This is the pre-publication version of an article to appear in *Studies in Hispanic and Lusophone Linguistics.* This version will be removed once the article goes to press, sometime in 2011.

The Phonology-Morphology Interface in Judeo-Spanish Diminutive Formation: A Lexical Ordering and Subcategorization Approach

Travis G. Bradley & Jason Smith
University of California, Davis & Southern Utah University

Abstract

In this article we examine diminutive formation in Judeo-Spanish, which has not been treated before in the generative literature. The distribution of diminutive suffixes is shown to be predictable based on an interaction of morphological and phonological properties, which is a recognized hallmark of diminutive formation in Spanish more generally. Judeo-Spanish also presents some interesting twists not commonly found in other varieties of Spanish. A formal analysis is developed in Optimality Theory that builds upon recent work on allomorph selection involving lexical ordering and subcategorization. A comparison with previous analyses of other Spanish varieties shows that our approach can account for the behavior of nominal class markers in diminutivization, as well as the alternation of diminutive allomorphs, while avoiding the proliferation of language- and morpheme-specific constraints. Furthermore, our account sheds new light on the moraic status of glides in rising and falling diphthongs and of the trill in word-medial intervocalic position.

1. Introduction

Spanish diminutive formation has been well studied within generative frameworks and remains a useful test bed for theoretical approaches to the phonology-morphology interface (Bermúdez-Otero 2006, 2007, Colina 2003a, 2009, Crowhurst 1992, Elordieta & Carreira 1996, Harris 1994, Jaeggli 1980, Miranda 1999, Prieto 1992, and Stephenson 2004, among others). However, one dialect group has been noticeably absent from the literature to date. Judeo-Spanish (henceforth, JS) refers to those Spanish varieties preserved by the Sephardic Jews after their expulsion from Spain in 1492 and during their subsequent emigration throughout Europe, North Africa, the Middle East, and the United States.

The present study examines diminutive formation in JS with two main goals, one empirical and one theoretical. First, we bring new data to the generative literature on Spanish diminutive formation, based on Bunis's (2003) corpus study of JS diminutives. In JS, *-iko/a* is the preferred diminutive suffix, and the suffixes *-ito/a* and *-eziko/a* have a more limited distribution. We show that the basic patterns of diminutive allomorphy are predictable based on properties of the stem: the inflectional class to which it belongs, the number of syllables it contains, the place of articulation of its final consonant, and in the case of monosyllabic stems, moraic weight. These properties show an interaction of morphological and phonological properties, which is a recognized hallmark of diminutive formation in Spanish more generally. Our theoretical contribution is a formal analysis of this interaction, couched within recent work on allomorph selection by Bonet (2006), Bonet, Lloret & Mascaró (2007), and Mascaró (2007). In our analysis, the JS diminutive suffix is represented lexically as a partially ordered set of allomorphs, {(zik, ik) > it}, in which /zik/ and /ik/ both have priority over /it/ but are unordered with respect to each other. The allomorph /zik/ has a subcategorization requirement limiting its attachment to monosyllabic stems that (i) belong to the e/Ø inflectional class or (ii) contain two moras. Mascaró and colleagues propose two new constraints: faithfulness to the lexical ordering of allomorphs (PRIORITY) and faithfulness to lexically encoded subcategorization requirements (RESPECT). We show how these constraints interact with other faithfulness and markedness constraints to account for the interplay of morphology and phonology in JS diminutivization.

The paper is organized as follows. Section 2 outlines the basic patterns of diminutivization in JS. Section 3 reviews Bonet's (2006) lexical ordering account of Spanish class markers in singular and plural nominals. After applying this approach to JS nominal inflection, Section 4 presents our analysis of diminutivization, which includes the behavior of class markers in diminutivized words, the distribution of the suffixes *-iko/a* and *-eziko/a,* the emergence of *-ito/a* after stem-final consonants with a dorsal place feature, and the resolution of hiatus created by *-iko/a* suffixation after stem-final stressed vowels. We then extend the analysis to account for disyllabic words that contain a diphthong or intervocalic trill, which lends support to the claim that pre- and postnuclear glides and the intervocalic trill can be moraic in the input. Section 5 provides a comparison with theoretical proposals from the literature on diminutivization in dialects other than JS. Section 6 summarizes and concludes.

2. Basic patterns of diminutivization in JS

Expulsion of the Sephardic Jews from Spain in 1492 led to dialect mixing and competition among variant linguistic forms in Sephardic communities (Penny 1992). Bunis (2003) provides an extensive description of diminutive suffixes in JS varieties that developed in the Ottoman Empire and its successor states. There was competition among variant suffixes in the 16th century, which we do not examine here, but by the 18th century, the suffix *-iko/a* had come to predominate. Diminutive forms are amply attested in texts from around 1729 and involve "lexemes derived from all source components, including Ottoman Turkish and other local languages, Hebrew and Aramaic, and, from the second half of the 19th century, Western European prestige languages such as Italian, French and German" (Bunis 2003, p.205). As in any language with productive diminutive formation, diminutivized words in JS are used to express a range of meanings, such as smallness, youngness, weakness, among others (see Bunis 2003, pp.231-234 on the semantics of JS diminutives, which we do not examine in this paper).

The JS diminutive suffix has three principal allomorphs, *-iko/a, -ito/a,* and *-eziko/a,* in which the final vowel corresponds to the gender of the non-diminutive form, i.e. *-o* for masculine and *-a* for feminine. The following examples, from Bunis (2003, pp.207-215), are representative of the patterns observed in Ottoman JS since the 18th century.[1] First, *-iko/a* is used with disyllabic or longer words that end in unstressed *-o* (1a), unstressed *-a* (1b), or a non-dorsal consonant (1c).

(1)	a.	*palo*	'stick'	>	*paliko*
		alto	'tall'	>	*altiko*
		pekado	'sin'	>	*pekadiko*
		ermano	'brother'	>	*ermaniko*
	b.	*rama*	'branch'	>	*ramika*
		kolcha	'blanket'	>	*kolchika*
		kadena	'chain'	>	*kadenika*
		guluba (SC. *golub*)	'pigeon'	>	*gulubika*
	c.	*kazal* (OS.)	'village'	>	*kazaliko*
		hamor (H.)	'donkey'	>	*hamoriko*
		findján (T. *fincan*)	'small cup'	>	*findjaniko*
		mezamer (H.)	'assistant cantor'	>	*mezameriko*
		chintiyán (T. *ç-*)	'peasant women's trousers'	>	*chintiyaniko*

-iko/a is used with trisyllabic words that end in unstressed *-e* (2).

(2)	*árvole* (OS.)	'tree'	>	*árvoliko*
	prezente	'gift'	>	*prezentiko*

-iko/a is also used with words that end in a stressed vowel. If the final vowel is *-á, -ó,* or *-ú,* then the hiatus that results from *-iko/a* suffixation is typically maintained (3a), although sporadic glide epenthesis (3b) is also attested.

(3)	a.	*pará* (T.)	'money'	>	*paraika*
		keilá (H. *qehila*)	'synagogue'	>	*keilaika*
		masá (H. *-ş-*)	'matzah'	>	*masaika*
		shaká (T. *ş-*)	'joke'	>	*shakaika*
		gató (F. *gateau*)	'cake'	>	*gatoiko*
		papú (G. *papús*)	'grandpa'	>	*papuiko*
	b.	*pará* (T.)	'money'	>	*parayika*
		udá (T.)	'handkerchief'	>	*udayika*
		djudyós	'Jews'	>	*djudyoyikos*

If the final vowel is *-é* or *-í,* then it disappears before the initial vowel of the suffix (4).[2]

(4)	*kyefté* (T. *köfte*)	'meat patty'	>	*kyeftika*
	Moshé (H.)	(personal name)	>	*Moshiko*
	mantí (T. *-tı*)	'Turkish dumpling'	>	*mantiko*
	chelebí (T. *ç-*)	'gentleman'	>	*chelebiko*

In the JS of Salonika, *-eko/a* results from the coalescence of final stressed *-á* with the initial vowel of *-iko/a* (5). This type of vowel coalescence is unattested in other JS varieties (Bunis 2003, p.209).

(5)	*pará* (T.)	'money'	>	*pareka*
	udá (T.)	'handkerchief'	>	*udeka*
	torbá (T.)	'sack'	>	*torbeka*

Second, *-ito/a* is used with words ending in a dorsal glide (6a) or consonant (6b-d), which may be followed by an unstressed vowel.

(6)	a.	*agwa*	'water'	>	*agwita*
		lingwa	'tongue'	>	*lingwita*
		fragwa (OS. *fragua*)	'building'	>	*fragwita*
		Elyaw (H. *Eliyahu*)	(personal name)	>	*Elyawito*
	b.	*sako*	'sack'	>	*sakito*
		kapak (T.)	'lid'	>	*kapakito*
		boka	'mouth'	>	*bokita*
		bureka (T. *börek*)	'filled pastry'	>	*burikita*
	c.	*figo* (OS.)	'fig'	>	*figito*
		miga	'crumb'	>	*migita*
		minag (H. *minhag*)	'custom'	>	*minagito*
		albóndiga	'meatball'	>	*albondigita*
	d.	*graha* (SC.)	'bean'	>	*grahita*
		malah (H. *-l'ax*)	'angel'	>	*malahito*

Finally, *-eziko/a* is used with monosyllabic words ending in a consonant (7a) and disyllabic words ending in unstressed *-e* (7b).[3]

(7)	a.	*kal* (H. *qahal*)	'synagogue'	>	*kaleziko*
		fil (T.)	'elephant'	>	*fileziko*
		pan	'bread'	>	*paneziko*
		djam (T. *c-*)	'display window'	>	*djameziko*
		flor	'flower'	>	*florezika*
		sar (H. *ṣa'ar*)	'affliction'	>	*sareziko*
	b.	*bote*	'jar'	>	*boteziko*
		golpe	'blow'	>	*golpeziko*
		nuve	'cloud'	>	*nuvezika*
		parte	'part'	>	*partezika*
		padre	'father'	>	*padreziko*
		madre	'mother'	>	*madrezika*
		lumbre	'fire, flame'	>	*lumbrezika*

These data show that the suffix *-iko/a* appears in the greatest number of contexts, while the suffixes *-ito/a* and *-eziko/a* have a more limited distribution. As in any variety of modern Spanish, nouns and adjectives in JS can be grouped into different morphological classes depending on the inflectional suffix, or *class marker,* that attaches to the stem: *-o, -a, -e,* and Ø (where Ø is for words ending in a consonant or stressed vowel). Separating out the class marker makes it possible to account for the distribution of diminutive suffixes in terms of the morphological and phonological properties of the stems to which they attach. *-eziko/a* appears with monosyllabic stems that take the

class marker *-e* or Ø (8a). If a stem is monosyllabic but takes *-o* or *-a* (8b), or if a stem has more than one syllable regardless of class marker (8c), then the default suffix *-iko/a* is used.

(8) a. *kal-Ø* > *kaleziko*
bot-e > *boteziko*
b. *pal-o* > *paliko*
ram-a > *ramika*
c. *pekad-o* > *pekadiko*
kaden-a > *kadenika*
kazal-Ø > *kazaliko*
pará-Ø > *para(y)ika*
árvol-e > *arvoliko*

-ito/a appears with stems that end in a dorsal consonant (9a). If a stem ends in a non-dorsal consonant (9b), then the default suffix *-iko/a* is used.

(9) a. *sak-o* > *sakito*
kapak-Ø > *kapakito*
b. *pal-o* > *paliko*
kazal-Ø > *kazaliko*

The contrasts in (8) and (9) illustrate the roles of morphology and phonology in conditioning the distribution of diminutive suffixes. The alternation between *-iko/a* and *-eziko/a* is predictable by an interaction of morphological and prosodic properties, namely the inflectional class and the syllable count of the stem. The longer suffix is selected to compensate for the shorter length of a monosyllabic stem, but only if the latter belongs to the inflectional class of words that end in *-e* or Ø. On the other hand, the alternation involving *-ito/a* is predictable on phonological grounds alone, namely the place feature of the stem-final consonant. The suffix containing the coronal stop is selected to avoid a CVC sequence in which both consonants are dorsal.

In the next section, we review Bonet's (2006) lexical ordering approach to class marker allomorphy in Spanish. Our analysis of JS diminutive allomorphy takes advantage of the same lexical specifications that are independently necessary in Bonet's account.

3. Lexical ordering and class marker allomorphy in Spanish

In Optimality Theory (henceforth, OT; Prince & Smolensky 1993/2004), phonologically conditioned allomorphy is typically analyzed as an effect of The Emergence of The Unmarked (TETU). The input is assumed to contain multiple allomorphs, and high-ranking faithfulness constraints are vacuously satisfied in the selection of any one particular allomorph. Because faithfulness is irrelevant, lower-ranking markedness constraints get the chance to exert their preference for the unmarked form, which emerges as the optimal surface allomorph.

In recent work, Bonet (2006), Bonet, Lloret & Mascaró (2007), and Mascaró (2007) have proposed that the set of input allomorphs may be ordered, either partially or fully, and that the grammar contains a constraint requiring faithfulness to the lexical ordering:

(10) PRIORITY (Bonet, Lloret & Mascaró 2007, p.906, Mascaró 2007, p.726)
Respect lexical priority (ordering) of allomorphs.
Given an input containing allomorphs m_1, m_2, ... m_n, a candidate m_i', where m_i' is in correspondence with m_i, PRIORITY assigns as many violation marks as the depth of ordering between m_i and the highest dominating morph(s).

Furthermore, input stems or affixes can have subcategorization requirements that specify the type of morpheme with which they combine. An additional constraint requires faithfulness to the selectional restrictions of input morphemes:

(11) RESPECT (Bonet 2006, p.327, Bonet, Lloret & Mascaró 2007, p.918)
Respect idiosyncratic lexical specifications.

These two constraints interact with other faithfulness and markedness constraints to determine the distribution of surface allomorphs. As an illustration of the lexical ordering approach to allomorph selection, we review Bonet's (2006) account of Spanish class markers, which also sets the stage for our analysis of JS diminutives to come.

In Spanish, nouns and adjectives can be grouped into several different classes depending on the inflectional suffix that attaches to the stem: *-o, -a, -e,* and Ø. Spanish nominal inflection has been the subject of many studies in the generative literature (see Bermúdez-Otero 2006, Bonet 2006, Colina 2003b, Harris 1991, 1992, 1999, and Roca 1989, among others). These inflectional suffixes have many descriptive labels (e.g. word marker, theme vowel, terminal element, desinence), but we follow Bonet (2006) in calling them *class markers.* The examples in (12), (13), and (14) show class markers in masculine and feminine nominals and in genderless words, respectively:

(12) Class markers in masculine nominals

a.	*-o*	*pelo*	'hair'
		blanco	'white'
b.	*-e*	*hule*	'oilcloth'
		verde	'green'
c.	Ø	*mal*	'evil'
		marroquí	'Moroccan'
d.	*-a*	*atleta*	'athlete'
		persa	'Persian'

(13) Class markers in feminine nominals

a.	*-a*	*casa*	'house'
		roja	'red'
b.	*-e*	*clase*	'class'
		alegre	'happy'
c.	Ø	*pared*	'wall'
		hindú	'Hindu'
d.	*-o*	*mano*	'hand'
		modelo	'(fashion) model'

(14) Class markers in genderless words

a.	Ø	*aquí*	'here'
		ayer	'yesterday'
b.	*-o*	*dentro*	'inside'
		pronto	'soon'
c.	*-a*	*fuera*	'outside'
		ahora	'now'

Most masculine nominals end in *-o* and most feminines in *-a.* These two suffixes are in some sense the unmarked, or default, class markers for words of masculine and feminine grammatical gender. However, there are many exceptions to this common pattern. Words that take *-e* or Ø can be either masculine (12b,c) or feminine (13b,c). Much rarer, yet still attested, are masculine nominals ending in *-a* (12d) and feminines ending in *-o* (13d). The fact that class markers are present even in genderless words (14) shows that these inflectional suffixes are not directly related to grammatical gender. They are also unrelated to sex because they appear in words denoting objects.

