Suggested Reference


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Carlos-Eduardo Piñeros

The phonological weight of Spanish syllables

Abstract: This article conclusively demonstrates that the Spanish stress system is quantity insensitive. It proves that quantity sensitivity suffers from circularity because the savings in stress marks that it allegedly yields are counterbalanced by an exorbitant number of extrametricality marks and, even if one accepts the stipulation that finality within certain domains renders prosodic units invisible, proper accentuation of many words is still not possible. Another factor that makes quantity sensitivity unviable is that heavy syllables reduce mobility within the accentual window and, although this seems to have the positive effect of making the distribution of stress stricter, it is actually a disadvantage because it adds to the pile of data that cannot be derived. The proposed alternative maintains that, in two thirds of the lexicon, stress is assigned by universal principles requiring the projection of a word-final syllable trochee, while in the remaining third this trochee is minimally altered by two types of morphologically-controlled irregularity.

1 Introduction

Five decades after Foley (1965) proposed the first generative analysis of Spanish stress, there are still fundamental issues about the accentuation of words in this language that remain poorly understood. The following three are but a sample: a) is the stress domain the prosodic word or the stem? b) Are Spanish prosodic feet trochaic or iambic? And c) is the system quantity sensitive or insensitive? Views on these basic matters are discordant, even in the most recent works. With respect to the stress domain, compare, for instance, Martínez-Parricio (2013) and Hualde (2012); in relation to the foot type, contrast Gibson (2011) and Roca (2006a, this volume), and with regard to quantity sensitivity, see Shelton (2007) and Ohannesian (2004). Despite resorting to numerous theoretical and experimental approaches, advances in this area have been hampered by the fact that what appears to be a simple prosodic system is complicated by various morphological factors. The one thing that fifty years of research have clearly established

Carlos-Eduardo Piñeros, University of Auckland
is that Spanish stress is highly conditioned by the morphology, which obscures
the generalizations that one expects to see in a well-behaved prosodic system.

The present work focuses on question (c) above, but it inevitably touches
on questions (a) and (b) because these issues are interrelated. My goal is to
conclusively demonstrate that heavy syllables do not exist in any guise in Spanish,
so that the view that this language is quantity sensitive can be abandoned for
the moment. The main achievements that will be made are the following. First, I will
develop a solid analysis of the regular pattern (Section 2). Second, I will prove
that extrametricality – a formal device needed to salvage quantity sensitivity –
is untenable, both theoretically and empirically (Sections 3, 4, and 6). Third, I
will argue that Spanish has two types of prosodically-irregular morphemes,
which, when functioning as the head of the word, have the ability to push stress
minimally away from the syllable that phonology alone would choose as the
optimal stress bearer (Section 5). The latter is the thesis I submit to account for
the existence of two robust patterns which deviate from the norm: retraction and
advancement. Although this thesis will be reasonably well substantiated, its
formalization must be left for a subsequent study because developing the
theoretical machinery needed for that would require delving into aspects of
the phonology-morphology interface which extend far beyond the scope of this
article.¹

2 Transferring stress from the lexicon to the
grammar

One of the few points of agreement in the debate about Spanish stress is that
it may be distinctive. In effect, this suprasegmental may be the only sound
property distinguishing the members of pairs or triplets of words such as those
in (1). (Given that it is a property of the syllable as opposed to the segment,
stress is signaled in these and subsequent examples by using boldface on all
letters representing the relevant unit.)

(1) a. pa. pa / pa.pá
   'Pope' / 'dad'
   'valid' / 'I validate' / 'he validated'
   du. te / du.re
   'may it last' / 'I lasted'
   li.mi.te / li.mi.te / li.mi.té
   'limit' / 'may be limit' / 'I limited'

These data suggest that stress is a phonemic property; thus, one that needs to be
stored in the lexicon. The underlying representation of papa and papá would be,
for instance, /papa/ and /pa.pa/, respectively. This was indeed the view adopted
by structuralist studies such as Lluch (1950) and Stockwell and Bowen (1965),
for which stress was utterly unpredictable. In sharp contrast with this, genera-
tive approaches contend that the locus of stress is largely predictable, which im-
plies that it is an emergent property; it ensues from the workings of the grammar
(e.g. Foley 1965, Harris 1969, 1975). This alternative interpretation finds strong
support in the observation that, given a word of any number of syllables, stress
is more likely to appear in certain positions than in others. One phenomenon
that attests to this is that stress is systematically drawn towards the right periphery
of the word. Consider in this regard the examples in (2), which show that deriva-
tional suffixedness, the language's most productive type of word formation, tends
to induce a rightward stress shift.²

(2) ro.jo
   'red'
   ro.je
   'redness'
   ro.ji.ro
   'reddish'
   en.ro.je.ce
   'be reddens'
   en.ro.je.cer
   'to reddlen'
   en.ro.je.ci.do
   'reddened'
   en.ro.je.ce.dor
   'causing reddening'
   en.ro.je.ci.mien.to
   'reddening'

¹ The ideas presented here could not have been conceived without the valuable contributions
that James W. Harris has made to our understanding of Spanish phonology and morphology. I
feel profound admiration for Jim's work and wish to thank him for the many things I have
learned from his publications – they have always been a model for me to follow and a way to
discover what doing linguistics is about. I also wish to state clearly that my ardent argumen-
tation against Spanish quantity sensitivity is not an attempt to tarnish the image of excellence
that his research has rightfully earned. On the contrary, I mean to honor him because it is by
emulating the rigor that characterizes his work that I have come to view the Spanish prosodic
system as depicted below. My gratitude also goes to Rafael A. Núñez Cedillo for inviting me to
participate in this festschrift and to two anonymous reviewers for the feedback they offered me
to improve the presentation and argumentation of this article. It is solely me who bears the
responsibility for any errors that might remain.

² The derivational suffixed appearing in these words are –ez ‘quality’, –iz ‘propensity’, –ece
‘inchoativity’ –ir ‘infinitive/noimalization’, –it participiple/adjecrtivation’, –or ‘ergativity’, and
–ient ‘action/effect'.
These data clearly show that the Spanish stress system is right-bounded; that is to say that the stress locus must remain close to the right edge of the word. This distributional condition is corroborated by the fact that there are a limited number of stress contrasts that the language allows. As the examples in (3a) show, three is the maximum. Attempts to add further contrasts fail because that would require freedom to move stress an unlimited distance away from the right edge of the word (3b).

(3) a. es.pe.ci.fí.co 'he specified'
es.pe.ci.fí.co 'I specify'
es.pe.ci.fí.co 'specific'

b. *es.pe.ci.fí.co
*es.pe.ci.fí.co

A common conceptualization of the phenomena in (2) and (3) involves the postulation of an accentual window encompassing the last three syllables of the word: [... ι o o ι]. This is a useful descriptive device for it subsumes the three main stress patterns that exist: oxytone (4a), paraoxytone (4b), and proparoxytone (4c).

(4) a. [... ι o o ι] b. [... ι o o ι] c. [... ι o o ι]
ma.ra.ve.di pa.ra.le.lo pi.rí.mi.de
'old Spanish coin' 'parallel' 'pyramid'
des.ca.to me.mo.ri.za lle.qa.se.mos
'he disobeyed' 'he memorizes' 'might we arrive'

Another factor that works to the benefit of the generative approach is that there are significant differences in the frequency with which the window positions are used. It turns out that paroxytones occur in large numbers, oxytones in moderate numbers, and proparoxytones in relatively small numbers. The results of a word count conducted by Morales-Front (1999: 221, 2016: 244) confirm that this order of preference is true. As seen in (5), paroxytones account for almost two thirds of the corpus, oxytones make slightly less than one third, and proparoxytones represent a small residue.

(5) a. Paroxytones: 58,423 66.20%
b. Oxytones: 25,215 27.71%
c. Proparoxytones: 7,362 8.09%
Total: 91,000 100.00%

The type of word-final segment is also an important factor. Subtier patterns arise depending on whether the word ends in a vowel or in a consonant. The breakdown in (6a) shows that it is specifically when the word ends in a vowel that penultimate stress is favored; when the word ends in a consonant, that pattern is highly disfavored. Oxytones behave in the opposite way (6b), whereas paroxytones mimic the tendencies exhibited by paroxytones (6c).

(6) a. Paroxytones
V-final: 57,911 63.64%
C-final: 512 0.56%
b. Oxytones
V-final: 573 0.63%
C-final: 24,642 27.08%
c. Proparoxytones:
V-final: 7,327 8.05%
C-final: 35 0.04%

The strong lead that V-final paroxytones have over all other patterns provides an empirical basis to assume that the penult is the normal stress locus: [... ι o o ι]. Most nouns, adjectives, verbs, and adverbs pattern with the representative examples in (7), which indicates that this is a cross-categorial generalization.

(7) a. Nouns
pl.na 'pine' to.co 'I touch'
c.a.bi.na 'booth' co.ci.ne 'may he cook'
pa.ma.de.ro 'baker' vi.gl.ta.ba 'he watched'
b. Adjectives
ma.lo 'bad' pron.to 'soon'
do.ra.da 'golden' ma.za.ma 'tomorrow'
pe.re.ro.so 'lazy' tem.pr.ta.to 'early, dim.'

The generality of this pattern suggests that there is an advantage to placing stress on the penult, which I argue is that it makes it possible to prosodify the word in a very simple way. The structure of the foot, the prosodic unit that lies between the syllable and the word, is at the heart of this thesis. Metrical Theory has revealed that stressed syllables are those that acquire prominence by virtue of acting as foot heads and that the syllable that gains primary stress is the one that functions as the head of the main foot, the unit that functions as the head
of the prosodic word (Liberman and Prince 1977, Selkirk 1980). The fact that the penult is the syllable that normally bears primary stress means, therefore, that Spanish prefers to prosodify its words by projecting a main foot, which uses that particular syllable as its head. In Optimality Theory (Prince and Smolensky 1993/2002), such a system can be modeled by positing a small set of prosodic wellformedness constraints, which are universal, yet violable (8–10).

(8) **Main-Right:** MAIN FOOT RIGHT (Tesar and Smolensky 2000)
   Align the main foot with the word, right edge.

(9) **FootBin:** FOOT BINARITY (Prince and Smolensky 1993)
   Feet are binary at the mora or syllable level.

