Nominal Plural Marking of Nonce Words in Child Spanish

Myriam Cantú-Sánchez

MA Thesis

Supervisors

Dr. Anna Gavarró

Universitat Autònoma de Barcelona

Dr. John Grinstead

The Ohio State University

Master in Cognitive Science and Language

Universitat Autònoma de Barcelona

Bellaterra, September 2011

Acknowledgments

This study was done with the kind support of many people. I am especially grateful to my supervisors, Prof. Anna Gavarró and Prof. John Grinstead, for their deep knowledge and kind guidance.

I would like to mention my gratitude to Prof. Steven J. Naber, from The Ohio State University. He guided the statistical work of this research. He gave us time and attention, answering all our questions. My thanks again to Prof. Grinstead, who facilitated this essential part of this study. Their patience and extra work deserve my special mention. My gratitude also goes to Prof. Fernando Martínez-Gil, from the Ohio State University, for his comments and attention.

Many thanks have to be given to Miss Rosa Lilia Raura, who coordinates and directs "Kid's Center Del Valle", the kindergarten where the experiment was carried out. Her help and professionalism were invaluable.

I am also deeply grateful to the children who participated in this study and to their teachers and parents: all of them were always open and kind. Literally, their generous help made this study possible.

Finally, I am truly grateful to David, whose support and loving presence has been essential; also, to my loving family and my dear friends.

Abstract

This study addresses the issue of the acquisition of Spanish plural marking considering data from three sources: existent words, loan words and nonce words. Although the rule for plural marking in Spanish is apparently simple, the distribution of /-s/ and /-es/ does not seem to be uniform. Specifically, we are interested in the role of stress placement and word-final sound in the use of /-es/ for plural formation. We present data concerning the interaction of these two features for both children and adults. Our findings suggest that this phenomenon is a classic example of over generalization in acquisition: children have a strong preference to mark the plural with /-s/ in contexts in which the /-es/ marker is expected. Adults in contrast, make much more use of /-es/. Stress does not seem a determining feature by itself. Its main effect is produced when it interacts with the structure of the syllable. As for nonce words with penultimate syllable stress, the ones that end in a vowel show the highest degree of correctness (considering "correctness" the degree of similarity to the plural marking of existent words). On the contrary, the ones ending in a consonant got the lowest degree of correctness. The distinction of vowel/consonant ending seems to be the determining feature for plural noun marking in Spanish.

TABLE OF CONTENTS

List of Tables and Figures

Tables

Figures

1. Introduction

In previous work on nominal plural marking in the Spanish of children with specific language impairment (SLI), Grinstead, Cantú-Sánchez, and Flores-Ávalos (2008) observed that children in the two typically-developing groups of the study showed lower proficiency in the use of the /-es/ form than in the use of the /-s/ marker on an elicited production task that tested plural marking of common nouns. The two typically-developing control groups consisted of a group of children matched in age to an SLI group (n=9, mean age=57 months, mean MLUw=4.43) and of a group of children matched in mean length of utterance, measured in words (MLUw) to the SLI group (n=9, mean age=50 months, mean MLUw=3.0). The results of this test, using existent words, are shown in Table 1.

	SLI	MLU/matched 4;02 m-old	Age/matched 4;09 m-old	Total
/s/	97.8%	100%	99.4%	99.1%
/es/	70%	86.7%	82.2%	80.0%

Table 1: *Percentage of corrrect prlural production across the 3 Groups (from Grinstead et al. 2008, p. 342, Table 5).*

These results were consistent with the findings of other investigations on plural marking in child Spanish (Kernan and Blount 1966, Pérez-Pereira 1989, Bedore and Leonard 2001) and with analogous studies of plural marking in child English (Berko 1958, Derwing and Baker 1979, Oetting and Rice 1993, Rice and Oetting 1993), which shares many properties of Spanish nominal plural marking.

Grinstead et al. (2008) also observed that there were two types of 'errors', in the children's attempts at plural marking. The first and most common error consisted in keeping the noun in the singular form and the second consisted in adding the /-s/ plural marker to stems where /-es/ was expected. In a test of 30 items, out of 17 errors, children in the age control group (mean age=57 months) made 15 errors of the first type and 2 errors of the second type. On the other hand, in the same test of 30 items, out of 12 errors, children in the language control group (mean age=50 months) made 11 errors of first type and 2 errors of the second type. All these data are consistent with the findings of other investigations on plural marking in child Spanish.

The literature suggests that children tend to have much more problems in adding the plural marker /-es/ to stems that are *nonce* words. In Kernan and Blount's (1966) study, for instance, children succeeded in marking the plural form of the nonce word *fetor* as *fetores* only 43% of the time, whereas adult controls did it correctly 100% of the time. In the experiment conducted by Pérez-Pereira (1989), 3 year-old children marked the plural of the nonce word *tipón* as *tipones* only 36% of the time. Even 6 year-olds applied the /-es/ plural mark 55% of the time. While Kernan & Blount (1966) and Pérez-Pereira (1989) increased our knowledge of the children's understanding of plural marking, they used few nonce words (Kernan &Blount tested 3; Pérez-Pereira, 8) and left an array of variables uncontrolled, such as word stress, which we think may be important in understanding the nature not only of this phenomenon, but perhaps illustrative of language learning in general. Thus, standing on their shoulders, this study attempts to deepen our understanding of child language development through studying canonical (/s/) and epenthetic (/es/) plural marking in typically-developing children.

In summary, with respect to child Spanish speaker's knowledge of plural marking, there are three observations that seem critical as points of departure. We think that Spanish plural marking is an interesting area of research considering that:

1) Children are systematically worse at applying the epenthetic plural /-es/ than they are at applying the canonical plural /-s/ to existing words (Pérez-Pereira 1989, Bedore & Leonard 2001, Grinstead et al. 2008)

2) Children appear to be even worse at applying the /-es/ marker to produce the plural of *nonce* words (Kernan & Blount 1966, Pérez-Pereira 1989).

3) Though the distribution of these two plural markers has been characterized as being highly predictable, there are possibly variables that have not been taken into account in either child or adult language in determining their distribution. In this study we intend to explore the possibility that these facts may be related to the role of stress placement and/or word-ending sound.

2. Nominal Plural Marking in Spanish

2.1. General Considerations

In general terms, plurality in Spanish is marked by adding /-s/ or /-es/, depending on the ending of the noun (Alcina 1975, Alarcos 1994, Bosque & Demonte 1999, Seco 2001, Gómez Torrego 2002, RAE 2009, Bosque 2010). The form */-s/* is added to:

1) Nouns ending in unstressed vowels /a/, /o/[1] or /e/:

	SINGULAR		PLURAL	
(1)	*niña*	'girl'	*niña-s*	'girls'

[1] The most common vowel ending in Spanish due to its mandatory marking of male/female gender.

(2) *niño*	‘boy’		*niño-s*	‘boys’
(3) *peine*	‘comb’		*peine-s*	‘combs’

2) Nouns ending in unstressed /i/ or /u/. The vast majority of these words are loans from other languages:

	SINGULAR		*PLURAL*	*BORROWED FROM*
(4)	*espagueti*	‘spaguetti’	*espagueti-s*	Italian
(5)	*alioli*	‘aioli’	*alioli-s*	Catalan
(6)	*haiku*	‘haiku’	*haiku-s*	Japanese

3) Nouns ending in stressed /á/, /ó/ or /é/. These words also tend to be borrowings from other languages and not part of the Spanish patrimonial lexicon:

	SINGULAR		PLURAL	BORROWED FROM	
(7)	*sofá*	‘sofa’	*sofá-s*	‘sofas’	French
(8)	*paté*	‘pâté’	*paté-s*	‘‘pâtés’	French
(9)	*gigoló*	‘gigolo’	*gigoló-s*	‘gigolos’	Italian

Nouns with stress on the penultimate syllable that end in /s/ are marked with a plural mark /Ø/

	SINGULAR		PLURAL
(10)	*lunes*	‘Monday’	*lunes-Ø*
(11)	*paragüas*	‘umbrella’	*paragüas-Ø*
(12)	*crisis*	‘crisis’	*crisis- Ø*

The plural marker /-es/ is added to:

1) Nouns ending in a consonant[2] or in a glide:

(13)	*pared*	'wall'	*pared-es*	'walls'
(14)	*rey*	'king'	*rey-es*	'kings'
(15)	*ley*	'law'	*ley-es*	'laws'

2) Words that end in a stressed vowel, especially a high vowel /í/ and /ú/ may accept either /-s/ or /-es/ to form the plural. This variation is subject to style, dialect, historical change and register. The addition of /-es/ tends to disappear in modern Spanish and tends to be more used in formal contexts (Bosque 2010, RAE 2009).

(18) *esquí*	'ski'	*esquí-s/esquí-es*	'skis'
(19) *colibrí*	'humming bird'	*colibrí-s/colibrí-es*	'humming birds'
(20) *bantú*	'bantu'	*bantú-s/bantú-es*	'bantus'
(21) *tabú*	'taboo'	*tabú-s/tabú-es*	'taboos'

It seems that the relation between the word-ending sound (vowel, consonant or glide) and the two variants of plural marking is not systematic. There is a fair degree of consensus among different grammatical descriptions of this phenomenon, and yet, they vary somewhat with respect to vowel-final words with final stress and with respect to consonant-final words.

This is a 'gray' area in which grammars have traditionally differ, as shown in table 2:

[2] Nouns that end in /s/ with stress on the ultimate syllable are pluralized with /es/ (*mes – meses* 'month' – 'months'; *compás- compases* 'compass'- 'compasses') as the rest of the words in Spanish that end in consonant.

	Alcina (1975)	**Alarcos** (1994	**Bosque** **Demonte** (1999)	**Seco** (2001)	**Gómez** **(**2002)	**RAE** (2009)	**Bosque** (2010)
Unstressed vowel	-s	-s	-s	-s	-s	-s	-s
Glide /-j/		-s/-es**	-es		-s/es**		
Á	-s	-s/-es*	-s/-es*	-s/-es*			
É	-s	-s	-s	-s	-s	-s	-s
Í	-s/-es	-s/-es*	-s/-es*	-es	-s/-es*	-s/-es*	-s/-es*
Ó	-s	-s/-es*	-s/-es*	-s	-s	-s	-s
Ú	-s	-s/-es*	-s/-es*	-s/-es*	-s/-es*	-s/-es*	-s/-es*
Consonant	-es	-s/-es**	-s/-es**	-es	-es	-s/-es	-es
-s	-Ø	-Ø	-Ø	-Ø/-es*	-Ø/-es*	-Ø	-Ø

Table 2: Sound endings of nouns for the adding of the variables /-s/ or /-es according to different authors.

**= depending on the specific word*

†= depending on the consonant

2.2. Hypotheses on the /-s/ and /-es/ alternation

Ambadiang (1999, p.4892) summarizes the three main explanations that have been contemplated regarding the alternation of these plural forms. The first is that the final sequence /–es/ is a variable of the plural mark[3], citing Saporta 1961-1962 and Knittlová 1970. The second explanation associates the absence of /e/ in singular with a process of apocope that applies to the underlying form[4], citing Foley 1967, Harris 1970; and the third explains its presence in the plural through a process of epenthesis either of phonological nature citing Saltarelli 1970, Contreras 1977, Harris 1985, 1991, Piera

[3] *"…la secuencia final –es…[es] una variante de la marca de plural"*.
[4] *"…[asocia]la ausencia de /e/ en el singular con un proceso de apócope que sufre la forma subyacente*".

1982) or morphological nature[5], citing Badia Margarit 1967, Quilis 1968, Hooper and Terrell 1976, Cepeda 1980 and Gallardo 1985.

Ambadiang (1999) also points out that "while the phonological analyses are based on the segmental and accentual properties of nouns, the morphological analyses address the morphological structure of the noun, in which the segment /e/ could be a mark of gender (citing Quilis 1968 and Gallardo 1985) or fill in the slot assigned for gender (citing Hooper and Terrell 1976 and Pazó 1991). Harris (1999) states that the specifically plural /e/ is a lexical allomorph of the singular Ø (Roca 2005).

The question of the existence of the segment [e] is still a subject of discussion. Roca (2005) mentions that *"the mechanics of Spanish plural formation [is]… a complex issue which is as yet unsettled"*. Colina (2003) argues that the epenthesis account is probably wrong because it does not work exceptionlessly, as it does in word-initial position (in forms like *eslavo* 'slave' or *escribir* 'to write'). It is important to note, though, that it is not impossible for there to be a grammar of epenthesis that is overruled by memorized exceptions. Much as it is deserving of study, ere we do not address the issue of which is the correct theoretical analysis for the segment /e/ of plural Spanish.