Nominals ending in the class marker *-o, -a,* or *-e* in the singular simply add an *-s* to form the plural (15a). Most nominals ending in a consonant or stressed vowel in the singular show an additional *-e* in their corresponding plural forms (15b). Based on a survey of borrowings in the CREA database of the Real Academia Española, Bonet (2006, p.322) observes that *-e* is rare in the plural forms of loanwords. Most loans appear in the plural only with *-s* (15c), while others show variation between plurals ending in *-s* and those ending in *-es*.

(15) a. Nominals with *-o, -a,* or *-e* in both singular and plural

pelo	*pelos*	'hair(s)'
casa	*casas*	'house(s)'
ule	*ules*	'oilcloth(s)'
clase	*clases*	'class(es)'

b. Nominals with Ø in the singular but *-e* in the plural

pan	*panes*	'bread(s)'
jabalí	*jabalíes*	'wild boar(s)'
pared	*paredes*	'wall(s)'
hindú	*hindúes*	'Hindu(s)'

c. Loanwords with Ø in both singular and plural

fan	*fans*	'fan(s)'
input	*inputs*	'input(s)'
clip	*clips*	'paperclip(s)'
jersey	*jerseys*	'jersey(s)'

Bonet (2006) develops an OT account in which class markers are represented as partially ordered sets of input allomorphs. These sets correspond to the morphological features for masculine, feminine, and genderless words (non-verbs) as in (16). '>' indicates priority, and the comma indicates equal status between allomorphs enclosed in parentheses. The ellipses abbreviate more 'exotic' class markers (e.g. the *-u* of *tribu* 'tribe'), which we do not consider in this paper.

(16) a. [-feminine]: {o > (e, Ø) > a > ...}
b. [+feminine]: {a > (e, Ø) > o > ...}
c. [-V]: {Ø > ...}

In each set, more preferred allomorphs appear to the left and less preferred allomorphs to the right. These orderings reflect different markedness relations among the inflectional suffixes. *-o* is the default class marker for words of masculine gender (16a), while *-a* is the default for feminines (16b) and Ø for genderless words (16c). In (16a,b), *-e* and Ø are relatively less common than the defaults, and *-a* and *-o* are even more exceptional as class markers for masculine and feminine nominals, respectively.

Words taking the default class marker are represented lexically as bare stems without any idiosyncratic selectional restrictions, as in (17).

(17) a. Masculine words: /pel/ *pelo* 'hair'
/blank/ *blanco* 'white'
b. Feminine words: /kas/ *casa* 'house'
/rox/ *roja* 'red'
c. [-V]: /aki/ *aquí* 'here'
/ajɐr/ *ayer* 'yesterday'

Words with a non-default class marker have a subcategorization requirement, indicated by a subscript in their lexical entry, as in (18).

(18) a. Masculine words: /ul$_e$/ *hule* 'oilcloth'
/berd$_e$/ *verde* 'green'
/atlet$_a$/ *atleta* 'athlete'
/pers$_a$/ *persa* 'Persian'
b. Feminine words: /klas$_e$/ *clase* 'class'
/alegr$_e$/ *alegre* 'happy'
/man$_o$/ *mano* 'hand'
/model$_o$/ *modelo* '(fashion) model'

c.	[-V] words:	/dentr$_o$/	*dentro*	'inside'
		/pront$_o$/	*pronto*	'soon'
		/fwer$_a$/	*fuera*	'outside'
		/aor$_a$/	*ahora*	'now'

The *-e* of plural forms like those in (15b) is analyzed as a class marker, whose presence is an idiosyncratic property of lexical entries.[4] Words that take Ø in the singular but *-e* in the plural have a subcategorization requirement that includes both class markers, as in (19a). For loanwords that take only *-s* in the plural, only the class marker Ø is included, as in (19b).

(19) a. Nominals with Ø in the singular but *-e* in the plural

/pan$_{Ø,pl:e}$/	*pan-panes*	'bread(s)'
/xabali$_{Ø,pl:e}$/	*jabalí-jabalíes*	'wild boar(s)'
/pared$_{Ø,pl:e}$/	*pared-paredes*	'wall(s)'
/indu$_{Ø,pl:e}$/	*hindú-hindúes*	'Hindu(s)'

b. Loanwords with Ø in both singular and plural

/fan$_Ø$/	*fan-fans*	'fan(s)'
/input$_Ø$/	*input-inputs*	'input(s)'
/klip$_Ø$/	*clip-clips*	'paperclip(s)'
/xersej$_Ø$/	*jersey-jerseys*	'jersey(s)'

The following tableaux illustrate Bonet's analysis of class marker selection. In each case, the input consists of a lexical stem followed by one of the sets of class marker allomorphs shown in (16a,b). The ranking of RESPECT above PRIORITY guarantees the selection of the default suffix except when the stem is lexically marked as subcategorizing for a non-default class marker. In Table 1, the stem /pel/ combines with the set of masculine allomorphs in (16a). RESPECT is irrelevant because the stem has no subcategorization requirement, and PRIORITY selects candidate (a) with the default class marker for masculine nominals, *-o*. The analysis works the same for feminine nominals ending in *-a,* as seen in Table 2. For reasons of space, we omit the evaluation of genderless words.

	/pel+{o>(e,Ø)>a}/	RESPECT	PRIORITY
☞	a. pe.lo		
	b. pe.le		*!
	c. pel		*!
	d. pe.la		*!*

Table 1. Selection of the default class marker *-o* in masculine *pelo* 'hair'.

	/kas+{a>(e,Ø)>o}/	RESPECT	PRIORITY
☞	a. ka.sa		
	b. ka.se		*!
	c. kas		*!
	d. ka.so		*!*

Table 2. Selection of the default class marker *-a* in feminine *casa* 'house'.

If an input stem contains a subcategorization requirement, then RESPECT becomes active and overrides faithfulness to the lexical ordering of class marker allomorphs. In Table 3, the stem /ul$_e$/ combines with the set of masculine allomorphs. Because it is more important to respect the selectional restrictions of input morphemes, the grammar selects candidate (b) with the marked class marker *-e.* Table 4 gives the evaluation of feminine nominals ending in *-e.*

	/ul$_e$+{o>(e,Ø)>a}/	RESPECT	PRIORITY
	a. u.lo	*!	
☞	b. u.le		*
	c. ul	*!	*
	d. u.la	*!	**

Table 3. Selection of the class marker *-e* in masculine *hule* 'oilcloth'.

	/klas$_e$+{a>(e,Ø)>o}/	RESPECT	PRIORITY
	a. kla.sa	*!	
☞	b. kla.se		*
	c. klas	*!	*
	d. kla.so	*!	**

Table 4. Selection of the class marker *-e* in feminine *clase* 'class'.

In the evaluation of plural nominals, the input combines a stem with a set of class marker allomorphs, followed by the plural morpheme /s/. For bare stems like /pel/ and /kas/, RESPECT is irrelevant, and PRIORITY chooses the default class marker in *pelos* and *casas*. For stems with a subcategorization requirement like /ul$_e$/ and /klas$_e$/, RESPECT chooses the non-default class marker in *hules* and *clases*. In Table 4, the stem /pan$_{Ø,pl:e}$/ subcategorizes for *-e* in the plural, and RESPECT optimizes candidate (b). Table 6 gives the evaluation of loanwords like *fan* that take only *-s* in the plural.

	/pan$_{Ø,pl:e}$+{o>(e,Ø)>a}+s/	RESPECT	PRIORITY
	a. pa.nos	*!	
☞	b. pa.nes		*
	c. pans	*!	*
	d. pa.nas	*!	**

Table 5. Selection of the class marker *-e* in *panes* 'breads'.

	/fan$_Ø$+{o>(e,Ø)>a}+s/	RESPECT	PRIORITY
	a. fa.nos	*!	
	b. fa.nes	*!	*
☞	c. fans		*
	d. fa.nas	*!	**

Table 6. Selection of the class marker Ø in the loanword *fans* 'fans'.

4. Analysis of diminutivization in JS

Having reviewed Bonet's (2006) lexical ordering approach to Spanish class markers, we now develop an account of JS diminutivization. First, we make explicit our assumptions about the representation of nominal inflection in JS, including plural formation. Then, we turn to the analysis of diminutive allomorphy.

4.1 Nominal inflection

As nouns and adjectives in JS show the same inflectional suffixes found in other Spanish varieties, it seems plausible to divide JS nominals into the same morphological classes that characterize Spanish more generally.[5] With respect to plural formation in JS, Bunis (1985) documents a range of possible suffixes, including not only the Hispanic-origin *-(e)s* but also *-im* from Hebrew, *-in* from Aramaic, and *-lar* from Turkish. Of these plural markers, the most productive is *-(e)s,* which can be used with nominals of Hispanic origin as well as with loanwords from

other languages. The basic distribution is that *-s* appears with vowel-final nominals regardless of stress position, and *-es* appears with nominals ending in a consonant (including glides) (Bunis 1985, pp.43,45-46).

As shown in (15a) for other Spanish varieties, JS nominals ending in the class marker *-o, -a,* or *-e* in the singular add an *-s* to form the plural (20a). In other varieties, most nominals ending in a consonant or stressed vowel in the singular show an additional *-e* in the plural (15b), and most loanwords appear in the plural only with *-s* (15c). In JS, however, all nominals ending in a consonant show an additional *-e* in the plural (20b), and those ending in a stressed vowel add an *-s* to form the plural (20c).

(20) a. Nominals with *-o, -a,* or *-e* in both singular and plural

palo	*palos*	'stick(s)'
rama	*ramas*	'branch(es)'
bote	*botes*	'jar(s)'
árvole	*árvoles*	'tree(s)'

b. Nominals with Ø in the singular but *-e* in the plural

kal	*kales*	'synagogue(s)'
kazal	*kazales*	'village(s)'

c. Nominals with Ø in both singular and plural

pará	*parás*	'money, -ies'
mantí	*mantís*	'Turkish dumpling(s)'
chelebí	*chelebís*	'gentleman, -men'

The data in (20b,c) reveal an important difference between JS and other Spanish varieties with respect to the status of *-e* in the plural of nominals with Ø in the singular. In Bonet's analysis of other dialects, *-e* in this context is treated as an idiosyncratic property of lexical items, as shown in (19). In JS, however, the presence of *-e* in the plural of nouns ending in a consonant in the singular is entirely systematic, as is the absence of *-e* from the plural of nouns ending in a stressed vowel. Since the behavior of plural *-e* is predictable, one would expect the JS grammar (i.e. constraint ranking) to account for its distribution. Therefore, we depart slightly from Bonet's analysis and treat the *-e* of JS plurals as epenthetic. In particular, we assume the representations of nominal stems in (21). The crucial difference is that in JS, stems like those in (21b,c) subcategorize only for the class marker Ø. In Bonet's account, plural *-e* is lexically specified for stems like /pan$_{Ø,pl:e}$/ and /xabali$_{Ø,pl:e}$/ (19a).

(21) a. Nominals with *-o, -a,* or *-e* in both singular and plural

/pal/	*palo-palos*	'stick(s)'
/ɾam/	*rama-ramas*	'branch(es)'
/bot$_e$/	*bote-botes*	'jar(s)'
/arvol$_e$/	*árvole-árvoles*	'tree(s)'

b. Nominals with Ø in the singular but *-e* in the plural

/kal$_Ø$/	*kal-kales*	'synagogue(s)'
/kazal$_Ø$/	*kazal-kazales*	'village(s)'

c. Nominals with Ø in both singular and plural

/para$_Ø$/	*pará-parás*	'money, -ies'
/manti$_Ø$/	*mantí-mantís*	'Turkish dumpling(s)'
/ʧelebi$_Ø$/	*chelebí-chelebís*	'gentleman, -men'

As in other Spanish varieties, JS contains the sets of class marker allomorphs in (16) and the ranking of RESPECT » PRIORITY. For nominal stems that are marked for the class marker Ø in (21b,c), RESPECT forces this class marker to surface in the plural, and other constraints in the grammar are responsible for vowel epenthesis after consonant-final stems:

(22) a. *COMPLEXCODA
No more than one segment in the coda.

b. DEP-V
A vowel in the output has a correspondent in the input.

In Table 7, the ranking of *COMPLEXCODA » DEP-V eliminates candidate (c) in favor of candidate (d), in which the complex coda is avoided by vowel epenthesis. We underscore non-underlying segments in output candidates, which helps distinguish the epenthetic vowel of (d) from the segmentally identical class marker of (b). In Table 8, *COMPLEXCODA is not violated by the addition of plural /s/ to the vowel-final stem, so DEP-V favors candidate (c) without vowel epenthesis.

	/kal$_{Ø}$+{o>(e,Ø)>a}+s/	RESPECT	PRIORITY	*COMPLEXCODA	DEP-V
	a. ka.los	*!			
	b. ka.les	*!	*		
	c. kals		*	*!	
☞	d. ka.l<u>e</u>s		*		*
	e. ka.las	*!	**		

Table 7. Selection of the class marker Ø with vowel epenthesis in *kales* 'synagogues'.

	/paɾa$_{Ø}$+{a>(e,Ø)>o}+s/	RESPECT	PRIORITY	*COMPLEXCODA	DEP-V
	a. pa.ɾa.as	*!			
	b. pa.ɾa.es	*!	*		
☞	c. pa.ɾas		*		
	d. pa.ɾa.<u>e</u>s		*		*!
	e. pa.ɾa.os	*!	**		

Table 8. Selection of the class marker Ø without vowel epenthesis in *parás* 'monies'.

The alternative would be to assume that plural *-e* is lexically specified in consonant-final stems like /kal$_{Ø,pl:e}$/. RESPECT would then choose the class marker *-e* in the plural, as shown in Table 5 for other Spanish varieties. However, the drawback of this approach is that it treats as idiosyncratic what is in fact a predictable property of JS plurals formed with Hispanic-origin /s/, i.e. the appearance of *-e* after consonant-final stems that take Ø.

4.2 Diminutive allomorphy

4.2.1 Lexical ordering and subcategorization

We propose to represent the diminutive morpheme in JS as a partially ordered set of three allomorphs, shown in (23), which attaches to the right of a stem. Since diminutive suffixes end in *-o* or *-a* but never in *-e* or Ø, (23) must be followed by a set of allomorphs that excludes the latter two class markers: {o > a} for masculine and {a > o} for feminine. These reduced sets are simply the class marker sets in (16a,b) but without *-e,* Ø, and the other more exotic allomorphs. The sequences illustrated in (24) serve as input to the phonology.[6] As we will argue below, the *-e* that appears before the allomorph /zik/ is the result of vowel epenthesis.

(23) {(zik, ik) > it}

(24) a. [-feminine]: /STEM + {(zik, ik) > it} + {o > a}/
b. [+feminine]: /STEM + {(zik, ik) > it} + {a > o}/

Assuming for the moment only output candidates that have the correct diminutive allomorph, the following tableaux show how class markers are selected for different types of stem. When a stem has no subcategorization requirement, RESPECT is irrelevant, and PRIORITY chooses the default allomorph from the reduced set of class markers. Tables 9 and 10 show this for the diminutives of the bare stems /pal/ and /ɾam/, respectively.

	/pal+{(zik,ik)>it}+{o>a}/	RESPECT	PRIORITY
☞	a. pa.li.ko		
	b. pa.li.ka		*!