(10) **Troch:** TROCHAIC RHYTHMIC TYPE (Prince and Smolensky 1993)
   The head of the foot precedes the tail.

It should be underscored that each one of these requirements has an empirical basis (Piñeros, 2016). **Main-Right** is grounded on the demarcative function of stress; that is to say that, when the main foot is final, its head can effectively signal to the listener that the end of the prosodic word is approaching. **FootBin** stems from the relational nature of stress: for an element to be perceived as prominent, it is essential that it lie in a relationship with another element which is less salient. Lastly, **Troch** is one of the two logical ways in which the prominent element (the head) and the non-prominent element (the tail) can be ordered with respect to one another.

As illustrated in tableau (11), strict compliance with these constraints provides a plausible explanation for the abundance of paroxytones in the language. Candidates (11a) and (11b) place stress on the preantepenultimate syllable, thereby causing the main foot to either stand away from the right edge of the word or to encompass more than two syllables. The next two candidates opt to place stress on the antepenult, but they do not fare any better because that position also forces the main foot to either admit more than two syllables (11c) or to stand apart from the end of the word (11d). The important revelation that these hypothetical forms make is that **Main-Right** and **FootBin** are the principles responsible for the right-bounded nature of the word. In other words, to the extent that stress is retracted further back than the penult, its ability to signal the termination of the prosodic word and to actualize a prominent/non-prominent relationship is compromised.

The next candidate on the list shows that the objections against (11a–d) are resolved when stress is shifted forward one more syllable; namely, to the penult (11e). This move is truly rewarding for it allows satisfaction of both **Main-Right** and **FootBin** without causing an infraction of **Troch**. It is in this respect that candidate (11f), which chooses to shift stress all the way to the ultimate, disappoints. Note that, while it manages to satisfy **Main-Right** and **FootBin**, it contravenes **Troch** because the head of the foot comes after the tail. That problem does not arise for (11g), which also shifts stress to the ultimate, but takes the precaution of discarding the foot tail. Unfortunately, this is condemned by **FootBin**.

(11) The penult is the normal stress bearer

<table>
<thead>
<tr>
<th>Input: /paralelo/³</th>
<th>Main-Right</th>
<th>FootBin</th>
<th>Troch</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ([\text{pa}.\text{ra}.\text{le}.\text{lo}])</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. ([\text{pa}.\text{ra}.\text{le}.\text{lo}])</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. ([\text{pa}.\text{ra}.\text{le}.\text{lo}])</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. ([\text{pa}.\text{ra}.\text{le}.\text{lo}])</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. ([\text{pa}.\text{ra}.\text{le}.\text{lo}])</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. ([\text{pa}.\text{ra}.\text{le}.\text{lo}])</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. ([\text{pa}.\text{ra}.\text{le}.\text{lo}])</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The conclusion ensuing from (11) is that the placement of stress on the penult is desirable because it conduces to a prosodic word of utmost simplicity; it is erected on a foot which is final, binary, and left-headed: \([\ldots \sigma \text{o}]\). Since this treatment accounts for about 66% of Spanish prosodic words, significant savings in lexical storage are indeed possible. Such savings are genuine because the effect of the proposed analysis is not to shift the memory burden from the lexicon to the grammar but, rather, to lift that burden entirely. This is thanks to the fact that the principles in (8–10) are inerable from the forms learners are exposed to.

While it is feasible to derive the leading stress pattern from universal principles, total removal of stress-related information from the Spanish lexicon remains a desideratum because there is still roughly 36% of the vocabulary that has not yet been accounted for. Since this is a substantial amount, any analyst aiming to demonstrate that stress is largely predictable is faced with the challenge of finding a way to further reduce the number of words requiring stress marking. In the next section I show how quantity sensitivity has been put to that use.

³ True to form, this generative analysis assumes that stress is not present in the input form.
3 The intervention of quantity sensitivity

It is well known that, in some languages, the placement of stress is conditioned by the makeup of the syllable, while in others that factor is inconsequential. Languages of the first type are said to be quantity sensitive (QS), whereas those of the second type are said to be quantity insensitive (QI). A distinction between light and heavy syllables is warranted in QS systems because, when the stress domain includes both a light and a heavy syllable, stress is systematically placed on the latter (Zec 2011, Goedemans and van der Hulst 2011).

As for most other languages, it is generally assumed that the weight of Spanish syllables depends entirely on the complexity of the rhyme, the stretch formed by the nucleus and the coda. Syllables with a complex rhyme are said to be heavy, while those with a simple rhyme are considered light. Since this assumption renders the presence and complexity of the onset inconsequential, that component of the syllable will be disregarded hereafter.

The standard QS analysis of Spanish stress recognizes three main types of heavy syllable, which, abstracting away from onsets, can be portrayed as [VC][r], [V][r], and [V][r]. In the first type, a coda consonant is the segment that provides extra weight to the syllable (e.g. pes ‘fish’), while in the other two types it is the nonsyllabic vowel of a rising or falling diphthong that has that effect (e.g. pie ‘foot’ and ley ‘law’). The heaviness of such syllables is usually represented by assigning a unit of weight – a mora (γ) – to each rhyme segment. This has the important effect of making all heavy syllables bimoraic; hence, prosodically uniform; [V][C][r], [V][V][r], and [V][V][r]. A complementary step that is needed to obtain quantity sensitivity is to ensure that light syllables have lesser weight. This is accomplished by limiting light syllables to those whose rhyme consists solely of one vowel and attributing a single mora to that segment: [V][r]. From these assumptions, a well-defined dichotomy emerges: a set of heavy (H) syllables, including [V][C][r], [V][V][r], and [V][V][r], and a set of light (L) syllables, consisting solely of [V][r].

Given that the demands of the constraint FOOTBIN can be met at either the mora or syllable level (9), the availability of heavy syllables is bound to have repercussions for footing. In particular, a heavy syllable will suffice to create a binary foot by virtue of being bimoraic, whereas a light syllable will have to combine with another syllable if it is to be part of a wellformed foot. Let us explore the consequences that this has for a language where the principles in (8–10) are dominant, as happens in Spanish.

When a word ends in an LL sequence, quantity sensitivity is, of course, imperceptible; footing proceeds as usual: [ ... (LL)]. The word paralelo, for instance, remains exactly as in (1e), except that, now, it can be made explicit that all of its syllables are monomoraic: [paɾaˈlelo]. The addition of moras to the transcription helps to appreciate the fact that FOOTBIN is satisfied both morally and syllabically in this case.

For words ending in an HL sequence, quantity sensitivity does not affect the stress locus either; however, it should be noted that a different type of trochee emerges. Take, for instance, visiˈtoɾe ‘visitor’, where it is clear that the footed syllables contribute a total of three moras: [biˈsitoɾe]. Although this suggests an infringement of FOOTBIN, in actuality, that is not the case because binarity does not have to be met both morally and syllabically. Satisfaction at one of these levels suffices, which means that the structure [... (HL)] is also in strict compliance with the constraints in (8–10).

It is specifically in the case of words ending in an LH or in an HH sequence that the adoption of quantity sensitivity has a significant impact on footing. The weight of the ultima is the critical factor. When bimoraic, that syllable alone manages to provide both the head and tail of the foot, which makes it unnecessary to draw on preceding syllables to satisfy FOOTBIN. Thus, rather than disyllabic, the foot can now be monosyllabic: [... (H)]. This is how QS analyses account for oxytons such as those in (12). The prosodic structure of tıraˈ dor and deˈsaɾtər, for instance, would be [tıˈraˈdor] and [deˈsaɾˈtəɾ].

(12) a. tıˈraˈdor ‘shooter’ b. deˈsaɾtəɾ ‘to desert’
diˈgital ‘digital’ reˈdonˈdel ‘circle’
coˈnaˈzón ‘heart’ meˈnorˈquin ‘Minorcan’
saˈnaˈnás ‘evil person’ hoˈlanˈdes ‘Dutch’
moˈroˈcøy ‘turtle’ maˈlanˈgay ‘plant’

A boost in storage savings is the main appeal of quantity sensitivity. It turns out that about 27% of Spanish prosodic word patterns with those in (12), thereby offering a great opportunity for profit. To be more precise, holding quantity sensitivity responsible for final stress makes it possible to argue that 91% of the lexicon is free from the burden of stress memorization. Harris (1983), Dunlap (1991), Rosenthal (1994), Lipski (1997), and Martínez-Paricio (2013) are some of the many works that have taken this stance.

For a generative analysis, the ultimate goal is, of course, to achieve 100% predictability, but this has proven unattainable because the portion of the lexicon that is left – an estimated 9% – includes proparoxytons such as those in (13a) and oxytons such as those in (13b), both of which fly in the face of phonological principles.
The first of these patterns presents the difficulty that the foot would have to be either ternary or internal i.e. [...] (σ ο σ) or [...] (σ σ), while the second one is not any easier because the foot would have to be either unary or IAMBIC i.e. [...] (σ ο) or [...] (σ). The challenge lies in the fact that, for any of these alternatives to emerge, the undominated status of the constraints in (8–10) would have to be suspended for certain words, a move that would be no different from claiming that a single language can have multiple grammars. In a theory conceding such an option, coexisting grammars in which proparoxytones and oxytones are optimal can be easily set up by demoting MAIN-RIGHT, FOOTBIN, or TROCH below some antagonistic constraint; however, the merits of this approach are counterbalanced by a lack of explanatory power given that there would be no limit on the kinds of prosodic structures that could be generated through the same strategy. One could claim, for instance, that there is a parcel of the Spanish lexicon where all of the principles in (8–10) have been subdued by antagonistic ones, in which case a severely ill-formed structure such as [*σ ο σ *σ σ] would be sanctioned. While it is clear that quantity sensitivity is of no use in accounting for the patterns in (11), its supporters have found another application for it. They claim that heavy syllables cause the three-syllable window to narrow down to two or even one syllable (Harris 1983, 1992a, 1995, Roca 1991, 1997a, 2006a, Shelton 2007, among others). The restrictions inducing such effects are synthesized in (14–15).

4 There are plenty of analyses (both within rule-based and constraint-based models) that have taken this path. Roca (1988, 1990, 1997a, 2005, 2006), Rosenhall (1994), Harris (1995), Hammond (1995), Lipski (1997), Oltra-Massuet and Arregi (2005), Gibson (2011), and Martinez-Parcio (2013), and Melisncaoefer (2015). Some of these proposals openly declare the adoption of several stress algorithms or constraint rankings (i.e. co-phonoologies), while others endorse multiple grammars in a more subtle way: through parochial or lexically-indexed constraints.

