceptions as extrametrical, the ultimate result of this marking being that stress is assigned by (9) one syllable to the left of the regular syllable in (14f-j).

There is much more to the (frought) issue of extrametricality as it has been employed in the analysis of Spanish stress than space allows for here; the interested reader should consult, in chronological order (and among others), Harris (1983), Den Os & Kager (1986), Roca (1988), and Harris (1988).¹³ Most relevant to the present paper is that the (lexically arbitrary) assignment of extrametricality must be restricted to single, stem-peripheral segments. Harris (1983) proposes a set of principles restricting the assignment of extrametricality in Spanish in just this way; the analysis presented in §5 avoids the need to propose any such principles.

5. Constraint indexation analysis

5.1. *The constraints*

I propose here an analysis of the key distinction between the regular and Class (1) exceptional stress patterns in terms of Optimality Theory (OT; Prince & Smolensky 2004) with lexically-indexed constraints (Pater 2000, 2010). A distinguishing feature of this analysis is that it makes no reference to metrical structure, as most if not all work following Harris’s (1983) lead does; it only makes reference to the

13. Both Den Os & Kager (1986) and Roca (1988) aim to fix what they take to be weaknesses in the theory of extrametricality of Harris (1983) by, among other things, setting stress and extrametricality to the same domain. For Den Os & Kager (1986), this domain is the word; for Roca (1988), it is the stem.

placement of main stress. This may or may not ultimately be a desirable feature of the analysis, but given its relative simplicity, I judge it to be so.

The constraint responsible for the regular stress pattern will be referred to here as FINALSTRESS, defined informally in (15) given our acceptance of the stem-domain analysis in (8).

(15) FINALSTRESS (informal version): Stress is final in the stem.

As will become clear in the presentation of the analysis that follows, FINALSTRESS is assumed to be violated more the further away stress is from the end of the stem, with distance measured in terms of syllables. One way to achieve this is by formalizing FINALSTRESS as a ‘horizontally gradient’ (McCarthy 2003: 82) alignment constraint of the kind first discussed in great detail by McCarthy & Prince (1993). Another way is by formalizing FINALSTRESS as a categorical alignment constraint with the same essential distance-measuring effect, following Hyde (2012). I adopt here the latter type of formalization, given in (16).

(16) FINALSTRESS (formal version): *⟨stem, $\acute{\sigma}$, $\check{\sigma}$ ⟩/(... $\acute{\sigma}$... $\check{\sigma}$...)
 ‘Assess a violation mark for each tuple ⟨stem, stressed syllable, unstressed syllable⟩ such that the stressed syllable precedes the unstressed syllable within the stem.’


The other constraint to be used in the proposed analysis is the OT-constraint counterpart of extrametricality, NONFINALITY (Prince & Smolensky 2004; see also now Hyde 2003, 2011). This constraint is defined in (17) such that it penalizes both stem-final and word-final stress, and the latter worse than the former, the need for which will become clear in what follows.¹⁴

(17) NONFINALITY: Stress is not final in the stem (= 1 violation) or word (= 2 violations).


5.2. The regular pattern

The ranking [FINALSTRESS >> NONFINALITY] accounts for regular penultimate stress in words with a TE, like those in (5), (6d-f), and (7d-f), as illustrated in (18).


14. This is similar but not identical to Prince & Smolensky’s (2004: 62) definition of NONFINALITY, which is violated once by a word-final head foot and once more if the head of that head foot is also final. There is thus a ‘vertically gradient’ constraint (McCarthy 2003: 82), but as Prince & Smolensky (2004: 63, note 33) and McCarthy (2003: 84) both note, the intended effect could also be achieved with two categorical constraints, one for the head foot (violated equally by all word-final head feet) and the other for the head of the head foot (= the main-stressed syllable, violated only by word-final main stress). A similar sort of split can be performed on the definition of NONFINALITY in (17): one constraint penalizing both stem-final and word-final (= “domain-final”) stress and the other less stringently penalizing only word-final stress. For the sake of simplicity, I don’t pursue this idea further here. (See also note 16.)

(18)	[[candidat-o]]	FINALSTRESS	NONFINALITY
a.	 [[cándidat-o]]		*
b.	[[candídat-o]]	* !	
c.	[[cándidat-o]]	** !	
d.	[[candidat-ó]]		** !

The same ranking of course accounts for regular stem-final stress in words without a TE, as illustrated with a consonant-final word (like those in (6a-c)) in (19)...