Table 9. Selection of the default class marker *-o* in masculine *paliko* (< *palo* 'stick').

	/ɾam+{(zik,ik)>it}+{a>o}/	RESPECT	PRIORITY
☞	a. ɾa.mi.ka		
	b. ɾa.mi.ko		*!

Table 10. Selection of the default class marker *-a* in feminine *ramika* (< *rama* 'branch').

When a stem subcategorizes for an allomorph that is not included in the reduced set of class markers, it now becomes impossible to satisfy RESPECT. Selection of either *-o* or *-a* violates the constraint, and PRIORITY chooses the default class marker. Tables 11 and 12 show this for the diminutives of the stems /kal$_{Ø}$/ and /bot$_{e}$/, respectively.

	/kal$_{Ø}$+{(zik,ik)>it}+{o>a}/	RESPECT	PRIORITY
☞	a. ka.l̲e.zi.ko	*	
	b. ka.l̲e.zi.ka	*	*!

Table 11. Selection of the default class marker *-o* in masculine *kaleziko* (< *kal* 'synagogue').

	/bot$_{e}$+{(zik,ik)>it}+{o>a}/	RESPECT	PRIORITY
☞	a. bo.t̲e.zi.ko	*	
	b. bo.t̲e.zi.ka	*	*!

Table 12. Selection of the default class marker *-o* in masculine *boteziko* (< *bote* 'jar').

Now, when a stem subcategorizes for *-o* or *-a,* the reduced set of class markers contains one allomorph that satisfies the subcategorization requirement and one that does not. The prediction is that in the case of masculine nominals ending in *-a* and feminines ending in *-o,* RESPECT will force these class markers to appear in the corresponding diminutives. Bunis (2003) does not provide enough examples to verify this prediction for JS. However, empirical support is found in Peninsular Spanish. The following examples, from Colina (2003a, p.50), show diminutives copying the *-a* of masculine nominals (25a) and the *-o* of feminines (25b).[7]

(25)	a.	*mapa*	'map'	>	*mapita*
		problema	'problem'	>	*problemita*
	b.	*mano*	'hand'	>	*manito*
		modelo	'model'	>	*modelito*

In the following tableaux, the inputs contain an unordered set of diminutive allomorphs {sit, it}, and only output candidates with the correct diminutive allomorph are considered. RESPECT optimizes the candidates that satisfy the subcategorization requirement of /map$_{a}$/ in Table 13 and of /man$_{o}$/ in Table 14.

	/map$_{a}$+{sit,it}+{o>a}/	RESPECT	PRIORITY
	a. ma.pi.to	*!	
☞	b. ma.pi.ta		*

Table 13. Selection of the class marker *-a* in masculine *mapita* (< *mapa* 'map') in Peninsular Spanish.

	/man$_o$+{sit,it}+{a>o}/	RESPECT	PRIORITY
	a. ma.ni.ta	*!	
☞	b. ma.ni.to		*

Table 14. Selection of the class marker *-o* in feminine *manito* (< *mano* 'hand') in Peninsular Spanish.

Returning now to the representation of the diminutive morpheme in JS, what motivates the partial ordering of allomorphs in (23)? Evidence for the ordering of /ik/ above /it/ comes from the inability of markedness alone to select the correct allomorph. If the two allomorphs were left unordered with respect to each other, then the universal hierarchy of markedness constraints against place features in (26) would always select /it/ for its unmarked coronal stop. Table 15 illustrates this incorrect prediction. Putting aside the /zik/ allomorph for the moment, the input contains the unordered set {ik, it}. *PL/DORSAL selects candidate (b) because it has no dorsal stop. The symbol 💣 indicates that this candidate is the winner but should not be.

(26) Universal place hierarchy (De Lacy 2002 and Prince & Smolensky 1993/2004)
*PL/DORSAL *PL/LABIAL » *PL/CORONAL

	/{ik,it}/	*PL/DORSAL	*PL/LABIAL	*PL/CORONAL
	a. ik	*!		
💣	b. it			*

Table 15. Universal place markedness incorrectly selects the allomorph /it/.

On the other hand, if /ik/ is ordered above /it/ as in (23), then the ranking of PRIORITY » *PL/DORSAL can choose the correct allomorph. In Table 16, PRIORITY optimizes candidate (a) because it contains an allomorph that is faithful to the lexical ordering, despite its greater markedness in terms of place features. PRIORITY dominates *PL/DORSAL and, by transitivity, *PL/CORONAL.

	/{ik>it}/	PRIORITY	*PL/DORSAL	*PL/LABIAL	*PL/CORONAL
☞	a. ik		*		
	b. it	*!			*

Table 16. Selection of the allomorph /ik/.

We propose that the allomorph /zik/ has a subcategorization requirement which limits its attachment to monosyllabic stems that are lexically marked for the class marker *-e* or Ø. We formalize this requirement with the subcategorization frame in (27), following the format employed in Paster's (2005) work on allomorphy.

(27) $[[\#\sigma\#_{e/\emptyset}]_{\text{STEM}}\ \text{zik}_{\text{DIM AFFIX}}\ (...)\ ]_{\text{DIM WORD}}$

This requirement is enforced in the grammar by RESPECT, which is violated whenever /zik/ appears in the output after (i) a monosyllabic stem that is not marked for *-e* or Ø, or (ii) a stem that is marked for *-e* or Ø but has more than one syllable. For example, the attachment of /zik/ to stems like /pal/, /ram/, /arvol$_e$/, /kazal$_\emptyset$/, and /para$_\emptyset$/ would violate RESPECT because these stems do not match (27). On the other hand, the attachment of /zik/ to stems like /bot$_e$/ and /kal$_\emptyset$/ satisfies RESPECT because these stems are monosyllabic and lexically marked for the class marker *-e* or Ø. The subcategorization frame in (27) is crucial in explaining the alternation between the diminutive suffixes *-iko/a* and *-eziko/a.* Since high-ranking RESPECT places limits on the distribution of /zik/, it does not matter how this allomorph is ordered with respect to the other two. For the sake of explicitness, we will assume that /zik/ has equal status with /ik/ and that both take priority over /it/, as shown in (23).

4.2.2 The alternation between *-iko/a* and *-eziko/a*

As argued in Section 2, the alternation between the suffixes *-iko/a* and *-eziko/a* shows an interaction of morphology and prosody: the longer suffix is selected to compensate for the shorter length of a monosyllabic stem, but only if the latter belongs to the inflectional class of words that end in *-e* or Ø. As the set of diminutive allomorphs in (23) makes obvious, we assume that the *-e* in forms like *kaleziko* (< *kal*) and *boteziko* (< *bote*) is not part of the input allomorph /zik/. Following work on diminutive formation in other Spanish varieties by Colina (2003a, 2009), Crowhurst (1992), Elordieta & Carreira (1996), Miranda (1999), Prieto (1992), and Stephenson (2004), we treat this *-e* as the result of vowel epenthesis. Researchers working in OT have appealed to prosodic constraints requiring the base of suffixation to be disyllabic. For the purposes of our analysis, we adopt Stephenson's (2004) formulation of the minimal word requirement, shown in (28). Insertion of a non-underlying vowel to satisfy MINWD violates the faithfulness constraint against vowel epenthesis (22b).

(28) MINWD (Stephenson 2004, p.14)
The pre-suffixal string must make up a minimum of 2 syllables.

We now provide ranking arguments to gradually build up our analysis of JS diminutivization, starting with monosyllabic stems. To simplify the presentation, the following tableaux consider only output candidates with the correct class marker. The input contains the stem /kal$_{Ø}$/ in Table 17 and /bot$_{e}$/ in Table 18. The (a) candidates violate DEP-V, while the (b) candidates violate MINWD. For the (a) candidates to win, DEP-V must be ranked below MINWD. Although not shown in the tableaux, MINWD also rules out candidates that select /zik/ without vowel epenthesis (e.g. [kal.zi.ko] and [bot.zi.ko]). Candidates involving hiatus and glide epenthesis (e.g. [ka.l<u>e</u>.i.ko] and [ka.l<u>e</u>.ji.ko]) are ruled out by additional constraints (see the discussion at the end of Section 4.2.4).

	/kal$_{Ø}$+{(zik,ik)>it}+{o>a}/	MINWD	DEP-V
☞	a. ka.l<u>e</u>.zi.ko		*
	b. ka.li.ko	*!	

Table 17. Selection of the diminutive allomorph /zik/ with vowel epenthesis in *kaleziko* (< *kal* 'synagogue').

	/bot$_{e}$+{(zik,ik)>it}+{o>a}/	MINWD	DEP-V
☞	a. bo.t<u>e</u>.zi.ko		*
	b. bo.ti.ko	*!	

Table 18. Selection of the diminutive allomorph /zik/ with vowel epenthesis in *boteziko* (< *bote* 'jar').

Next, we consider the monosyllabic bare stems /pal/ in Table 19 and /ram/ in Table 20. As explained in the preceding section, RESPECT is violated by the attachment of /zik/ to stems that do not match the subcategorization frame in (27). Although /pal/ and /ram/ are both monosyllabic, neither stem is lexically marked for the class marker *-e* or Ø. For the (b) candidates to win, RESPECT must dominate MINWD. This ranking does not change the outcome of the evaluations in Table 17 and Table 18 because the attachment of /zik/ to /kal$_{Ø}$/ and /bot$_{e}$/ does not violate RESPECT.

	/pal+{(zik,ik)>it}+{o>a}/	RESPECT	MINWD	DEP-V
	a. pa.l<u>e</u>.zi.ko	*!		*
☞	b. pa.li.ko		*	

Table 19. Selection of the diminutive allomorph /ik/ in *paliko* (< *palo* 'stick').

	/ɾam+{(zik,ik)>it}+{a>o}/	RESPECT	MINWD	DEP-V
	a. ɾa.me.zi.ka	*!		*
☞	b. ɾa.mi.ka		*	

Table 20. Selection of the diminutive allomorph /ik/ in *ramika* (< *rama* 'branch').

The ranking established thus far also accounts for disyllabic or longer stems, as shown in Table 21 through Table 24. (Note: The first two tableaux abstract away from the allophonic realization of intervocalic /d/ as continuant [ð] in JS, which is irrelevant to the analysis.) MINWD is satisfied by each candidate because the pre-suffixal string contains at least two syllables. The (a) candidates violate both RESPECT and DEP-V, whereas the winning candidates in (b) violate neither constraint.

	/pekad+{(zik,ik)>it}+{o>a}/	RESPECT	MINWD	DEP-V
	a. pe.ka.de.zi.ko	*!		*
☞	b. pe.ka.di.ko			

Table 21. Selection of the diminutive allomorph /ik/ in *pekadiko* (< *pekado* 'sin').

	/kaden+{(zik,ik)>it}+{a>o}/	RESPECT	MINWD	DEP-V
	a. ka.de.ne.zi.ka	*!		*
☞	b. ka.de.ni.ka			

Table 22. Selection of the diminutive allomorph /ik/ in *kadenika* (< *kadena* 'chain').

	/kazal$_{Ø}$+{(zik,ik)>it}+{o>a}/	RESPECT	MINWD	DEP-V
	a. ka.za.le.zi.ko	*!		*
☞	b. ka.za.li.ko			

Table 23. Selection of the diminutive allomorph /ik/ in *kazaliko* (< *kazal* 'village').

	/aɾvol$_{e}$+{(zik,ik)>it}+{o>a}/	RESPECT	MINWD	DEP-V
	a. aɾ.vo.le.zi.ko	*!		*
☞	b. aɾ.vo.li.ko			

Table 24. Selection of the diminutive allomorph /ik/ in *arvoliko* (< *árvole* 'tree').

In sum, the alternation between *-iko/a* and *-eziko/a* suggests an interaction of prosody and morphology. In the context of a monosyllabic stem, vowel epenthesis satisfies the minimal word requirement (MINWD » DEP-V). However, if the stem is not marked for the class marker *-e* or Ø, then /ik/ is chosen instead of /zik/, even though the result is a subminimal word (RESPECT » MINWD). Disyllabic or longer stems take /ik/, regardless of their class marker.

4.2.3 The alternation between *-iko/a* and *-ito/a*

Recall from Section 2 that the alternation between *-iko/a* and *-ito/a* is predictable on the basis of the place feature of the stem-final consonant: *-ito/a* is selected to avoid a CVC sequence in which both consonants are dorsal. We analyze this alternation as an effect of the Obligatory Contour Principle (henceforth, OCP; Leben 1973 and McCarthy 1986). Specifically, the OCP constraint (29) accounts for the avoidance of the diminutive allomorph /ik/ when the final consonant of the stem is specified with a DORSAL place feature.

(29) OCP(DOR)
Avoid DORSAL consonants that are adjacent across an intervening vowel.

In Table 25, the input contains the monosyllabic bare stem /sak/, and OCP(DOR) is added at the top of the constraint ranking established thus far. The evaluation is similar to the one shown for /pal/ in Table 19, except that we now include a third candidate (c) that selects the diminutive allomorph /it/. High-ranking RESPECT prevents the attachment of /zik/ in candidate (a) because the monosyllabic bare stem does not match the subcategorization frame in (27). Candidates (b) and (c) violate OCP(DOR) and PRIORITY, respectively. For (c) to emerge as optimal, PRIORITY must be ranked below OCP(DOR). Although not shown in the tableau, RESPECT rules out candidates that select /zik/ without vowel epenthesis (e.g. [sak.zi.ko]). Candidates involving hiatus and glide epenthesis (e.g. [sa.ke.i.ko] and [sa.ke.ji.ko]) are ruled out by additional constraints (see the discussion in Section 4.2.4).

	/sak+{(zik,ik)>it}+{o>a}/	OCP(DOR)	RESPECT	PRIORITY	MINWD	DEP-V
	a. sa.ke.zi.ko		*!			*
	b. sa.ki.ko	*!			*	
☞	c. sa.ki.to			*	*	

Table 25. Selection of the diminutive allomorph /it/ in *sakito* (< *sako* 'sack').

In Table 26, the input contains the disyllabic stem /kapak$_{Ø}$/. RESPECT prevents /zik/ from attaching in candidate (a) because the stem contains more than one syllable. The ranking of OCP(DOR) » PRIORITY favors candidate (c).

	/kapak$_{Ø}$+{(zik,ik)>it}+{o>a}/	OCP(DOR)	RESPECT	PRIORITY	MINWD	DEP-V
	a. ka.pa.ke.zi.ko		*!			*
	b. ka.pa.ki.ko	*!				
☞	c. ka.pa.ki.to			*		

Table 26. Selection of the diminutive allomorph /it/ in *kapakito* (< *kapak* 'lid').

Since monosyllabic dorsal-final stems that select *-e* or Ø do not violate RESPECT, our analysis predicts that such stems should form their diminutives with *-eziko/a.* The only relevant examples found in Bunis (2003) are personal names, whose diminutives instead take *-ito/a,* e.g. *Jakito* < *Jak* (F. *Jacques*), *Ogito* < *Og* (H. *'Og*), *Lyawito* < *Lyaw* (H. *'Eliyahu*), *Megita* < *Meg* (E.). However, monosyllabic personal names never show minimal word effects, even when they end in a non-dorsal consonant: *Gadiko* < *Gad* (H.), *Solika* < *Sol* versus *kaleziko* < *kal*. This supports the treatment of personal names as exceptional with respect to diminutive formation. The prediction of our analysis holds only for monosyllabic, dorsal-final stems of common nouns with *-e* or Ø.