2.3. Plural Marking of Spanish Loan Words

Köpcke (1988) states in his study on German plural marking that "the assignment of plural morphemes to recent loans can be considered *as a natural test*…in the sense that individuals and institutions make decisions about plural assignment with no metalinguistic awareness" (p.324). We could not agree more. Indeed, we consider the plural form of loan words in Spanish to be plausible evidence of the state of abstract synchronic grammar.

[5] *"…explica su presencia en el plural por un proceso de epéntesis de carácter fonológico"*.

Here we provide some every-day loan words that show how Spanish speakers tend to make the plural. This empirical evidence shows that the most common strategy is to make extensive use of the suffix /-s/ in contexts in which the use of /-es/ is expected. We can see this in table 3 for the plural form of 1-syllable words.

Loan Word	*Spanish Plural*	*Infelicitous*
bol	bols	(!) 2 boles
bloc	blocs	(!) blokes
blog	blogs	(!) blogues
clip	clips	(!) 2 clipes
chip	chips	(!) 2 chipes
Ford	Fords	(!) 2 fordes
Jeep	Jeeps	(!) 2 jeepes
link	links	(!) 2 linkes
pin	pins	(!) 2 pines
raid	raids	(!) 2 raides
tip	tips	(!) tipes
trol	trols	(!) 2 troles
gay	gays	(!) 2 gayes/gayses[6]

Table 3: *Plural form of 1-syllable Spanish loan words*

There are on the other hand a few loan words for which speakers mark the plural either with /-s/ or /-es/. The latter is expected due to the word-final sound (table 4):

Loan Word	Spanish Plural Forms
clotch	Clotchs /ˈklotʃs/ or Cloches /ˈklo.tʃes/

[6] These forms might be expected since in Spanish there are forms like '*rey*'-'*reyes*' (king-kings) or '*ley*'-'*leyes*' (law-laws).

punk	Punks /ˈpunks/ or
	Punkis /ˈpun.kis/[7]
switch	Switchs /ˈswitʃs/ or
	Switches /ˈswi.tʃəs/
Tour	Tours /ˈturs/ or
	Toures /ˈtu.res/

Table 4: *1 syllable-loan words whose plural form is done by adding either /-s/ or /-es/*

If we consider two-syllable loan words, the consistent strategy is to add the suffix /-s/ when the stress falls on the penultimate syllable (table 5).

Loan Word	Spanish Plural	Infelicitous
beicon	beicons	(!) 2 bacones
Calvin	Calvins	(!) 2 Calvines
Canon	Canons	(!) 2 canones[8]
clóset	clósets	(!) 2 clósetes
Corel	córels	(!) 2 córeles
Chrysler	Chryslers /ˈkraīs.lərs/[9]	(!) 2 Chrysleres
chóped	chópets	(!) 2 chópetes
drag-queen	dragqueens	(!) 2 drag-queenes
fránfur	franfurs	(!) franfures
háker	hackers	(!) 2 háckeres
Hummer	Hummers	(!) 2 Hummeres
Lidel	Lidels	(!) 2 lideles
reiting	reitings	(!) 2 reitines
Ray-Ban	Ray-Bans	(!) 2 Ray-Banes

[7] There is no evidence of the form *'punkes'*.
[8] However, in Spanish there is the plural of the word *cánon* ('rule', 'musical composition') as *cánones.*
[9] In Iberic Spanish the pronunciation is /ˈkrīs.lərs/.

thriller	thrillers	(!) 2 thrilleres
Walmart	Wálmarts	(!) 2 Wálmares

Table 5: *2-syllable loan words with stress on the penultimate syllable*

In table 6 there are a few cases in which both plural markers /-s/ and /-es/ are used with 2 syllable-loan words, both with penultimate and ultimate stressed syllable. In all cases the /-es/ is expected according to the word-ending sound.

Loan Word	**Spanish Plural Forms**		**Spanish Plural Forms**
Penultimate-syllable stress		*Ultimate-syllable stress*	
mítin	mítins or mítines	**cassette**	caséts or casétes
trojan	tróllans or trollános [10]	**croissant**	cruasáns or cruasanes
pixel	píxels or pixéles	**Nissan**	Nisáns or Nisánes
		Renault /ɹe.'no/	Renols or Renoles

Table 6: *2 syllable-loan words that commonly take /-s/ or /-es/ to form the plural*

De la Cruz-Cabanillas, Tejedor-Martínez, Diez-Prados and Cerdá-Redonde (2007) constructed a corpus from Spanish informatics magazines and analyzed an extended list of loanwords in computation jargon. Their report is that, from an inventory of 1,286 tokens found, 185 were nouns used in plural form (14.39%). Out of those words, 106 were marked with /-s/ (57.3%), and other 13 alternated their plural marking using either

[10] There is no evidence of the form 'trojanes'.

/-s/ or /-es/ (12.2%). The remaining 66 tokens had no suffix added to them (i.e. *dos módem/ dos rúter*).

In a similar study, De la Cruz-Cabanillas, Tejedor-Martínez, Díez-Prados, Cerdá-Redondo and Cabellos-Castilla (2008) studied a corpus of anglicisms in texts about tourism and travelling. They specifically state that they analyzed their data *"...taking into account whether the plural is formed according to the Spanish or the English model"*. They identify the "English model" as the tendency to mark plurals with /-s/ in contexts in which in Spanish the expected form is /-es/. (i.e. *'quads'* instead of '*quades'* or '*foot-straps'* instead of *'footstrapes'* which would be the expected forms if the normal rules of Spanish plural marking were applied). De la Cruz Cabanillas et al. (2008) study reports that in their corpus they observed that *"the English plural marking pattern* [cases in which English speakers add /-s/ but Spanish speakers add /-es/] *is three times more common than the Spanish pattern; it is used in 70.54% of the total number of plural occurrences while the Spanish pattern occurred in 23.21% of the times"*. Moreover, 6.25% of the times the items remained invariable: they were kept in singular although their meaning was plural. (p. 30).[11]

In summary, our observation of Spanish loan words shows that speakers have a strong preference to use the plural suffix /-s/ in contexts in which /-es/ is expected. There are a few examples in which both plural forms are used, yet, the only case that is never observed is the use of the plural marker /-es/ in a context in which /-s/ is expected.

[11] Regarding plural marking of German loan words, Köpcke (1988) also reports an overgeneralization of the zero plural (p. 325).

Consonant-final words with ultimate stress take /-s/, which preserves the ultimate stress (*cassetts, cruasáns, nissans, renols*), or /-es/ which allows penultimate stress (*cassettes, cruasánes, nisánes, renóles*), both of which are common patterns. In contrast, consonant final words with penultimate stress almost always take /-s/ and almost never take /-es/ because that would create an antepenultimate syllable, which is a very rare stress pattern.

2.4. Acquisition of Spanish Plural Noun Marking

Studies on the acquisition of plural morphology show that this feature is acquired quite early. For English, there are studies that show that at 2 years of age children can produce correct plural forms (Brown 1973). For Spanish, the studies of Marrero and Aguirre (2003), and Kvaal, Shipstead-Cox, Nevitt and Hodson (1988) report the same age of children when they produce their first correct plural forms. Similar findings are reported for Dutch (Van Wijk 2007), German (Kauschke, Kurth and Domah 2011, citing Szagun (2001)) and Italian (Leonard, Caselli and Devescovi (2002). There are fewer studies that consider Spanish plural marking comprehension, though. Miller (2007) reports that 3,5 year-old Mexican children do not have problems comprehending plural marking but that children who are speakers of dialects with /-s/ deletion (e.g. Chilean Spanish) do.

As already mentioned, experimental studies on elicited production of Spanish plural marking have shown that children (especially 3 year-olds) have somewhat more difficulty in adding the form /-es/ than in adding the form /-s/ to existent words in Spanish (Kernan and Blount 1966, Pérez-Pereira 1989, Bedore and Leonard 2001, Grinstead, Cantu & Flores 2008). As far as we know, these four investigations are the only available studies in the literature that address this phenomenon.

Pérez-Pereira (1989) carried out an experiment in La Coruña, Spain with 109 children between 3 and 6 years of age on the acquisition of morphemes among which he explored the /-s/ and /-es/ variants of the plural marking. The children were presented with 8 existent Spanish words[12] and 8 Spanish nonce words[13] using a verbal formula[14] from which the form to be elicited from the child was omitted:

Esto es un globo. Ahora hemos puesto otro más. Ahora hay dos___
('This is a baloon. Now there is another. Now there are two___')

As we see in Table 7, the results from this study show a developmental increase between 3 and 4 year-olds for the /–es/ form. Pérez-Pereira reports that the most common error "consisted in not adding any [plural] suffix" (p. 298)

Plural Morpheme: Percentage of Correct Answers (existent words)				
	3 years old	4 years old	5 years old	6 years old
-s	100	100	100	100
-es	76	98	100	98
Average	88	99	100	99

Table 7: *Results for Pérez-Pereira (1989). Compiled and adapted (p. 295)*

Bedore and Leonard (2001) tested 45 children with respect to different aspects of grammatical morphology, among them the use of noun plural inflection. Their study was specifically about children with SLI; 15 children were SLI children, 15 age control subjects and 15 MLU control subjects. Therefore, their study provides data collected for typically developing Spanish speaking children regarding the use of the /-s/ and /-es/

[12] *naranja* "orange", *globo* "baloon", *cohete* "shuttle", *flor* "flower", *árbol* "tree", *patín* "skate", *autobús "bus"*, and *paragüas* "umbrella".
[13] *pátula , estipa, lando, tapo, sibil, tipón, astor* and *patús.*
[14] This formula is the same used by Berko (1958) for child English.

variants of the plural morpheme. It is important to point out, though, that all their subjects were Spanish-speaking children developing in a predominantly English-speaking society, which could have affected their results (see Anderson & Márquez 2009). They also report that the most common error was to keep the elicited word in its singular form (p. 13). The results for the typically-developing children in their sample, on their elicited production test, are summarized here:

Mean Percentage Correct on Plural Marking Task		
Form of the Plural morpheme	*Age*	
	2;04 to 3;10	4;00 to 5;06
-s	75.1	97.0
-es	73.3	93.3
Average	74.2	95.2

Table 8: *Results for Bedore & Leonard (2001) Compiled and adapted (p. 9)*

Grinstead, Cantu-Sánchez & Flores-Ávalos (2008) tested 27 monolingual, native Spanish speaking children from Mexico City to explore nominal plural marking in children with specific language impairment. Two groups of typically-developing children were tested to have an age-control group and a language-control group. The experiment tested a total of 30 words. A group of words were vowel-final forms: 10 nouns ended in /-a/[15] and 10 ended in /-o/[16]. The other 10 words were consonant-final, specifically with the sounds /l, n, ɾ/: *león, ratón, tren, árbol, pastel, avión, tenedor, papel, flor* and *sol*. All these words were taken from the Spanish language version of MacArthur Communicative Development Inventory (Jackson-Maldonado, Bates and Thal 1992) to ensure that the words were part of the children's familiar vocabulary.

[15] *vaca, rana, tortuga, silla, mesa, naranja, estrella, caja, cama, araña*
[16] *mono, perro, pollo, sombrero, vaso, huevo, plato, cepillo, oso, zapato*

The experiment consisted of the presentation of two pictures. In the first, there was a drawing representing a word from the list and in the second, the same figure was repeated twice. Then, the investigator asked the child what was in the second picture. The child was asked only about the content of the visual stimulus in order to keep the procedure as simple and clear as possible.

Sample

I: investigator C: child

[pointing to a picture of a butterfly]

I: *Aquí tengo una mariposa* ('Here I have a butterfly')

[Looking at the drawing]

C: *si* ('yes')

[pointing to a second picture, with two butterflies]

I: ¿Y aquí? (And here?)

[Observing the second picture]

(expected answer:)

C: *Dos/unas mariposas* ('Two/some butterflies")

Answers were classified in four groups. Adult-like answers (normal plural marking), incorrect answers (keeping the form in singular or applying the plural marker /-s/ when /-es/ was expected), irrelevant answers ('*más'*, '*dos'*, '*¿a ver tu cámara?'*, '*¿quién te ayudó?'/* "more", "two", "may I see your camera?", "who helped you?") and no answers.