5 Note that the large number of syllables in this hypothetical form is not the problem because at least as many words as such parapsychological do exist; yet, they exhibit the expected footing (e.g. [pa.ru.st.i.lo.lo. (Χελο)]).
A supplementary argument for quantity sensitivity comes from /s/-hypercorrection (Núñez Cedeño 1986, 1988). In varieties of Dominican Spanish where syllable-final /s/ is generally deleted, hypercorrected forms featuring an intrusive [s] in that position may arise. Compare, for instance, standard yo ‘I’ with hypercorrected vos. An interesting claim that has been made about this phenomenon is that [s] cannot be inserted in the coda of a penult belonging to a proparoxystic (Núñez Cedeño 1986, 1988, Harris 1992a). It is said, for instance, that hi.po.pis.tas.mo ‘hipopotamus’ can be hypercorrected as his.por.pi.ta.mo, hi.pos.pi.ta.mo, or hi.po.pi.su.ta.mo but never as *hi.po.pi.tas.mo. This judgment has been construed as evidence for quantity sensitivity on the reasoning that the absence of the latter form is what one expects to see if the inserted coda consonant adds weight to the penult. Sensible as this may seem, I show next that the argument does not withstand close scrutiny because it is based on an inaccurate characterization of the process.6

Morgan (1998) analyzes the speech of a tourist guide who, in a sample of 3,100 words, produced an impressive number of hypercorrections: 115. One of the revelations made by this study is that there is a striking parallelism between the deletion and insertion of /s/. This conclusion is grounded on two discoveries: neither of these processes is bound to a specific morphological or syntactic category and both go through an intermediate stage in which the outcome is a glottal sound: [h]. It had been previously said that the insertion of this variant was precluded by that of a fully articulated [s] (Núñez Cedeño 1988: 331); however, Morgan (1998: 90) demonstrates that the former is not only possible but, in fact, quite common (45/115 = 39%). More relevant to the ongoing discussion is the discovery that there are several contextual factors which promote insertion; notably, word-final position and the presence of a following voiceless stop. In Morgan’s corpus, 93 of the attested hypercorrections occurred at the end of the word (80.87%), while 68 happened before a consonant, which, regardless of whether it belonged to the same or the following word, was preferentially a voiceless stop (56/68 = 82.35%). The strong influence exerted by these factors has been corroborated by two recent studies. Bullock and Toribio (2010: 20) report that 78 of the 103 hypercorrections present in their corpus happened word finally (75.73%), while 72 occurred in the presence of a following consonant, which, regardless of whether it belonged to the same or the following word, was a voiceless stop in the overwhelming majority of cases (69/72 = 95.83%). Similarly,

6 It is worth mentioning that /s/-hypercorrection has also been said to be informative for other matters, including the maximal size of the Spanish syllable rhyme, the structure-preserving nature of hypercorrection rules, and the inadequacy of geminates (Núñez Cedeño 1986, 1988). Not being relevant for stress assignment, such ramifications are not explored here.

In light of the above, let us reconsider the question of why *hi.po.pi.tas.mo has not yet appeared in any /s/-hypercorrection corpus. It is easy to see that all syllables preceding or following the penult of hi.po.pi.ta.mo make better insertion targets because they are either in contact with a following voiceless stop or in final position. That is to say that, since ta is an internal syllable and since the consonant that follows it is a voiced nasal, the probability that it be chosen as the locus of insertion is lower than that of all of its contenders. It must be recognized, however, that this reasoning does not discard *hi.po.pi.tas.mo altogether because the aforementioned fieldwork studies also found that, even in the absence of the favoring segmental and positional conditions, insertion can still take place (e.g. pres.ha.da < pre.ha.da ‘pregnant’). The idea then comes to mind that *hi.po.pi.tas.mo might be impossible for prosodic reasons; more specifically, because the intrusive consonant changes the light penult into heavy, thereby enabling it to capture stress and preclude the proparoxytone pattern. This hypothesis is not defensible, however, for two reasons. First, because it has already been established that hypercorrection belongs to the phrase level (i.e. it applies at a stage when words have already been stressed) and, second, because evidence showing that this process is perfectly compatible with proparoxytones has also been unearthed (Bullock et al. 2014; 21). Consider the sentence Mi nombre es ‘Erika’ ‘My name is Erika’, which illustrates both deletion and insertion, one happening in the verb es ‘is’, the other in the noun E.ka.7

7 The latter word is a proparoxytone, which, being of foreign origin is allowed to float orthographic conventions (i.e. it may be written without an accent mark).
hypercorrects such as *hi.pó.ta.su.mo are impossible due to their pronsodic configuration. Other examples of this sort were reported in the past, albeit not within the frame of a systematic fieldwork study. Lipiński (1997: 588) mentions *sd.bas.do from sd.bas.do ‘Saturday’ and *ógu.su.no from ógu.su ‘organ’, which he incidentally observed in Caribbean and New Mexico Spanish.

When the rectifications made by the studies cited above are incorporated, the characterization of /s/-hypercorrection becomes irreconcilable with the claim that this process supports quantity sensitivity. One of the obstacles to maintaining such a view is the paucity of relevant examples given that hypercorrection is rare overall, but especially so in word-internal position, the environment where the allegedly impossible pattern needs to be tested. In point of fact, the context that supplies most examples (i.e. word-final position) transparently shows that this is a phrase-level process; hence, inconsequential for lexical stress. The lack of grounding for the allegations is further exposed by the fact that, among the few relevant examples, there are bona fide counterexamples (e.g. En[s].ka from En.ka). I therefore conclude that /s/-hypercorrection cannot be included in the defense for quantity sensitivity.

To recapitulate, the case for Spanish quantity sensitivity rests on two main arguments: economy, concerning the pattern in (12), and restrictiveness, regarding the width of the accentual window (14–15). We have seen that, with the adoption of quantity sensitivity, about 27% of the lexicon can be added to the 64% whose stress can be generated by the constraint system in (11); thus, approximately 91% of Spanish words would not require stress marking. Furthermore, window-narrowing effects are expected to arise because, if the system is both right-bounded and quantity-sensitive, the weight of the rightmost syllable will determine whether or not the main foot will need to incorporate previous syllables in order to achieve binarity.

It should be noted that, while the argument based on economy is founded on positive evidence (12), that based on restrictiveness depends entirely on negative evidence. In effect, at the heart of the restrictions in (14) is the presumption that paroxytones with a heavy penult do not exist (e.g. *á.pazte, *a.ca.go, *a.ca.te) and, likewise, the restrictions in (15) presuppose that paraoxytones and paroxytones with a falling diphthong in the ultima are nonexistent (e.g. *p.e.pe.re.v, *a.mu.nial). Since this is an empirical issue – similar to the one we encountered with /s/-hypercorrection above – a simple way to refute the window-narrowing restrictions is to show that the structures they prohibit do in fact exist. This is the tactic that Larramendi (1729), Roca (1988), Obanescian (2004) and a series of experimental studies including Bärkányi (2002a, b), Alvord (2003), Face and Alvord (2005) and Face (2006) have used to counter quantity-sensitivity claims. The data assembled by these works speak strongly in favor of quantity insensitivity; however, being confined to loans and nonce words, such evidence tends to be downplayed on the grounds that it is representative of peripheral systems rather than the core grammar. To make the case for quantity insensitivity compelling, it is therefore essential that both arguments for quantity sensitivity be set straight. One must prove not only that the restrictions in (14–15) do not hold, but also that (12) is not the product of quantity sensitivity. I shall work on the latter task first.

4 Quantity sensitivity requires extrametricality

One of the disadvantages of analyzing the Spanish stress system as QS is that tampering with the weight of heavy syllables becomes a necessity. The pattern illustrated in (16) is one of several cases in which the weight of the final syllable needs to be altered to obtain the right results.

(16) ca.té.ter ‘catheter’  
dí.fi.cil ‘difficult’  
i.ma.gen ‘image’  
ba.ga.ces ‘type of cheese’  
jí.me.nez ‘last name’  
fa.mí.lia ‘family’

Words like these pose a challenge for quantity sensitivity because they end in a syllable that qualifies as heavy, yet fails to attract stress (cf. 12). This requires that a provision be made to reduce the weight of heavy syllables. A common strategy to deal with (16) is to declare the last mora of the word extrametrical; that is to say that, while present, that unit is invisible (Harris 1983, den Os and Kager 1986, Dunlap 1991, Rosenthal 1994, among many others). By way of illustration, ca.té.ter and dí.fi.cil would be [ca.té.tè.te(ru)] and [dí.fi.(شركة(ru)] where angle brackets identify the extrametrical mora. It is apparent from these representations that the ultima could not be stressed under these conditions because the foot would have to be unary (e.g. [ka.tè.te(ru)] and [dí.fi.(شركة(ru)]). The thesis advanced by this analysis is then that the pattern in (16) is due to an extrametricality mark, which the lexical entry of any word that behaves in this unexpected way must carry. In light of the fact that the frequency of this pattern is extremely low (0.56%), lexical marking seems to be an appropriate way to
deal with it; but it should be pointed out that, by adopting this solution, generative analyses openly concede that Spanish stress is not fully predictable.

An immediate issue that arises with the introduction of extrametricality is that, if any number of prosodic units could be extrametrical, there would be no limit on how far stress could retract; yet, unlimited stress retraction cannot be allowed because it would make it impossible to account for the existence of right-bounded systems. In anticipation of this problem, Hayes (1980) proposes to restrict extrametricality to a single prosodic constituent located at the right periphery of the stress domain, a condition that QS analyses of Spanish must adopt in order to ensure that, in words such as those in (16), stress does not retract to the antepenult. On this strict interpretation, prosodic structures such as {[(kαr, te, te, v̥p)]} and {[(dίr, fρ, sι, v̥p)]} are illicit because they include a non-peripheral extrametrical unit.