Finally, OCP effects in diminutive formation have been observed in the Spanish of Cuba, Costa Rica, Colombia, and Venezuela, where the diminutive suffix *-ico/a* is used principally with nominal stems that end in /t/ (and less frequently, /d/), e.g. *momentico* < *momento* 'moment', *ratico* < *rato* 'while', *maestrico* < *maestro* 'teacher' (Lipski 1994, pp.214,224-5,233, 1999). Assuming that *-ito/a* is otherwise chosen as the default diminutive in these varieties, the attraction of *-ico/a* to stems that end in /t/ suggests a high-ranking OCP constraint against voiceless coronal stops that are adjacent across an intervening vowel. Further research is needed to determine the conditions governing this alternation as well as its geographical distribution.

Figure 1 gives an interim ranking summary in the form of a Hasse diagram, which integrates the ranking arguments for JS plural and diminutive formation presented thus far. The diagram indicates dominance relations among constraints in a vertical format, whereby a downward line connects one constraint to another that it dominates.

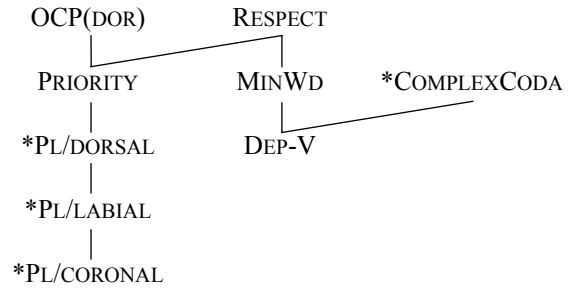


Figure 1. Interim ranking summary.

4.2.4 The resolution of hiatus in *-iko/a* diminutives

Recall that *-iko/a* is used with words that end in a stressed vowel. Variable glide epenthesis is attested after *-á, -ó,* or *-ú,* whereas final *-é* and *-í* disappear before the initial vowel of the suffix. Following recent work on hiatus reduction in other dialects by Baković (2006) and Colina (2009, pp.52-64), we analyze the reduction of front vowel sequences in JS diminutives as coalescence, whereby two input vowels fuse into a single vowel in the output. As we will show, this approach extends very naturally to the Salonika JS data in (5), in which *-eko/a* results from the coalescence of final stressed *-á* with the initial vowel of *-iko/a*.

An analysis of hiatus resolution requires the additional constraints in (30). Output candidates with hiatus violate (30a). Hiatus can be avoided by vowel coalescence, violating the faithfulness constraint (30b), or by glide epenthesis, violating (30c). We assume that faithfulness against deletion is high-ranking and do not consider candidates with vowel deletion.

(30) a. ONSET
A syllable must have an onset.
b. UNIFORMITY
No element of the output has multiple correspondents in the input.
c. DEP-C
A consonant in the output has a correspondent in the input.

Let us integrate these constraints within the hierarchy in Figure 1, beginning with the coalescence of front vowels. The following tableaux account for diminutivization of the input stem /manti$_{Ø}$/. Subscripts in output candidates make it clear whether the stem-final vowel and the vowel of the diminutive allomorph are maintained as separate segments or whether they coalesce into a single segment. In candidate (a) of Table 27, the second syllable of the hiatus violates ONSET, while coalescence in candidate (b) violates both MINWD and UNIFORMITY. For candidate (b) to win, ONSET must dominate the other two constraints.

	/manti$_{Ø}$+{(zik,ik)>it}+{o>a}/	ONSET	MINWD	UNIFORMITY
a.	man.ti$_1$.i$_2$.ko	*!		
☞ b.	man.ti$_{1,2}$.ko		*	*

Table 27. Hiatus repaired by coalescence in *mantiko* (< *mantí* 'Turkish dumpling').

Table 28 shows why hiatus between front vowels is repaired by coalescence instead of glide epenthesis. For candidate (b) to win, DEP-C must dominate MINWD and UNIFORMITY.

	/manti$_{Ø}$+{(zik,ik)>it}+{o>a}/	DEP-C	MINWD	UNIFORMITY
a.	man.ti$_1$.ji$_2$.ko	*!		
☞ b.	man.ti$_{1,2}$.ko		*	*

Table 28. Coalescence favored over glide epenthesis.

Another way to avoid hiatus is by selecting the diminutive allomorph /zik/, as seen in candidate (a) of Table 29. The ranking of RESPECT above MINWD (already motivated previously) and above UNIFORMITY selects candidate (b) over candidate (a).

	/manti$_{Ø}$+{(zik,ik)>it}+{o>a}/	RESPECT	MINWD	UNIFORMITY
	a. man.ti$_1$.zi$_2$.ko	*!		
☞	b. man.ti$_{1,2}$.ko		*	*

Table 29. Coalescence favored over the attachment of /zik/.

Evidence for determining the relative ranking of ONSET, DEP-C, and RESPECT comes from hiatus reduction in the context of stems ending in a stressed non-front vowel. The fact that glide epenthesis applies variably suggests that ONSET and DEP-C are in a variable ranking relationship (on variability in OT, see e.g. Anttila & Cho 1998, Nagy & Reynolds 1997, and Reynolds 1994, as well as McCarthy 2002 and the references cited therein). In Table 30 and subsequent tableaux, the columns of variably ranked constraints are separated by wavy lines, and variably fatal constraint violations are indicated by placing the exclamation points in parentheses. When ONSET ranks below DEP-C in a particular evaluation, hiatus is optimal in candidate (a). When DEP-C ranks below ONSET, hiatus is repaired by glide epenthesis in candidate (b).

	/para$_{Ø}$+{(zik,ik)>it}+{a>o}/	ONSET	DEP-C
☞	a. pa.ra$_1$.i$_2$.ka	*(!)	
☞	b. pa.ra$_1$.ji$_2$.ka		*(!)

Table 30. Hiatus variably repaired by glide epenthesis in *para(y)ika* (< *pará* 'money').

Since hiatus in this context is not repaired by selecting the diminutive allomorph /zik/, RESPECT must dominate the constraints that are responsible for variable glide epenthesis. In Table 31, high-ranking RESPECT rules out candidate (a), and candidates (b,c) emerge as optimal, depending on the particular ranking of the lower two constraints.

	/para$_{Ø}$+{(zik,ik)>it}+{a>o}/	RESPECT	ONSET	DEP-C
	a. pa.ra$_1$.zi$_2$.ka	*!		
☞	b. pa.ra$_1$.i$_2$.ka		*(!)	
☞	c. pa.ra$_1$.ji$_2$.ka			*(!)

Table 31. Variable glide epenthesis favored over the attachment of /zik/.

Unlike the resolution of hiatus involving front vowels, stems ending in a stressed non-front vowel do not show coalescence. The exception is found in Salonika JS, where final stressed *-á* fuses with the initial vowel of the suffix, yielding *-eko/a.* We account for this dialectal difference with the faithfulness constraints in (31). IDENT-MI(place) is a positional faithfulness constraint that protects place features of morpheme-initial segments, such as the initial vowel of the diminutive suffix /ik/ (and /it/). The constraint (31b) refers to the perceptual distance between the low vowel /a/ and the front high vowel /i/ along the dimension of vowel height. IDENT(a↔i) is violated whenever input /a/ maps to output [i] or input /i/ maps to output [a].[8]

(31) a. IDENT-MI(place)
Corresponding input and output segments in morpheme-initial position have the same place features.
b. IDENT(a↔i)
Input /a/ does not map to output [i], and input /i/ does not map to output [a].

Table 32 gives an analysis of the data from JS dialects other than Salonika. The candidates that show hiatus (d) and glide epenthesis (e) are now compared with three candidates that show coalescence: to the suffix-initial vowel in (a), to the stem-final vowel in (b), and to a front mid vowel in (c). IDENT(a↔i) is violated by the mapping of stem-final /a/ to [i] in candidate (a) and of suffix-initial /i/ to [a] in candidate (b). IDENT-MI(place) is violated by candidates (b,c) because they alter the place features of a morpheme-initial segment. For hiatus and glide epenthesis to win, both IDENT(a↔i) and IDENT-MI(place) must dominate variably-ranked ONSET and DEP-C.

	/para$_{Ø}$+{(zik,ik)>it}+{a>o}/	IDENT (a↔i)	IDENT-MI (place)	ONSET	DEP-C	MINWD	UNIFORMITY
	a. pa.ri$_{1,2}$.ka	*!				*	*
	b. pa.ra$_{1,2}$.ka	*!	*			*	*
	c. pa.re$_{1,2}$.ka		*!			*	*
☞	d. pa.ra$_1$.i$_2$.ka			*(!)			
☞	e. pa.ra$_1$.ji$_2$.ka				*(!)		

Table 32. Variable glide epenthesis favored over coalescence *para(y)ika* (< *pará* 'money').

The same ranking still derives the correct results for hiatus involving front vowels, as shown in Table 33. The coalescence of stem-final /i/ and suffix-initial /i/ in candidate (a) vacuously satisfies IDENT(a↔i) because no low vowel is present in this mapping. IDENT-MI(place) is satisfied because coalescence preserves the place features of the suffix-initial vowel. Candidates (b) and (c) are ruled out by lower-ranking ONSET and DEP-C, respectively.[9]

	/manti$_{Ø}$+{(zik,ik)>it}+{o>a}/	IDENT (a↔i)	IDENT-MI (place)	ONSET	DEP-C	MINWD	UNIFORMITY
☞	a. man.ti$_{1,2}$.ko					*	*
	b. man.ti$_1$.i$_2$.ko			*!			
	c. man.ti$_1$.ji$_2$.ko				*!		

Table 33. Coalescence favored over variable glide epenthesis in *mantiko* (< *mantí* 'Turkish dumpling').

The data from Salonika JS can be accounted for by a re-ranking of IDENT-MI(place). In Table 34, high-ranking IDENT(a↔i) rules out candidates (a,b). For candidate (c) with the coalesced front mid vowel to win instead of the hiatus and glide epenthesis candidates (d,e), IDENT-MI(place) must rank below ONSET and DEP-C. The same ranking still guarantees coalescence of front vowels, as shown in Table 35.

	/para$_{Ø}$+{(zik,ik)>it}+{a>o}/	IDENT (a↔i)	ONSET	DEP-C	IDENT-MI (place)	MINWD	UNIFORMITY
	a. pa.ri$_{1,2}$.ka	*!				*	*
	b. pa.ra$_{1,2}$.ka	*!			*	*	*
☞	c. pa.re$_{1,2}$.ka				*	*	*
	d. pa.ra$_1$.i$_2$.ka		*!				
	e. pa.ra$_1$.ji$_2$.ka			*!			

Table 34. Coalescence in Salonika JS *pareka* (< *pará* 'money').

	/manti$_{Ø}$+{(zik,ik)>it}+{o>a}/	IDENT (a↔i)	ONSET	DEP-C	IDENT-MI (place)	MINWD	UNIFORMITY
☞	a. man.ti$_{1.2}$.ko					*	*
	b. man.ti$_1$.i$_2$.ko		*!				
	c. man.ti$_1$.ji$_2$.ko			*!			

Table 35. Coalescence in Salonika JS *mantiko* (< *mantí* 'Turkish dumpling').

Having accounted for hiatus reduction in the diminutives of stems ending in a stressed vowel, we are now able to show why monosyllabic stems that satisfy MINWD by vowel epenthesis always select the diminutive allomorph /zik/ (e.g. *kaleziko* < *kal*). Table 36 repeats Table 17, now with two additional candidates that select the allomorph /ik/. The extra syllable provided by vowel epenthesis in candidate (c) satisfies MINWD, but the resulting hiatus violates ONSET. Both constraints are satisfied by the additional insertion of a glide in candidate (d), which violates DEP-C. In this context, the optimal repair is to insert a vowel and use the allomorph that best satisfies the higher ranking constraints, as in candidate (a). The analysis is identical for monosyllabic stems that are marked for the class marker *-e* (e.g. *boteziko* < *bote*).

	/kal$_{Ø}$+{(zik,ik)>it}+{o>a}/	RESPECT	ONSET	DEP-C	MINWD	DEP-V
☞	a. ka.l$\underline{e}$.zi.ko					*
	b. ka.li.ko				*!	
	c. ka.l$\underline{e}$.i.ko		*!			*
	d. ka.l$\underline{e}$.ji.ko			*!		*

Table 36. Selection of the diminutive allomorph /zik/ with vowel epenthesis in *kaleziko* (< *kal* 'synagogue').

Unlike /kal$_{Ø}$/ and /bot$_{e}$/, monosyllabic bare stems like /pal/ and /ram/ do not match the subcategorization frame in (27). In Table 37, RESPECT is violated by the attachment of /zik/ in candidate (a). The analysis predicts that the subminimal word in candidate (b) will be tolerated instead of the hiatus in candidate (c) or glide epenthesis in candidate (d). We omit the tableau for the feminine bare stem /ram/ because the analysis works the same.

	/pal+{(zik,ik)>it}+{o>a}/	RESPECT	ONSET	DEP-C	MINWD	DEP-V
	a. pa.l$\underline{e}$.zi.ko	*!				*
☞	b. pa.li.ko				*	
	c. pa.l$\underline{e}$.i.ko		*!			*
	d. pa.l$\underline{e}$.ji.ko			*!		*

Table 37. Selection of the diminutive allomorph /ik/ in *paliko* (< *palo* 'stick').

Finally, we have seen that the diminutive allomorph /it/ is chosen instead of /ik/ whenever a stem ends in a consonant specified with a DORSAL place feature. This alternation was accounted for by ranking OCP(DOR) above PRIORITY, as shown in Table 25. Another way to avoid an OCP(DOR) violation is through vowel epenthesis, which would provide an additional syllable to separate the stem-final consonant and the consonant of the suffix /ik/. The fact that vowel epenthesis is not employed as a strategy to repair OCP(DOR) violations suggests that PRIORITY must rank below ONSET and DEP-C. Table 38 repeats Table 25, now with two additional candidates that select the allomorph /ik/. While these two candidates effectively avoid the violation of OCP(DOR) incurred by candidate (b), they do so at the expense of creating an onsetless syllable (d) and inserting a non-underlying consonant (e). The optimal repair is to select the allomorph /it/, as in candidate (c).

	/sak+{(zik,ik)>it}+{o>a}/	OCP(DOR)	RESPECT	ONSET	DEP-C	PRIORITY	MINWD	DEP-V
	a. sa.ke.zi.ko		*!					*
	b. sa.ki.ko	*!					*	
☞	c. sa.ki.to					*	*	
	d. sa.ke.i.ko			*!				*
	e. sa.ke.ji.ko				*!			*

Table 38. Selection of the diminutive allomorph /it/ in *sakito* (< *sako* 'sack').

Figure 2 gives the final ranking summary for all of the constraints employed in our analysis of JS plural and diminutive formation. The variable ranking of ONSET and DEP-C is indicated by placing these constraints within curly brackets. The overall ranking accounts for the data from most dialects, while Salonika JS requires a minimal re-ranking of constraints, as explained above.

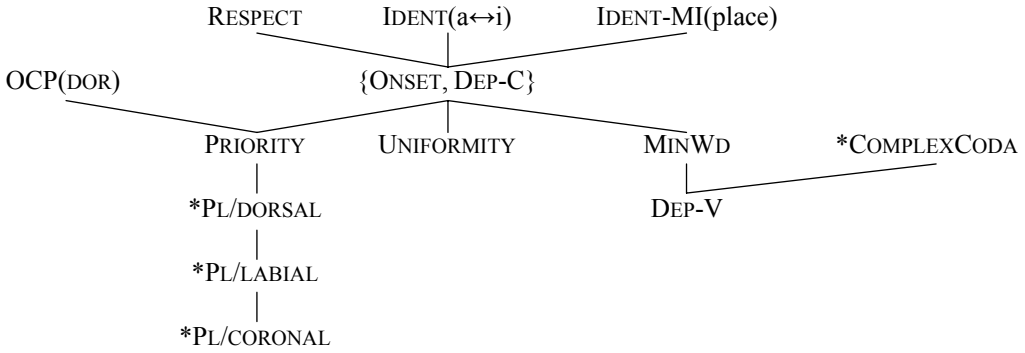


Figure 2. Final ranking summary for all JS dialects except Salonika, in which IDENT-MI(place) is demoted below ONSET and DEP-C.