The analysis of the results show that they had slightly better performance with the plural form /-s/. The age-control group marked the /-s/ correctly 99.4% of the time and the

language-control group did it correctly 100% of the time. Regarding the mastery of the /-es/, the age-control group marked it correctly 82.2% of the time and the language-control group did it correctly 86.7% of the time. These results are shown in the following table:

Mean Percentage of Correct Answers		
	Average age	
	50 months (4;02)	57 months (4;09)
-s	100	99.4
-es	86.7	82.2
Average	**93.3**	**90.8**

Table 9: *Results for Grinstead et al. (2008). Compiled and adapted (p.342)*

Children answered all items. As we have mentioned before, the most common error was to keep the form in the singular form.

Besides addressing the acquisition of plural marking in typically-developing and SLI children, this study addressed the issue of the nature of the /-es/ marker. The objective was to analyze the data and determine if they support either the apocope account or the epenthesis account. The results suggest that the epenthesis analysis is correct since there were no errors consisting of a singular form + /e/ (e.g. *flore, árbole*) which could be expected if the apocope account were correct. Moreover, the observation of errors like *flors* or *árbols* also contribute to the support of the epenthesis account.

On the basis of the existing literature, we considered that carrying out an experiment to test plural noun marking using an elicited production task of nonce words could be the next step forward. Our interest was to gather more data on nonce words since there are

only two previous experiments on child Spanish plural marking using nonce forms (Kernan and Blount 1966 and Pérez-Pereira 1989) and none with adults.

3. Experimental Design

3.1. Objectives of the study

The first purpose of this study is to investigate the acquisition of nominal plural marking in typically-developing, Spanish-speaking children. Specifically, the study seeks to determine the degree to which children have learned not only lexically-specific plural forms, but rather the abstract rule for plural marking. In this sense, the project builds on earlier work in Spanish by Kernan and Blount (1966) and Pérez-Pereira (1989) and follows the pioneering work of Berko (1958) in child English.

A further question for plural formation in child Spanish is whether or not stress placement matters for plural formation, which is a variable that has not been systematically measured in children's plural marking. In particular, in adult Spanish we note that adults add epenthetic vowels to plurals formed from loan words that have penultimate stress, and much less frequently to words with ultimate stress. In this study, the original contribution will be to determine whether children are sensitive to the borrowed-word pattern or to the non-borrowed-word pattern, which may reflect a larger grammatical tendency in the language.

In sum, this study's research question is: For both children and adults, which factor is more crucial to shape the plural, the stressed-syllable, the word-final sound or the interaction of the two?

3.2.Experimental Outline

To answer our questions regarding the role of stress in determining the choice of the plural marker, we elicited plural forms on 2-syllable nonce words considering four possible structures:

(1) vowel-final with penultimate syllable stress

(2) vowel-final with ultimate syllable stress

(3) consonant-final with penultimate syllable stress

(4) consonant-final with ultimate syllable stress

The possible vowel endings were [/a/, /i/ and /o/] or [/á/, /í/ and /ó/]. The possible consonant endings were [/l/, /n/ and /r/]. A detailed list of the words used in this study is presented in table 12 (in section 3.4, Materials) and in Appendix II.

3.3. Participants

This study was conducted with 30 children and 20 adults. All children were typically-developing, monolingual Spanish speakers recruited from a kindergarten in Mexico City. Adult participants are also subjects from Mexico City and not related to the children of the study. Details on the child and adult subjects appear in tables 10 and 11:

Subjects	**30 children**
Age range	2;08-6;11 years-old (32-72 months-old)
Mean age	4;10 years-old (58.6 months-old)

Age distribution	2 year-olds: 3 subjects
	3 year-olds: 5 subjects
	4 year-olds: 7 subjects
	5 year-olds: 8 subjects
	6 year-olds: 7 subjects
Standard Deviation	14.05 months
Number of Boys	10
Number of Girls	20
Order A	16
Order B	14

Table 10: General information child subjects *Nominal Plural Marking experiment*

Adult Subjects	**Gender/Age**	**Education**	**Adult Subjects**	**Gender/Age**	**Education**
S1	f/34	University	**S11**	m/43	Basic
S2	f/20	University	**S12**	f/62	University
S3	m/38	University	**S13**	f/65	Basic
S4	f/29	Basic	**S14**	f/32	University
S5	m/53	University	**S15**	f/40	University
S6	m/37	University	**S16**	m/42	University
S7	m/20	University	**S17**	m/39	University
S8	f/37	University	**S18**	f/37	University
S9	f/34	University	**S19**	m/39	University
S10	f/55	University	**S20**	m/39	University

Table 11: *Age and Education background of adult subjects Nominal Plural Marking experiment*

3.4. Materials

Stimulus material consisted of 64 drawings. 32 represented a single figure of a non-existent being and 32 represented the same figure repeated twice. A sample of the pictures appears in Appendix I. The 32 nonce words used for the experiment were designed considering two variables, stress and word-final sound. Therefore, 16 of them were vowel-final, and 16 were consonant-final. 8 nonce words from the first group were stressed on the penultimate syllable and 8 on the ultimate syllable.

The nonce words used in this experiment are shown in table 12. The Spanish existent words they resemble appear in Appendix II

Ultimate-syllable Stress V-final	**Penultimate-syllable Stress C-final**
1. nuní	1. modíl
2. tití	2. matíl
3. puló	3. baból
4. boló	4. satón
5. momó	5. kupán
6. bolá	6. kapén
7. biná	7. munór
8. ketá	8. monér

Ultimate-syllable Stress V-final	**Penultimate-syllable Stress C- final**
1. dáca	1. nípel
2. mája	2. sátel
3. tésa	3. mópel
4. móli	4. yóyan
5. núli	5. tólen
6. táli	6. sóren

7. mógo	7. tóter
8. óco	8. lúkar

Table 12: *List of nonce words. Nominal Plural Marking Test*

First, the 32 nonce words were arranged in random order. Afterwards, two possible orders of presentation were established; 16 children were presented the items with order 'A' and 14 children were presented the items with order 'B'. All nonce word stimuli consist of 2 syllables. While it would be interesting to investigate the role that the number of syllables played, that was beyond the scope of this study, which limited itself to investigating stress, word-final sound and their interaction.

3.5. Methodology and Procedures

The set of 32 drawings of different figures that do not resemble any animal, person or thing were used. Each drawing was given a name that consisted of a nonce word. The experimenter would present the drawing to the child and mention the name of the figure slowly and carefully, making sure the child had a clear association of the drawing and the name. Then, the investigator would show the child a second picture with the drawing of that figure repeated twice. This second picture was the elicitation material used to ask the child to produce a plural form.

Before proceeding with the 32 drawings, the child was provided with a warm-up that consisted of the same procedure but using drawings that represented common words (*niña-niñas/regalo-regalos* 'girl-girls'/'gift-gifts') and then a drawing of a non-existent figure and a nonce word (*beko*). If the child had no problems with this latter example, the experimenter would proceed with the test. Regarding the group of children, the experiment was carried out in a classroom of their kindergarten and three children were

excluded of the study for this reason. All the experiments of the group of adults were run at their homes. The whole test would take around 15 minutes and an mp3 device was used to record the subjects' answers. The procedure is exemplified here:

Sample:

E (Experimenter) C (Child)

1. *E: Mira, te voy a enseñar unos dibujos y tú me dices que ves, ¿ok?*

   "Look, I will show you some drawings, tell me what you see, ok?"

2. *C: sí*

   "yes"

3. *E: Aquí hay un 'beko', ¿y aquí?*

   "Here there is a 'beko'. And here?"

4. *C:* expected answer: *dos bekos*

Answers were counted as correct if the normative/descriptive target form was produced; they were categorized incorrect in the following cases:

a) /-s/ plural form was used when /-es/ was expected
b) /-es/ was used when /-s/ was expected
c) the nonce word was repeated (no plural marker was added)
d) the nonce word was changed into a novel form (i.e. singular: *dáca* ; plural: '*dácaras'*
e) the stress was changed (i.e. singular: *ketá*; plural: *kétas*)

The nonce words that end in consonant or vowels /i/ and /o/ were systematically presented as masculine. The words that end in vowel /a/ were presented as feminine.

4. Results, Discussion and Conclusions

4.1. Results

The percentages of children's and adults' correct answers are presented in figures 1 and 2. The percentages of correct answers for consonant-final words are given on the right-hand side in green and those for vowel-final words are given on the left-hand side in blue.

A one-way ANOVA shows that the order (A or B) did not have any impact on the results f (1, 28) = .001, p = .977.

Children performed successfully pluralizing two-syllable nonce words that are stressed on the penultimate syllable and end in a vowel sound (i.e. '*tésa'*; which is similar to the Spanish words *mesa* or *vaca*: 91,60%*)*, which is a very typical syllabic structure on the language.

In contrast, nonce words stressed also on the penultimate syllable but with a consonant-ending sound (i.e. *mópel'* similar to Spanish words *dátil* or *gérmen*), which is an uncommon type of word in Spanish, were by far the most difficult case of elicitation (3,40%).

On the other hand, children showed a moderatly high performance regarding the v-final nonce words stressed on the ultimate syllable (i.e. *biná* or *nuní*, similar to the Spanish words *mamá* or *esquí*: 69 %) and finally, regarding c-final, ultimate stress nonce words (i.e. '*modíl'* or '*satón'* similar to *Spanish* words *fusil* or *atún*), chidren showed a very low success of performance (18.60%).

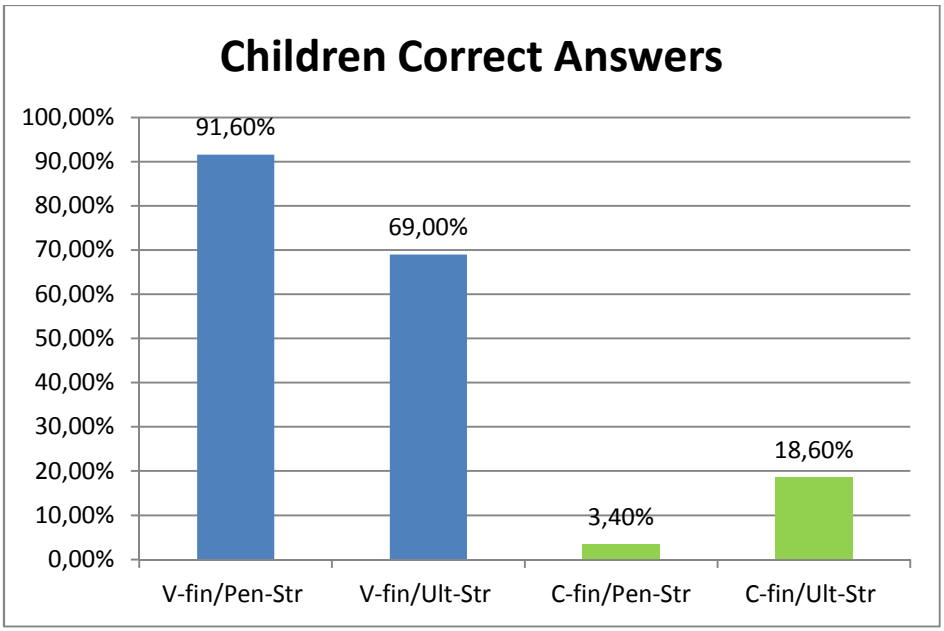


Figure 1: *Children's percentage of correct answers*

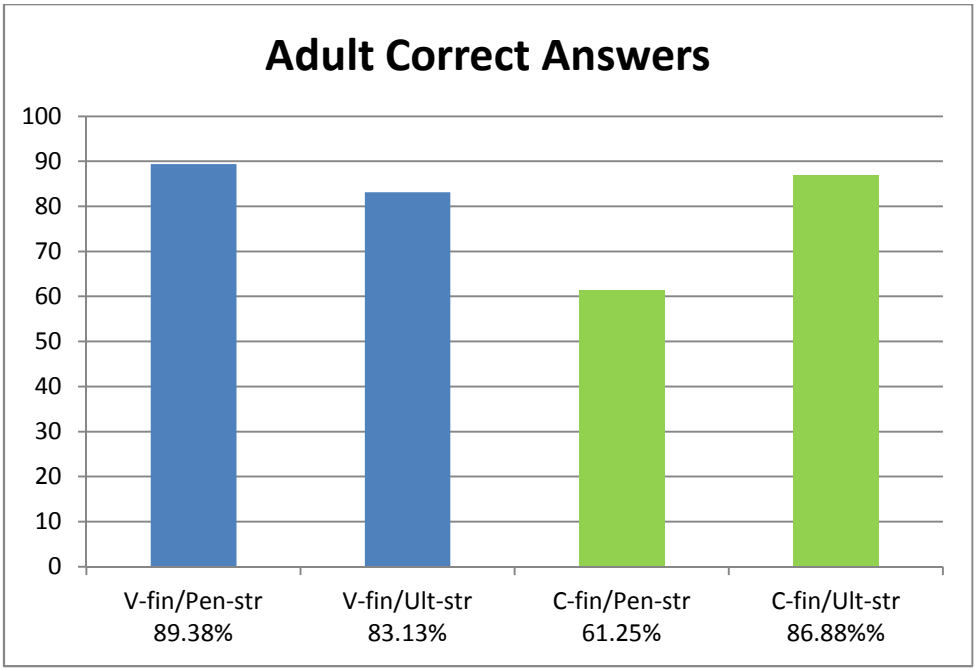


Figure 2: *Adults' percentage of correct answers* (same code)