(19)	[[animal]]	FINALSTRESS	NONFINALITY
a.	 [[animál]]		**
b.	[[anímal]]	* !	
c.	[[áñimal]]	** !	

...and with a vowel-final word (like those in (7a-c)) in (20).

(20)	[[domino]]	FINALSTRESS	NONFINALITY
a.	 [[dominó]]		**
b.	[[domíno]]	* !	
c.	[[dómino]]	** !	

Because there is no TE in both (19) and (20), stem-final stress and word-final stress coincide in the desired optimal candidate (a). I assume that this violates NONFINALITY only twice, because stress is word-final, and not once more because stress is also stem-final — but note that nothing hinges on this assumption here, since all competitors fare worse on FINALSTRESS.

The difference between candidates (b) and (c) in all three of these tableaux illustrates the distance-measuring effect of FINALSTRESS: (b) has stem-penultimate stress and thus one violation, while (c) has stem-antepenultimate stress and thus two violations. This distinction is not crucial for the analysis of regular stress just presented, since FINALSTRESS is undominated, but it is crucial for the analysis of the Class (1) exceptional pattern to be analyzed in §5.3 below.

The distinction made by NONFINALITY between (18a) and (18d), however, is crucial here. The formal version of FINALSTRESS in (16) does not distinguish these candidates, even though stress is stem-final in (18a) but word-final (and not stem-final) in (18d). Because a distance-sensitive demand for stem-finality of stress requires reference to a precedence relation between stressed and unstressed syllables within a stem, FINALSTRESS only penalizes candidates with stress that is not stem-final *if the stress is elsewhere (i.e., to the left) in the stem*. Stricter adherence

to the claim embodied in (8), reflected in the informal version of FINALSTRESS in (15), would also correctly distinguish (18a) from (18d), but it appears that an appropriately formalized version of the constraint would have to state two technically separate requirements: that stress be assigned somewhere in the stem *and* that it minimize the distance from the right edge of the stem (i.e., the requirement stated by (16)). Since the first of these requirements is effectively guaranteed by NONFINALITY here, I opt for the simpler formalization of FINALSTRESS in (16).

5.3. The Class (1) exceptional pattern

In order to account for the contrast between the regular pattern and the Class (1) exceptional pattern that was illustrated by the examples in (14f-j), we require a lexically-indexed version of NONFINALITY that applies to all and only Class (1) exceptional words, NONFINALITY₍₁₎, ranked above and forcing minimal violation of FINALSTRESS.

(21) $[[\text{NONFINALITY}_{(1)} \gg \text{FINALSTRESS} \gg \text{NONFINALITY}]]$

The ranking in (21) achieves the desired contrasts in (14) as follows. The regularly stressed words in (14a-e) are not subject to NONFINALITY₍₁₎, so the optimal candidate is selected by $[[\text{FINALSTRESS} \gg \text{NONFINALITY}]]$ as already illustrated in (18) and (19). But the exceptionally stressed words in (14f-j) *are* subject to NONFINALITY₍₁₎, which prefers candidates without stem- or word-final stress. This means that stress cannot be stem- or word-final, but because FINALSTRESS is better-satisfied by stress nearer to the right edge of the stem, stress on exceptionally stressed words optimally falls immediately to the left of the stem-final syllable. This is illustrated for a vowel-final word (that is, a TE-final word), like those in (14f-h), in (22)...

(22)

	$[(\text{epistol})\text{-a}]_{(1)}$	NONFINALITY ₍₁₎	FINALSTRESS	NONFINALITY
a.	$[(\text{epistól})\text{-a}]$	* !		*
b.	$[(\text{epístol})\text{-a}]$		*	
c.	$[(\text{é pistol})\text{-a}]$		** !	
d.	$[(\text{epistol})\text{-á}]$	** !		**

...and for a consonant-final word, like those in (14i,j), in (23).

(23)

	$[(\text{canibal})]_{(1)}$	NONFINALITY ₍₁₎	FINALSTRESS	NONFINALITY
a.	$[(\text{canibál})]$	** !		**
b.	$[(\text{caníbal})]$		*	
c.	$[(\text{cánibal})]$		** !	

5.4. Additional Class (1) exceptions

Note that it is possible under this analysis for a vowel-final word without a TE to be lexically marked as a Class (1) exception, and thus to surface with penultimate stress just like a Class (1) consonant-final word. As it happens, examples of vowel-final words with penultimate stress the final vowel of which is demonstrably not a TE do exist, as shown in (24).