Having developed our analysis of the basic patterns of diminutivization in JS, we now address some additional data bearing on the distribution of the suffixes *-iko/a* and *-eziko/a.* These data motivate an extension of the subcategorization frame in (27) and also shed light on the moraic representation of glides and rhotics in JS.

4.2.5 Disyllabic nominals in *-o* or *-a* with a diphthong in the initial syllable or a word-medial trill

We have seen that disyllabic nominals ending in the class marker *-o* or *-a* form their diminutives with the suffixes *-iko/a* or *-ito/a.* However, additional data show that *-eziko/a* is used if there is a diphthong in the initial syllable or a trill in word-medial intervocalic position. These patterns are illustrated in (32) with some representative examples from Bunis (2003, pp.211-212). The words in (32a,b) have a rising diphthong in their initial syllable, while those in (32c) have a falling diphthong. Like other Spanish varieties, JS has a contrast between a trill [r] and a tap [ɾ] in word-medial intervocalic position (e.g. *parra* 'grapevine' versus *para* 'for'). In some JS dialects, however, there is a tendency to neutralize the contrast to [ɾ] (Hualde & Şaul, forthcoming, and Quintana 2006,pp.84-88). Bunis's transcription of trills as *-r(r)-* in (32d) shows that *-eziko/a* is selected "even where the *-r-* is no longer trilled in contemporary dialects" (2003, p.211).

(32) a. *pwerta* (S. *pu-*) 'door' > *pwertezika*
kweyo (S. *cuello*) 'neck' > *kweyeziko*
gwezmo (OS. *h-*/*gusmo*) 'smell' > *gwezmeziko*
b. *pyedra* (S. *pi-*) 'rock' > *pyedrezika*
pyano (I. *pia-*) 'piano' > *pyaneziko*
byervo (OS. *vierbo*) 'word' > *byerveziko*

c.	*reyna* (S. *reina*)	'queen'	>	*reynezika*
	geyna (< *geina* < *gaina* < *gayina*) (S. *gallina*)	'hen'	>	*geynezika*
d.	*par(r)a* (S. *parra*)	'grapevine'	>	*par(r)ezika*
	ger(r)a (S. *guerra*)	'war'	>	*ger(r)ezika*

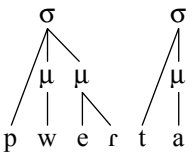
The appearance of the diminutive allomorph /zik/ in (32) is not predicted by our analysis. Table 39 illustrates the problem. Although the stem /pwɐrt/ is monosyllabic, it is not lexically marked for the class marker *-e* or Ø and, therefore, fails to match the subcategorization frame in (27). High-ranking RESPECT prevents /zik/ from attaching in candidate (a), and the remaining constraints choose the suffix /ik/ in candidate (b). The same problem exists for the other types of stem represented in (32).

	/pwɐrt+{(zik,ik)>it}+{a>o}/	RESPECT	ONSET	DEP-C	MINWD	DEP-V
	a. pwer.te.zi.ka	*!				*
☞	b. pwer.ti.ka				*	
	c. pwer.te.i.ka		*!			*
	d. pwer.te.ji.ka			*!		*

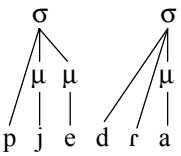
Table 39. Incorrect selection of the diminutive allomorph /ik/ in disyllabic nominals with a diphthong in the initial syllable.

What property do the words in (32) have in common that conditions the selection of the allomorph /zik/? A look at the moraic structure of the non-diminutivized forms reveals a generalization that unifies these four contexts. We assume that glides in JS are moraic in prenuclear position after a preceding consonant, as in *pwerta* and *pyedra* (33a,b), and in postnuclear position, as in *reyna* (33c).[10]

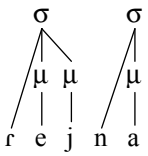
(33) a.



b.



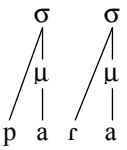
c.



We also assume a moraic representation of the intervocalic rhotic contrast in which the trill is the moraic counterpart of the non-moraic tap. In a word like *parra* (34a), the tap's mora is linked to the preceding syllable, and the rhotic is simultaneously linked to the following syllable. In a word like *para* (34b), the non-moraic tap is linked only to the following syllable.

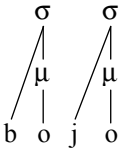
(34) a.

b.

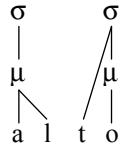


Finally, prenuclear glides are assumed to be non-moraic in the absence of a preceding consonant, as in *boyo* 'kind of bun' (35a). Postnuclear consonants other than glides share the mora of the preceding vowel, such as the coda lateral in *alto* 'tall' (35b) and the coda rhotic in (33a).

(35) a.



b.



Given these assumptions about the moraic representation of glides and rhotics in JS, the generalization regarding the data in (32) can be stated as follows: *the suffix* /zik/ *attaches to a monosyllabic stem that contains two moras.* A modification of the subcategorization frame in (27) can incorporate this additional context. According to the final version shown in (36), the attachment of /zik/ is limited to monosyllabic stems that are either (i) lexically marked for the class marker *-e* or Ø or (ii) bimoraic, regardless of class marker.

(36) $\left[\left\{ \begin{matrix} \#\sigma\#_{e/\emptyset} \\ \#\sigma\#_{\mu\mu} \end{matrix} \right\}_{\text{STEM}} \text{zik}_{\text{DIM SUFFIX}} (...) \right]_{\text{DIM WORD}}$ (final version)

The first stem context in (36) makes reference to syllable count and morphological class, while the second refers only to prosodic information. Table 40 shows that the analysis now makes the correct prediction for diminutives like *pwertezika.* Henceforth, we indicate moraic segments in the input stem with superscripted moras. Because /pw$^{\mu}$e$^{\mu}$ɾt/ is monosyllabic and contains two moras, it matches the second context in (36). RESPECT no longer prevents the attachment of /zik/ in candidate (a), as it did in Table 39. The analysis also accounts for the stems /pj$^{\mu}$e$^{\mu}$dɾ/ and /ɾe$^{\mu}$j$^{\mu}$n/.

	/pw$^{\mu}$e$^{\mu}$ɾt+{(zik,ik)>it}+{a>o}/	RESPECT	ONSET	DEP-C	MINWD	DEP-V
☞	a. pwer.te.zi.ka					*
	b. pwer.ti.ka				*!	
	c. pwer.te.i.ka		*!			*
	d. pwer.te.ji.ka			*!		*

Table 40. Selection of the diminutive allomorph /zik/ with vowel epenthesis in *pwertezika* (< *pwerta* 'door').

In JS dialects that tend to neutralize the intervocalic rhotic contrast to [ɾ], words like those in (32d) still take the suffix *-eziko/a.* If we assume that the relevant lexical items contain a moraic tap in the underlying representation of the stem (e.g. /pa$^{\mu}$ɾ$^{\mu}$/), then RESPECT will allow /zik/ to attach even when high-ranking markedness prohibits trills from being realized at the surface.

For the sake of comparison, Table 41 gives the analysis of *kyefté* (4), a disyllabic nominal that has a rising diphthong in the initial syllable but ends in a stressed vowel. Since /kj$^{\mu}$e$^{\mu}$fte$^{\mu}_{\emptyset}$/ is not monosyllabic, it fails to match either of the contexts specified in (36). RESPECT prevents /zik/ from attaching in candidate (a). The remaining constraints optimize candidate (b), in which the stem-final and suffix-initial vowels undergo coalescence to [i] in the output.

	/kj$^{\mu}$e$^{\mu}$fte$^{\mu}_{\emptyset}$+{(zik,ik)>it}+{a>o}/	RESPECT	IDENT (a↔i)	IDENT-MI(place)	ONSET	DEP-C	MIN WD	UNIF
	a. kjef.te$_1$.zi$_2$.ka	*!						
☞	b. kjef.ti$_{1,2}$.ka						*	*
	c. kjef.te$_{1,2}$.ka			*!			*	*
	d. kjef.te$_1$.i$_2$.ka				*!			
	e. kjef.te$_1$.ji$_2$.ka					*!		

Table 41. Selection of the diminutive allomorph /ik/ and coalescence in *kyeftika* (< *kyefté* 'meat patty').

RESPECT is violated when /zik/ attaches to a monosyllabic stem that selects the class marker *-o* or *-a* but contains only one mora, e.g. /bo$^{\mu}$j/ and /a$^{\mu}$lt/. This is illustrated in Table 42 with the example *boyo,* which forms its diminutive with *-iko*.[11] A word like *alto* takes the *-iko* suffix as well, which shows that non-glide consonants in coda position make no contribution to moraic weight. If /l/ were underlyingly moraic as in /a$^{\mu}$l$^{\mu}$t/, then the second stem context in (36) would incorrectly predict **altezikо* as the diminutive form.

	/bo$^{\mu}$j+{(zik,ik)>it}+{o>a}/	RESPECT	ONSET	DEP-C	MINWD	DEP-V
	a. bo.je.zi.ko	*!				*
☞	b. bo.ji.ko				*	
	c. bo.je.i.ko		*!			*
	d. bo.je.ji.ko			*!		*

Table 42. Selection of the diminutive allomorph /ik/ in *boyiko* (< *boyo* 'kind of bun').

Bunis (2003, pp.220-221) documents variation in some disyllabic words with an initial diphthong or a word-medial trill, which take *-iko/a* as well as the expected suffix *-eziko/a* (37a). Furthermore, some disyllabic words with a word-medial trill take *-iko/a* instead of *-eziko/a* (37b).

(37) a. *twerto* (S. *tue-*) 'twisted' > *twertiko ~ twerteziko*
gwerta (S. *hue-*) 'garden' > *gwertika ~ gwertezika*
vyejo (S. *viejo*) 'old (man)' > *vyejiko ~ vyejeziko*
yer(r)o (S. *error*) 'error' > *yeriko ~ yer(r)eziko*
b. *perro* 'dog' > *perriko*
karro (S. *c-*) 'wagon' > *karriko*

As the data from Bunis (2003) are qualitative examples documented in a corpus of Jewish-letter texts published from the 18th century to the present, it remains unclear whether the variation in (37) represents a dialect difference or whether there was inter- or intraspeaker variability. One way to account for examples like those in (37a) would be to posit that these lexical items had alternate underlying forms differing in the moraicity of the prenuclear glide. This would allow the same constraint ranking to select different outputs depending on the particular input stem. For example, /tw$^{\mu}$e$^{\mu}$ɾt/ with a moraic glide generates *twerteziko,* as shown in Table 40 for *pwertezika,* but /twe$^{\mu}$ɾt/ with a non-moraic glide generates *twertiko.* Examples like those in (37b) suggest a possible restructuring of the moraic rhotic in (34a) as a non-moraic singleton trill. The input stem /pa$^{\mu}$r$^{\mu}$/ with a moraic tap generates *par(r)ezika,* but /pe$^{\mu}$r/ with a non-moraic trill generates *perriko*.[12]

4.2.6 Nominals ending in a diphthong

We have yet to see how words ending in a diphthong form their diminutives in JS. Bunis (2003) cites only a few such examples, shown in (38), which include disyllabic and trisyllabic nominals that end in the glide *y* followed by unstressed *-o, -a,* or *-e.* Based on data from Istanbul JS, Hualde & Şaul (forthcoming) argue that the palatal nasal /ɲ/ of other Spanish varieties corresponds to the bi-phonemic sequence /nj/, and Penny (2000, p.180) notes the same innovation in almost all varieties of JS. This justifies our classification of words like *panyo, reskunyo,* and *muntanya* as diphthong-final. The disyllabic words in (38a) take the suffix *-iko* and maintain the glide. The appearance of *-ezika* in (38b) is unexpected, as *luvya* should pattern identically to *savyo* and *panyo.* By contrast, the appearance of *-eziko* in (38c) is explained by the fact that disyllabic *mulkye* takes the class marker *-e* (see *boteziko* < *bote* in Table 18). Bunis cites only three examples of trisyllabic diphthong-final nominals, all of which take *-iko/a* and maintain the glide in (38d).

(38) a. *savyo* 'scholar, sage' > *savyiko*
panyo 'clothes' > *panyiko*
b. *luvya* 'rain' > *luvyezika*
c. *mulkye* (T. *mülk*) 'property' > *mulkyeziko*
d. *almaryo* 'closet' > *almaryiko*
reskunyo 'scratch' > *reskunyiko*
muntanya 'mountain' > *muntanyika*

Our approach to the variable forms in (37a) can also account for the variation between diminutives like *savyiko* and *panyiko* in (38a) and *luvyezika* in (38b). If the underlying representation of the lexical item *savyo* is /sa$^{\mu}$vj/, then this stem contains only one mora and, therefore, fails to match the second context of the subcategorization frame in

(36). On the other hand, the stem /lu$^{\mu}$vj$^{\mu}$/ satisfies the requirement because it contains two moras. The following tableaux show how the analysis generates different outputs depending on the moraicity of the stem-final glide. RESPECT prevents /zik/ from attaching to the monomoraic stem in candidate (a) of Table 43 but allows /zik/ to attach to the bimoraic stem in candidate (a) of Table 44.

	/sa$^{\mu}$vj+{(zik,ik)>it}+{o>a}/	RESPECT	ONSET	DEP-C	MINWD	DEP-V
	a. sa.vje.zi.ko	*!				*
☞	b. sa.vji.ko				*	
	c. sa.vje.i.ko		*!			*
	d. sa.vje.ji.ko			*!		*

Table 43. Selection of the diminutive allomorph /ik/ in *savyiko* (< *savyo* 'scholar, sage').

	/lu$^{\mu}$vj$^{\mu}$+{(zik,ik)>it}+{o>a}/	RESPECT	ONSET	DEP-C	MINWD	DEP-V
☞	a. lu.vje.zi.ko					*
	b. lu.vji.ko				*!	
	c. lu.vje.i.ko		*!			*
	d. lu.vje.ji.ko			*!		*

Table 44. Selection of the diminutive allomorph /zik/ with vowel epenthesis in *luvyeziko* (< *luvya* 'rain').

Although we omit the evaluation due to space constraints, our analysis also accounts for the trisyllabic diphthong-final nominals in (38d). Since the stem of a word like *almaryo* is not monosyllabic, RESPECT prevents /zik/ from attaching, regardless of the moraicity of the stem-final glide. Finally, we have not discussed the behavior of disyllabic words ending in a rising diphthong containing the glide *w,* such as *agwa, lingwa,* and *fragwa* in (6a). If the stem-final glide in these lexical items is represented underlyingly as non-moraic, then RESPECT will prevent the attachment of /zik/, as in Table 43.[13] That such words take *-ita* instead of *-ika* is already predicted by the ranking of OCP(DOR) above PRIORITY (see *sakito* < *sako* in Table 38).

5. Comparison with previous analyses of Spanish diminutivization

In this section, we first examine patterns of diminutivization found in the literature on other Spanish varieties and highlight certain distinctions in allomorph selection between JS and these dialects. Then we review several previous analyses and examine crucial differences among them and our account of JS diminutives. Although it is beyond the scope of the present paper to give a comprehensive account of all Spanish varieties, we conclude by highlighting some of the advantages offered by our approach to diminutive formation.