V-fin/Pen-Str=Vowel-final, penultimate-syllable stress nonce word (i.e. 'tésa'-'tesas')

V-fin/Ult-Str=Vowel-final, ultimate-syllable stress (i.e. 'momó'-'momós')

C-fin/Pen-Str=Consonant-final, penultimate-syllable stress nonce word (i.e. 'mópel'-'mópeles')

C-fin/Ult-Str=Consonant-final, ultimate-syllable stress (i.e. 'satón'-'satónes')

The results of the adults show a strong preference for the use of canonical plural marking (addition of /-s/ to vowel-final, penultimate stressed items; i.e. *tesa-tesas.* Percentage correct: 89, 38%) and for the epenthetic plural marking (/-es/ to consonant-final, ultimate stressed items, i.e. *satón-satónes;* percentage correct: 86,88%).

They also made an extended use of the canonical plural marking (addition of /-s/) for items that end in a stressed vowel, i.e. *puló-pulós (*83,13 % of the time). Finally, note that, consistent with our findings from loan words, adults were more reticent (61,25%) to add the plural marking /-es/ to consonant-final, penultimately stressed words like *mópel* to create the antepenultimately stressed *mópeles*.

In figures 3 and 4 we can find the percentage of correct answers by segment of age. In figure 4 we can see that there is a slight growing tendency with age and a great dispersion of data from the tendency line; this tendency line was obtained by statistical linear regression and shows that, in the part that goes from 24 to 48 months, (which corresponds to 2 and 3 year-olds) there are 3 subjects who had a notoriously high percentage of correct answers; that makes our 2 and 3 year-old subjects look extremely proficient with the task, just like 6 year-olds.

Therefore, since each age group is not homogeneous, we think that, for the purpose of our study, it is more convenient to analyze the data of all the children together.

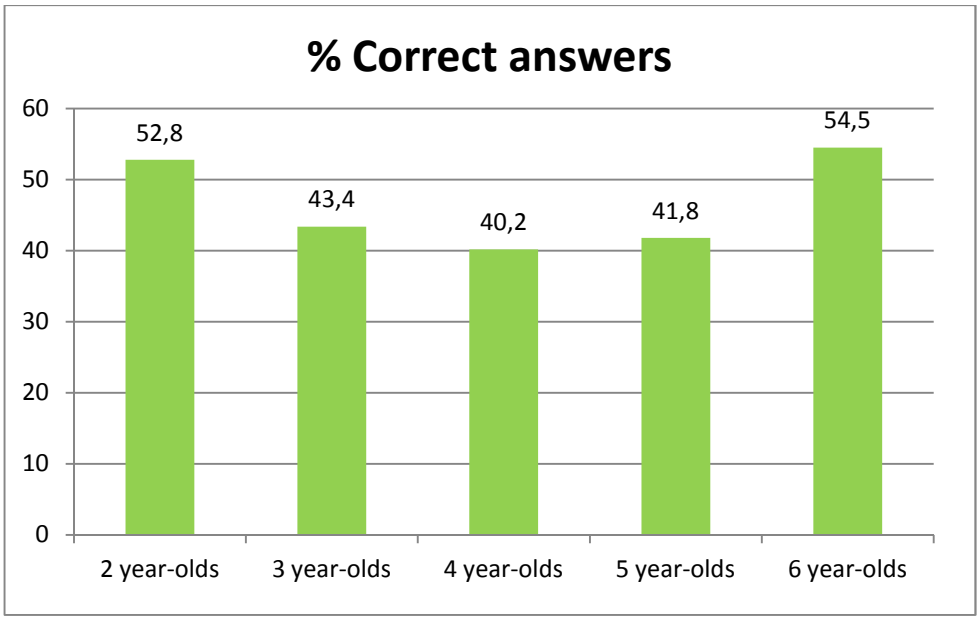


Figure 3: Correct answers across children's age

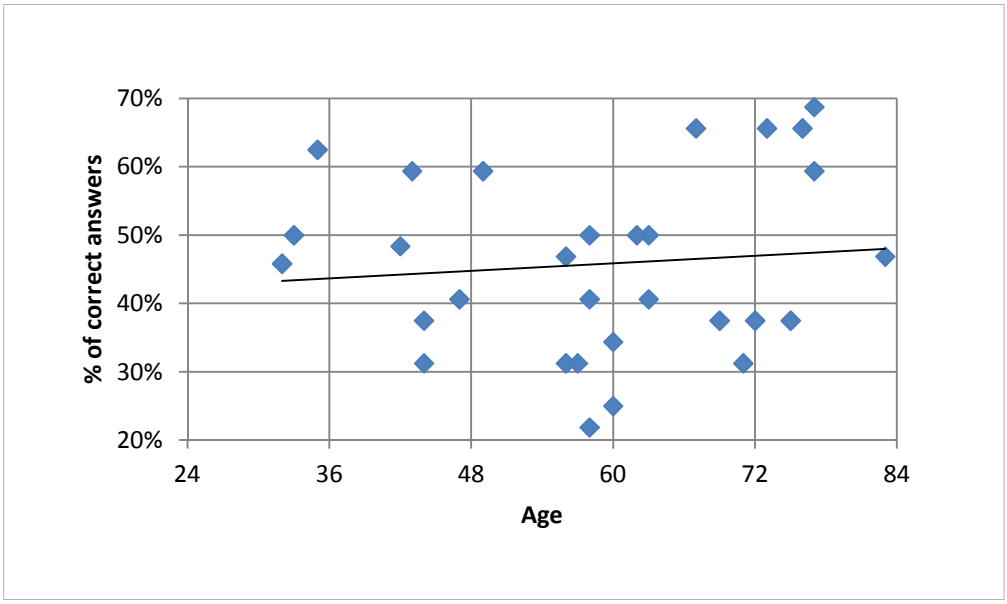


Figure 4: Percentage of correct answers by age in months

4.1.1. Descriptive Statistics

The descriptive results of the test for both children and adults are given in Table 13 with mean number correct accompanied by mean percentage correct, which is necessary since not all participants answered all questions (one child did not answer 8 items and another child 1 item).

Further, note that, since the table and the accompanying graphs represent percentage correct of words, the percentage for adults is calculated over 20 (since there are 20 adults), while it is calculated over 30 for the children:

	Children			**Adults**		
	Mean Number Correct	Standard Deviation	Mean Percentage Correct	Mean Number Correct	Standard Deviation	Mean Percentage Correct
Vfin/ Pen-str	27. 12	2.85	91.6%	17.87	1.72	89.38%
Vfin/ Ult-str	20.37	3.37	69.0%	16.62	1.92	83.13%
Cfin/Pen-str	0.87	0.87	3.40%	12.25	2.43	61.25%
Cfin/ Ult-str	5.62	2.06	18.06%	17.37	2.13	86.88%

Table 13: *Results of correct answersby mean number, mean percentage and sandard deviation*

Figures 5 and 6, representing child and adult answers, respectively, illustrate the results in Table 13. showing the specific results for stress and word-final sound. Also, a list of percentage of correct answers (children's and adults') for each nonce word appears in Appendix V.

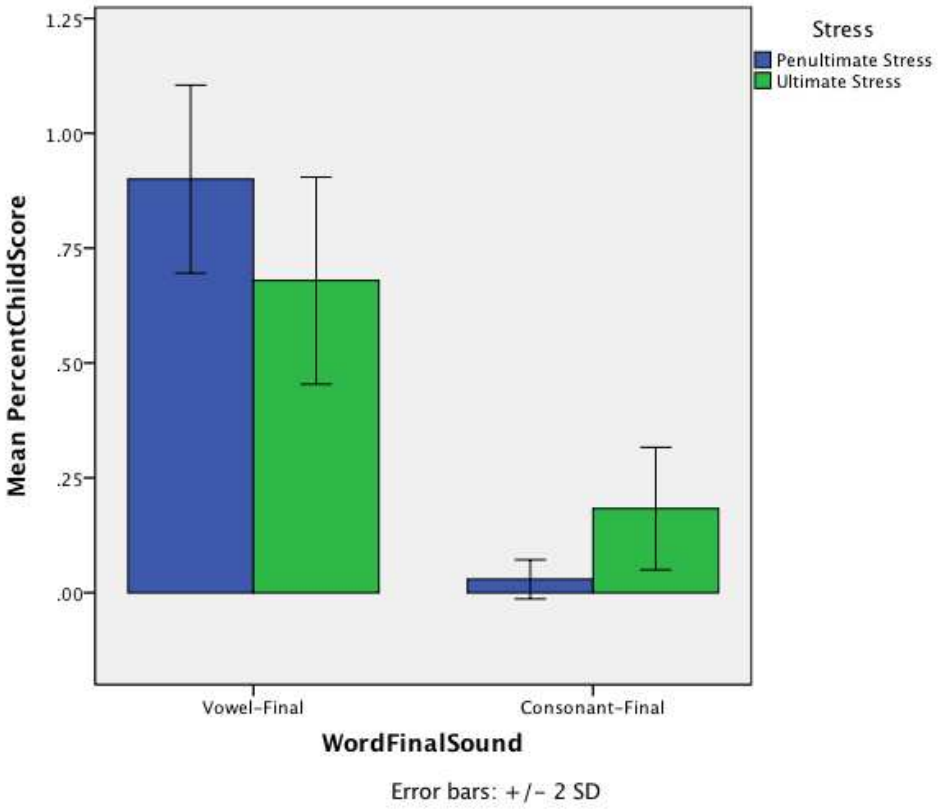


Figure5: *Children's mean percentage correct by stress and word-final sound*

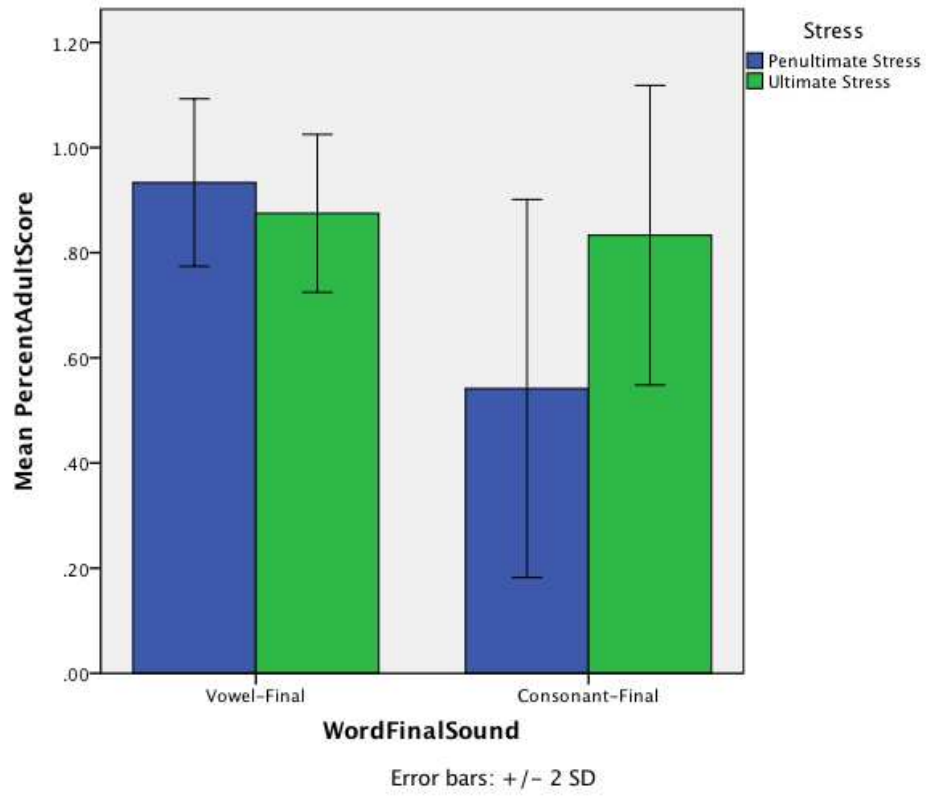


Figure 6: *Adults' mean percentage correct by stress and word-final sound*

4.1.2. Generalized Linear Model Analysis

A Generalized Log-Linear Model was fit to the data representing the children's responses to the experiment, with correct response as the dependent variable, stress placement (ultimate or penultimate) and word-final sound (consonant or vowel) as fixed factors and child and word as random factors. The advantage of using the Generalized Linear Model is its ability to take into account any correlation among responses from the same child, similar to repeated measures tests, which removes the variability among children from the analysis, allowing us to see the variability due to the main factors of interest (stress placement, word-final sound and their interaction, if any). Also, the Generalized Linear Model does not assume either a normal distribution, constant variance or a continuous variable as necessary prerequisites for accurate analysis, as would a conventional ANOVA.