Restricting extrametricality in this way does not prevent it, however, from inducing more than one pattern of stress retraction. We have already seen that, when applied to a heavy ultima, extrametricality renders all syllable light, in which case stress is pushed back to the penult (16). A second form of retraction arises when extrametricality is applied to a light ultima, in which case syllable becomes weightless and stress has no choice but to land on the anapest. To illustrate this effect, let us return to the pattern in (13a). In the case of píca,ro, for instance, strict extrametricality yields {[(pír, kαp, ro, v̥p)]}, whose foot is binary and properly aligned, despite including three syllables. Considering that the number of words that behave in this way is relatively small (8.05%), economy does not suffer terribly if they too are granted extrametricality marks; however, this group is sizable enough to prove that the parcel of the lexicon with unpredictable stress is not minute.

If extrametricality were limited to the above exceptional cases, it would serve the objective of the generative program quite well; however, the number of words requiring extrametricality marking is so high that it becomes a liability. An unfortunate consequence of adopting quantity sensitivity is that even the words that follow the most common patterns require tampering with the weight of the final syllable. This is made evident by singular/plural pairs such as those in (17), which show that the heavy ultima resulting from the addition of the plural marker (i.e. –s) fails to attract stress. Given that pluralization is the main source of word-final consonants in nouns and adjectives, one can infer that this behavior is widespread in those lexical categories. Verbal forms are not different in this respect. The representative examples in (18) evince that the word-final consonant contributed by the markers of several person/number morphemes does not add weight to the ultima either and, since all tenses accept these inflectional categories, it is obvious that the phenomenon is commonplace in verbs too.

Verbal and non-verbal inflections thus attest that the weight of heavy ultimas is systematically ignored.8

(17) a. mo. rro, coy / mo. rro, co, res ‘turtle’
   ti. na, dor / ti. na, do, res ‘shooter’
   co, na, zo, n / co, na, zo, nes ‘heart’
   b. ve, cl. no / ve, cl. nos ‘neighbor’
   la, gu, na / la, gu, nas ‘lagoon’
   co, pe, te / co, pe, tes ‘tuft’
   c. pi, ca, ro / pi, ca, ros ‘slip’
   pά, li, da / pά, li, das ‘pale’
   cέ, li, be / cέ, li, bes ‘cellate’

(18) a. de, fl. no / de, fl. nes ‘I define’ / ‘you define’
   b. co, lo, ca / co, lo, can ‘he sets’ / ‘they set’
   pa, ga, ba / pa, ga, ba, mos ‘I paid’ / ‘we paid’

Given such a plethora of counterexamples, insisting that Spanish stress is quantity sensitive requires that an exorbitant number of extrametricality marks be posited, but this is inadvisable because the savings in lexical storage that have been achieved would be compromised. Note that, if for the purpose of reducing stress marking by 27% one conceded that most words require extrametricality marking to obtain their inflected forms, no actual savings would ensue.

To keep the cost of extrametricality low, QS analyses turn to morphology; they capitalize on the distribution of inflectional morphemes to generate the majority of extrametricality marks. Harris (1983: 115) proposes, for example, a rule of predictable extrametricality, whose effect is to render all word-final inflectional consonants extrametrical. While this move significantly reduces the need for storage, it is not a panacea; its benefits are counterbalanced by the fact that some of the data cannot be derived.

Singular/plural pairs such as those in (17c) are one of the problems. We have already seen that proparoxytones can be generated by declaring the only mora of a light ultima extrametrical (e.g. {[(pír, kαp, ro, v̥p)]}); however, their plural forms cannot be derived in the same fashion because a single extrametrical unit is not enough to guarantee that stress will remain on the antepenult when the ultima is heavy: {[(pír, kαp, ro, v̥p, v̥p)]}. As seen in this example, two extrametrical units

8 In (18a), (18b), and (18c), the endings –s, –n, and –mos are the markers of ‘second person singular’, ‘third person plural’, and ‘first person plural’, respectively.
are needed for that purpose. The issue is then that stress would have to fall on the penult in such plurals (e.g. \*[p\textsuperscript{2}i\textsuperscript{p}r.(\textsuperscript{2}m.r\textsuperscript{2}p\textsuperscript{w}v)]), which is contrary to fact.

Incorrect predictions are also made for the plural forms of words following the pattern in (16), which, as the examples in (19) show, pluralize in two different ways; those that are vowel-final take –s (19a), while those that are consonant final take –es (19b). As concerns the plural forms in (19a), the prediction quantity sensitivity makes is that stress will fall on the ultima because the presence of three segments in the rhyme of that syllable renders it trochaic; hence, capable of supporting a binary foot, even if extrametricality conceals one mora (e.g. \*[p\textsuperscript{2}i\textsuperscript{p}r.\textsuperscript{2}v].[\textsuperscript{2}m.r\textsuperscript{2}p\textsuperscript{w}v]). Regarding the plural forms in (19b), the expectation is that stress will be penultimate because pluralization introduces in this case not one, but two segments, both of which are incorporated into the rhyme of a new heavy ultima. Since strict extrametricality cannot render heavy syllables entirely weightless, the farthest left that stress can fall in such forms is the penult (e.g. \*[p\textsuperscript{2}i\textsuperscript{p}r.\textsuperscript{2}v].[\textsuperscript{2}m.r\textsuperscript{2}p\textsuperscript{w}v]). It is easy to see that lifting the restrictions on extrametricality is the only way in which this approach could generate the correct plurals, but doing so would compromise the three-syllable window (e.g. \*([p\textsuperscript{2}i\textsuperscript{p}r.\textsuperscript{2}v].[\textsuperscript{2}m.r\textsuperscript{2}p\textsuperscript{w}v].)). In a nutshell, the problem with extrametricality is that it undergenerates when restricted, and it overgenerates when relaxed.

\(19\) a. fa\textsubscript{m}.lia / fa\textsubscript{m}.lias ‘family’
   pa.la.cio / pa.la.cios ‘palace’
   de.sa.gie / de.sa.gies ‘drainage’

   b. ca.té.ter / ca.té.ter.es ‘catheter’
   di.fl.ici / di.fl.ici.es ‘difficult’
   i.má genie / i.má genie.es ‘image’

The deficiencies exposed above make it clear that the marriage between quantity sensitivity and extrametricality is highly undesirable. From a descriptive point of view, this union is harmful because it makes it impossible to segregate the patterns that the system rejects from those that it allows and, from an explanatory point of view, it is vacuous, for it is circular to posit heavy syllables and subsequently render one of their moras invisible. These problems are flagrant in the treatment of the ultima. In a prosodic system that is right-bounded and projects a single foot per word, the ultima is the position where the distinction between light and heavy syllables is expected to play a decisive role; yet, the mission that extrametricality is brought in to accomplish is to deprive most heavy ultimas of the property that makes them so. That being the ultimate result, there is no point in positing heavy syllables in the first place.

5 The role of morphology

Generativists have long admitted that a purely phonological account of Spanish stress is impractical because certain stress patterns cannot be derived from sound structure alone. Recall, for instance, that there are words which, despite having identical segmental strings, are accented differently (1). In such cases, morphological constituency must also be taken into account. This was at first thought to be necessary only for verbs (Harris 1969), but it was eventually realized that morphology impinges on stress assignment across all lexical categories (Harris 1975, Hooper and Terrell 1976, Whitley 1976, Fink 1978, Elman 1979, Hershland 1982, Núñez Cedeño 1985, Otero 1986, and most other subsequent work).

To disentangle the various ways in which morphology bears on accentuation, I propose that, according to their prosodic behavior, Spanish morphemes fall into three classes: a) stress abiders, b) stress repellers, and c) stress attractors. Developing ideas sketched in Piñeros (2016), I argue next that ordinary morphemes do not interfere with the placement of stress, but there are exceptional ones which can displace it from the expected landing site. Some push it leftwards (e.g. [1 ... ò ò ò ...], while others push it rightwards (e.g. [1 ... ò ò ò ...]; yet, in both cases displacement is minimal – no greater than one syllable.

5.1 Stress abiders

Prosodically normal morphemes are stress abiders. What I mean by this is that they do not interfere with the assignment of stress by the phonology; more specifically, by the constraints that generate a word-final syllabic trochee (8–10).

Consider in this regard the examples in (20), where the middle column presents the morphological segmentation of the word. The following conventions are adopted. The inner brackets demarcate the ‘stem’, the constituent hosting the root and any accompanying derivational suffixes. The outer brackets demarcate the morphological word, which, in the patrimonial lexicon, consists of the stem plus a ‘desinence’. The latter is the stretch of morphs actualizing various grammatical meanings, including phi features (e.g. gender, number, and person) and morphological class.9 The root morpheme is underlined to facilitate its identification.

9 As a detailed discussion of Spanish inflection would take us too far afield, the reader is referred to some of the most useful sources on this topic: Harris (1980, 1985, 1991, 1992b, 1996) and Roca (1989, 2000, 2005b, 2006b).
Contrary to that view, I contend that the role of the desinence is no less important than that of the stem because without either one of them a word-final syllabic trochee could not be constructed. Recall from the evaluation in (11) that the footing (… (6 o) – the structure that explains why paroxytones are so abundant – would not be possible without the participation of the ultima, the syllable where the segments of desinental morphemes typically end up. It follows from this that excluding the desinence from the stress domain would be a costly blunder because it would preclude the possibility of employing universal principles to derive the regular pattern (8–10). There is no denying that resorting to language-specific constraints to account for two thirds of the lexicon would be a major setback in the agenda of the generative program. Another unfortunate consequence of expelling the desinence from the stress domain is that footing would necessarily have to start at the penult and proceed leftwards (i.e. [ … (6 o) o]), as a result of which a fundamental generalization would be missed: Spanish prosodic feet are trochaic (o o); they embody a relationship between a prominent and a non-prominent element sequenced in that specific order.10

The key to understanding the prosodic status of the desinence lies precisely within the canonical foot. It is easy to verify in (20) that the distribution of desinental morphemes is such that their segmental material invariably ends up in the last syllable of the word, exactly where the tail of a final syllabic trochee would be. It follows naturally from this that, if the desinence does not bear stress, it is neither because it lies outside the stress domain nor because it is extrametrical, but simply because it is in charge of supporting the foot tail (e.g. [em.(bus.te)], [em.b.us.te.(e.ros)], [em.bus.te.(r.ias)].) This behavior is perfectly normal and, thus, congruent with the claim that the words in (20) consist exclusively of stress abiders.