5.1 Comparison of data

The data presented below are representative of the general patterns of diminutive formation across Spanish varieties. For more detailed descriptions of Paraguayan Spanish see Jaeggli (1980), for Sonoran Mexican see Crowhurst (1992), for Nicaraguan see Miranda (1999), and for Northern and Central Peninsular see Colina (2003a, 2009, pp.124-133). Prieto (1992) presents data based on the intuitions of Spanish speakers from a number of varieties, including Bolivian, Colombian, Chilean, Guatemalan, Puerto Rican, Uruguayan, and Peninsular. For a summative description of diminutive formation in Peninsular and Latin American dialects, see Hualde (2005, pp.212-217). Although researchers differ on the underlying representation of the Spanish diminutive allomorphs and their status as infixes or suffixes, for the purposes of comparison we will establish *-ito/a* and *-(e)cito/a* as the principal suffixes.[14] Generally, the former shares a similar distribution as JS *-iko/a* and *-ito/a,* while the latter corresponds to *-eziko/a.*

Monosyllabic words ending in a consonant or glide take *-(e)cito/a* (39). Jaeggli (1980) and Miranda (1999) report diminutives like *pancito* for Paraguayan and Nicaraguan dialects, respectively, whereas the *panecito* pattern is reported by Crowhurst (1992) for Sonoran Mexican and by Colina (2003a) for Northern/Central Peninsular Spanish. Diminutives like *reyecito* are found in most dialects, whereas Miranda (1999) reports *reycito* for Nicaraguan.

(39)	*pan*	'bread'	>	*pancito ~ panecito*
	rey	'king'	>	*reycito ~ reyecito*

Disyllabic words ending in unstressed *-o* or *-a* take *-ito/a* (40a), while those ending in unstressed *-e* take *-ecito/a* (40b). The suffix *-cito/a* appears in the context of disyllabic words ending in a stressed vowel (40c) or a consonant (40d).[15]

(40)	a.	*libro*	'book'	>	*librito*
		casa	'house'	>	*casita*
	b.	*clase*	'class'	>	*clasecita*
		madre	'mother'	>	*madrecita*
	c.	*café*	'coffee'	>	*cafecito*
		menú	'menu'	>	*menucito*
	d.	*virgen*	'virgin'	>	*virgencita*
		pintor	'painter'	>	*pintorcito*

The pattern in (40) remains stable for words of more than two syllables with the exception of those ending in unstressed *-e*, which show variation across and within speakers: *chocolatito ~ chocolatecito* < *chocolate* 'chocolate' (Prieto 1992, pp.173-174; see also Hualde 2005, pp.215-216).

Disyllabic words ending in *-o* or *-a* with a diphthong in the initial syllable show dialectal and individual variation between *-ito/a* and *-ecito/a* (41). For words in which the rising diphthongs /je/ and /we/ show a morphophonological alternation with mid vowels /e/ and /o/ (e.g. *ciego* 'blind', *nuevo* 'new' versus *ceguedad* 'blindness', *novedad* 'novelty'), Prieto (1992, pp.179-180) reports *-ito/a* diminutives in Bolivian and *-ecito/a* in Peninsular dialects but only *-ito/a* for words with a falling or non-alternating rising diphthong. Crowhurst (1992, pp.242-244) reports *-ito/a* for disyllabic *o/a*-final words containing /je/ in Sonoran Mexican Spanish but does not discuss other diphthong types. Colina (2003a, p.53) reports *-ecito/a* for words with /je/ and /ej/ in Peninsular dialects. Bermúdez-Otero (2006) finds "variation between *buen-**ecit**-o* and *buen-**it**-o* depending on dialectal and stylistic factors" (p.286, fn.7).

(41)	*puerta*	'door'	>	*puertita ~ puertecita*
	piedra	'rock'	>	*piedra ~ piedrecita*
	reina	'queen'	>	*reinita ~ reinecita*

There is also variation in the behavior of disyllabic words ending in the diphthong /jo/ or /ja/ (42a). These words take *-ecito/a* in most dialects, whereas Miranda (1999) reports *-ito/a* in Nicaraguan. Words of more than two syllables show a strong preference for *-ito/a* (42b). Only Prieto (1992) observes that diminutives like *dinosauriectio* < *dinosaurio* 'dinosaur' are possible, although "fewer speakers accept the longer form" (pp.172-173).

(42)	a.	*sabio*	'scholar, sage'	>	*sabito ~ sabiecito*
	b.	*armario*	'closet'	>	*armarito*

When compared with JS diminutive formation, the suffix *-(e)cito/a* in other Spanish dialects enjoys a wider distribution than its JS counterpart *-eziko/a*. The relevant distinctions involve words that end in a stressed vowel (40c) or a consonant (40d). In JS, the former select *-(y)iko/a* as in (3a) and (3b), whereas other Spanish dialects invariably select *-cito/a*. Disyllabic or longer words ending in a non-dorsal consonant in JS also take *-iko/a* as in (1c), whereas *-cito/a* is chosen in the other reported dialects. Interestingly, this illustrates an internal consistency in allomorph selection among all dialects with respect to stems that select the class marker Ø. JS patterns with Northern/Central Peninsular and Sonoran Mexican varieties in inserting epenthetic *-e* in monosyllabic words: *paneziko* compared with *panecito*.

All varieties of Spanish show variation in diminutive formation in the context of disyllabic words with a diphthong in the initial or final syllable, as seen in JS (32a,b), (37a), and (38a,b). To our knowledge, the attraction of *-ecito/a* to disyllabic words with an intervocalic trill, as observed in the case of JS *-eziko/a* in (32d), has never been documented for other Spanish varieties. Furthermore, JS is unique among Spanish varieties in that words ending in

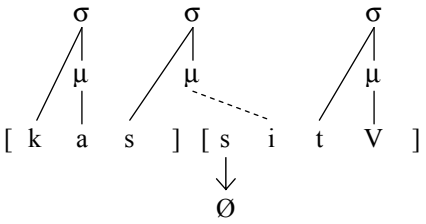
the diphthong *-yo* or *-ya* maintain the palatal glide before the suffix *-iko/a* (38a,d) (cf. the corresponding forms in (42a,b), which lack the glide).

5.2 Overview of previous analyses

Below we examine non-linear generative studies of Spanish diminutive formation, tracing the manner in which each author builds upon the basic insights of prior analyses. Prieto (1992) develops a serial analysis in which she argues for a unified morpheme /sit/ that maps onto the right edge of a root. She follows Harris in dividing nouns, adjectives, and adverbs into five form classes based on their inflectional markers (see Harris 1992 for a full review). Class I and Class II include those words that end in *-o* and *-a,* respectively, while Class III is further subdivided into three groups: IIIA) those words that end in an epenthetic *-e* due to an unsyllabifiable coda consonant or cluster, such as *jef-e* 'boss' or *verd-e* 'green'; IIIB) those words that lack an inflectional marker, that is bare roots, such as *pintor* 'painter'; and IIIC) words that end in *-e*, but not due to an illicit coda, such as *clas-e* 'class' or *inmun-e* 'immune'.

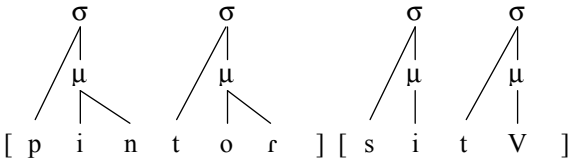
Prieto argues that diminutive formation triggers a rule of Stem Extension in Class I and II words, which in her analysis consists of the addition of a moraic unit. As shown in (43), the added mora attaches to the next available vowel and the sibilant is stray-erased from the diminutive morpheme.

(43) *casita* < *casa* (Class II) 'house'



Crucially, words in Class III are lexically excepted from the Stem Extension rule and, therefore, receive no moraic unit upon diminutive formation. (44) illustrates the direct mapping of *pintor* 'painter'*,* a bare-root word that belongs to Class IIIB. Here, stray erasure of /s/ does not occur since Stem Extension does not apply and no moraic unit is added.

(44) *pintorcito* < *pintor* (Class IIIB) 'painter'



To account for Class IIIA and IIIC words that end in *-e,* Prieto stipulates a Default Vowel Rule in which *-e* is added to the root prior to the mapping of the diminutive. (45) illustrates the derivation for a word that belongs to Class IIIC:

(45) *clasecita* < *clase* (Class IIIC) 'class'

UR	/klasV/
Stem Extension	—
Syllabification	kla.sV
Default Vowel Rule	kla.se
Diminutive Mapping	kla.se.si.tV
Stray Erasure	—
Marker Spellout	kla.se.si.ta
Output	[kla.se.si.ta]

Finally, to account for the dialectal variation observed in *pancito* ~ *panecito* < *pan* and *chocolatito* ~ *chocolatecito* < *chocolate,* Prieto (1992, p.195) invokes a minimal word constraint that establishes a word template

of two disyllabic feet. Peninsular Spanish is argued to trigger /e/-epenthesis in diminutives like *panecito* as a way of satisfying the template, which is not active in Bolivian Spanish, hence *pancito.* The template is also claimed to be active in words with an alternating diphthong in the initial syllable (*puertecita* < *puerta*) and words ending in /jo/ or /ja/ (*sabiecito* < *sabio*), although for the latter type, an alternative repair strategy is available involving the deletion of the prevocalic glide, e.g. *sabito.*

Crowhurst (1992) also acknowledges the role of prosody in Spanish diminutive formation.[16] In her analysis, the representation of the diminutive suffix contains a disyllabic template $_F[\sigma\ \sigma]$ preceding the morpheme /sit/, and stems that do not meet the template trigger epenthesis. She divides stems into those that have a Terminal Element (TE) *-o* or *-a* and those that do not. Crucially, these TEs are present during satisfaction of the template. As illustrated in (46a), a word like *casa* meets the disyllabic requirement, so epenthesis does not apply. Subsequent rules delete the TE from non-final position and stray-erase the initial /s/ of the diminutive suffix. An *e*-final word such as *clase* is represented in the input as monosyllabic /klas/ since Crowhurst does not consider *-e* to be a TE. In (46b), non-satisfaction of the disyllabic template triggers /e/-epenthesis, and the full suffix [sita] surfaces in the output. The analysis also accounts for /e/-epenthesis in monosyllabic words like *pan* in (46c). On the other hand, a word like *comadre* 'godmother' (underlyingly disyllabic /komadɾ/) satisfies the template without epenthesis, and Stray Erasure removes the initial /s/ of the suffix, as shown in (46d).

(46)	a. *casa*	b. *clase*	c. *pan*	d. *comadre*
Suffixation	kasa sita	klas sita	pan sito	komadɾ sita
$_F[\sigma\ \sigma]$ Satisfaction	—	klase sita	pane sito	—
TE Deletion	kas sita	—	—	—
Stray Erasure	kas ita	—	—	komadɾ ita
Output	[ka.si.ta]	[kla.se.si.ta]	[pa.ne.si.to]	[ko.ma.dɾi.ta]

Crowhurst's analysis accounts for the appearance of *-ito/a* with disyllabic words ending in *-o* or *-a* that contain the diphthong /je/ in the initial syllable (*piedrita* < *piedra*). To account for *sabiecito* < *sabio* versus *almarito* < *almario,* Crowhurst proposes two separate repair rules of high vocoid deletion (see pp.244-248 for more details).

Elordieta & Carreira (1996) propose the first OT analysis of Spanish diminutivization. In accordance with Prieto and Crowhurst, they also view the process as the attachment of a single morpheme /sit/ that is subject to various prosodic and faithfulness constraints that in some cases mirror closely the rules found in the previous two analyses. First, the rule of TE Deletion in Crowhurst (1992) finds a counterpart in an alignment constraint ALIGN-GM, which demands that the left edge of a gender marker align with the right edge of a derived stem. As with Prieto, they also appeal to Harris's (1992) form classes to establish a fundamental difference between those words that end in *-o* or *-a* (Class I and II, respectively) and those that end in *-e* or a consonant (Class IIIA-C). Their constraint GM = CLASS I-II states that "the realization of gender by class markers in derived environments is restricted to Class I and II markers" (p.53). Second, Elordieta & Carreira introduce a constraint that echoes the templates found in Crowhurst's and Prieto's serial analyses, DISYLL, which requires the base of suffixation to be disyllabic. Vowel epenthesis in the context of monosyllabic words (e.g. *pan*) is accounted for by the ranking of DISYLL above DEP-IO. For the bare roots of Class IIIB (e.g. *pintor*), they appeal to a faithfulness constraint, IDENT-IO(STμ), which seeks to maintain identical moraic structure between input and output representations. On the assumption that Spanish codas are moraic, a form like [pin.to.ɾi.to] would result in /ɾ/ shifting from coda to onset position and loss of a mora. A candidate such as [pin.toɾ.si.to] has the advantage of maintaining /ɾ/ in coda position and remains faithful to input moraic structure. In conjunction with a constraint against diphthongs containing vocoids that agree in [high] and [back], faithfulness to input moraic structure is argued to account for *sabiecito* < *sabio*). Finally, it should be pointed out that Elordieta & Carreira make no reference to any particular dialect of Spanish, nor do they mention the variation observed with respect to monosyllabic words and disyllabic words with diphthongs.

In an OT analysis of Nicaraguan Spanish, Miranda (1999) proposes two allomorphs /it/ and /sit/ and argues that diminutive formation involves an output-output correspondence relation in which "the standard of comparison ... is not the underlying representation, but an output form which has been footed, has received stress, and has been assigned gender" (p.131). Selection of the diminutive is determined through an evaluation of the base with respect to three main properties: (a) the size of the base, (b) the syllabic structure of the last syllable, and (c) the characteristics of the final vowels (p.134). Since Nicaraguan speakers prefer *pancito* over *panecito*, Miranda argues that this dialect requires the stem to be bimoraic rather than disyllabic as in previous analyses. Similar to Elordieta & Carreira's

faithfulness constraint on moraic structure, Miranda adopts an output-output faithfulness constraint, IDENT-OO(STμ), which seeks to maintain the moraic structure of the base in the diminutivized form. IDENT-OO(STμ) is argued to account for bases ending in unstressed *-o* or *-a,* bases ending in a consonant, and bases ending in a diphthong. A positional faithfulness constraint, MAX-HEAD, favors the maintenance of base-final stressed vowels. To explain why diminutivized words always end in *-o* or *-a,* Miranda proposes the constraint ALIGN(GENDER,L,PRWD,R), which requires gender morphemes (i.e. /o/ and /a/) to align with the right edge of the prosodic word (cf. Elordieta & Carreria's ALIGN-GM). In Miranda's analysis, the bimoraic stem constraint dominates a constraint requiring the diminutive to align as a suffix (ALIGN-DIM), and this is argued to account for the fact that disyllabic words ending in unstressed *-e* "must retain the final /e/ in the diminutive, but trisyllabic or longer bases do not" (see p.136 for details).

Whereas Miranda takes /o/ and /a/ to be the only morphological gender markers, Colina (2003a) assumes *-o*, *-a,* and *-e* to all be TEs and therefore subject to the same constraints (see Section 5.3 for more discussion regarding some of these constraints). She proposes that *-it* attaches to words that end in a TE and that *-cito/a* attaches to those without a TE. However, in a word such as *clase*, the latter suffix is selected to form *clasecita* due to the emergence of an unmarked prosodic structure of two binary feet (*clà.s*[e̲])(*cí.ta*) and the segmental identity of final *-e* with that of the epenthetic vowel *-e* in Spanish. Although a candidate such as *casacita* (< *casa*), would share this preferred prosodic structure, it is eliminated by a higher-ranking constraint against TEs in non-final position. Under this analysis, *clasecita* avoids violating this constraint because the TE /e/ is reanalyzed as epenthetic. Unlike Miranda, Colina assumes that coda consonants are non-moraic and thus *pan* would require an epenthetic *-e* to satisfy a minimum word constraint that requires a prosodic word to be a disyllabic foot, i.e. (*pà.n*[e̲])(*cí.to*). Colina (2003a, pp.73-84) addresses Nicaraguan and other dialects of Spanish and accounts for *pancito* diminutives, as well as the variation observed in disyllabic words containing diphthongs, through different rankings of the constraints that account for Northern/Central Peninsular Spanish.