The first model tested whether there was variability due to the specific word (controlling for the variability associated with multiple responses from individual children) and there was none (Wald X^2 = 30.525, df = 28, p = .339). The second model then tested for significant differences associated with stress placement, word-final sound and their interactions, which are shown in Table 14:

	Wald Chi-Square	**df**	**Significance**
Stress	.001	1	.972
Word-Final Sound	257.036	1	< .001
Word-Final Sound x Stress Interaction	65.787	1	< .001

Table 14: *Wald Chi-Square values for stress, word-final wound and the word-final sound by stress interaction*

Table 14 shows that there was no significant effect for stress, but that there were significant effects for both Word-Final Sound and for the interaction of Word-Final Sound and Stress.

In Tables 15, 16 and 17 we give the Estimated Marginal Means, which are estimates of the probability of a correct response associated with the predictor variables, including the stress variable, which was not significant; the word-final sound variable, which was significant, and the interaction of word-final sound and stress, which was also significant.

Associated with each estimated marginal mean is a confidence interval (CI) indicating the probability of the correctness of each estimate. Where the Confident Intervals overlap, as in the case of the stress variable in Table 15, the difference between the two variable values is non-significant. Where the two variable value CIs do not overlap, as in the Word-Final Sound variable in Table 16 and in the Word-Final Sound and Stress interaction in Table 17, there is a significant difference between the two variable values. These CI comparisons can be thought of as analogous to post-hoc tests, following the finding of a significant main effect with a conventional ANOVA.

		Confidence Interval	
Stress	Mean	Lower	Upper
Ultimate	.40	.34	.45
Penultimate	.39	.30	.49

Table 15: *Estimated marginal means for stress*

		Confidence Interval	
Word-Final Sound	Mean	Lower	Upper
Vowel-Final	.86	.10	.17
Consonant-Final	.06	.91	.96

Table 16: *Estimated marginal means for word-final sound*

Word-Final Sound	**Stress**	**Mean**	**Confidence Interval**	
Vowel-Final	Ultimate	.71	.64	.78
	Penultimate	.94	.92	.97
Consonant-Final	Ultimate	.15	.10	.20
	Penultimate	.03	.01	.04

Table 17: *Estimated marginal means for the interactions between word-final sound and stress*

In summary, children showed no difference in correctness as a function of ultimate vs. penultimate stress. However, they were significantly better at marking plural correctly when the word-final sound was a vowel than when it was a consonant. Further, they were significantly better at marking plural on vowel-final words that had penultimate stress than they were at vowel-final words that had ultimate stress. Finally, they were significantly better at marking plural on consonant-final words that had ultimate stress than they were at consonant-final words that had penultimate stress.

4.1.3. Error Analysis

The analysis of the results for children and adults are very important because it clearly shows that their performance has different tendencies. For both groups, the most common error was to use /-s/ instead of /-es/ (Chi:30% Ad:11%). For children, the second most common error consisted in keeping the word in singular (19%), and for adults, to create a novel form (4%). Very interestingly, children never made use of the plural marker /-es/ instead of /-s/ whereas adults never kept the word in singular. In Appendix III and IV we present the complete data of the experiment for children and adults and the error analysis presented with a color code.

4.2. Discussion

4.2.1.Distribution

Figures 7 and 8 illustrate that children and adults appear to follow a similar pattern in their correct answers. However, the children's errors show a fundamentally different distribution from the adult's errors, which seems indicative of their tendency to overgeneralize canonical plural marking using the /s/ marker to consonant-final words. Specifically, children make significantly more errors marking /s/ on consonant-final words (mean number of errors = 7.300, SD = 6.137) than do adults (mean number of errors = 3.450, SD = 3.220), t (48) = 2.573, p = .013. However, the skew of the errors tells us more about their distribution than does the simple fact that children make more of them. In particular, children's errors are negatively skewed (skew = -.272), illustrated in Figure 7, while adults' errors are positively skewed (skew = .756), which is illustrated in Figure 8.

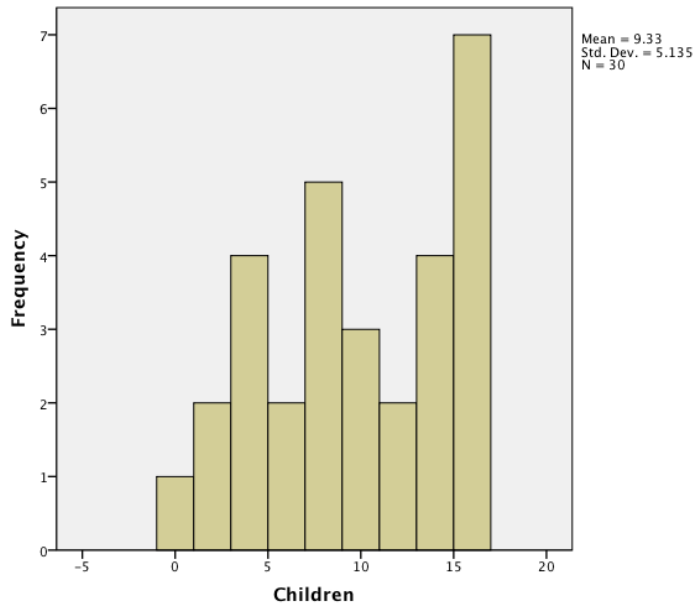


Figure 7: *Histogram of Children's /s/ Marking Errors On Consonant-Final Words*

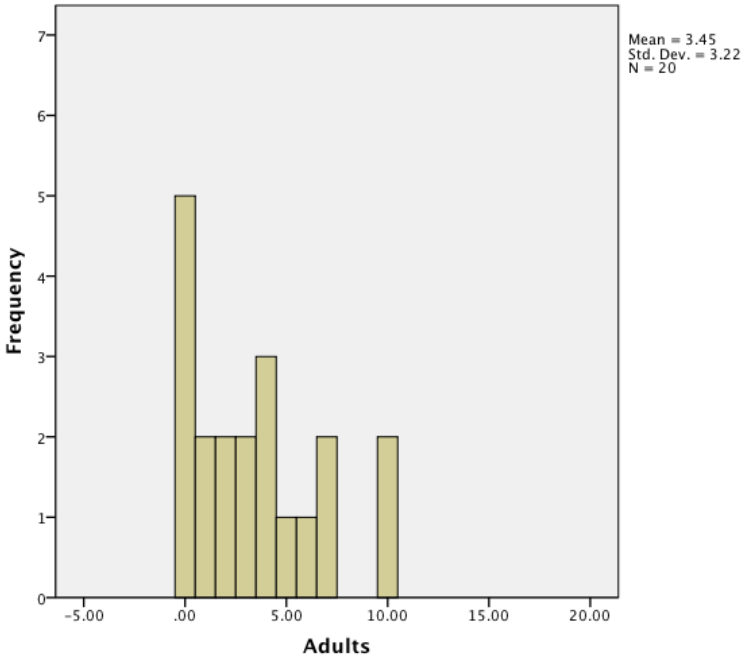


Figure 8: *Histogram of adults' /s/ marking errors on consonant-final words*

In general, the contrasting skewness of these figures illustrates that a small number of the 20 total adults (n=2) makes 10 errors of this type, while the majority of the adults, including the highest number category of frequency (n=5), made 0 errors. In contrast, of

the 30 children, only 1 makes 0 errors, while half of the group (n=15) makes 10 errors or more. This distribution of /s/ marking errors on consonant-final nouns demonstrates that the children at a stage of overgeneralizing the canonical or default /-s/ plural marker. Though this was somewhat visible in previous work using existent word plural marking (Grinstead et al. 2008), some of the consonant-final existing words that were correctly produced were undoubtedly memorized lexical forms. Since such lexical memorization is not useful in our nonce word task, we get a much clearer view of the overgeneralization phenomenon. Still, there is an important similarity between children's and adults' performance: they are best at vowel-final, penultimate stressed words (*tesa-tesas)* vowel-final, ultimate stressed words (*momó-momós*) and worse at consonant-final, penultimate stressed words (*mópel-mópeles*).

4.3. Conclusions and Further Research

The results show that all speakers have a strong preference to use the /-s/ plural marker with items that end in vowel, *regardless* of stress placement (children: 91.6% unstressed, 69% stressed vowels; adults: 90% unstressed, 83% stressed vowels).

On the other hand, children have a strong tendency to discard the /-es/ plural marker. In contexts in which it was the expected form (nonce words that end in a consonant sound) they barely used it (3.4% in nonce words with penultimate stressed syllables and 18.6% in nonce words with ultimate stressed syllable; adults in contrast, used it 61% in the first case and 87% in the second). This evidence clearly shows that children are over generalizing the rule for plural formation "add /-s/". It remains for further research to see at what age children begin adding /-es/ in a more consistently adult-like fashion.

The fact that children tend to make and extended use of the /-s/ plural marker in contexts in which /-es/ is expected (the lowest percentage: only 3.40% of the time) and,

moreover, that adults show a clear preference to use /-s/ with loan words in the same context, suggests that the use of the suffix /-es/ in a "consonant-final/penultimate-stressed syllable" context may be decreasing in modern Spanish.

While the answers of adults suggest that the best context for the use of /-es/ suffix is "consonant-final/ultimate-stressed syllable": they used it 87% of the time, children do not seem to perceive it that way. They used the suffix /-es/ in that context only 18.6% of the time.

We could say that our conclusion is that adults and children appear to avoid forming antepenultimate stressed words, but do allow penultimate and ultimate stressed words. We consider that this assumption ties all of the data (loan words, adults' and children's results) together.

Finally, we should say that the fact that child and adult subjects produce unexpected or exceptional forms reveals that they are actively using plural forms that are present and working in the language. If a native speaker makes the plural of a hypothetical word *motil* as *motils* instead of the (according to the literature) expected *motíles*, we must admit that, for a reason that is still pendant of an explanation, plural marking is undergoing a change.