- (17) a. [(whisky)] ‘whiskey’ c. [(whisky+cít)-o] ‘whiskey (dim.)’
 b. [(táxi)] ‘taxi’ d. [(táxi+cít)-o] ‘taxi (dim.)’

It should be noted that Harris’s (1983) analysis predicts the same result here: his penultimate-stress-overriding rule (13) would be expected to (incorrectly) assign final stress to the words in (24a,b), but if their stem-final vowel is marked as extrametrical — as expected, given the hypothesis that these words are Class (1) exceptions — they are not subject to (13) and stress would fall on the penult, the only other available syllable.

Interestingly, the two analyses make different predictions with respect to potential *trisyllabic* or *longer* words of this type (vowel-final, no TE, Class (1) exceptions). The analysis proposed here predicts that stress is still penultimate in such words, given that this satisfies NONFINALITY₍₁₎ and minimally violates FINALSTRESS. Harris’s analysis, on the other hand, predicts that stress in such words is *antepenultimate*, given that penultimate word-stress assignment ignores the extrametrical stem-final vowel.¹⁵ Both predicted patterns are in fact attested in Spanish, neither particularly robustly, but they nevertheless appear to be qualitatively different: the words in (25a-c), with antepenultimate stress as predicted by Harris’s analysis, are common (though not necessarily frequent) words; those in (25d-f), with penultimate stress as predicted by the present analysis, are clearly (borrowed) proper/place names.

- (18) a. [(metrópoli)] ‘metropolis’ d. [(Arrégui)] ‘Arregui’
 b. [(espíritu)] ‘spirit’ e. [(Nagasáki)] ‘Nagasaki’
 c. [(ímpetu)] ‘impetus’ f. [(Fujítsu)] ‘Fujitsu’

In any event, either analysis will have to say something about the stress pattern that it doesn’t predict. Under the present analysis, the words in (25a-c) would have the status of *régimen*-type words (mentioned in note 1 as well as in §3.2, (iv)), which Harris (1983: 132) dismisses as “extragrammatical”.¹⁶ Under Harris’s

15. If the penultimate syllable has a branching rhyme, however, Harris’s analysis predicts that it will be stressed given the branching condition in (10). Because the predictions made by the two analyses converge in such cases (e.g. [(mariáchi)] ‘mariachi’, [(Viváldi)] ‘Vivaldi’), I put them aside.

16. An anonymous reviewer suggests that the contrast between (25a-c) and (25d-f) could be analyzed with lexically-indexed versions of the categorical constraints corresponding to the two parts of Prince & Smolensky’s (2004) foot-based, vertically gradient NONFINALITY constraint (see note 14). I do not pursue this suggestion in the interests of space.

analysis, the words in (25d-f) would presumably have to be *bona fide* exceptions to the power of (13) to override penultimate stress by (9).

Recall now the prepositions and truncations discussed in §3.3. An account of the penultimate stress of these words presents itself in the present context: that these words are (predictably and consistently) marked as Class (1) lexical items. Because all of these prepositions and truncations are bisyllabic, this claim is agnostic between Harris's analysis and the analysis proposed here: either the final vowel of these words is extrametrical (Harris's analysis) or these words are subject to NONFINALITY₍₁₎ (the analysis proposed here). But, as noted by an anonymous reviewer, there is no independent motivation for the claim that prepositions and truncations are systematically marked as Class (1) lexical items; I leave the consequences of the claim for future research.

6. Concluding remarks

The analysis of the Class (1) exceptional stress pattern just presented in §5 clearly depends on the stem-domain analysis of Spanish stress defended earlier in §3. FINALSTRESS accounts for the fact that stress regularly falls on the final syllable of the stem, and its interaction with NONFINALITY₍₁₎ accounts for the fact that stress exceptionally falls on the immediately adjacent syllable to the left of that stem-final syllable. Because Harris's (9)+(10)+(13) word-domain analysis does not take the stem as the domain of stress assignment in Spanish, it cannot so simply and elegantly account for the difference between the regular and Class (1) exceptional stress patterns; it requires instead a lexical marking device (extrametricality) accompanied by a set of principles (albeit purportedly universal ones) to appropriately constrain it.

But recall that the motivation for the stem-domain analysis was not necessarily to pave the way for this account of the Class (1) exceptional stress pattern; it was to treat the Class (2) "exceptional" stress pattern as a subcase of the regular stress pattern. I submit that this treatment on its own is a significant advance over Harris's (1983) path-charting account of this rich area of study, and that the possibility it affords for a simple and elegant account of the Class (1) exceptional stress pattern is simply an additional and compelling argument in its favor.

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