Stephenson (2004) sketches an OT account of diminutives that moves the discussion somewhat back to phonology from morphology. The major point of difference with previous accounts is that in Stephenson's approach, bases are assigned within a given dialect to one of two class systems depending on their phonological and morphological properties. Interestingly, these classes are not defined by whether the base takes one allomorph or another, but by the base's sensitivity to a constraint on minimality, MINWD (see (28)). In particular, the distinction between the two systems is determined by whether a class of bases distinguishes between long and short in terms of allomorph selection. A base like *casa* belongs to System I, which is not subject to any minimality requirements. On the other hand, *clase* belongs to System II and is subject to such a requirement, which rules out a potential candidate like **clasita*.

As is evident from our overview of prior analyses, one of the primary obstacles to a unified account of Spanish diminutivization lies precisely in the distinction between prosodically identical *casa* and *clase*, which select different allomorphs in *casita* and *clasecita*. As expected, all the analyses have appealed to the morphology to varying degrees to reconcile this incongruity. Colina (2003a) is the first of these authors to treat this contrast as morphologically similar as well, in that both *casa* and *clase* are assumed to end in a TE. This move requires an analysis that places more complexity on the diminutive morphemes themselves in terms of the bases they select. The phonology enters into the equation when *-cito/a*, which normally prefers bases lacking a TE, attaches to a base like *clase* due to the emergence of an unmarked prosodic structure. In this way, the demands of the morphology are not inflexible. In fact, this is precisely the sort of give-and-take predicted by an OT approach that allows for the interaction of morphological and prosodic constraints.

5.3 Theoretical comparison and discussion

As pointed out above, developing a comprehensive account of all Spanish varieties is beyond the scope of the present study, whose primary focus has been on diminutive formation in JS dialects. The question remains, however, why we chose to pursue an analysis incorporating faithfulness to lexical ordering of allomorphs (PRIORITY) and to lexically encoded subcategorization requirements (RESPECT), following recent work by Bonet (2006), Bonet, Lloret & Mascaró (2007), and Mascaró (2007). That is to ask, what motivates a lexical ordering and subcategorization approach to Spanish diminutives over the approaches taken in previous studies?

The most important motivation is theoretical restrictiveness with respect to the use of morpheme-specific constraints. For instance, Colina's (2003a) analysis makes use of the constraints in (47), which "are stored in the lexicon along with underlying representations (URs) and other idiosyncratic properties of morphemes" (p.57).

(47) a. *-cit*V TO PRWD — The left edge of the suffix *-cit*V must be aligned with the right edge of the prosodic word.

b. DIM TO PRWD — The left edge of the diminutive suffix must be aligned with the right edge of the prosodic word.

c. *TE- — No word markers (or terminal elements) in positions other than word final.

d. *-it-* TO V_{TE} — The right edge of the *-it-* allomorph must be aligned to the left edge of a [+syllabic] TE of the base.

e. ALIGN-*it*-L — The left edge of the diminutive allomorph *-it-* must be aligned with the left edge of the stem.

Colina acknowledges that morpheme-specific constraints may seem theoretically undesirable "in a framework like OT in which constraints are supposed to be universal" (p.57) but then points out that similar proposals have been made before in the OT literature, e.g. Hammond (1997, 2000) and Russell (1997), who call for the introduction of morphemes via constraints. The same criticism can be made with respect to Elordieta & Carreira's (1996) morpheme-specific ALIGN-GM and GM = CLASS I-II, as well as Miranda's (1999) ALIGN(GENDER,L,PRWD,R) and ALIGN-DIM (see the overview in Section 5.2).

Our analysis obviates the need for morpheme-specific constraints by according a greater role to lexical subcategorization and ordering of allomorphs. The partially ordered set {(zik, ik) > it} in (23), the morphological structure of diminutivized words in (24), and the subcategorization frame of the allomorph /zik/ in (36) all encode what are essentially idiosyncratic properties of particular morphemes found in the JS lexicon. This information is expressed by just two universal constraints, PRIORITY and RESPECT, which interact with other universal constraints in the JS grammar. On the issue of theoretical restrictiveness, we agree with Bonet, Lloret & Mascaró (2007), who maintain that "a universal grammar with PRIORITY [and RESPECT] adds [two constraints] to the set, but morphemes introduced through constraints leave open the possibility of adding as many constraints as morphemes. Enlarging the lexicon, on the other hand, increases the number of outputs of a grammar but leaves the class of grammars unchanged" (p.915). Another reason to prefer a lexical ordering and subcategorization approach over the introduction of lexical material through surface-oriented constraints is that the latter approach incorrectly predicts that contextual changes in morphemes will be blocked (Bonet, Lloret & Mascaró 2007, p.915; see also Bonet 2004). The JS equivalents of Colina's (47d,e) would require the allomorph *-ik-* to have an invariant surface form in diminutives that prefer the suffix *-iko/a.* However, the coalescence data from Salonika JS (5) shows that the initial vowel of the suffix is subject to contextual variation depending on the stem-final stressed vowel.

Building on Bonet's (2006) lexical ordering account of Spanish class markers, our approach provides a novel analysis of class marker selection in diminutivized words. The observation that diminutives always end in *-o* or *-a* is explained by the morphological structure of diminutivized words in (24), which contain the reduced sets of class markers {o > a} for masculine and {a > o} for feminine. As shown in Section 4.2.1, PRIORITY selects the default class marker in diminutives of bare stems and stems marked for Ø or *-e,* while RESPECT explains irregular forms like masculine *mapita* < *mapa,* which ends in a class marker that is normally the default for feminine words. Our analysis does not require morpheme-specific constraints on gender markers or their alignment (cf. Elordieta & Carreira 1996 and Miranda 1999), nor does it involve featural underspecification of class markers (cf. Colina 2003a, who proposes that "*-e* is specified underlyingly as a terminal element (unstressed V), realized as a mid front vowel in the phonetic component" (p.65)). Rather, the same ranking of RESPECT » PRIORITY that accounts for class marker selection in non-diminutivized words (see Section 4.1 for JS and Section 3 for other Spanish varieties) also predicts the behavior of class markers in diminutives.

The partially ordered set {(zik, ik) > it} in (23) puts markedness relations among allomorphs directly into the lexical representation of the diminutive morpheme instead of encoding them as markedness constraints in the grammar. As demonstrated in Table 15, the ordering of /ik/ above /it/ allows high-ranking PRIORITY to choose the correct allomorph despite its greater markedness in terms of place features. The markedness relation between /ik/ and /it/ has a plausible explanation in the external history of JS. While *-iko/a* became the predominant diminutive suffix by the 18th century, the corresponding suffix *-ico/a* in non-JS varieties was eventually restricted to Aragon, Murcia, and eastern Andalusia. Bunis (2003, p.199, fn.18) speculates that "[t]he Jews of Spain were undoubtedly aware of the widespread use of the *-ico* suffix in the refined circles of Spanish society on the eve of their expulsion from the country, and were perhaps taken with its relative newness." JS speakers may have initially developed a preference for *-iko/a* diminutives as a way of establishing a social identity that would set their group members apart from Spaniards living outside the Jewish ghettos.[17]

While JS diminutive formation manifests the variants expected of a distinct dialect, our analysis maintains a prominent role for the morphology along with the concomitant phonological constraints. The subcategorization requirement of the allomorph /zik/, repeated in (48), captures the interaction of morphology (reference to the e/Ø inflectional class) and phonology (reference to syllable count), and shows that this allomorph can also be conditioned by the number of moras present in a monosyllabic stem regardless of its inflectional class.

(48) $\left[\left\{ \begin{array}{l} \#\sigma\#_{e/\emptyset} \\ \#\sigma\#_{\mu\mu} \end{array} \right\}_{\text{STEM}} \text{zik}_{\text{DIM SUFFIX}}(...) \right]_{\text{DIM WORD}}$ (JS)

Minimal modification of this frame can account for dialectal variation in diminutive formation. The frame in (49) removes the monosyllabicity requirement on e/Ø stems and replaces /zik/ with the allomorph /sit/ found in other Spanish varieties:

(49) $\left[\left\{ \begin{array}{l} \#\ \ \#_{e/\emptyset} \\ \#\sigma\#_{\mu\mu} \end{array} \right\}_{\text{STEM}} \text{sit}_{\text{DIM SUFFIX}}(...) \right]_{\text{DIM WORD}}$ (other Spanish varieties)

The same ranking of RESPECT » MINWD » DEP-V proposed for JS will allow /sit/ to attach to monosyllabic stems like /pan$_{Ø,pl:e}$/ and /klas$_{e}$/, as well as disyllabic or longer stems like /menu$_{Ø}$/ and /pintor$_{Ø,pl:e}$/. The ranking will prevent /sit/ from attaching to bare stems like masculine /libr/ and feminine /kas/, as well as stems with irregular gender marking, e.g. masculine /map$_{a}$/ and feminine /man$_{o}$/. To account for the variation between *pancecito* and *pancito,* we follow Stephenson (2004, pp.23-26), who uses an output-output correspondence constraint requiring segments in the diminutivized form to occupy the same syllable position as their correspondents in the base form. When this constraint dominates MINWD, the syllabification of the nasal in coda position in the base [pan] will carry over into the diminutive [pan.si.to]. Recall that words of more than two syllables ending in unstressed *-e* show variation across and within speakers, e.g. *chocolatito ~ chocolatecito < chocolate* (Prieto 1992, pp.173-174). In an analysis of Catalan plurals, Bonet, Lloret & Mascaró (2007, p.922) propose an output-output constraint requiring every vocalic segment in the base to have a correspondent in the affixed form. Ranking this constraint above DEP-V will optimize [ʧo.ko.la.te.si.to], in which epenthetic [e] reflects the final vowel of the base [ʧo.ko.la.te].

Our analysis of JS disyllabic words containing a diphthong easily extends to other Spanish dialects. The variation observed in (41) can be accounted for if we assume alternate underlying forms, e.g. /pw$^{\mu}$e$^{\mu}$rt/ and /pwe$^{\mu}$rt/, as proposed above for JS (37). The fact that examples like *guerrecita < guerra* are unattested in non-JS varieties can be seen as further evidence that the intervocalic trill is no longer a geminate consonant in these dialects (see fn.12). Given an input stem like /sa$^{\mu}$bj/, Nicaraguan *sabito* can be analyzed as coalescence of the stem-final glide with the initial vowel of the allomorph /it/, which requires a phonotactic constraint against [ji] diphthongs to be ranked above UNIFORMITY. The opposite ranking allows the diphthong to be maintained in JS *savyiko.*

6. Conclusion

In this paper, we have contributed to the study of Spanish diminutives by highlighting data and generalizations from JS, which have not been addressed in the generative literature until now. On a descriptive level, diminutive allomorphy in JS shows an interaction of morphological and phonological factors. We have argued that it is possible to predict the shape of the diminutive based on the inflectional class, syllable count, and moraic weight of the stem, as well as the place of articulation of the stem-final consonant. The JS data present several interesting twists not commonly found in the diminutive patterns of other Spanish dialects, i.e. the dispreference for sequences of repeated dorsal consonants, the resolution of hiatus through glide epenthesis and vowel coalescence, the attraction of *-eziko/a* to disyllabic words with a word-medial intervocalic trill, and the maintenance of the palatal glide before *-iko/a* in the context of words ending in the diphthong *-yo* or *-ya.*

On a theoretical level, we have developed a formal analysis of JS diminutives based on recent accounts of allomorph selection. We have extended Bonet's (2006) lexical ordering account of Spanish class markers to cover nominal inflection in JS, providing a straightforward explanation of class marker behavior in diminutivization. Our analysis of diminutive formation makes use of an ordered set of diminutive allomorphs, as well as a subcategorization requirement limiting the attachment of the allomorph /zik/. Building on proposals by Bonet, Lloret

& Mascaró (2007) and Mascaró (2007), we have shown how faithfulness to lexical ordering and subcategorization interacts with other faithfulness and markedness constraints to generate the patterns of diminutivization that are attested in JS. Our analysis has the advantage of avoiding the proliferation of language- and morpheme-specific constraints, and it can be extended with minimal modification to account for diminutive formation in other Spanish varieties. Insofar as it successfully accounts for cross-dialectal variation in the diminutivization of disyllabic words containing a diphthong, our analysis provides support for the claim that glides in rising and falling diphthongs can be moraic in the input. Furthermore, the diminutive data show that the intervocalic trill patterns as the moraic counterpart of a non-moraic tap in some varieties of JS.

Acknowledgments

Earlier versions of this work were presented by the first author at the 38th Linguistic Symposium on Romance Languages (University of Illinois, Urbana-Champaign, April 2008) and by both authors at the 39th Linguistic Symposium on Romance Languages (University of Arizona, Tucson, March 2009). This paper has benefited from questions and comments from audience members at both conferences. In particular, we would like to acknowledge Ricardo Bermúdez-Otero, Eulàlia Bonet, Barbara Bullock, Laura Colantoni, Michael Friesner, Heather Goad, José Ignacio Hualde, Haike Jacobs, Geraldine Legendre, Anna Limani, John Lipski, Fernando Martínez-Gil, Güler Orgun, and Yvan Rose. Thanks to Sonia Colina for helpful comments on an earlier draft of this paper. Thanks also to two anonymous reviewers for their insightful criticisms and suggestions. Of course, none of the individuals cited here is responsible for any remaining shortcomings in this work.

Notes

1 The data from Bunis (2003) are phonemic romanizations of forms taken from Jewish-letter texts that were published in the region corresponding to modern-day Turkey, Greece, and Bulgaria. The etymological origin of non-diminutive forms is indicated with the following abbreviations: OS. (Old Spanish), H. (Hebrew), T. (Turkish), F. (French), G. (Greek), I. (Italian), SC. (Serbo-Croatian), and E. (English). IPA equivalents of some of the JS transcription symbols employed by Bunis are as follows: *ch* [ʧ], *dj* [ʤ], *h* [χ], *j* [ʒ], *k* [k], *ny* [nj], *sh* [ʃ], *y* [j], *z* [z].

2 Final *-é* is sometimes maintained, e.g. *také* (T. *takke*) 'skullcap' > *takeika, kyasé* (T. *kâse*) 'bowl' > *kyaseika,* but never final *-í* (Bunis 2003, p.210).

3 Bunis (2003, p.211,215) observes dialectal variation in the shape of the *-eziko/a* suffix, whereby *-e-* can be replaced by *-i-, -o-, -u-,* or *-a-*. Masculine *-iziku* is common in Yugoslavian, Rumanian, and Western Bulgarian dialects of JS. Variants such as *-izikyu* are attested in Bosnian JS, due to contact with Serbo-Croation and other coterritorial languages in which /k/ undergoes palatalization in the context of front vowels. We abstract away from these variations and represent the suffix as *-eziko/a* throughout this paper.

4 Bonet (2006, pp.315-323,334-335) provides arguments against previous accounts of Spanish plurals based on the epenthesis or deletion of final /e/ and against the use of separate subgrammars for native words and for loans. As we will show in Section 4.1, data from plural formation in JS support the treatment of plural *-e* as epenthetic.