References

- Alarcos-Llorach, E. (1994) *Gramática de la Lengua Española* Madrid: Espasa-Calpe, Real Academia de la Lengua Española.
- Alcina-Franch, J., Blecua-Perdices, J.M. (1991) *Gramática Española* Barcelona: Ariel.
- Ambadiang, Theophile (1999) «74. La flexión nominal. Género y número». En I. Bosque y V. Demonte *Gramática descriptiva de la lengua española* (1ª. ed.) Madrid: Espasa-Calpe. p. 4892.
- Anderson, R.T., Márquez, A. (2009) "Examining Language Abilities in Spanish-Speaking Children with SLI: The "Problem" of Grammatical Gender." *The Syntax of Typically-Developing and Impaired Hispanic Child Languages.* Ed. John Grinstead. Amsterdam: John Benjamins pp. 29-56
- Badía Margarit, A. (1967) "Aspectos formales del nombre español", *Problemas y principios del estructuralismo lingüístico,* Madrid, C.S.I.C. pp. 42-70
- Bedore, L. and Leonard, L. (2001) "Grammatical Morphology Deficits in Spanish-Speaking Children with Specific Language Impairment," *Journal of Speech, Language, and Hearing Research* 44(4), 905–924.
- Berko, J. (1958) "The Child's Learning of English Morphology," *Word* 14, 150–177.)
- Bosque, I. (Coord.) (2010) *Manual de la Nueva Gramática de la Lengua Española* Madrid. Eds. Espasa-Calpe and Real Academia de la Lengua Española

- Bosque, I., De Monte, V. (Eds.) (1999) *Gramática Descriptiva de la Lengua Española* Madrid: Espasa-Calpe and Real Academia de la Lengua Española
- Brown, R. (1973) *A first language: The early stages*. Oxford, England: Harvard U. Press
- Cepeda, G. (1980) "La formación del plural en español: ni apócope ni epéntesis". *Estudios Filológicos 15*, pp. 51-57.
- Clahsen, H. (2006) "Dual-mechanism morphology". In K. Brown (ed.), *Encyclopedia of language and linguistics*, Vol. 4, 1-5 Oxford: Elsevier
- Colina, S. (2003) "The status of word final [e] in Spanish" *Southwest Journal of Linguistics* Vol. 22 Issue 1, pp. 87-108
- Contreras, H. (1977) "Spanish Epenthesis and Stress," *University of Washington Working Papers in Linguistics* 3, 9–33.
- De la Cruz-Cabanillas I., Tejedor-Martínez C., Díez-Prados M. and Cerdá-Redondo, E. (2007) "English loanwords in Spanish computer language". In *English for Specific Purposes* 26, 52-78
- De la Cruz-Cabanillas I., Tejedor-Martínez C., Díez-Prados M., Cerdá-Redondo, E. and Cabellos-Castilla M.R. (2008) "Anglicisms in Spain. Gender Assignment and Plural Formation in Touristic Texts". *Revista de Lenguas para fines específicos* 13 and 14, 13-38
- Derwing, B. and Baker, W. (1979) "Recent Research on the Acquisition of English Morphology" in P. Fletcher and M. Garman, eds., *Studies in Language Acquisition*, 209-224. Cambridge, MA: Cambridge University Press
- Face (2006) "Cognitive factors in the perception of Spanish stress placement: implications for a model of speech perception". *Linguistics* 44(6): 1237-1267.
- Foley, J. (1967) "Spanish Plural Formation", *Language* 43, pp. 486-493.

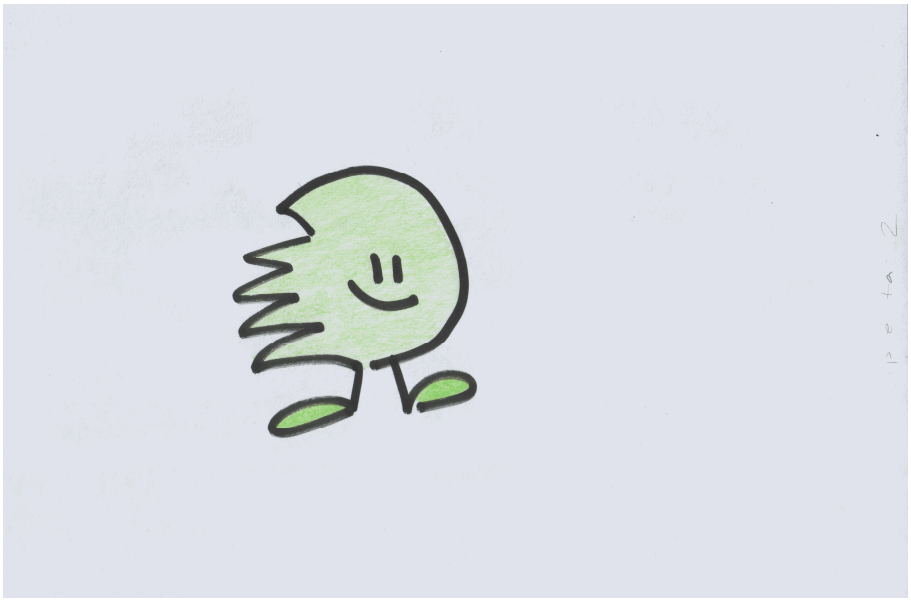
- Gallardo, A. (1985) “Del plural del nombre” *Estudios Filológicos* 20, pp. 37-47.
- Grinstead, J., Cantú, M., Flores-Avalos, B. (2008) “Canonical and Epenthetic Plural Marking in Spanish-Speaking Children with Specific Language Impairment” *Language Acquisition* Volume 15, Issue 4, 2008, 329 – 349.
- Gómez Torrego, L. (2002) *Gramática didáctica del español*, Madrid: Ediciones SM.
- Harris, J. (1970) “A Note on Spanish Plural Formation” *Language* 46, pp. 928-930.
- Harris, J. (1985) “Spanish Word Markers” in Frank H. Nuessel Jr. (ed.), *Current Issues in Hispanic Phonology and Morphology;* Indiana University Linguistics Club, pp. 34-54.
- Harris, J. (1991) “The Exponence of Gender in Spanish,” *Linguistic Inquiry* 22(1), 27–62.
- Harris, James W. (1999). Nasal depalatalization no, morphological wellformedness si; the structure of Spanish word classes. MIT Working Papers in Linguistics 33. 47-82.
- Hooper, J. and Terrell, T. (1976) “Stress Assignment in Spanish: a Natural Generative View” *Glosa* 10:1, 64-110.
- Jackson-Maldonado, D., E. Bates, and D. Thal (1992) *Inventorio del Desarrollo de las Habilidades Comunicativas*, MacArthur Foundation: Communicative Development. Inventory, San Diego State University, San Diego.
- Kauschke, C., Kurth A., and Domahs, U. (2011) “Acquisition of German Noun Plurals in Typically Developing Children and Children with Specific Language Impairment” *Child Development Research* Volume 2011 (2011), Article ID 718925, 17 pages

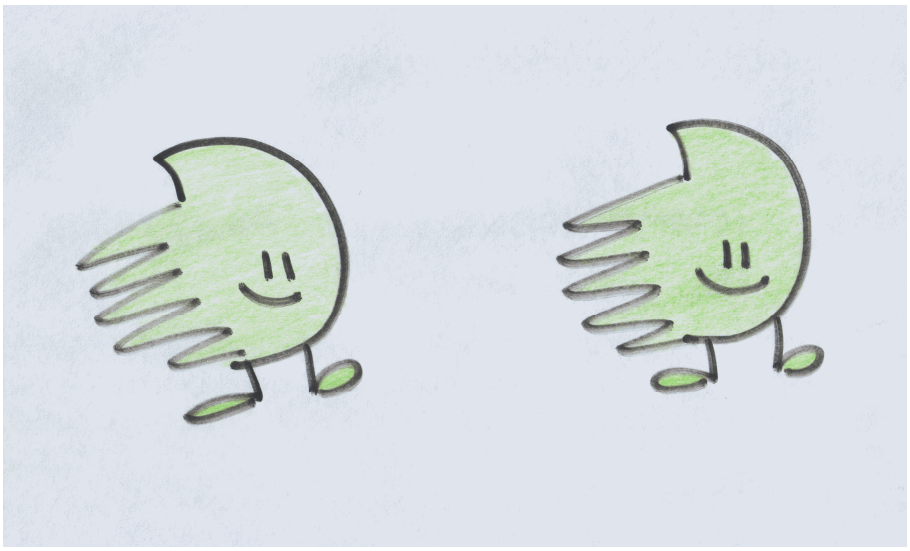
- Knitlova, D. (1970) “Notes on Spanish Plural Formation” *Philologica Pragensia* 13 pp. 47-50.
- Kvaal, J., N. Shipstead-Cox, S.G. Nevitt, B. Hodson, and P. Launer. 1988. “The Acquisition of 10 Spanish Morphemes by Spanish-Speaking Children”. *Language Speech, and Hearing Services in Schools*, 19, 384-394.
- Kernan, K., and B. Blount (1966) “The Acquisition of Spanish Grammar by Mexican Children,” *Anthropological Linguistics* 8(9), 1–14.
- Köpcke, K.M. (1988) “Schemas in German Plural Formation” *Lingua* 74, 303-335.
- Kvaal, J., Shipstead-Cox, N., Nevitt, S., Hodson, B. (1988) “The Acquisition of 10 Spanish Morphemes by Spanish Speaking Children”, *Language, Speech, and Hearing Services in Schools* Vol. 19, 384-394.
- Leonard, L., Caselli, M.C., and Devescovi, A. (2002) “Italian children’s use of noun and verb morphology during the preschool years”, *First Language* 22, 287-304.
- Marcus, G., Ullman, M., Pinker, S., Hollander, M., Rosen, T., Xu, F. (1992) “Overregularization in Language Acquisition”, *Monographs of the Society for Research in Child Development* 57 (4), 1-182.
- Marrero, V. and Aguirre, C. (2003) “Plural acquisition and development in Spanish” in Montrul, S. and Ordoñez, F. (eds.), *Theoretical Linguistics and Language Development in Hispanic Languages*, Sommerville MA: Cascadilla Press. pp. 275-296.
- Miller, Karen (2007) *Variable input and the acquisition of plurality in two varieties of Spanish*, Michigan State University Doctoral Dissertation.

- Miller, Karen and Cristina Schmitt. (2009) Syllable-final /s/ lenition and the acquisition of plural morphology in Spanish-speaking children. In: John Grinstead (ed.) *Hispanic Child Languages: Typical and Impaired Development.* Amsterdam: John Benjamins. p. 3-27.
- Oetting, J. B. (*1992*). *Language impaired and normally- developing children's acquisition of English plural*. Unpublished doctoral *dissertation,* University of Kansas, Lawrence.
- Oetting, J. and Rice, M. (1993) "Plural Acquisition in Children with Specific Language Impairment", *Journal of Speech and Hearing Research* 36(6), 1236-1248.
- Pazó-Espinosa, J. (1991) "La estructura de palabras en nombres y adjetivos", *Lingüística Hispánica* 14, 93-123.
- Pérez-Pereira, M. (1989) The Acquisition of Morphemes: Some Evidence from Spanish, *Journal of Psycholinguistic Research* Vol. 18, No. 3, 289-312
- Piera, C. (1982) "Spanish Plurals: a Further Look at the 'Nonconcatenative Solution'", *Cornell Working Papers in Linguistics* 3, 44-57.
- Quilis, A. (1968) "Morfología del número en el sintagma nominal español", *Travaux de Linguistique et Literature,* Vol. 1, 131-140
- Real Academia Española (2009) *Nueva gramática de la lengua española* Madrid: Espasa-Calpe.
- Rice, M. and Oetting, J. (1993) "Morphological Deficits of Children with SLI: Evaluation of Number Marking and Agreement", *Journal of Speech and Hearing Research* 36 (6), 1249-1257.
- Roca, I. (2005) "Saturation of Parameter Setting in Spanish Stress" *Phonology* Vol. 22 No. 3, pp. 345-394

- Saltarelli, M. (1970) “Spanish Plural Formation: Apocope or Epenthesis,” Language 46(1), 89–96.
- Saporta, Sol (1961-1962) “On the Expression of Gender in Spanish”, *Romance Philology* 15, 155-168.
- Szagun, G. (2001) “Learning different regularities: The acquisition of noun plurals by German-speaking children” *First Language* 21, 109-141.
- Seco, M. (2001) *Gramática esencial del español. Introducción al estudio de la lengua* Madrid, Espasa Calpe 4ª. ed., 4ª. reimpresión.
- Van Wijk, J. 2007. *The acquisition of the Dutch plural*. Utrecht, LOT.