5.2 Stress repellers

With the above understanding of what prosodically normal morphemes are, let us consider the irregularity introduced by stress repellers. These are morphemes with an exceptional ability: they can exempt one of their vowels from the duty to

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10 A qualification that needs to be made is that not all of the works cited immediately above admit to be supporters of the hypothesis that the stem is the relevant domain. Some of them endorse that view in an implicit manner because, while expressing dissonance with the dismissal of the word, they draw on formal devices which bind them to the opposite stance. In Harris (1992a: 28), for instance, the statement is clearly made that stress is to be computed on the word, not just the stem; yet, the following provisions, which target – ṽ(σ) desinences, are part of the algorithm proposed therein (p. 30).

a) An inflectional consonant is extrametrical.
b) A word-final vowel is extrametrical.

Since the adoption of these stipulations entails that all words ending in a – ṽ(σ) desinence will have their final syllable ignored, such a proposal is in effect identical to the declaration others openly make that the stem, rather than the word, is the stress domain.
of supporting the foot head. In effect, when belonging to certain morphemes, any of the five Spanish vowels – /i, e, a, o, u/ – can elude stress, even if that segment belongs to the syllable that the principles in (8–10) designate as the optimal stress bearer. When this happens, stress is forced to land on the next available syllable, thereby causing the foot to engulf the antepenult: [... (o ñ o)]. The examples in (20) and (22) illustrate this phenomenon with a common stress repellent, the suffix –ic ‘relation’. Stress repellers are written in small capitals so that they can be readily identified. 12

(21) a. tu.no [ton, o] ‘tone’
    b. to.na.da [ton, adn, o + a] ‘tune’
    c. tu.ni.co [tun, t:ic; o] ‘tonic’

(22) a. car.ne [carn, e] ‘meat’
    b. car.na.da [carn, adn, o + a] ‘baht’
    c. car.ni.co [carn, t:ic; o + o] ‘meat related’

In (21a) and (22a), the stem consists solely of the root, which happens to be a stress abider; while in the other two examples of each set, the stem includes the root and a suffix. Observe that, in (21b) and (22b), the suffix –ad ‘collectivity’ proves to be a stress abider because it is the source of the vowel that heads the penult and this syllable is willing to head the foot. This state of affairs contrasts sharply with that in (21c) and (22c), where the assignment of stress to the penult is frustrated by the suffix –ic. The most important observation is that, despite being properly located to receive stress, the vowel supplied by that morpheme refuses to support the foot head, thereby forcing the vowel of the antepenult to shoulder the responsibility: [tun, t:ic; o] and [kar, ni, ko]. That the prosodic anomaly emanates from –ic is confirmed by the fact that all adjectives derived with this suffix have antepenultimate stress. Some additional examples are ba,s:e ‘base’ > ba,s:e,ic; o ‘basic’, con-‘a cone’ > con, t:ic; e ‘conical’, es,fer-t:s ‘a sphere’ > es,fer, t:s,ic; o ‘spherical’.

Numerous other suffixes behave in this peculiar way. To name but a few, the list of Spanish stress repellents includes –ut ‘diminutive’ (e.g. glo,b:u ‘globe’ > glo,b:utt ‘globelet’), circu:o ‘circuit’ > cir,cu,utt ‘circle’, –ad ‘quality’ (e.g. mor,ad ‘morbid’ > mor,ad,ad ‘morbid’, ray,ad ‘ray’, fish > ray,ad,ad ‘shaped like a ray’), –fon ‘sound’ (e.g. an,gon ‘English’ > an,gon,ad ‘English speaking’, fran,co ‘French’ > fran,co,ad ‘French speaking’). Furthermore, there are also quite a few root morphemes which exempt their last vowel from the obligation of acting as foot head. Some examples of this are BO,FLA,tt ‘buffalo’, S,L,LA,tt ‘syllable’, CHE,FE,tt ‘e nice’, and EM,PE,tt ‘impetus’.

It is important to highlight that stress repellents are restricted in a principled manner. To be able to exempt one of its vowels from serving as foot head, the morpheme in question must be the head of the morphological word, a role that Spanish systematically assigns to the last member of the stem. A brief digression to introduce this concept is necessary.

The last member of the stem earns the designation of morphological head by virtue of being the morpheme that determines key morpho-syntactic properties of the word, such as syntactic category, morphological class, gender (for nouns), and tense and mood (for verbs). A comparison between a primitive word and its derivatives helps to substantiate this claim (23).

(23) a. [lan] + a + s] ‘wool, plural’
    b. [lan + os] + o/a + s] ‘woolly, plural’
    c. [lan + os + idad] + o/e + s] ‘fuzz, plural’

In the primitive word (23a), the root encounters no rival in securing the role of morphological head because it is the only member of the stem. This privilege empowers that morpheme to rule that the word will be a noun, with feminine gender, and a member of morphological class A. 13 In the first derivative (23b), by contrast, the suffix –os takes on the role of morphological head and determines, in that capacity, that the word will be an adjective and follow default morphological-class assignment (i.e. class O or class A, depending on whether masculine or feminine gender is acquired via agreement). The second derivative, (23c), shows that the suffix –idad replaces –os in the role of morphological head, thereby gaining the power to rule that the word will be a noun, with feminine gender, and a member of morphological class O/E. 14 The point of

12 It is pertinent to mention that Spanish also has the suffix –ic ‘diminutive’, which, despite being segmentally identical to –ic ‘relation’, is a different morphological entity. An example where the former is present is the noun a,b : mi,co (i.e. [a,bo,mi,ko]) of fan, derived from the primitive word a,b : mi,co ‘fan’. Here we see that –ic ‘diminutive’ is a stress abider; hence, does not require special comment. Our attention at this time is on –ic ‘relation’ because its prosodic behavior is unusual.

13 After Rocca (2003b, 2006b), I use mnemonic labels (e.g. class A for –a, class O for –o, class E for –e, and so on) to designate Spanish morphological classes.

14 This is a peculiar morphological class because it alternates; it surfaces as O in the singular, but as E in the plural.
The phonological weight of Spanish syllables

The existence of stress repellers is relevant to the quantity-sensitivity debate because it confirms that extrametricality is unsuitable to formalize stress retraction. The data in (21–27) leave no doubt that the abnormal prosodic behavior is induced by the last morpheme of the stem, a discovery that leads Harris (1983: 115) to forsake strict extrametricality and hold instead that finality in either the word or the stem is a sufficient condition to warrant prosodic invisibility (e.g. oasis [ˈoasis], rámulo [ˈrámulo]). By making this amendment, Harris aims to reconcile the theory with the facts, but this is to no avail because the theory becomes too permissive. Consider, for example, his analysis of the noun tórax ‘thorax’, segmented as [tóraks]+s. Departure from strict extrametricality is felicitous for this type of word because, as pointed out before, two moras must be written off if stress is to fall on the penultimate when the ultima is trisyllabic (e.g. [ˈtóraks+e+u+s]). However, having that option is counterproductive for other words. For lápiz ‘pencil’, for instance, things go terribly wrong because the freedom to posit both a word-final and a stem-final extrametrical unit enables stress to fall beyond the antepenult (e.g. *[ˈlápiz+e+u+s+u]).

Realizing that the admission of stem-final extrametrical units is a serious problem, den Os and Kager (1986: 37) introduce a rule of extrametricality transfer, whereby the diacritic +E, which is carried by any stem containing stress repellers, is discharged on the desinence. This treatment guarantees that the extrametricality bearer will be word-final even when the trigger is not, but such a solution is unacceptable because it misrepresents the facts. In cólera, for instance, the derivational stem would discharge the prosodic irregularity of the root on the desinence (28), thereby giving rise to the parsing [ˈkólera+e+u+s+u], where the ultima is made weightless and left unfooted. While consistent with strict extrametricality, this analysis loses touch with reality because it portrays the penultimate as regular and the ultima as irregular when the data evinces that things are the other way around (21–27).

(28) [ˈkólera+e] → [ˈkólera+e] [+E] [+E]

Given that neither a strict nor a lax interpretation of extrametricality provides insight into stress retraction, the ineluctable conclusion is that there is no justification for such a mechanism. This result further undermines quantity

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15 To obtain the corresponding plural form, den Os and Kager are forced to exclude the plural morpheme from the stress domain, which they accomplish by delaying pluralization to a later stage, the so-called compound level. This analysis thus employs level ordering as an additional way to tamper with the weight of heavy syllables, another ad hoc and unenlightening device.
sensitivity because Section 4 has already demonstrated that, without quantity sensitivity, heavy syllables are intractable.16

5.3 Stress attractors

The footing of Spanish prosodic words is also subject to the influence of stress attractors. These are morphemes capable of drawing stress towards one of their vowels, even when that segment is not the one that is best positioned to support the foot head. The distortion caused by stress attractors is palpable in minimal pairs such as those in (29–31), where we witness a curious phenomenon: the existence of morphemes whose signifiers are segmentally identical, but prosodically different. As the middle column reveals, the nearly-homophonous morphemes are tense/mood suffixes sitting at the right periphery of the stem: -e 'subjunctive', -É 'preterit', -ru 'past subjunctive', -RA 'future', -re 'future subjunctive', and -RÉ 'future'. To facilitate their identification, stress attractors are written in capital letters.

(29) a. for.me [form + e1] [form + o] 'may I/he form'
   b. for.mé [form + É] [form + o] 'I formed'

(30) a. for.ma.ra [form + a + ra1] [form + o] 'might I/he form'
   b. for.ma.râ [form + a + RA1] [form + o] 'he will form'

(31) a. for.ma.re [form + a + re1] [form + o] 'should I/he form'
   b. for.ma.rê [form + a + RÉ1] [form + o] 'I will form'

Another aspect in which these finite verb forms are peculiar is the lack of overt morphs in the desinence. There are two factors behind the zeroes appearing in the corresponding morphological structures (middle column). One is a general morphological process of restructuring, which deletes the first person marker -o in all tenses except for the present indicative (cf. [form+o] 'I form', [hebê]+0)

16 Analyses which give up quantity sensitivity while clinging on to extrametricality remain unable to explain stress retraction. They may be able to generate proper nouns through ad hoc devices (e.g., lexically-indexed anti-alignment constraints), but fail to provide a sensible reason for the existence of this phenomenon. A recent example of this approach is Meinshausen (2015).