5 There is a considerable degree of diatopic variation in the realization of unstressed vowels in JS (see Quintana 2006, pp.40-61,364-365). Some dialects show raising of mid and low vowels in final unstressed position, e.g. *madri* < *madre* 'mother', *todu* < *todo* 'everything', *kaze* < *kaza* 'house', which may suggest a potential restructuring of class marker allomorphs. In the Ottoman varieties described in Bunis's (2003) study of diminutives, raising of non-high vowels in final unstressed position is unattested.

6 As these inputs make clear, we are assuming that class markers do not appear inside derivational suffixes. Bermúdez-Otero (2006, 2007) defends a different approach, couched within Stratal OT, in which class markers do appear inside derivational suffixes but undergo deletion in the phonology. This approach invites some intriguing morphological alternatives, but exploring them here would lead us too far afield.

7 Bunis (2003) observes that in JS, the "overt gender-markers (masculine) *-o* and (feminine) *-a* emerge in diminutive forms of lexical items in which they are absent, as well as in irregular forms; e.g. m. *nombre* (S.) 'name' > *nombreziko,* f. *tadre* (S. *tarde*) 'afternoon' > *tadrezika,* f. *mano* (S.) > *manezika"* (p.219). The diminutive *manezika* is unexpected under the analysis of class marker selection in Table 14 for Peninsular Spanish (and also because it takes the longer suffix *-ezika*). However, this is the only such example cited by

Bunis, so it is unclear whether *manezika* (< *mano* 'hand') is the typical realization or a lexicalized exception. Furthermore, Hualde (2005) reports considerable variability in diminutives of feminine nominals ending in *-o:* "For exceptionally feminine *(la) mano* 'hand' the diminutive is *manita* in some areas (e.g. Spain) but *manito* in others (e.g. Peru). For the few other feminine nouns in *-o* resulting from truncation of longer words such as *(la) foto* 'photograph', *(la) moto* 'motorcycle' and, in some dialects, *(la) radio* 'radio', there is a certain amount of insecurity and the diminutive is usually avoided: *foto/?fotito, ?fotita"* (p.216).

8 IDENT-MI(place) has several precedents in the OT literature. Casali (1996, p.27) employs a PARSE(feature) constraint relativized to morpheme-initial segments, and Beckman (1998, p.56) relativizes IDENT(feature) constraints to root-initial syllables. For JS in particular, Bradley (2007, p.179) shows that IDENT-MI(place) plays a role in constraining the metathesis of /dm/ clusters in imperative-clitic sequences. On the use of faithfulness constraints like IDENT(a↔i) that are projected from perceptual distance scales, see Steriade (2001a,b) and, more recently, Padgett (2007).

9 Recall from fn.2 that final *-é* is sometimes maintained, e.g. *také* (T. *takke*) 'skullcap' > *takeika.* One way to account for this pattern would be to posit an additional high-ranking constraint, IDENT(e↔i), penalizing the mapping between front mid and high vowels. Bunis (2003, p.210) does not state that glide epenthesis is possible in this context, so an additional constraint may be necessary to rule out a form such as **takeyika.*

10 The moraicity of pre- and postvocalic glides is related to the issue of whether Spanish is quantity sensitive, which has been widely debated in the literature (for a discussion of the syllabification and moraic status of glides, see Colina 2009, pp.21-24). According to Morales-Front (1999, p.220), the lack of proparoxytones with rising diphthongs in the penultimate or final syllable is evidence that prevocalic glides are moraic. However, this restriction may reflect a historical gap in the evolution of Spanish from Latin (see Hualde 2005, pp.236-239), which leads Colina (2009, p.24) to conclude that "the analysis of prevocalic and postvocalic glides as nonmoraic vocoids is well supported." Bradley (2009) argues that prevocalic /w/ is realized in some JS dialects as secondary labialization on a preceding labial or dorsal consonant (e.g. *p^{w}ede* 'can', *g^{w}eso* 'bone', *k^{w}edra* 'rope'), which would seem to entail that such glides are nonmoraic. The JS diminutive data may be interpreted as evidence that rising and falling diphthongs are bimoraic in the input, even when the grammar yields a nonmoraic secondary articulation in the output.

11 Bunis (2003, pp.218-219) notes that "a *y*-glide (cf. S. *-y-, -ll-, -li-*) which opens a word-final syllable may be deleted, along with a final nonstressed vowel, with the addition of a diminutive suffix containing initial *i* (through anticipatory assimilation to the vowel); e.g. *boyo* (S. *-ll-*) 'kind of bun' > *boiko, djoya* (S. *j-*) 'jewel' > *djoika, aniyo* (S. *-illo*) 'ring' > *aniiko, famiya* (S. *-ilia*) 'family' > *famiika, maniya* (S. *-illa*) 'bracelet' > *maniika.*" These realizations reflect a more general process in JS whereby the palatal glide is elided in the context of an adjacent front vowel (Penny 2000, p.188). Developing a full analysis would lead us too far afield, but see Lipski (1990) for a derivational account of Spanish palatal glide elision as an OCP effect involving front vocoids.

12 See Baković (2009) and Bradley (2006) for arguments for and against the geminate representation of intervocalic trills in Spanish. Colina (2009, p.95, 2010) argues that the Latin geminate tap evolved into a singleton trill in modern Spanish. JS may represent an intermediate or transitional stage, as the intervocalic trill behaves as a geminate in some lexical items, e.g. (32d), and as a single segment in others, e.g. (37b).

13 To allow for diminutives like *pwertezika* in (32a), we still need to assume that /w/ is underlyingly moraic when part of a diphthong in the initial syllable (on the realization of /w/ as secondary labialization in the output, see the discussion in fn.10). It may be preferable to analyze contextual differences in the moraicity of /w/ as a stress-to-weight effect (i.e. stressed syllables are bimoraic), but we leave this for future research.

14 Orthographic *-c-* in *-(e)cito/a* corresponds to phonemic /s/ or /θ/ depending on the dialect. For convenience, we employ /s/ in phonemic representations.

15 One exception is that disyllabic /l/-final words tend to prefer *-ito/a* instead of *-cito/a,* e.g. *hotelito* < *hotel* 'hotel' (see Colina 2003a, fn.4, Crowhurst 1992, pp.234-235, Prieto 1992, p.177). This exception is not evident in JS because such words always take *-iko/a,* e.g. *kazaliko* < *kazal* 'village' (1c).

16 Her analysis also addresses and accounts for attachment of the augmentative suffix *-(s)ote/a*, which displays similar patterns of /e/-epenthesis in the context of monosyllabic stems. We do not treat augmentatives in this paper.

17 Thanks to Sonia Colina and John Lipski for discussion regarding the basis of markedness relations among diminutive allomorphs in JS.

References

Anttila, Arto & Young-mee Yu Cho. 1998. Variation and change in Optimality Theory. Lingua 104, 31-56.

Baković, Eric. 2006. Hiatus resolution and incomplete identity. In Fernando Martínez-Gil & Sonia Colina (eds.), Optimality-theoretic studies in Spanish phonology, 62-73. Amsterdam: John Benjamins.

Baković, Eric. 2009. Abstractness and motivation in phonological theory. Studies in Hispanic and Lusophone Linguistics 2(1), 183-198.

Beckman, Jill N. 1998. Positional faithfulness. Doctoral dissertation, University of Massachusetts. Published 1999 by Garland Publishing.

Bermúdez-Otero, Ricardo. 2006. Morphological structure and phonological domains in Spanish denominal derivation. In Fernando Martínez-Gil & Sonia Colina (eds.), Optimality-theoretic studies in Spanish phonology, 278-311. Amsterdam: John Benjamins.

Bermúdez-Otero, Ricardo. 2007. Spanish pseudoplurals: phonological cues in the acquisition of a syntax-morphology mismatch. In Matthew Baerman, Greville Corbett, Dunstan Brown & Andrew Hippisley (eds.), Deponency and morphological mismatches (Proceedings of the British Academy 145), 231-269. Oxford: Oxford University Press.

Bonet, Eulàlia. 2004. Morph insertion and allomorphy in Optimality Theory. International Journal of English Studies 4(2), 73-104.

Bonet, Eulàlia. 2006. Gender allomorphy and epenthesis in Spanish. In Fernando Martínez-Gil & Sonia Colina (eds.), Optimality-theoretic studies in Spanish phonology, 312-338. Amsterdam: John Benjamins.

Bonet, Eulàlia, Maria-Rosa Lloret & Joan Mascaró. 2007. Allomorph selection and lexical preferences: two case studies. Lingua 117, 903-927.

Bradley, Travis G. 2006. Spanish rhotics and Dominican hypercorrect /s/. Probus 18(1), 1-33.

Bradley, Travis G. 2007. Constraints on the metathesis of sonorant consonants in Judeo-Spanish. Probus 19(2), 171-207.

Bradley, Travis G. 2009. On the syllabification of prevocalic /w/ in Judeo-Spanish. In Pascual J. Masullo, Erin O'Rourke & Chia-Hui Huang (eds.), Romance linguistics 2007: Selected papers from the 37th Linguistic Symposium on Romance Languages (LSRL), 51-67. Amsterdam: John Benjamins.

Bunis, David. 1985. Plural formation in Modern East Judezmo. In Joseph Sermoneta & Isaac Benabu (eds.), Jerusalem studies in Judeo-Romance languages, 41-67. Jerusalem: Magnes Press.

Bunis, David. 2003. Ottoman Judezmo diminutives and other hypocoristics. In Frank Alvarez-Péreyre & Jean Baumgarten (eds.), Linguistique des langues juives et linguistique générale, 193-246. Paris: CNRS Éditions.

Casali, Roderic. 1996. Resolving hiatus. Doctoral dissertation, University of California, Los Angeles. Published 1998 by Garland Publishing.

Colina, Sonia. 2003a. Diminutives in Spanish: a morpho-phonological account. Southwest Journal of Linguistics 22(2), 45-88.

Colina, Sonia. 2003b. The status of word-final [e] in Spanish. Southwest Journal of Linguistics 22(1), 87-107.

Colina, Sonia. 2009. Spanish phonology: a syllabic perspective. Washington, D.C.: Georgetown University Press.

Colina, Sonia. 2010. Rhotics in Spanish: a new look at an old problem. In Claudia Borgonovo, Manuel Español-Echevarría & Philippe Prévost (eds.), Selected proceedings of the 12th Hispanic Linguistics Symposium, 75-86. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #2407.

Crowhurst, Megan J. 1992. Diminutives and augmentatives in Mexican Spanish: a prosodic analysis. Phonology 9, 221-253.

De Lacy, Paul. 2002. The formal expression of markedness. Doctoral dissertation, University of Massachusetts, Amherst.

Elordieta, Gorka & Maria M. Carreira. 1996. An Optimality Theoretic analysis of Spanish diminutives. In Lise M. Dobrin, Kora Singer & Lisa McNair (eds.), Proceedings from the main session of the Chicago Linguistic Society's 32nd Meeting, 49-60. Chicago: Chicago Linguistic Society.

Hammond, Michael. 1997. Underlying representations in Optimality Theory. In Iggy Roca (ed.), Derivations and constraints in phonology, 349-366. Oxford, UK: Clarendon Press.

Hammond, Michael. 2000. There is no lexicon! Coyote Papers 10, 55-77.

Harris, James W. 1991. The exponence of gender in Spanish. Linguistic Inquiry 22(1), 27-62.

Harris, James W. 1992. The form classes of Spanish substantives. In Geert Booij & Jaap van Marle (eds.), Yearbook of morphology 1991, 65-88. Dordrecht: Kluwer.

Harris, James W. 1994. The OCP, prosodic morphology and Sonoran Spanish diminutives: a reply to Crowhurst. Phonology 11, 179-190.
Harris, James W. 1999. Nasal depalatalization no, morphological wellformedness sí: the structure of Spanish word classes. MIT Working Papers in Linguistics 33, 47-82.
Hualde, José Ignacio. 2005. The sounds of Spanish. Cambridge: Cambridge University Press.
Hualde, José Ignacio & Mahir Şaul. Forthcoming. Istanbul Judeo-Spanish. To appear in Journal of the International Phonetic Association.
Jaeggli, Osvaldo. 1980. Spanish diminutives. In Frank H. Nuessel (ed.), Contemporary studies in Romance languages, 142-158. Bloomington: Indiana University Linguistic Club.
Leben, William. 1973. Suprasegmental phonology. Doctoral dissertation, MIT. Published 1980 by Garland Publishing.
Lipski, John M. 1990. Elision of Spanish intervocalic /y/: toward a theoretical account. Hispania 73, 797-804.
Lipski, John M. 1994. Latin American Spanish. London: Longmans.
Lipski, John M. 1999. El sufijo -ico y las palabras afroibéricas agüé/awe y aguora/ahuora: rutas de evolución y entorno dialectológico. In Ortiz López (ed.), El Caribe hispánico: perspectivas lingüísticas actuales, 17-42. Frankfurt: Vervuert.
Mascaró, Joan. 2007. External allomorphy and lexical representation. Linguistic Inquiry 38(4), 715-735.
McCarthy, John. 1986. OCP effects: gemination and anti-gemination. Linguistic Inquiry 17(2), 207-263.
McCarthy, John. 2002. A thematic guide to Optimality Theory. Cambridge: Cambridge University Press.
Miranda Miranda, Inés. 1999. An optimality theoretic analysis of Nicaraguan Spanish diminutivization: results of a field survey. Doctoral dissertation, University of Washington.
Morales-Front, Alfonso. 1999. El acento. In Rafael A. Núñez Cedeño & Alfonso Morales-Front (eds.), Fonología generativa contemporánea de la lengua española, 203-230. Washington, DC: Georgetown University Press.
Nagy, Naomi & William Reynolds. 1997. Optimality Theory and variable word-final deletion in Faetar. Language Variation and Change 9, 37-55.
Padgett, Jaye. 2007. Glides, vowels, and features. Lingua 118(12), 1937-1955.
Paster, Mary. 2005. Phonological conditions on affixation. Doctoral dissertation, University of California, Berkeley.
Penny, Ralph. 1992. Dialect contact and social networks in Judeo-Spanish. Romance Philology 46, 125-140.
Penny, Ralph. 2000. Variation and change in Spanish. Cambridge: Cambridge University Press.
Prieto, Pilar. 1992. Morphophonology of the Spanish diminutive formation: a case for prosodic sensitivity. Hispanic Linguistics 5, 169-205.
Prince, Alan & Paul Smolensky. 1993. Optimality Theory: constraint interaction in generative grammar. Ms., New Brunswick & Boulder: Rutgers University & University of Colorado.
Prince, Alan & Paul Smolensky. 2004. Optimality Theory: constraint interaction in generative grammar. Malden, MA: Blackwell.
Quintana Rodríguez, Aldina. 2006. Geografía lingüística del judeoespañol. Bern: Peter Lang.
Reynolds, William. 1994. Variation and phonological theory. Doctoral dissertation, University of Pennsylvania.
Roca, Iggy. 1989. The organisation of grammatical gender. Transactions of the Philological Society 87, 1-32.
Russell, Kevin. 1997. Optimality Theory and morphology. In Diana Archangeli & D. Terence Langendoen (eds.), Optimality Theory: An overview, 102-133. Malden, MA: Blackwell.
Stephenson, Tamina. 2004. Declensional-type classes in derivational morphology: Spanish diminutives revisited. Ms., MIT.
Steriade, Donca. 2001a. The phonology of perceptibility effects: the P-map and its consequences for constraint organization. Ms., MIT.
Steriade, Donca. 2001b. Directional asymmetries in place assimilation: a perceptual account. In Elizabeth Hume & Keith Johnson (eds.), The role of speech perception in phonology, 219-250. New York: Academic Press.