AppendixI: Singular and Plural elicitation figures/Nominal Plural Marking of Spanish Nonce Words





Appendix II: List of nonce words and the Spanish existent words they resemble

Ultimate syllable V-final	**Plural Form**	**Similar to Spanish words…**
1. nuní	NUNÍS	*esquís, sufís* also*: esquíes, sufíes*
2. tití	TITÍS	
3. puló	PULÓS	*burós, bongós* also*: buróes, bongos*
4. boló	BOLÓS	
5. momó	MOMÓS	
6. bolá	BOLÁS	*torás, mamás, sofás, mulás, rajás, papás*
7. biná	BINÁS	
8. ketá	KETÁS	
Ultimate syllable C-final		
1. modíl	MODILES	*fusiles, mandiles, charoles, raíles, tamiles, manteles*
2. matíl	MATÍLES	
3. baból	BABÓLES	
4. satón	SATONES	*jabones, cupones, sartenes, atunes, andenes, rehenes*
5. kupán	KUPÁNES	
6. capén	CAPENES	
7. munór	MUNÓRES	*hurones, brasiéres, candores, amadores, ardores*
8. monér	MONÉRES	
Penultimate syllable V-final		
1. dáca	DACAS	*vacas, ratas, cartas, matas, latas, cajas, mesas*
2. mája	MÁJAS	
3. tésa	TESAS	
4. móli	MOLIS	*lichis, kiwis, kakis, dandis, confettis, óvnis, cursis*
5. núli	NÚLIS	
6. táli	TALIS	
7. mogo	MOGOS	*logos, ajos, amigos, apegos, amargos, chongos, ciegos*
8. óco	ÓCOS	

Ultimate syllable V-final	Plural Form	Similar to Spanish words…
Penultimate syllable C-final		
1. nípel	NÍPELES	*níqueles, dátiles, nóbeles, cárteles, cóckteles, góspeles*
2. sátel	SÁTELES	
3. mópel	MÓPELES	
4. yóyan	YÓYANES	*túneles, gérmenes, pólenes, líquenes, eslóganes*
5. tólen	TÓLENES	
6. sóren	SÓRENES	
7. tóter	TÓTERES	*váteres, lémures, cráteres,búnkeres, cánceres*
8. lúkar	LÚKARES	

Appendix III: Children's answers

ORDER A	1	2	3	4	5	6	7	8
	CH_5;3	**CH_2;9**	**CH_3;7**	**CH_4;10**	**CH_4;10**	**CH_4;8**	**CH_5;9**	**CH_5;2**
1. ketá	kétax	ketás	kétas	ketás	kétas	katekas	kétas	ketás
2. mópel	mópels	mópels	mópel	mópels	mópel	mópel	mópel	mópel
3. tésa	tésas	tésas	tésas	tésas	tésas	tésas	tésas	tésas
4. baból	babóls	babóls	baból	babóls	baból	babóls	babóls	babóls
5. momó	momós	momós	momós	momós	momós	momóls	momós	momós
6. lúkar	lúkars	lúkars	lúkars	lúkars	lúkar	lúkars	lúkars	lúkars
7. óco	ócos	ócos	ócos	ócos	ócos	ócos	ócos	ócos
8. monér	monérs	monérs	monérs	monérs	monérs	monér	monérs	monérs
9. tití	titís	titís	titís	títis	tití	titís	titís	titís
10. sóren	sórens	sórens	sórens	sórens	sóren	sórens	sórens	sórens
11. táli	tális	tális	tális	tális	táli	tális	tálins	tális
12. satón	satóns	satóns	satónes	satóns	satón	satóns	satóns	satón
13. boló	bolós	bolós	bolós	bolós	bolós	bolós	bolós	bolós
14. sátel	sátels	sátels	sátel	sátels	sátel	sátels	sátels	sátels
15. maja	majas	majas	majas	majas	majas	majas	majas	majas
16. matíl	matíl	matíls	matíles	matíls	matíl	matíls	matíls	matíls
17. bolá	bolás	bolás	bolás	bólas	bolá	bolás	bolás	bolás
18. tóter	tóters	tóters	tóter	tóters	tóter	tóters	tóters	tóters
19. mógo	mógos	mógos	mógos	mógos	mógos	mógos	mógos	mógos
20. munór	munórs	munórs	munóres	munórs	munór	munórs	munórs	munórs
21. nuní	nuní	nunís	nunís	nunís	nuní	nunirs	nunís	nunís
22. tólen	tólens	tólens	tólens	tólens	tólen	tólens	tólens	tólens
23. moli	móli	mólis	mólis	mólis	moli	mólis	molins	mólis
24. kupán	kupáns	kupáns	kupánes	kupáns	kupáns	kupáns	kupáns	kupáns
25. puló	pulós	pulós	pulóses	pulóns	puló	pulóns	pulós	pulós
26. yóyan	yóyans	yóyans	yóyan	yóyans	yóyan	yóyans	yóyans	yóyans
27. núli	núlis	núlis	núlis	núlis	núlis	nulins	núlins	núlis
28. capén	capéns	capéns	capéns	capéns	capén	capéns	capéns	capéns
29. biná	binás	binás	binás	binás	biná	bínas	binás	binás
30. nípel	nípels	nípels	nípels	nípels	nípels	nípels	nípels	nipels
31. daca	dácas	dácas	dácas	dácas	daca	dácas	dácas	dácas
32. modíl	modíls	modíls	modíles	modíls	modíl	modíls	módils	modíls

Error 1: absence of plural marking
Error 2: created novel form
Error 3: use of /s/ when /es/ is expected
Error 4: change of stress placement
Error 5: use of /es/ when /s/ is expected

ORDER A	9	10	11	12	13	14	15	16
	CH_5;0	**CH_3;8**	**CH_6;3**	**CH_6;1**	**CH_2;11**	**CH_6;5**	**CH_6;4**	**CH_6;0**
1. ketá	ketás	ketás	ketás	ketás	kétas	kétas	ketá	kétas
2. mópel	mópel	mópels	mópel	mópels	mópels	mópels	mópel	mópel
3. tésa	tésas	tésas	tésas	tésas	tésas	tésas	tésas	tésas
4. baból	baból	babóls	babóles	babóles	babóles	babols	baból	baból
5. momó	momós	momós	momós	momós	momones	momós	momós	momós
6. lúkar	lúkars	lúkars	lúkar	lúkars	lúkars	lúkar	lukáres	lúkars
7. óco	ócos	ócos	ócos	ócos	ócos	ócos	ócos	ócos
8. monér	monérs	monérs	monér	monérs	monérs	monér	monér	monérs
9. tití	titís	titís	titís	titís	titís	titís	titís	tití
10. sóren	sórens	sóren	sóren	sórens	sóres	sóren	sóren	sóren
11. táli	tálins	tális	táli	tális	tális	tális	tális	tális
12. satón	satóns	satón	satón	satónes	satónes	satón	satónes	satón
13. boló	bolós	boló	boló	bolós	bolóes	bolós	bolones	boló
14. sátel	sátels	sátel	sátel	satéles	sátels	sátel	sáteles	sátel
15. maja	majas	majas	majas	majas	majas	majas	majas	majas
16. matíl	matíls	matíl	matíl	matíles	matíles	matíles	matíles	matíles
17. bolá	bólas	bolá	bolá	bolás	bolás	bolás	bolá	bólas
18. tóter	tóters	tóters	tóter	tóters	tóters	tóters	tóteres	tóters
19. mógo	mógos	mógos	mógos	mógos	mógos	mógos	mógos	mógos
20. munór	munórs	munórs	munór	munórs	munóres	munórs	munóres	munórs
21. nuní	nunís	nunís	nunís	nunís	nuníes	nunís	nunís	nunís
22. tólen	tólens	tólen	tólen	tólens	tóles	tólen	tólenes	tólens
23. moli	molins	mólis	moli	mólis	mólis	mólis	mólines	mólis
24. kupán	kupáns	kupáns	kupáns	kupánes	kupánes	kupánes	kupánes	kupán
25. puló	pulóns	puló	puló	pulós	pulóes	pulós	pulones	puló
26. yóyan	yóyans	yóyans	yóyan	yóyans	yóyans	yóyan	yóyanes	yóyans
27. núli	núlis	nuli	núlis	núlis	núlis	núlis	nulines	núlis
28. capén	capéns	capén	capén	capéns	capénes	capén	capénes	capénes
29. biná	bínas	binás	binás	binás	binás	binás	binás	biná
30. nípel	nípels	nípel	nípel	nípels	nípels	nípel	nípeles	nípels
31. daca	dácas	dácas	dácas	dácas	dácas	dácas	dácas	dácas
32. modíl	modíls	modíl	modíl	modíles	modils	modíles	modiles	modíl

Error 1: absence of plural marking
Error 2: created novel form
Error 3: use of /s/ when /es/ is expected
Error 4: change of stress placement
Error 5: use of /es/ when /s/ is expected

ORDER B	17	18	19	20	21	22	23
	CH_2;8	**CH_3;8**	**CH_4,10**	**CH_3;11**	**CH_5;0**	**CH_5;3**	**CH_5;11**
1. modíl	No answer	modíl	modíls	modíl	modíl	módils	modíl
2. dáca	dácas	dácas	dácas	dácas	dácas	dácas	dácas
3. nípel	nípel	nípel	nípels	nípels	nípels	nípels	nípels
4. biná	binás	biná	binás	binás	bínas	binás	binás
5. capén	capén	capén	capéns	capéns	capén	capéns	capén
6. núli	núlis	núlis	núlis	núlis	núlis	núlis	núlis
7. yóyan	No answer	yóyan	yóyans	yóyan	yóyans	yóyans	yóyans
8. puló	pulós	pulós	pulós	puló	pulós	pulós	pulóns
9. kupán	No answer	kupán	kupán	kupán	kupán	kupáns	kupáns
10. móli	mólis	mólis	mólis	mólis	mólis	mólis	mólis
11. tólen	tólens	tólens	tólens	tólens	tólen	tólens	tólens
12. nuní	núnis	núnis	nunís	nunís	nuní	nunís	nuníns
13. munór	munórs	munórs	munórs	munórs	munór	munórs	munórs
14. mogo	mógos	mógos	mógos	mógos	mogo	mógos	mógons
15. tóter	tótes	tóters	tóters	tóters	tóters	tóters	tóters
16. bolá	bolás	bolás	bolás	bolás	bólas	bolás	bolás
17. matíl	matils	matíl	matíls	matíls	matíl	matíls	matíls
18. mája	májas	májas	májas	májas	májas	májas	májas
19. sátel	sátel	sátel	sátels	sátels	sátel	sátels	sátels
20. boló	bolós	boló	bolós	bolós	boló	bolós	bolós
21. satón	satón	satón	satóns	satón	satón	satóns	satóns
22. táli	No answer	tális	tális	tális	tali	tális	talins
23. sóren	No answer	sóren	sórens	sórens	sóren	sórens	sórens
24. tití	No answer	tití	titís	títis	tití	titís	tití
25. monér	monérs	monér	monérs	monérs	monéres	monérs	monérs
26. óco	ócos	ócos	ócos	ócos	ócos	ócos	ócos
27. lúkar	lúkars	lúkar	lúkars	lúkars	lúkar	lúkars	lúkar
28. momó	momós	momó	momós	momó	momó	momós	momós
29. baból	No answer	baból	babóls	baból	baból	babóls	babóls
30. tésa	No answer	tésas	tésas	tésas	tésas	tésas	tésas
31. mópel	mópels	mópel	mópels	mópels	mópel	mópels	mópels
32. ketá	ketá	ketá	ketás	ketás	ketá	ketás	kétas

Error 1: absence of plural marking
Error 2: created novel form
Error 3: use of /s/ when /es/ is expected
Error 4: change of stress placement
Error 5: use of /es/ when /s/ is expected

ORDER B	24	25	26	27	28	29	30
	CH_4;1	**CH_4;8**	**CH_4;9**	**CH_6;5**	**CH_3;6**	**CH_6;11**	**CH_5;7**
1. modíl	modíls	modils	modíl	modíles	modíles	modíls	modíles
2. dáca	dácas	dácas	dácas	dácas	dácas	dácas	dácas
3. nípel	nípels	nípels	nípel	nípels	nípels	nípels	nípels
4. biná	binás	binás	bínas	binás	binás	binás	binás
5. capén	capén	capéns	capén	capénes	capéns	capéns	capéns
6. núli	núlis	núlis	núlis	núlis	núlis	núlis	núlis
7. yóyan	yóyans	yóyans	yóyans	yóyans	yóyans	yóyans	yóyan
8. puló	pulós	púlos	pulós	pulós	pulós	pulós	pulós
9. kupán	kupán	kupáns	kupán	kupánes	kupáns	kupáns	kupánes
10. móli	mólis	mólis	mólis	mólis	mólis	mólins	mólis
11. tólen	tólens	tólen	tólen	tólens	tólen	tólens	tólens
12. nuní	nunís	nunís	nuní	nunís	nunís	nunís	nunís
13. munór	munórs	munórs	munór	munóres	munórs	munórs	munórs
14. mogo	mógos	mógos	mógos	mógos	mógos	mógos	mógos
15. tóter	tóters	tóters	tóter	tóters	tóter	tóters	tóters
16. bolá	bolás	bolás	bolás	bolárs	bolás	bolás	bolás
17. matíl	matilses	matíls	matíl	matíles	matils	matils	matils
18. mája	májas	májas	májas	májas	májas	májas	májas
19. sátel	sátels	sátels	sátel	sáteles	sátels	sátels	sátel
20. boló	bolós	bolós	boló	bolores	bolós	bolós	bolós
21. satón	satónes	satón	satón	satónes	satón	satónes	satónes
22. táli	tális	tális	tális	tális	tális	tális	tális
23. sóren	sórens	sóren	sóren	sórens	sóren	sórens	sóren
24. tití	titís	titís	tití	titís	titís	títis	titís
25. monér	monéres	monérs	monér	monérs	monérs	monérs	monérs
26. óco	ócos	ócos	ócos	ócos	ócos	ócos	ócos
27. lúkar	lúkars	lúkars	lúkar	lúkares	lúkar	lúkars	lúkars
28. momó	momós	momós	momó	momós	momós	momós	momós
29. baból	babóles	baból	baból	babóles	babóls	babóls	babóles
30. tésa	tésas	tésas	tésas	tésas	No answer	tésas	tésas
31. mópel	mópels	mópels	mópel	mópels	mópel	mópels	mópeles
32. ketá	ketás	ketá	ketá	kétas	kétas	ketás	ketás