17 The suffix appearing immediately after the root in (30) and (31) is the theme vowel, -a, which has several functions including that of signaling conjugational class. For discussion on the derivational status of this morpheme, see Harris (1987, 1989, 1992a).

'ı drink', [lirê]+o 'I live'); the other one is that third person and singular number are default values which Spanish never marks.

Like repellers, stress attractors are systematically restricted. Their ability to displace stress depends on their position within the stem. The key observation in this regard is that the tense/mood suffixes inducing final stress in verbal forms always occupy the position reserved for the morphological head. This privilege empowers them not only to impose their morpho-syntactic features but also to compel the observance of their prosodic irregularity. I am thus claiming that the prosodic contrasts in (29–31) are due to a difference in morphological composition. While the morphological head of the first member of each pair is a regular morpheme, the morphological head of the second member is a stress attractor, which uses its influential status to circumvent the phonological principles in (8–10). That the suffixes -É 'preterit' and -RA/-RÉ 'future' are the source of the anomaly is corroborated by the fact that they invariably capture stress (e.g. cont+a+É 'I sang', bal+i+E 'I danced', man+d+E 'I commanded', cont+t+a+RÉ 'I will sing', bal+l+a+RÉ 'I will dance', man+d+a+RÉ 'I will command', cont+t+a+RA 'he will sing', bal+l+a+RA 'he will dance', man+d+a+RA 'he will command').

It goes without saying that discovering a commonality between the two forms of displacement – retraction and advancement with respect to the penult – would be a welcome result because it would offer opportunities for the development of a unified formal analysis in the future. The outlook for this enterprise is indeed positive for it can be demonstrated that the two deviations from the norm are subject to the same structural condition. It turns out that neither type of prosodically-irregular morpheme can impinge on stress assignment unless it is acting as the head of the morphological word. The prediction this makes is that, like repellers, attractors will lose the ability to displace stress when ousted from the governing position, in which case the stress pattern of the word will be decided by the new morphological head. The examples in (32–33) attest that this is exactly how Spanish stress assignment works.

(32) a. is.râ.el [ISRAEL] [form + o] 'Israel'
   b. is.râ.e.li.ta [ISRAEL + l] [form + a] 'from Israel'
   c. is.râ.e.li [ISRAEL + l + o] 'from Israel'

(33) a. Se.fâ.rad [SEFARAD] [form + o] 'Sephardi'
   b. Se.fâ.râ.dî.ta [SEFARAD + l] [form + a] 'from Sephardi'
   c. se.fâ.râ.dî [SEFARAD + l + o] 'from Sephardi'
In each of these sets, there is a primitive word, a toponym, and two derivatives, denomyns. The stem of the toponym consists solely of the root (32a and 33a), which, being a stress attractor, exercises its influence as morphological head to draw stress towards its final vowel. This contrasts sharply with the first denomyn (32b and 33b), where stress assignment can proceed in congruence with (11) because, since the suffix -i ‘gentilic’ is a stress abider, its rise to the role of morphological head disempowers the root without imposing any other prosodic irregularity. The alternative denomyn is relevant because it illustrates the perpetuation of the anomaly. This happens whenever a stress attractor relays another one in the role of morphological head. In (32c) and (33c), the suffix -i ‘gentilic’ becomes the new morphological head, thereby enabling its only vowel to snatch stress away from the root. Additional examples such as IRAQ > IRAQ+i, OMAN > OMAN+i, and NAZAR > NAZAR+i ratify that this suffix is prosodically irregular.18

The proposal has now been substantiated that the displacement of stress in either direction is governed by a key morpheme: the morphological head. This is proof that morphology exerts a powerful influence over phonology. I submit, as a principal conclusion of this study, that the type of morpheme in charge is the factor that ultimately determines the stress pattern of Spanish prosodic words. Normally, it is an abider that controls the morphological word (because abiders are the most numerous) and, in that case, penultimate stress – as per (11) – is possible. By contrast, when either a repeller or an attractor takes over, minimal displacement to the left or to the right ensues. The interplay between these conflicting forces is nicely illustrated by the adjective israelitico ‘Israelitic’, whose stem hosts one morpheme of each type: [ISRAEL+i-t+i-c+i-o].19 Because the repeller is the head of this structure, the stress pattern can be no other than paroxytone; however, in (32a), where the attractor is in power, stress must be oxytone, and in (32b), where the abider is in command, stress must be paroxytone.20

The phenomena uncovered above shed new light on the issue of quantity sensitivity. Stress attractors reveal that the interpretation of the pattern in (12) as evidence for heavy syllables is amiss. The fact that morphemes may end in either a vowel or a consonant is at the heart of the matter. This triviality becomes relevant because, when the desinence is non-overt, the final segment of a stress attractor serving as morphological head ends up in the rhyme of the final syllable (see 29–31). With such a parsing, the anomaly of the stress attractor inevitably reflects on the ultima, thereby creating the illusion that the unit that throws stress forward is phonological, rather than morphological.

To discern what is truly happening, let us begin by considering the scenario in which the final member of the stem is a stress attractor ending in a vowel. This is the origin of V-final oxytones, a pattern that is damaging to quantity sensitivity because it evinces that CV, the syllable type that is generally recognized

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18 Following a proposal by Kiparsky (1991), several analyses have argued that catalexis – the absence of segmental content for certain prosodic units – is the source of Spanish oxytones. Nouveau (1994a) tries this tactic in combination with quantity sensitivity, while Meinau (2005) does so in combination with quantity insensitivity. The QS analysis draws on a catalectic mora to obtain a wellformed monosyllabic trochee (e.g. [par-navi[mar[ko]]) for Panama) while the IB analysis draws on a catalectic syllable to obtain a wellformed syllabic trochee (e.g. [tar-navi[mar[ko]]], instead). By convention, catalectic units are represented between brackets. It is obvious that these analyses miss a crucial point: stress advancement is not induced by an ethereal entity, but by the morphological head.

19 Recall that capital letters are used for attractors, lower case for abiders, and small capitals for repellers.

20 An anonymous reviewer has made an interesting suggestion concerning the formal representation of stress repelling and stress attracting morphemes. Since a reluctance to serve as foot heads is the defining property of stress repellers, the recommendation is made that they be represented as lexically specified foot tails. This is illustrated for the suffix -ic ‘relation’ in (a) below. By the same token, since an undue willingness to serve as foot heads is the defining property of stress attractors, it is suggested that they be represented as lexically specified foot heads. This is illustrated for the suffix -i ‘gentilic’ in (b) below.

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The reviewer’s recommendation further instructs that a family of FAITHFULNESS constraints be introduced and ranked above the principles responsible for regular stress (8–10), so that the preservation of the lexically-specified prosodic structures can be ensured. A complementary step that needs to be taken with that is to fine-tune the power of FAITHFULNESS because, if this constraint family were absolutely dominant, it would cause overgeneration; that is to say that stress would potentially fall anywhere in the word since all prosodically irregular morphemes would have to be respected unconditionally. To prevent such a disastrous result, additional constraints would need to be deployed, but this is highly undesirable because, on one hand, they would be of an ad hoc nature and, on the other hand, they would duplicate the work of the principles in (8–10), which, as demonstrated in (11), are the reason why stress gravitates towards the end of the word. The reviewer goes on to acknowledge that, when FAITHFULNESS constraints are used to derive the irregular patterns, the question of whether the system is quantity sensitive or insensitive becomes trivial because the structural complexity of the syllable and foot no longer matters. To me, such difficulties are a red flag, a sign that the formal devices being used are excessively powerful.
as the epitome of light weight, behaves as though it were heavy (e.g. rect$\cdot$E 'I clipped', rect$\cdot$+AE 'I will clip', rect$\cdot$+RA 'he will clip', kuwait$\cdot$I 'Kuwaiti'). All phonologists will agree that the fact that stress falls on the final syllable of such words has nothing to do with phonological weight. Because no interpretation of quantity sensitivity would ever hold that syllables with simple rhymes can attract stress, this pattern indisputably shows that the true stress attractor is a morpheme. The structure of the syllable where the vowel of that morpheme ends up is circumstantial.

The reason why QS analyses have not been deterred by such pellucid counter-evidence is that the number of V-final stress attractors is very small. As a result, their overall impact is little (0.63%). To the handful of suffixes cited above, one can only add a couple more: l 'first person preterit for the second and third conjunctivats' (e.g. per$\cdot$+I 'I lost', dor$\cdot$+I 'I slept') and 0 'third person preterit for all conjunctivats' (e.g. sold$\cdot$+0 'he sold', per$\cdot$+i+0 'he lost', part$\cdot$+i+0 'he left'). This scarcity extends to stress-attracting roots, which are clearly exotic (e.g. BOGOTÁ "Colombian capital", BERNABÉ "Barnaby", YOLOMBO "Colombian municipality", COLÓN "hummingbird", BELÉM "Belezoló").

Stress attractors ending in a consonant are the source of C-final oxytones (12), which I now proceed to show have nothing to do with quantity sensitivity. The true facts are manifest in (34) and (35). A comparison between these two sets of data reveals that the lack of an overt desinence is directly linked to the emergence of oxytones. Observe that, in (34), the desinence, which includes abstract features for gender (masculine) and for morphological class (alternating), is covert, while in (35) an overt morph standing for feminine gender and morphological class A is present. The coveryness of the desinence is pivotal because it is only under that condition that stress falls further forward than phonology dictates (34).

(34) a. ir.lan.des [ir + land + ÉS I + 0] 'Irish, masculine'
b. ho.lan.des [ho + land + ÉS I + 0] 'Dutch, masculine'
c. ze.lan.des [ze + land + ÉS I + 0] 'Zealander, masculine'

(35) a. ir.lan.desa [ir + land + ÉS I + a] 'Irish, feminine'
b. ho.lan.desa [ho + land + ÉS I + a] 'Dutch, feminine'
c. ze.lan.desa [ze + land + ÉS I + a] 'Zealander, feminine'

Given that stress consistently looks for the vowel of the suffix –ÉS (e.g. ir.lan.des vs. ir.lan.desa), the sensible conclusion is that rhyme complexity is irrelevant. The actual reason why stress is final in (34) is that –ÉS ‘gentilic’ is a stress attractor governing the morphological word. In that capacity, this suffix is able to draw stress towards its vowel despite the fact that there is another vowel in the domain which is better positioned to act as foot head. Such disregard for phonological considerations warrants the claim that heavy syllables are a morphological mirage. Spanish has stress-attracting morphemes, not stress-attracting syllables.