Error 1: absence of plural marking
Error 2: created novel form
Error 3: use of /s/ when /es/ is expected
Error 4: change of stress placement
Error 5: use of /es/ when /s/ is expected

Appendix IV: Adults' answers

	Ad1	Ad2	Ad3	Ad4	Ad5	Ad6	Ad7
1. ketá	ketáes	ketátes	ketás	ketás	ketás	ketás	ketás
2. mópel	mòpeles	mópeles	mópeles	mópeles	mópeles	mópels	mópeles
3. tésa	tésas	tésas	tesas	tésas	tésas	tésas	tésas
4. baból	babóles	babóles	babóles	babóles	babóles	babóles	babóls
5. momó	momóes	momós	momós	momós	momós	momós	momós
6. lúkar	lúkares	lúkars	lúkares	lúkares	lúkars	lúkares	lúkars
7. óco	ócos	ócos	ócoes	ócos	ócos	ócos	ócos
8. monér	monéres	monéres	monéres	monéres	monéres	monéres	monér
9. tití	titíes	titís	titíes	titís	titís	titíes	titís
10. sóren	sórenes	sórens	sórenes	sórenes	sórenes	sórenes	sórens
11. táli	tális	talis	tálies	talis	talis	talis	talis
12. satón	satónes	satónes	satónes	satónes	satónes	satónes	satónes
13. boló	bolóes	bolóes	bolóes	bolós	bolones	bolós	bolós
14. sátel	sáteles	sátels	sáteles	sátels	sátels	sáteles	sátels
15. maja	majas	majas	majas	majas	majas	majas	majas
16. matíl	matíles	matíles	matíles	matíles	matíles	matíles	matíles
17. bolá	boláes	boláes	bolás	bolás	bolás	bolás	bolás
18. tóter	tóteres	tóters	tóteres	tóters	tóters	tóters	tóters
19. mógo	mógos	mógos	mógos	mógos	mógos	mógos	mógos
20. munór	munóres	munóres	munóres	munóres	munóres	munóres	munóres
21. nuní	nuníes	nuníes	nunís	nunís	núnis	nunís	nunís
22. tólen	tólenes	tólens	tólenes	tólenes	tólenes	tólens	tólens
23. móli	mólis	mólis	mólis	mólis	mólis	mólis	mólis
24. kupán	kupánes	kupánes	kupánes	kupánes	kupánes	kupánes	kupánes
25. puló	pulóes	pulóes	pulós	pulós	pulónes	pulós	pulós
26. yóyan	yóyanes	yóyans	yóyanes	yóyanes	yóyanes	yóyanes	yóyans
27. núli	núlis	núlis	núlis	núlis	núlis	núlis	núlis
28. capén	capénes	capénes	capénes	capénes	capénes	capénes	capéns
29. biná	bináes	binás	binás	binás	bináles	binás	binás
30. nípel	nípeles	nípels	nípeles	nìpels	nípels	nípeles	nípels
31. dáca	dácas	dácas	dácas	dácas	dácares	dácas	dácas
32. modíl	modíles	modíles	modíles	modíles	modíles	modíles	modíles

Error 1: absence of plural marking
Error 2: created novel form
Error 3: use of /s/ when /es/ is expected
Error 4: change of stress placement
Error 5: use of /es/ when /s/ is expected

	Ad8	Ad9	Ad10	Ad11	Ad12	Ad13	Ad14
1. ketá	ketás	ketás	ketáes	ketás	ketás	ketás	ketáes
2. mópel	mópeles	mopéles	mopéles	mopéles	mópeles	mópeles	mopéles
3. tésa	tésas	tésas	tésas	tésas	tésas	tésas	tésas
4. baból	babóles	babóles	babóles	babóles	babóls	babóles	babóles
5. momó	momós	momós	momóes	momós	momós	momós	momós
6. lúkar	lúkares	lúkares	lúkares	lúkars	lúkars	lúkars	lúkars
7. óco	ócos	ócos	ócos	ócos	ócos	ócos	ócos
8. monér	monéres	moneres	monérs	monérs	monérs	monéres	monérs
9. tití	títis	titís	titíes	títis	titís	titís	titís
10. sóren	sórenes	sórens	sórens	sórens	sórens	sórenes	sórens
11. táli	tális	tális	talíes	tális	tális	tális	tális
12. satón	satónes	satónes	satónes	satóns	satóns	satóns	satónes
13. boló	bólos	bolóes	bolóes	bolós	bolós	bolós	bolós
14. sátel	satéles	sátels	sáteles	sátels	sáteles	sáteles	sátels
15. mája	májas	májas	májas	májas	májas	májas	májas
16. matíl	matíles	matíles	matíles	matíles	matíles	matíles	matíles
17. bolá	bólas	bolás	boláes	bolás	bolás	bolás	bolás
18. tóter	tóteres	tóteres	tóters	tóters	tóteres	tóteres	totéres
19. mógo	mógos	mógos	mógos	mógos	mógos	mógos	mógos
20. munór	munóres	munóres	munóres	munóres	munóres	munóres	munóres
21. nuní	núnis	nunís	nuníes	nunís	nunís	nunís	nunís
22. tólen	tólenes	tólenes	tólens	tólens	tólenes	tólens	tólenes
23. móli	mólis	mólis	mólis	mólis	mólis	mólis	mólis
24. kupán	kupánes	kupánes	kupáns	kupáns	kupánes	kupánes	kupánes
25. puló	pulós	pulós	pulóes	pulós	pulós	pulones	pulós
26. yóyan	yoyánes	yóyanes	yóyans	yóyans	yóyanes	yòyanes	yóyans
27. núli	núlis	núlis	nulíes	núlis	nulínes	núlis	núlis
28. capén	capénes	capéns	capéns	capéns	capéns	capénes	capénes
29. biná	binás	binás	bináes	binás	bináres	binás	binás
30. nípel	nípeles	nìpeles	nipéles	nipéles	nipéles	nipéles	nìpels
31. dáca	dácas	dácas	dácas	dácas	dácas	dácas	dácas
32. modíl	modíles	modíles	modíles	modíles	modíles	modíles	modíles

Error 1: absence of plural marking
Error 2: created novel form
Error 3: use of /s/ when /es/ is expected
Error 4: change of stress placement
Error 5: use of /es/ when /s/ is expected

	Ad15	Ad16	Ad17	Ad18	Ad19	Ad20
1. ketá	ketás	ketás	ketás	ketás	ketás	ketásos
2. mópel	mópeles	mópeles	mópeles	mópelos	mópeles	mópels
3. tésa	tésas	tésas	tésas	tésas	tésas	tésas
4. baból	babóles	babóles	babóles	babólos	babóles	babóles
5. momó	momós	momós	momós	momós	momós	momóes
6. lúkar	lúkares	lúkares	lúkares	lukáres	lúkars	lúkares
7. óco	ócos	ócos	ócos	ócoques	ócos	ócos
8. monér	monéres	monéres	monéros	monéres	monéres	monéros
9. tití	titís	titís	títis	titís	titís	titíes
10. sóren	sórens	sórenes	sórens	sórensones	sórens	sórenos
11. táli	tális	tálies	talíes	tálile s	tális	talíes
12. satón	satónes	satónes	satónes	satónes	satónes	satónes
13. boló	bolós	bolóes	bólos	bolóles	bolós	bolóes
14. sátel	sáteles	sáteles	sáteles	sáteles	sáteles	sáteles
15. mája	májas	májas	májas	májas	májas	májas
16. matíl	matíles	matíles	matíles	matíles	matíles	matíles
17. bolá	bolás	bolás	bolás	boláles	bolás	boláes
18. tóter	tóters	tóteres	tóteres	tóteres	tóteres	tóteres
19. mógo	mógos	mógoes	mogóes	mógogues	mógos	mógos
20. munór	munórs	munóres	munóres	munóres	munórs	munóres
21. nuní	nunís	nuníes	nuníes	nuníes	nunís	nuníes
22. tólen	tólens	tólenes	tólenes	tólenes	tólenes	tólens
23. móli	mólis	mólis	mólis	molíles	mólis	mólis
24. kupán	kupánes	kupánes	kupánes	kupánes	kupánes	kupánes
25. puló	pulós	pulóes	pulóes	pulóles	pulós	pulóes
26. yóyan	yóyanes	yoyánes	yoyánes	yóyanes	yòyanes	yoyanes
27. núli	núlis	núlis	núlis	núliles	núlis	núlis
28. capén	capénes	capénes	capénes	capénes	capénes	capénes
29. biná	binás	binás	binás	binánes	binás	bináes
30. nípel	nìpeles	nipeles	nipéles	nípeles	nípels	nípeles
31. dáca	dácas	dácas	dácaras	dácas	dácas	dácaes
32. modíl	modíles	modíles	modíles	modíles	modíles	modíles

Error 1: absence of plural marking
Error 2: created novel form
Error 3: use of /s/ when /es/ is expected
Error 4: change of stress placement
Error 5: use of /es/ when /s/ is expected

Appendix V: Results of nonce words by number of correct answers

	CHILDREN **Correct Answers out of 30**	
ÓCOS	30	100,00%
MAJAS	30	100,00%
DÁCAS	29	96,67%
TESAS	28	93,33%
MÓGOS	28	93,33%
NÚLIS	26	86,67%
MOMÓS	24	80,00%
MOLIS	23	76,67%
BINÁS	23	76,67%
TÁLIS	22	73,33%
NUNÍS/NUNÍES	22	73,33%
BOLÓ/BOLÓES	21	70,00%
BOLÁS	21	70,00%
TITÍS/TITÍES	20	66,67%
PULÓS/PULÓES	19	63,33%
KETÁS	13	43,33%
SATÓNES	8	26,67%
MATÍLES	7	23,33%
KUPÁNES	7	23,33%
BABÓLES	6	20,00%
MODÍLES	6	20,00%
MUNÓRES	4	13,33%
sKAPÉNES	4	13,33%
MONÉRES	2	6,67%
SÁTELES	2	6,67%
MÓPELES	1	3,33%
LÚKARES	1	3,33%
TÓLENES	1	3,33%
YÓYANES	1	3,33%
NÍPELES	1	3,33%
SÓRENES	0	0,00%
TÓTERES	0	0,00%

ADULTS

	Correct answers out of 20	
MODÍLES	20	100,00%
TESAS	20	100,00%
MAJAS	20	100,00%
MOLIS	19	95,00%
TITÍS/TITÍES	19	95,00%
NUNÍS/NUNÍES	19	95,00%
ÓCOS	18	90,00%
KUPÁNES	18	90,00%
MUNÓRES	18	90,00%
MOMÓS	17	85,00%
MÓPELES	17	85,00%
MÓGOS	17	85,00%
BABÓLES	17	85,00%
NÚLIS	17	85,00%
PULÓS/PULÓES	17	85,00%
DÁCAS	17	85,00%
SATÓNES	17	85,00%
BOLÓ/BOLÓES	16	80,00%
MATÍLES	15	75,00%
TÁLIS	15	75,00%
KETÁS	15	75,00%
KAPÉNES	15	75,00%
BINÁS	14	70,00%
BOLÁS	14	70,00%
MONÉRES	14	70,00%
TÓLENES	14	70,00%
SÁTELES	13	65,00%
YÓYANES	12	60,00%
LÚKARES	11	55,00%
NÍPELES	11	55,00%
TÓTERES	11	55,00%
SÓRENES	9	45,00%