In case the reader remained unconvinced, the data in (36) and (37) corroborate that the presence of a coda in the rhyme of the utima is trivial. It is conspicuous in (36) that the adjective japonés derives from the noun japon in and –ÉS in the other. Parallel outcomes are not possible for both forms in (37) because, although a stress attractor is also the morphological head, the desinence undergoes a major change; it goes from covert in the singular (37a) to overt in the plural (37b). Because pluralization interpolates a vowel in the desinence and that vowel engenders a new syllable, the need to displace stress vanishes in (37b). Put another way, the demands of the morphology now agree with those of the phonology with the fortunate result that both can be honored. Of special significance is the fact that the segmental identity that exists between the ultimas of (36b) and (37b) is disregarded. What matters is that the ending

Another reason why the type of formalization sketched above is not pursued here is that the suggested representations are inadequate on multiple counts. First, they are off target because, as shown above, the prosodic irregularities of repellers and attractors are not spread over the entire foot but rather localized on a specific segment, which is always a vowel. Second, they are wasteful because they posit fully-fledged prosodic constituents (i.e. syllables and feet), when there are independently needed principles in the grammar that can generate such structures. And third, they are dubious because they require that the structure of morphemes be defined in relation to their neighbors when, in fact, each morpheme merits an independent entry in the lexicon because it has its own meaning, form, and morpho-syntactic properties.

In conclusion, I am convinced that stipulating foot structure in underlying representations and forcing its preservation via faithfulness constraints is not the appropriate way to deal with prosodically irregular morphemes. There are several alternatives that are worth exploring, but space limitations forces me to leave the formal aspects of my proposal for a subsequent study.

21 The data in (34) and (35) evince another morphological quirk, which is that a change in gender can lead to a change in morphological class. In this case, the word goes from class B/€ to the masculine (e.g. irlandés/Irelandese) to class A in the feminine (e.g. irlandesa/Irelandese).

22 This can be verified by comparing the ultimas of a pair of oxytones such as ir.lan.des and ir.na.É, where we see that stress is drawn to –ÉS and –I regardless of the makeup of the syllable.
desinence is typically instantiated by a vowel, the presence of a consonant at the end of the word signals a gap in the inflectional paradigm and this serves as a telltale that a stress attractor is acting as the morphological head because all such morphemes allow the desinence to be covert when they are in command (e.g. [[ide+AL]+0] ‘ideal’, [[don+a+CIÓN]+0] ‘donation’, [[don+a+DOR]+0] ‘donor’, [[bon+DAD]+0] ‘goodness’, [[flor+ON]+0] ‘crybaby’). It is thanks to this morphological information that final stress is largely predictable and it is solely on these grounds that the predictability rate can be boosted from 64% to 91% (Recall that the phonological alternative – quantity sensitivity – yields inconsistent results and is, therefore, an unreliable predictor.) Further increases to the predictability rate are not possible because, since there is no contextual property – phonological, morphological, syntactic, or semantic – that correlates with the presence of stress repellers, there is no means whereby additional predictions could be made. This leaves a residue of 9%, consisting mostly of paroxytones, for which stress is unpredictable (e.g. sába.na ‘sheet’ vs. sa.ba.na ‘savanah’).

Another important inference that follows from the above is that a purely morphological analysis, as proposed by Hooper and Terrell (1976), is disadvantageous because it misses the phonological generalization that overarches the largest portion of the lexicon: a final syllabic trochee (11). The fact that this configuration is present in two thirds of prosodic words is so significant that any analysis that misses it is doomed.23 While much research is still needed to arrive at a full understanding of Spanish stress, sufficient progress has now been made to state with confidence that, despite morphological interference, Spanish stress is essentially phonological.

6 Further problems for quantity sensitivity

The contention has been made in the past that one of the benefits of postposing heavy syllables is that the distribution of stress becomes stricter; hence, more precise (Harris 1983, 1992a, 1995). From this standpoint, any complex rhyme in the penult prevents stress from retracting to the antepenult and one type of complex rhyme in the ultima keeps stress from reaching the penult (14–15). A comprehensive look at the lexicon reveals, nevertheless, that the facts are

23 That is indeed the case of all accounts that skip the ultima: those that explicitly uphold the stem as the stress domain (e.g. Roca 1998), as well as those that argue for the word instead, but treat –15 inflectional endings as extrametrical (e.g. Harris 1992a).
not exactly so (38–39). Over the years, evidence has been mounting that all of
the restrictions attributed to the complexity of syllable rhymes are violable
(Ohanessian 2004).

(38) Counterevidence to the two-syllable window:

a. Antepenultimate stress with a closed penult
   Example: Frömis.ta ‘locality in Spain’

b. Antepenultimate stress with a rising diphthong in the penult
   Example: Tę.cua.ro ‘locality in Mexico’

c. Antepenultimate stress with a falling diphthong in the penult
   Example: völ.let.bol ‘volleyball’

d. Antepenultimate stress with a closed ultima
   Example: 6.mi.cn ‘Greek letter’

e. Antepenultimate stress with a rising diphthong in the ultima
   Example: mag.mi.ło.co ‘grandiloquent’

(39) Counterevidence to the one-syllable window:

a. Antepenultimate stress with a falling diphthong in the ultima
   Example: Ten.pen.ley ‘locality in Argentina’

b. Penultimate stress with a falling diphthong in the ultima
   Example: yö.quey ‘jockey’

While it is true that the exceptions are limited to toponyms, loans, and learned
words, it would be unwise to exclude them from this investigation because their
use by speakers who have no knowledge of the donor languages indicates that
they have become part of the Spanish lexicon. This leads me to disagree with the
claim that this sort of data is irrelevant (Harris 1992a) and subscribe instead to
the view that all forms used by native speakers must be explained (Roca 1988,
1990, 2005a, 2006b, this volume, Ohannessian 2004). If the items in question
were not sanctioned by the grammar, their stay in the lexicon would be transient
because grammatical processing would force them to conform or perish; yet,
some of them have existed for centuries and show no signs of remittting (e.g.
Frömis.ta and Tęcuaro). Another justification for the inclusive approach is that
excluding any area of the lexicon from the pool of data would be methodologi-
cally unsound for the conclusions would be necessarily partial. Scientific rigor
requires that all possible patterns be granted a place in the system, even if their
frequency implies that they are marginal. The inclusion of the less common
patterns is also demanded by the fact that their numbers are growing, a trend
that seems irreversible since borrowing keeps introducing new items (e.g.
bimeran ‘boomerang’, pénalti ‘penalty’, ráquetbol ‘racquetball’, pokémon
‘Pokémon’, píney ‘pony’, cowboy ‘cowboy’, and so on). When examined from
this broader perspective, the restrictions in (14–15) cannot be accepted as signs
of ungrammaticality, they are merely dispreferred.24

Outside the generative literature, there has been strong opposition to the
claim that certain syllables reduce mobility within the accentual window by
virtue of attracting stress. Numerous experimental studies have resorted to
nonce words to test the validity of the window-narrowing restrictions and they
too have concluded that the placement of stress to the left of syllables with
complex rhymes cannot be ungrammatical because it is not systematically ruled
out. In one experiment, speakers were presented with trisyllabic nonce words
embedded in full sentences and were asked to judge whether the item written
in bold could be a Spanish word, seemed strange, or was utterly impossible
(Bäkkäri 2002a). Results show that, in the worse cases, the rates of rejection
for words containing quantity-sensitivity violations was in the vicinity of 50%;
that is to say that the skipping of the alleged heavy syllables was never deemed
decidedly impossible (40). This line of research has considerably increased the
visibility of quantity insensitivity in recent years. Bäkkäri (2002b), Alvord
(2003), Face (2004, 2006), and Face and Alvord (2005) also argue, on the basis
of nonce words, that Spanish speakers do not distinguish between light and
heavy syllables.

24 For reasons that remain largely undetermined – but among which frequency is likely to be a
major player – some loanwords progress to more advanced levels of nativation than others. For
instance, there are dialects in which pénalti and völ.let.bol have modified their prosodic
structure to become the more native-like penalti and volletbol. While one can surmise that
such stress shifts are caused by the enforcement of quantity sensitivity, this line of thought
has the unfortunate consequence of leaving those loanwords that have not yet reached the
same level of nativation out of the grammar, as if they were unknown to the monolingual
Spanish speakers who use them. Quantity insensitivity, by contrast, does not require the ex-
tradition of any words from the Spanish grammar to an unknown jurisdiction. In the analysis
I propose, the cause of such stress shifts is a change in the sound structure of prosodically
irregular morphemes. To be more precise, the mutation of a stress repeller into an abider
will induce a stress shift from the antepenult to the penult (penalti > penalti). Similarly, the
mutation of a stress repeller into an attractor will cause a stress shift from the antepenult to
the ultima (e.g. völ.let.bol > volletbol). Even preponpretonism – the rare but well attested
phenomenon whereby a panon tone turns into preponatone – can be explained in this
fashion; it is the mutation of a stress abider into a retractor (e.g. vejer.do < vejer.do “dizziness”).
My point is that all such changes happen because of morphological restructurings, not because
of quantity sensitivity.
(40) Acceptability of nonce words (Bárány) 2002a)

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I cannot help but notice the irony of the fact that the bulk of evidence for quantity insensitivity has come from loans and nonce words when, in actuality, the parametrical lexicon offers ample proof of it. Minimal prosodic words, most of which are disyllabic but may also be monosyllabic, are one of the contexts where it is crystal clear that a correlation between stress and syllable structure does not exist. One finds, for instance, accented monosyllables such as yo 'I', tú 'you', ve 'he goes', va 'he goes', sí 'yes', no 'no', té 'tea', fe 'faith', vi 'I saw', di 'I gave', da 'he gives', and so on, coexisting with others of greater complexity, such as par 'pair', cat 'lame', pan 'bread', red 'light', pie 'foot', ley 'law', dio 'he gave', doy 'I give', etc. Since syllables of the CV type are treated identically to those of the CVC, CVY, and CVY types, this is prime evidence that Spanish stress assignment is blind to syllable structure. I submit that, in a system like this, it is unfounded to label some syllables heavy and others light because their behavior reveals that they are prosodically on a par.

Larger prosodic words ratify that differences in rhyme complexity do not vary stress in the expected direction. Items in which a syllable with a simple rhyme manages to secure stress despite the availability of syllables of greater complexity occur throughout the lexicon and involve all positions of the accentual window (e.g. móvil 'mobile', bam.bú 'bamboo', hun.dí 'I sank', por.tó til 'portable', al.cá.xar 'fortress', Márti.nes 'last name', com.pó.nes 'you compose', far.ma.cia 'pharmacy', es.tu.dio 'I study', san.ti.gua 'he makes the cross sign', chim.pan.cé 'chimpanzee', pas.pá.tú 'pass-passe-partout', con.ser.só 'he conversed' ré.ming.to.ni 'rifle', Sá.meu.són 'Samuelson'). The simple fact that this is possible proves that syllable structure and stress are not systematically correlated in Spanish. The indisputable truth is that syllables of any type can capture stress and, when various syllable types are available, no particular one is favored. The only case in which rhyme complexity appears to create a bias has already been shown to be a morphological phenomenon (34–35).

When the search for evidence is extended beyond the stress system, additional signs of quantity insensitivity can be found. A promising place to look for them is the sound inventory. As is well known, the possibility of packing several moras in one syllable offers QS languages the option of using length distinctions. Long vowels, which bear two moras (V₂) can be distinguished from short ones (V₁) and, similarly, long consonants, which are associated with one mora (C₁), can be opposed to short ones (C). In such systems, syllables containing a long vowel are always heavy, while syllables containing a short vowel may be heavy or light depending on whether they also contain a coda consonant associated with a mora. While languages vary as to whether vowels only, consonants only, or both major classes exploit length distinctions (Zec 2011), a correlation between the presence of long segments and the existence of heavy syllables is inevitable because the most economical way to add weight to a syllable is by lengthening one of its segments. In QS languages, on the other hand, neither type of length distinction is viable because, if syllables are to have equal weight, no such unit can be granted multiple moras and, consequently, no segment can be long. The expectation thus arises that the sound inventories of QS systems will consist exclusively of short segments, precisely what we find in Spanish.

Phonological processes are another source of independent evidence. Changes to the number of segments in the rhyme of the ultima are relevant because they are expected to alter the weight of that syllable and thereby impinge on the structure of the foot. Word-final consonant deletion, a variable process that applies most frequently to obstruents, fits the bill. Deletion of word-final /d/ is especially common (41).

(41) e.dad [e.ˈdaʔ] – [e.ˈda] ‘age’
  pa.red [pa.ˈɾeʔ] – [pa.ˈɾe] ‘wall’

QS analyses claim that the reason why words such as those in (41) are oxtone is that their final consonant provides the ultima with a second mora, thereby affording the construction of a binary foot on a single syllable (e.g. [e.ˈdaʔ]). Given that the well-formedness of the foot hinges on the presence of two segments in the rhyme of the ultima, this view predicts that word-final consonant

25 It is important to understand that the expected correlation is not specifically between long vowels and heavy syllables, but rather between long segments (whether they are vowels or consonants) and heavy syllables.
deletion will trigger some form of adjustment. One way to maintain prosodic 
stability would be to rescue the floating mora by linking it to the adjacent vowel, 
but that is clearly not happening here for there is no evidence of vowel length-
ening (e.g. *[εɾ(وء)wa]*)). The loss of the consonant along with its mora would 
then require that the foot be restructured, but that is not happening here either 
for there is no change in stress locus (e.g. *[ɾεɾ(وء)wa]*)). As seen in (31), the actual 
reaction is inertness. That nothing is done to repair the destabilized prosodic 
structure is quite informative; it confirms that the prosodic structure of oyxotones 
is not dependent on the number of segments parsed by the ultima.

7 Conclusion

While generativists acknowledge that morphology introduces an element of 
unpredictability in Spanish stress, they are also aware that achieving the highest 
possible predictability rate is a desirable goal and quantity sensitivity offers them 
a seemingly reasonable way to do so on the basis of phonological properties 
alone. Unfortunately, such an enterprise cannot succeed for the simple reason 
that syllable structure and stress do not correlate in this language.

In this article, I have demonstrated that, from a theoretical point of view, 
quantity sensitivity is untenable. It leads to circularity because the savings in 
stress marks that it allegedly yields are counterbalanced by an exorbitant 
number of extrametricality marks and, even if one accepts the stipulation that 
finality within certain domain/s renders prosodic units invisible, proper accen-
tuation of many words is still not possible. Another factor that makes quantity-
sensitivity irrevocable is that heavy syllables reduce mobility within the accentual 
window and, although this seems to have the positive effect of making the 
distribution of stress stricter, it is actually a disadvantage because it adds to 
the pile of data that cannot be derived. In a nutshell, there is no empirical 
grounding for the restrictiveness imposed by heavy syllables.

There is incontrovertible evidence that the penult is the normal stress locus 
and that, rather than a peculiarity of nouns, this is a cross-categorical generali-

dation; we see it in the noun cuaderno 'notebook', in the adjective complicado 'complicated', in the verb insinuarse 'to be insinuated', in the adverb bastante 'enough', and in most of their congerens. The first significant contribution of 
this study has been to provide a natural explanation for this fundamental 
fact. I have argued that paroxytones abound in the language because of their 
simplicity; they feature a syllabic trochee strategically located at the end of 
the word, a structure that comes at no cost to the Spanish grammar because it

follows from universal principles (8–10), which learners can infer from the forms 
they are exposed to. This finding has made it possible to conclude that phono-

The phonological weight of Spanish syllables — 309

logy alone accounts for the accentuation of a large portion of the lexicon, an 
estimated 66%.

I have also demonstrated that, in the remaining portion of the lexicon, stress 
assignment is conditioned by the morphology; more specifically, by the 
rise of prosodically-irregular morphemes – attractors or repellers – to the role 
of the morphological head. When that happens, the normal stress locus cannot 
be maintained; stress is minimally displaced to the right or to the left as the size 
of the foot decreases or increases by one syllable. This is the origin of the second 
and third most common basic patterns: oyxotones and preparoxytones, respectively.

The proposed analysis recognizes that the desinence is part of the stress 
domain (i.e. the full word) and that stress assignment relies on that constituent, 
even when it is covert. An important observation in this regard is that the rise 
of a stress attractor to the role of morphological head may coincide with a covert 
or an overt desinence (e.g. [IAPON+ES]+[O] 'Japanese, masculine, singular' 
vs. [IAPON+ES]+[e+s] 'Japanese, masculine, plural', [IAPON+ES]+[a] 'Japanese, 
feminine, singular', and [IAPON+ES]+[a+s] 'Japanese, feminine, plural'). When 
the desinence is covert, meeting the demands of the stress attractor requires de-
parting from the syllabic trochee, that is to say that the unit that the morphology 
submits as stress bearer differs from that recommended by the phonology. While 
this conflict is invariably resolved in favor of the morphology (e.g. ja.po.nes has 
final stress despite there being another vowel which is better positioned to act as 
foot head), a harmonic solution is possible when the desinence is overt. In such 
a case, both morphology and phonology can be satisfied because they concur 
that stress should fall on the penult. The upshot of this agreement is that the 
irregularity of the stress attractor becomes hidden; it can be satisfied without 
distorting the foot (e.g. ja.po.nes.es, ja.po.nes.sa, and ja.po.nes.sas appear normal 

despite the fact that a stress attractor is in command).

The demise of quantity sensitivity is precipitated by the discovery that the 
clue that context provides to guide the accentuation of oyxotones is actually mor-

phological: a gap in the inflectional paradigm. Given that a vowel is the typical 
exponent of the desinence, the presence of a consonant at the end of the word 
points to an empty paradigmatic position, which constitutes a reliable clue 
that a stress attractor is in command because all such morphemes allow the 
desinence to be covert when they govern the word (e.g. [PERDIZ]+[O] 'partridge', 
[cont+a+DOR]+[O] 'accountant'). Thanks to this discovery, it is legitimate to say 
that 91% of the lexicon has predictable stress because, to the 64% that follows 
regular footing, one can add the 27% that is affected by the contextually-
inferable irregularity.
Reaching full predictability is impossible, however, because the system also includes stress repellers, the presence of which does not correlate with any contextual property that could serve as the basis for further predictions. This means that storing stress-related information in the lexical entry of some words is ineluctable, but it should be underscored that a single record suffices. The proper place for that record is, of course, the entry of the prosodically-irregular morpheme (e.g. –c ‘relation’), not every word where that morpheme is present.

The key finding regarding the recalitrant pattern has been that the rise of a stress repeller to the role of morphological head is what induces antepenultimate stress and that further displacement to the left is unwarranted because, there being a single morphological head per word, the demands of stress repellers co-occurring with the one sitting in the governing position are not binding. From this analytical perspective, the factor that ultimately decides the stress pattern of the word is the type of morphological head it has. Abiders in that role allow the phonology to yield a word-final syllabic trochee (paroxytones), whereas attractors and repellers exercise their power to shorten or lengthen that foot minimally (oxytones and proparoxytones, respectively).

The next step in this research program is to develop a formal analysis that integrates the phonological principles in (8–10) with the veto powers of the morphological head, a formidable task that I shall tackle elsewhere. Considering how intricate the interactions between phonology and morphology are, the day when all questions about Spanish stress can be given a satisfactory answer may still be far away, but for the time being at least the following fundamental points have been solidly established:

(42)  a. Spanish stress is not entirely phonological or morphological; it is essentially phonological, although strongly conditioned by the morphology.

  b. Like in all other languages, the domain of primary stress is the word, not the stem.

  c. Spanish feet are trochaic, not iambic.

  d. Spanish is quantity insensitive, not quantity sensitive.

  e. From a prosodic point of view, Spanish morphemes fall into three categories: stress abiders, stress repellers, and stress attractors.

  f. A final syllabic trochee is behind the abundance of paroxytones, which follow form universal prosodic principles.

  g. Prosodically-irregular morphemes can only impinge on stress assignment when acting as the head of the morphological word; they are disempowered when removed from that role.

h. Oxytones are predictable from a gap in the inflectional paradigm, which betrays the presence of a stress attractor in the governing position.

i. All paroxytones are unpredictable because the presence of a stress repeller in the governing position does not correlate with any contextual property.

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